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CERTIFIED – RETURN RECEIPT REQUESTED

February 21, 2001

Mr. Greg Lyssy
U.S. Environmental Protection Agency
OK/NM Superfund (6EN-HX)
1445 Ross Avenue
Dallas, TX 75202-2733

40-8907

Re: Semi-Annual Quality Assurance Report
Ground Water Monitoring – Second Half of 2000

Dear Mr. Lyssy:

In accordance with Section V.A. 15 of the Administrative Order for the Church Rock Site, I have enclosed a report regarding performance of ground water monitoring quality assurance procedures during the second half of 2000.

Two sampling episodes occurred in the second half of 2000 – in July and in October.

Sincerely,

Larry Bush
Manager

LB: r

Enclosure

cc: NRC, Rockville, MD
NRC, Arlington, TX
Steve Cline, GE
Roy Blickwedel, GE
Beiling Liu, NMED
George Padilla, NNEPA

NMSS01Public

SEMI-ANNUAL QUALITY ASSURANCE
CHURCH ROCK SITE

JULY AND OCTOBER SAMPLING EVENTS

FEBRUARY 2001

1.0 REQUIREMENTS

The quality assurance and control procedures are contained in Section 3.0 of the Remedial Action Plan of the Church Rock Site Dated April, 1989. The procedures 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 environmental Protection Agency (EPA).

2.0 FIELD SAMPLING PROCEDURE

Copies of the field low flow purging and sampling report sheets for the third and fourth quarters of 2000, are included in Appendix A. These sheets indicate the field parameters of pH, temperature, conductivity and the water level drop in the well if any, during the sampling. The field Blank and Duplicate analysis reports are also included in Appendix A.

3.0 CHAIN OF CUSTODY

Copies of the Chain of Custody forms are included as Appendix B. Energy Laboratories, Inc., our contact laboratory is located in Casper, Wyoming. Energy Labs inspect the sample shipments upon arrival to verify the information on the Chain of custody form and to determine if samples arrive at the appropriate temperature.

4.0 LABORATORY CONTROL

Copies of the internal Quality Control report prepared by Energy Laboratories and the associated EPA performance evaluations are included in Appendix C.

5.0 DATA EVALUATION

Analytical reports are reviewed by the Church Rock Manager and the Radiation Safety Officer after receipt from Energy Labs. Significant increases or decreases 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.

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APPENDIX A

FIELD DATA SHEETS

Ground Water Monitoring Field Data Sheet

3rd Quarter 2000

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-10-00	TWQ-142	202.9'	203.3'	1st Cond. 1,679	2nd Cond. 1,677	Stable Cond. 1,663	Ending Cond. 1,558
				1st pH 8.23	2nd pH 7.97	Stable pH 7.93	Ending pH 8.13
				1st Temp. 17.1°	2nd Temp. 15.2°	Stable Temp. 14.8°	Ending Temp. 15.4°
	Time	Bubbler Start	Bubbler End	Comments:			
	0900	17.940'	17.120'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-10-00	TWQ-142 Duplicate	203.3'	203.3'	1st Cond. 1,608	2nd Cond. 1,608	Stable Cond. 1,612	Ending Cond. 1,608
				1st pH 8.14	2nd pH 8.15	Stable pH 8.16	Ending pH 8.14
				1st Temp. 15.7°	2nd Temp. 16.2°	Stable Temp. 16.0°	Ending Temp. 16.4°
	Time	Bubbler Start	Bubbler End	Comments:			
	0945	17.385'	16.967'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-10-00	504-B	160.5'	160.9'	1st Cond. 4,560	2nd Cond. 4,840	Stable Cond. 4,950	Ending Cond. 5,020
				1st pH 6.41	2nd pH 5.65	Stable pH 5.45	Ending pH 5.57
				1st Temp. 19.2°	2nd Temp. 16.2°	Stable Temp. 15.4°	Ending Temp. 15.4°
	Time	Bubbler Start	Bubbler End	Comments:			
	1025	6.378'	5.973'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-10-00	420	135.3'	135.6'	1st Cond. 3,480	2nd Cond. 3,580	Stable Cond. 3,610	Ending Cond. 3,570
				1st pH 7.38	2nd pH 7.41	Stable pH 7.35	Ending pH 6.66
				1st Temp. 21.1°	2nd Temp. 18.2°	Stable Temp. 17.6°	Ending Temp. 18.2°
	Time	Bubbler Start	Bubbler End	Comments:			
	1120	13.691'	13.280'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-10-00	711	179.2'	179.8'	1st Cond. 2,940	2nd Cond. 5,070	Stable Cond. 5,090	Ending Cond. 4,780
				1st pH 4.88	2nd pH 2.96	Stable pH 3.06	Ending pH 4.84
				1st Temp. 16.7°	2nd Temp. 17.1°	Stable Temp. 16.7°	Ending Temp. 16.5°
	Time	Bubbler Start	Bubbler End	Comments:			
	1310	12.433'	11.625'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-10-00	711 Duplicate	179.8'	180.0'	1st Cond. 4,790	2nd Cond. 4,780	Stable Cond. 4,780	Ending Cond. 4,750
				1st pH 4.84	2nd pH 4.84	Stable pH 4.88	Ending pH 4.90
				1st Temp. 16.7°	2nd Temp. 16.9°	Stable Temp. 16.9°	Ending Temp. 18.0°
	Time	Bubbler Start	Bubbler End	Comments:			
	1355	11.625'	11.522'				

Ground Water Monitoring Field Data Sheet

3rd Quarter 20

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-10-00	EPA-2	169.6'	170.0'	1st Cond. 2850	2nd Cond. 2930	Stable Cond. 2940	Ending Cond. 2940
				1st pH 6.83	2nd pH 6.88	Stable pH 6.91	Ending pH 6.67
				1st Temp. 23.1°	2nd Temp. 20.5°	Stable Temp. 19.0°	Ending Temp. 17.8°
	Time	Bubbler Start	Bubbler End	Comments:			
	1425	13.453	12.895				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-11-00	FIELD BLANK			1st Cond. 160	2nd Cond.	Stable Cond.	Ending Cond.
				1st pH 7.48	2nd pH	Stable pH	Ending pH
				1st Temp. 31.2°	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	1000						

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-11-00	614	97.6'	98.1'	1st Cond. 7,030	2nd Cond. 7,640	Stable Cond. 7,820	Ending Cond. 7,880
				1st pH 7.61	2nd pH 7.23	Stable pH 6.90	Ending pH 6.53
				1st Temp. 20.8°	2nd Temp. 16.6°	Stable Temp. 15.4°	Ending Temp. 14.2°
	Time	Bubbler Start	Bubbler End	Comments:			
	0830	8.584'	8.019'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-11-00	515-A	98.5'	99.8'	1st Cond. 7,700	2nd Cond. 7,640	Stable Cond. 7,550	Ending Cond. 7,350
				1st pH 7.14	2nd pH 6.11	Stable pH 5.67	Ending pH 5.45
				1st Temp. 15.3°	2nd Temp. 15.4°	Stable Temp. 14.2°	Ending Temp. 14.4°
	Time	Bubbler Start	Bubbler End	Comments:			
	0925	10.520'	8.358'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-11-00	604	97.2'	97.7'	1st Cond. 6,160	2nd Cond. 6,450	Stable Cond. 6,560	Ending Cond. 6,450
				1st pH 4.66	2nd pH 4.66	Stable pH 4.64	Ending pH 4.57
				1st Temp. 18.1°	2nd Temp. 15.9°	Stable Temp. 15.1	Ending Temp. 16.2
	Time	Bubbler Start	Bubbler End	Comments:			
	1015	11.857'	11.303'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-11-00	EPA-7	109.5'	110.3'	1st Cond. 6,840	2nd Cond. 7,030	Stable Cond. 6,040	Ending Cond. 7,050
				1st pH 6.52	2nd pH 6.75	Stable pH 7.13	Ending pH 5.80
				1st Temp. 21.4°	2nd Temp. 19.9°	Stable Temp. 19.0°	Ending Temp. 18.5°
	Time	Bubbler Start	Bubbler End	Comments:			
	1100	17.362'	16.421'				

Ground Water Monitoring Field Data Sheet
3rd Quarter 2000
Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-11-00	EPA-5	120.0'	120.4'	1st Cond. 5070	2nd Cond. 5390	Stable Cond. 5450	Ending Cond. 5410
				1st pH 6.40	2nd pH 6.36	Stable pH 6.27	Ending pH 6.06
				1st Temp. 26.9°	2nd Temp. 21.5°	Stable Temp. 20.0°	Ending Temp. 20.0°
	Time	Bubbler Start	Bubbler End	Comments:			
	1300	10.598'	10.059'				
7-11-00	EPA-4	200.9'	201.1'	1st Cond. 4380	2nd Cond. 4450	Stable Cond. 4450	Ending Cond. 4500
				1st pH 6.54	2nd pH 6.53	Stable pH 6.52	Ending pH 6.54
				1st Temp. 22.1°	2nd Temp. 19.6°	Stable Temp. 16.7°	Ending Temp. 17.5°
	Time	Bubbler Start	Bubbler End	Comments:			
	1350	21.600'	21.094'				
7-11-00	613	77.6'	78.3'	1st Cond. 10640	2nd Cond. 10960	Stable Cond. 11110	Ending Cond. 11010
				1st pH 2.95	2nd pH 2.96	Stable pH 2.96	Ending pH 2.96
				1st Temp. 18.9°	2nd Temp. 17.4°	Stable Temp. 16.2°	Ending Temp. 16.6°
	Time	Bubbler Start	Bubbler End	Comments:			
	1450	6.982'	5.969				
7-12-00	EPA-14	106.5'	107.0'	1st Cond. 3820	2nd Cond. 3860	Stable Cond. 4020	Ending Cond. 4300
				1st pH 7.32	2nd pH 7.16	Stable pH 6.94	Ending pH 6.41
				1st Temp. 16.1°	2nd Temp. 15.5°	Stable Temp. 15.1°	Ending Temp. 15.5°
	Time	Bubbler Start	Bubbler End	Comments:			
	0820	16.422'	16.213'				
7-1200	509-D	66.2'	66.2'	1st Cond. 5150	2nd Cond. 5530	Stable Cond. 5600	Ending Cond. 5650
				1st pH 6.86	2nd pH 6.38	Stable pH 6.38	Ending pH 6.31
				1st Temp. 19.2°	2nd Temp. 15.8°	Stable Temp. 15.7°	Ending Temp. 16.4°
	Time	Bubbler Start	Bubbler End	Comments:			
	0905	14.024'	13.850'				
7-12-00	632	46.7'	46.9'	1st Cond. 5550	2nd Cond. 5950	Stable Cond. 6090	Ending Cond. 6200
				1st pH 6.39	2nd pH 6.38	Stable pH 6.35	Ending pH 6.25
				1st Temp. 21.8°	2nd Temp. 18.3°	Stable Temp. 17.1°	Ending Temp. 16.7°
	Time	Bubbler Start	Bubbler End	Comments:			
	0950	10.200'	9.285'				

Ground Water Monitoring Field Data Sheet

3RD Quarter 2000

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
				1st Cond. 7,290	2nd Cond.	Stable Cond.	Ending Cond.
	802			1st pH 6.55	2nd pH	Stable pH	Ending pH
* 7-12-00		65.5'		1st Temp. 16.6	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	1030						

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
				1st Cond. 7,200	2nd Cond. 45	Stable Cond.	Ending Cond.
	803			1st pH 6.71	2nd pH	Stable pH	Ending pH
* 7-12-00		87.1'		1st Temp. 16.3°	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	1040						

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
				1st Cond. 4,350	2nd Cond. 4,500	Stable Cond. 4,620	Ending Cond. 4,520
	GW-1			1st pH 7.43	2nd pH 6.86	Stable pH 6.68	Ending pH 6.63
7-17-00		60.3'	60.4'	1st Temp. 16.7°	2nd Temp. 15.6°	Stable Temp. 14.9°	Ending Temp. 14.9°
	Time	Bubbler Start	Bubbler End	Comments:			
	0835	10.232'	10.043'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
				1st Cond. 4,700	2nd Cond. 5270	Stable Cond. 5450	Ending Cond. 5,540
	624			1st pH 7.27	2nd pH 6.77	Stable pH 6.63	Ending pH 6.55
7-17-00		48.3'	48.3'	1st Temp. 19.0°	2nd Temp. 16.7°	Stable Temp. 15.7°	Ending Temp. 16.0°
	Time	Bubbler Start	Bubbler End	Comments:			
	0925	14.142'	13.964'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
				1st Cond. 4,650	2nd Cond. 4,950	Stable Cond. 5,070	Ending Cond. 4,920
	EPA-28			1st pH 7.61	2nd pH 7.48	Stable pH 7.27	Ending pH 6.66
7-17-00		61.5'	61.6	1st Temp. 23.3°	2nd Temp. 20.4°	Stable Temp. 18.9°	Ending Temp. 18.2°
	Time	Bubbler Start	Bubbler End	Comments:			
	1005	8.766'	8.491'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
				1st Cond. 5,080	2nd Cond. 5,330	Stable Cond. 5,300	Ending Cond. 5,330
	GW-2			1st pH 6.48	2nd pH 6.47	Stable pH 6.42	Ending pH 6.37
7-17-00		54.8'	55.1'	1st Temp. 20.6°	2nd Temp. 18.8°	Stable Temp. 17.1°	Ending Temp. 17.5°
	Time	Bubbler Start	Bubbler End	Comments:			
	1055	15.825'	15.295				

* This WELL is A pumper

Ground Water Monitoring Field Data Sheet
3rd Quarter 2000
Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-17-00	EPA-23	47.7'	47.9'	1st Cond. 3,850	2nd Cond. 4,310	Stable Cond. 4,390	Ending Cond. 4,460
				1st pH 6.75	2nd pH 6.61	Stable pH 6.60	Ending pH 6.55
				1st Temp. 22.7°	2nd Temp. 17.9°	Stable Temp. 17.6°	Ending Temp. 17.0°
	Time	Bubbler Start	Bubbler End	Comments:			
	1300	14.094'	13.707'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-17-00	EPA-23 Duplicate	47.9'	47.9'	1st Cond. 4,201	2nd Cond. 4,430	Stable Cond. 4,420	Ending Cond. 4,420
				1st pH 6.55	2nd pH 6.55	Stable pH 6.55	Ending pH 6.56
				1st Temp. 18.3°	2nd Temp. 17.0°	Stable Temp. 17.0°	Ending Temp. 17.2°
	Time	Bubbler Start	Bubbler End	Comments:			
	1335	13.707'	13.697'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-17-00	GW-3	52.2'	52.9'	1st Cond. 4,550	2nd Cond. 4,810	Stable Cond. 5,100	Ending Cond. 5,040
				1st pH 7.01	2nd pH 6.67	Stable pH 6.57	Ending pH 6.48
				1st Temp. 22.0°	2nd Temp. 18.4°	Stable Temp. 16.1°	Ending Temp. 18.2
	Time	Bubbler Start	Bubbler End	Comments:			
	1415	0.811'	0.676'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-17-00	~~Rinse~~ Field Blank			1st Cond. 160	2nd Cond.	Stable Cond.	Ending Cond.
				1st pH 7.52	2nd pH	Stable pH	Ending pH
				1st Temp. 33.2°	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	1400						

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-18-00	EPA-25	51.0'	51.2'	1st Cond. 3740	2nd Cond. 4,200	Stable Cond. 4,300	Ending Cond. 4,400
				1st pH 7.45	2nd pH 7.30	Stable pH 7.13	Ending pH 6.88
				1st Temp. 21.3°	2nd Temp. 16.6°	Stable Temp. 15.3°	Ending Temp. 14.6°
	Time	Bubbler Start	Bubbler End	Comments:			
	0830	9.600'	9.307'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
7-18-00	627	53.8'	53.9'	1st Cond. 5300	2nd Cond. 5470	Stable Cond. 5560	Ending Cond. 5500
				1st pH 7.35	2nd pH 7.16	Stable pH 7.07	Ending pH 6.96
				1st Temp. 21.5°	2nd Temp. 19.2°	Stable Temp. 17.7°	Ending Temp. 18.6°
	Time	Bubbler Start	Bubbler End	Comments:			
	0930	8.635'	8.404'				

Ground Water Monitoring Field Data Sheet

3rd Quarter 20.

Sampling

Date 7-18-00	Well Number 517	WL w/Probe Pre-Sample 100.4'	WL w/Probe Post Sample 104.6'	Reading 1st Cond. 4,340	Reading 2nd Cond. 4,480	Reading Stable Cond. 4,470	Reading Ending Cond. 4,460
				1st pH 4.96	2nd pH 4.61	Stable pH 4.55	Ending pH 4.58
				1st Temp. 21.6°	2nd Temp. 18.1°	Stable Temp. 17.1°	Ending Temp. 17.5°
	Time 1000	Bubbler Start 6.138'	Bubbler End 1.511'	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			

Ground Water Monitoring Field Data Sheet

4th Quarter 2000

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	TWQ 142	202.8'	203.1'	1st Cond. 1,533	2nd Cond. 1,609	Stable Cond. 1,633	Ending Cond. 1,603
				1st pH 8.14	2nd pH 7.99	Stable pH 7.77	Ending pH 8.08
				1st Temp. 16.3°	2nd Temp. 15.8°	Stable Temp. 15.5°	Ending Temp. 16.2°
	Time	Bubbler Start	Bubbler End	Comments:			
	0830	18.075'	17.635'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	504-B	160.4'	160.55'	1st Cond. 4,620	2nd Cond. 4,820	Stable Cond. 4,900	Ending Cond. 5,130
				1st pH 7.09	2nd pH 6.84	Stable pH 6.52	Ending pH 5.48
				1st Temp. 18.2°	2nd Temp. 17.0°	Stable Temp. 16.0°	Ending Temp. 15.6°
	Time	Bubbler Start	Bubbler End	Comments:			
	1005	6.100'	5.907'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	420	134.4'	134.85'	1st Cond. 3,590	2nd Cond. 3,610	Stable Cond. 3,600	Ending Cond. 3,400
				1st pH 5.27	2nd pH 7.09	Stable pH 7.03	Ending pH 6.81
				1st Temp. 18.3°	2nd Temp. 17.3°	Stable Temp. 16.9°	Ending Temp. 17.1°
	Time	Bubbler Start	Bubbler End	Comments:			
	1045	14.501'	14.099'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	517	100.2'	104.25'	1st Cond. 4,220	2nd Cond. 4,470	Stable Cond. 4,500	Ending Cond. 4,460
				1st pH 5.70	2nd pH 4.70	Stable pH 4.54	Ending pH 4.47
				1st Temp. 20.4°	2nd Temp. 16.9'	Stable Temp. 16.7°	Ending Temp. 16.9°
	Time	Bubbler Start	Bubbler End	Comments:			
	1130	6.477'	2.296'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	711	179.1'	179.7'	1st Cond. 5,010	2nd Cond. 5,020	Stable Cond. 5040	Ending Cond. 4,760
				1st pH 2.89	2nd pH 2.88	Stable pH 2.88	Ending pH 4.72
				1st Temp. 19.2°	2nd Temp. 18.3°	Stable Temp. 17.2°	Ending Temp. 16.7°
	Time	Bubbler Start	Bubbler End	Comments:			
	1255	12.522'	11.635'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	711 DUPLICATE	179.7'	180.1'	1st Cond. 4,760	2nd Cond. 4,490	Stable Cond. 4,730	Ending Cond. 4,790
				1st pH 4.72	2nd pH 4.83	Stable pH 4.81	Ending pH 4.81
				1st Temp. 16.7°	2nd Temp. 17.7	Stable Temp. 17.0°	Ending Temp. 16.1°
	Time	Bubbler Start	Bubbler End	Comments:			
	1330	11.635'	11.415'				

Ground Water Monitoring Field Data Sheet

4th Quarter 2000

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	EPA-2	169.55'	170.0'	1st Cond. 2,970	2nd Cond. 2,950	Stable Cond. 3,000	Ending Cond. 2,960
				1st pH 6.68	2nd pH 6.67	Stable pH 6.66	Ending pH 6.70
				1st Temp. 17.0°	2nd Temp. 16.7	Stable Temp. 16.6	Ending Temp. 17.2
	Time	Bubbler Start	Bubbler End	Comments:			
	1400	13.497'	12.848'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-2-00	613	76.3'	78.3'	1st Cond. 10,680	2nd Cond. 10,790	Stable Cond. 10,940	Ending Cond. 11,000
				1st pH 3.06	2nd pH 3.03	Stable pH 3.03	Ending pH 2.97
				1st Temp. 20.4°	2nd Temp. 20.4°	Stable Temp. 19.6°	Ending Temp. 18.1°
	Time	Bubbler Start	Bubbler End	Comments:			
	1500	6.992'	6.166'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	614	97.85'	98.25'	1st Cond. 7,300	2nd Cond. 7,540	Stable Cond. 7,800	Ending Cond. 7,970
				1st pH 7.02	2nd pH 7.01	Stable pH 6.86	Ending pH 6.55
				1st Temp. 18.2°	2nd Temp. 16.6°	Stable Temp. 15.2°	Ending Temp. 15.0°
	Time	Bubbler Start	Bubbler End	Comments:			
	0825	8.45'	7.933'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	515-A	98.4'	100.5'	1st Cond. 7,080	2nd Cond. 7,310	Stable Cond. 7,370	Ending Cond. 7,340
				1st pH 6.75	2nd pH 6.49	Stable pH 5.78	Ending pH 5.47
				1st Temp. 16.7°	2nd Temp. 15.6°	Stable Temp. 14.5°	Ending Temp. 15.1°
	Time	Bubbler Start	Bubbler End	Comments:			
	0900	10.606'	8.426'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	604	97.1'	97.6'	1st Cond. 6,280	2nd Cond. 6,370	Stable Cond. 6,460	Ending Cond. 6,430
				1st pH 4.76	2nd pH 4.72	Stable pH 4.71	Ending pH 4.68
				1st Temp. 16.8°	2nd Temp. 15.8°	Stable Temp. 15.3°	Ending Temp. 15.4°
	Time	Bubbler Start	Bubbler End	Comments:			
	0945	10.898'	11.493'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	EPA-7	109.4'	110.4'	1st Cond. 6,810	2nd Cond. 6,980	Stable Cond. 7,090	Ending Cond. 7,170
				1st pH 6.23	2nd pH 6.13	Stable pH 6.06	Ending pH 5.88
				1st Temp. 18.8°	2nd Temp. 17.1°	Stable Temp. 16.6°	Ending Temp. 15.5°
	Time	Bubbler Start	Bubbler End	Comments:			
	1015	17.362'	16.271'				

Ground Water Monitoring Field Data Sheet

4th Quarter 2000

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	EPA-5	119.9'	120.4'	1st Cond. 5,240	2nd Cond. 5,390	Stable Cond. 5,420	Ending Cond. 5,370
				1st pH 6.38	2nd pH 6.36	Stable pH 6.30	Ending pH 6.14
				1st Temp. 18.0°	2nd Temp. 17.1°	Stable Temp. 16.8°	Ending Temp. 16.8°
	Time	Bubbler Start	Bubbler End	Comments:			
	1100	10.574'	9.955'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	EPA-4	200.9'	201.4'	1st Cond. 4,290	2nd Cond. 4,430	Stable Cond. 4,450	Ending Cond. 4,580
				1st pH 6.47	2nd pH 6.47	Stable pH 6.47	Ending pH 6.61
				1st Temp. 18.8°	2nd Temp. 17.6°	Stable Temp. 17.2°	Ending Temp. 16.6°
	Time	Bubbler Start	Bubbler End	Comments:			
	1145	21.699'	21.191'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	FIELD BLANK			1st Cond. 470	2nd Cond.	Stable Cond.	Ending Cond.
				1st pH 6.21	2nd pH	Stable pH	Ending pH
				1st Temp. 29.6	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	1245						

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	509-D	66.4'	66.5'	1st Cond. 5,670	2nd Cond. 5,830	Stable Cond. 5,880	Ending Cond. 5,930
				1st pH 6.58	2nd pH 6.43	Stable pH 6.35	Ending pH 6.21
				1st Temp. 19.6°	2nd Temp. 17.9°	Stable Temp. 17.1°	Ending Temp. 17.3°
	Time	Bubbler Start	Bubbler End	Comments:			
	1300	13.784'	13.627'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-3-00	632	46.9'	47.5'	1st Cond. 6,210	2nd Cond. 6,210	Stable Cond. 6,310	Ending Cond. 6,220
				1st pH 6.41	2nd pH 6.35	Stable pH 6.33	Ending pH 6.28
				1st Temp. 17.5°	2nd Temp. 16.9°	Stable Temp. 16.4°	Ending Temp. 15.9°
	Time	Bubbler Start	Bubbler End	Comments:			
	1420	10.001'	9.053'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
★ 10-4-00	803	88.1'		1st Cond. 7,240	2nd Cond.	Stable Cond.	Ending Cond.
				1st pH 6.65	2nd pH	Stable pH	Ending pH
				1st Temp. 16.8	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	0845						

This is a pumper

Ground Water Monitoring Field Data Sheet

4TH Quarter 2000

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	GW-1	60.65'	60.65'	1st Cond. 4,370	2nd Cond. 4,490	Stable Cond. 4590	Ending Cond. 4,640
				1st pH 7.47	2nd pH 7.21	Stable pH 6.87	Ending pH 6.88
				1st Temp. 11.5°	2nd Temp. 11.3°	Stable Temp. 11.1°	Ending Temp. 10.6°
	Time	Bubbler Start	Bubbler End	Comments:			
	0845	9.956'	9.826'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	624	48.45'	48.5'	1st Cond. 5,510	2nd Cond. 5,550	Stable Cond. 5,570	Ending Cond. 5,640
				1st pH 6.79	2nd pH 6.70	Stable pH 6.65	Ending pH 6.70
				1st Temp. 11.2°	2nd Temp. 11.4°	Stable Temp. 11.3°	Ending Temp. 11.0°
	Time	Bubbler Start	Bubbler End	Comments:			
	0925	13.936'	13.863'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	EPA-28	61.75'	61.85'	1st Cond. 5,146	2nd Cond. 5,126	Stable Cond. 5,150	Ending Cond. 5,110
				1st pH 7.60	2nd pH 7.60	Stable pH 7.60	Ending pH 6.90
				1st Temp. 12.2°	2nd Temp. 11.9°	Stable Temp. 11.8°	Ending Temp. 12.7
	Time	Bubbler Start	Bubbler End	Comments:			
	1000	8.513'	8.314'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	EPA-23	47.9'	48.15'	1st Cond. 4,466	2nd Cond. 4,440	Stable Cond. 4,440	Ending Cond. 4,460
				1st pH 6.77	2nd pH 6.69	Stable pH 6.58	Ending pH 6.54
				1st Temp. 15.2°	2nd Temp. 14.4°	Stable Temp. 14.1'	Ending Temp. 13.7°
	Time	Bubbler Start	Bubbler End	Comments:			
	1100	13.781'	13.512'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	EPA-23 DUPLICATE	48.15'	48.10'	1st Cond. 4,480	2nd Cond. 4,460	Stable Cond. 4,480	Ending Cond. 4,460
				1st pH 6.52	2nd pH 6.50	Stable pH 6.58	Ending pH 6.55
				1st Temp. 13.5°	2nd Temp. 13.4	Stable Temp. 14.1°	Ending Temp. 13.9°
	Time	Bubbler Start	Bubbler End	Comments:			
	1130	13.512'	13.534'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	GW-2	55.25'	55.55'	1st Cond. 5,050	2nd Cond. 5,110	Stable Cond. 5,300	Ending Cond. 5,340
				1st pH 6.48	2nd pH 6.45	Stable pH 6.39	Ending pH 6.35
				1st Temp. 16.9°	2nd Temp. 16.7°	Stable Temp. 15.1°	Ending Temp. 14.2°
	Time	Bubbler Start	Bubbler End	Comments:			
	1315	15.423'	14.983'				

Ground Water Monitoring Field Data Sheet

4th Quarter 2000

Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
★ 10-4-00	802			1st Cond. 7560	2nd Cond.	Stable Cond.	Ending Cond.
				1st pH 6.37	2nd pH	Stable pH	Ending pH
		65.1'		1st Temp. 15.6	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	0850						

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	EPA-14			1st Cond. 4,220	2nd Cond. 4,270	Stable Cond. 4,290	Ending Cond. 4,350
				1st pH 7.24	2nd pH 7.14	Stable pH 7.09	Ending pH 6.42
		104.8'	106.6'	1st Temp. 16.8°	2nd Temp. 15.4°	Stable Temp. 15.3°	Ending Temp. 14.8°
	Time	Bubbler Start	Bubbler End	Comments:			
	1355	17.604'	17.463'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-9-00	EPA-2			1st Cond. 2,810	2nd Cond. 2,880	Stable Cond. 2,900	Ending Cond. 2,980
	DUPLICATE			1st pH 6.69	2nd pH 6.69	Stable pH 6.71	Ending pH 6.69
		169.6'	169.9'	1st Temp. 17.6°	2nd Temp. 16.8°	Stable Temp. 16.5°	Ending Temp. 16.0°
	Time	Bubbler Start	Bubbler End	Comments:			
	1435	13.469'	12.967'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-10-00	GW-3			1st Cond. 4,340	2nd Cond. 4,780	Stable Cond. 4,950	Ending Cond. 5,060
				1st pH 6.93	2nd pH 6.80	Stable pH 6.58	Ending pH 6.56
		52.4'	53.15'	1st Temp. 15.0°	2nd Temp. 14.0°	Stable Temp. 13.6°	Ending Temp. 14.2°
	Time	Bubbler Start	Bubbler End	Comments:			
	0850	3.072'	2.214				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-10-00	EPA-25			1st Cond. 4,300	2nd Cond. 4,320	Stable Cond. 4,350	Ending Cond. 4,390
				1st pH 7.22	2nd pH 7.12	Stable pH 7.07	Ending pH 6.89
		51.15'	51.25'	1st Temp. 12.9°	2nd Temp. 12.8°	Stable Temp. 12.4°	Ending Temp. 12.2
	Time	Bubbler Start	Bubbler End	Comments:			
	0925	9.645'	9.411'				

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading	Reading
10-10-00	FIELD BLANK			1st Cond. 293	2nd Cond.	Stable Cond.	Ending Cond.
				1st pH 6.17	2nd pH	Stable pH	Ending pH
				1st Temp. 15.4°	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
	1005						

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Ground Water Monitoring Field Data Sheet
4th Quarter 2000
Sampling

Date 10-10-00	Well Number 627	WL w/Probe Pre-Sample 53.75'	WL w/Probe Post Sample 53.8'	Reading 1st Cond. 5,450	Reading 2nd Cond. 5,530	Reading Stable Cond. 5,560	Reading Ending Cond. 5,630
				1st pH 7.23	2nd pH 7.16	Stable pH 7.10	Ending pH 7.03
				1st Temp. 14.6°	2nd Temp. 14.1°	Stable Temp. 13.6°	Ending Temp. 12.2°
	Time 1030	Bubbler Start 8.160'	Bubbler End 8.472'	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			
Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading 2nd Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	2nd pH	Stable pH	Ending pH
				1st Temp.	2nd Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Start	Bubbler End	Comments:			

SEMI-ANNUAL GROUND WATER MONITORING REPORT

JULY 1, 2000 THROUGH DECEMBER 31, 2000

<u>QA AND QC CONTROLS</u>

FIELD BLANK

TWQ-142 DUPLICATE FOR ZONE 1 (3RD QR.)

EPA-2 DUPLICATE FOR ZONE 1 (4TH QR.)

711 DUPICATE FOR ZONE 3

EPA-23 DUPLICATE FOR SW ALLIVIUM

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UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS

WELL ID:	Field Blank	FIELD BLANK	FIELD BLANK	FIELD BLANK
LABORATORY ID:	30147-10	00-32840-2	00-34353-6	00-34509-1
SAMPLE DATE/TIME:	01-04-00 @ 14:20	05/15/00 00:00	07/11/00 10:00	07/17/00 14:00
DATE RECEIVED:		05/18/2000	07/14/2000	07/20/00
REPORT DATE:	February 23, 2000	June 20, 2000	August 21, 2000	August 21, 2000
QUARTER REPRESENTED:	First 2000	Second 2000	Third 2000	Third 2000
UNC SUBMITTAL #:	TE-1-1-2000	TE-5-5-2000	TE-6-7-2000	TE-7-7-2000

Major Ions	Method	Units	Reporting Limit	Results	Results	Results	Results
Calcium	EPA 200.7	mg/L	0.05	0.13	0.18	< 0.05	0.20
Magnesium	EPA 200.7	mg/L	0.01	< 0.01	0.07	0.01	0.50
Sodium	EPA 200.7	mg/L	0.05	2.2	4.98	2.64	5.00
Potassium	EPA 200.7	mg/L	0.10	< 0.10	0.63	< 0.10	0.10
Bicarbonate	SM 2320-B	mg/L	0.10	7.0	9.00	10.0	9.00
Sulfate	EPA 200.7	mg/L	1.0	< 1.0	1.3	< 1.0	2.9
Chloride	EPA 200.7	mg/L	1.0	< 1.0	5.2	2.9	2.7
Ammonium as N	SM 4500-NH_3-G	mg/L	0.05	0.08	0.06	< 0.05	< 0.05
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	0.15	0.17	< 0.10	0.38
Non-Metals							
Total Dissolved Solids	SM 2540-C	mg/L	1.0	10.0	45.5	15.9	26.7
pH	SM 4500-H-B	std. units	0.10	6.85	6.76	6.18	6.32
Trace Metals							
Aluminum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Arsenic III	SM 3114C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cobalt	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
on	EPA 200.7	mg/L	0.05			< 0.05	< 0.05
ead	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Molybdenum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Selenium IV	SM 3114C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Radiometrics							
Uranium	EPA 200.8	mg/L	0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Radium 226	EPA 903.0	pCi/L	0.2	< 0.2	3.6	1.5	< 0.2
Radium Error Estimate ±					0.3	0.2	
Radium 228	EPA 904.0	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Radium Error Estimate ±						0.2	
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Thorium Error Estimate ±							
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead Error Estimate ±							
Gross Alpha	EPA 900.0	pCi/L	1.0	< 1.0	< 1.0	1.4	< 1.0
G. Alpha Error Estimate ±						1.0	
Trace Organics							
Chloroform		µg/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Quality Assurance Data		Target Range				
Anion	meq		0.13	0.33	0.27	0.31
Cation	meq		0.12	0.25	0.12	0.28
SM A/C Balance	%	-5 - +5	-2.43	* -14.0	* -37.3	* -6.14
Calc TDS	mg/L		6.61	18	12	18
TDS A/C Balance	dec. %	0.80 - 1.20	* 1.51	* 2.56	* 1.30	* 1.51

*Balance inappropriate for "blank" samples.
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UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS

WELL ID:	Field Blank	FIELD BLANK	FIELD BLANK	FIELD BLANK
LABORATORY ID:	30147-10	00-32840-2	00-34509-1	00-36665-12
SAMPLE DATE/TIME:	01-04-00 14:20	05-15-00 00:00	07-17-00 14:00	10-03-00 14:50
DATE RECEIVED:	-	05-18-2000	07-20-00	10-06-2000
REPORT DATE:	February 23, 2000	June 20, 2000	August 21, 2000	November 9, 2000
QUARTER REPRESENTED:	First 2000	Second 2000	Third 2000	Fourth 2000
UNC SUBMITTAL #:	TE-1-1-2000	TE-5-5-2000	TE-7-7-2000	TE-8-10

Major Ions	Method	Units	Reporting Limit	Results	Results	Results	Results
Calcium	EPA 200.7	mg/L	0.05	0.13	0.18	0.20	< 0.05
Magnesium	EPA 200.7	mg/L	0.01	< 0.01	0.07	0.50	< 0.01
Sodium	EPA 200.7	mg/L	0.05	2.2	5.0	5.0	4.3
Potassium	EPA 200.7	mg/L	0.10	< 0.10	0.63	0.10	< 0.10
Bicarbonate	SM 2320-B	mg/L	0.10	7.0	9.0	9.0	9.0
Sulfate	EPA 200.7	mg/L	1.0	< 1.0	1.3	2.9	1.5
Chloride	EPA 200.7	mg/L	1.0	< 1.0	5.2	2.7	< 1.0
Ammonia as N	SM 4500-NH_3-G	mg/L	0.05	0.08	0.06	< 0.05	< 0.05
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	0.15	0.17	0.38	0.45
Non-Metals							
Total Dissolved Solids	SM 2540-C	mg/L	1.0	10.0	45.5	26.7	1.0
pH	SM 4500-H-B	std. units	0.10	6.85	6.76	6.32	6.66
Trace Metals							
Aluminum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Arsenic III	SM 3114-C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cobalt	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Lead	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Molybdenum	EPA 200.8	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Selenium IV	SM 3114-C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Radiometrics							
Uranium	EPA 200.8	mg/L	0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Radium 226	EPA 903.0	pCi/L	0.2	< 0.2	3.6	< 0.2	< 0.2
Radium Error Estimate ±					0.3		
Radium 228	EPA 904.0	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Radium Error Estimate ±							
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Thorium Error Estimate ±							
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead Error Estimate ±							
Gross Alpha	EPA 900.0	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
G. Alpha Error Estimate ±							
Trace Organics							
Chloroform	EPA 601	µg/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Quality Assurance Data			**Target Range**				
Anion		meq		0.13	0.33	0.31	0.24
Cation		meq		0.12	0.25	0.28	0.20
SM A/C Balance		%	-5 - +5	-2.43	* -13.96	* -6.14	* -9.76
Calc TDS		mg/L		6.61	18	18	14
TDS A/C Balance		dec. %	0.80 - 1.20	* 1.51	* 2.56	* 1.51	* 0.07

*Balance inappropriate for "blank" samples.
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UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS

WELL ID:	Field Blank	FIELD BLANK	FIELD BLANK	FIELD BLANK
LABORATORY ID:	30147-10	00-32840-2	00-34509-1	00-36832-2
SAMPLE DATE/TIME:	01-04-00 @ 14:20	05/15/00 00:00	07/17/00 14:00	10/10/00 10:05
DATE RECEIVED:	-	05/18/2000	07/20/00	10/13/2000
REPORT DATE:	February 23, 2000	June 20, 2000	August 21, 2000	November 10, 2000
QUARTER REPRESENTED:	First 2000	Second 2000	Third 2000	Fourth 2000
UNC SUBMITTAL #:	TE-1-1-2000	TE-5-5-2000	TE-7-7-2000	TE-8-10

Major Ions	Method	Units	Reporting Limit	Results	Results	Results	Results
Calcium	EPA 200.7	mg/L	0.05	0.13	0.18	0.20	0.18
Magnesium	EPA 200.7	mg/L	0.01	< 0.01	0.07	0.50	0.23
Sodium	EPA 200.7	mg/L	0.05	2.2	4.98	5.00	5.43
Potassium	EPA 200.7	mg/L	0.10	< 0.10	0.63	0.10	0.77
Bicarbonate	SM 2320-B	mg/L	0.10	7.0	9.00	9.00	9.00
Sulfate	EPA 200.7	mg/L	1.0	< 1.0	1.3	2.9	1.4
Chloride	EPA 200.7	mg/L	1.0	< 1.0	5.2	2.7	1.6
Ammonium as N	SM 4500-NH_3-G	mg/L	0.05	0.08	0.06	< 0.05	< 0.05
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	0.15	0.17	0.38	0.14
Non-Metals							
Total Dissolved Solids	SM 2540-C	mg/L	1.0	10.0	45.5	26.7	1.0
pH	SM 4500-H-B	std. units	0.10	6.85	6.76	6.32	6.70
Trace Metals							
Aluminum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Arsenic III	SM 3114-C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	< 0.005	< 0.005	< 0.005	0.012
Cobalt	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
ead	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Molybdenum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Selenium IV	SM 3114-C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Radiometrics							
Uranium	EPA 200.8	mg/L	0.0003	< 0.0003	< 0.0003	< 0.0003	< 0.0003
Radium 226	EPA 903.0	pCi/L	0.2	< 0.2	3.6	< 0.2	< 0.2
Radium Error Estimate ±					0.3		
Radium 228	EPA 904.0	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Radium Error Estimate ±							
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Thorium Error Estimate ±							
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead Error Estimate ±							
Gross Alpha	EPA 900.1	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
G. Alpha Error Estimate ±							
Trace Organics							
Chloroform		µg/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Quality Assurance Data			**Target Range**				
Anion		meq		0.13	0.33	0.31	0.23
Cation		meq		0.12	0.25	0.28	0.29
SM A/C Balance		%	-5 - +5	-2.43	* -14.0	* -6.1	* 10.82
Calc TDS		mg/L		6.61	18	18	15
TDS A/C Balance		dec. %	0.80 - 1.20	* 1.51	* 2.56	* 1.51	* 0.07

*Balance inappropriate for "blank" samples.
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UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS

WELL ID:	TWQ 142	TWQ 142	TWQ-142(DUP.)	TWQ-142 (DUP)
LABORATORY ID:	99-33596-001	30147-2	00-32687-2	00-34353-2
SAMPLE DATE/TIME:	10-05-99 @ 08:33	01-04-00 @ 09:10	05/10/00 00:00	07/10/00 09:45
DATE RECEIVED:			05/12/2000	07/14/2000
REPORT DATE:	November 30, 1999	February 22, 2000	June 20, 2000	August 21, 2000
QUARTER REPRESENTED:	Fourth '99	First 2000	Second 2000	Third 2000
UNC SUBMITTAL #:	TE-7-10-99	TE-1-1-2000	TE-4-5-2000	TE-6-7-2000

Major Ions	Method	Units	Reporting Limit	Results	Results	Results	Results
Calcium	EPA 200.7	mg/L	0.05	29.6	82.2	26.5	24.3
Magnesium	EPA 200.7	mg/L	0.01	14.6	41.7	12.2	11.2
Sodium	EPA 200.7	mg/L	0.05	308	319	307	314
Potassium	EPA 200.7	mg/L	0.10	3.70	7.80	3.10	3.01
Bicarbonate	SM 2320-B	mg/L	0.10	251	309	239	240
Sulfate	EPA 200.7	mg/L	1.0	557	797	611	537
Chloride	EPA 200.7	mg/L	1.0	21.4	26.6	18.5	19.3
Ammonium as N	SM 4500-NH_3-G	mg/L	0.05	0.26	1.51	0.25	0.29
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	0.13	0.11	< 0.10	< 0.10
Non-Metals							
Total Dissolved Solids	SM 2540-C	mg/L	1.0	1130	1500	1110	1060
pH	SM 4500-H-B	std. units	0.10	8.11	8.36	8.26	8.06
Trace Metals							
Aluminum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	0.70	0.39
Arsenic III	SM 3114C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cobalt	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Iron	EPA 200.7	mg/L	0.05				0.74
Lead	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese	EPA 200.7	mg/L	0.01	0.03	0.10	0.06	0.06
Molybdenum	EPA 200.7	mg/L	0.10	< 0.10	0.14	< 0.10	< 0.10
Nickel	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Selenium IV	SM 3114C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Radiometrics							
Uranium	EPA 200.8	mg/L	0.0003	0.0008	0.0077	0.0012	0.0024
Radium 226	EPA 903.0	pCi/L	0.2	0.7	2.4	0.7	0.7
Radium Error Estimate ±				0.2	0.3	0.2	0.2
Radium 228	EPA 904.0	pCi/L	1.0	< 1.0	1.5	< 1.0	< 1.0
Radium Error Estimate ±					0.2		
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Thorium Error Estimate ±							
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead Error Estimate ±							
Gross Alpha	EPA 900.0	pCi/L	1.0	< 1.0	2.5	< 1.0	1.4
G. Alpha Error Estimate ±					0.5		1.0
Trace Organics							
Chloroform	EPA 601	µg/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Quality Assurance Data		Target Range				
Anion	meq		16.3	22.4	17.2	15.7
Cation	meq		16.2	21.8	15.8	15.9
SM A/C Balance	%	-5 - +5	-0.36	-1.47	-4.27	0.72
Calc TDS	mg/L		1061	1431	1098	1030
TDS A/C Balance	dec. %	0.80 - 1.20	1.07	1.05	1.01	1.03

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UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ~~SOUTHWEST ALLUVIUM MONITOR WELLS~~ ZONE 1

WELL ID:	EPA-2 DUPLICATE
LABORATORY ID:	00-36832-1
SAMPLE DATE/TIME:	10-09-00 14:35
DATE RECEIVED:	10-13-00
REPORT DATE:	November 10, 2000
QUARTER REPRESENTED:	Fourth 2000
UNC SUBMITTAL #:	TE-8-10-00

Major Ions	Method	Units	Reporting Limit	Results
Calcium	EPA 200.7	mg/L	0.05	327
Magnesium	EPA 200.7	mg/L	0.01	153
Sodium	EPA 200.7	mg/L	0.05	187
Potassium	EPA 200.7	mg/L	0.10	6.54
Bicarbonate	SM 2320-B	mg/L	0.10	331
Sulfate	EPA 200.7	mg/L	1.0	1380
Chloride	EPA 200.7	mg/L	1.0	18.1
Ammonia as N	SM 4500-NH3-G	mg/L	0.05	0.43
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	< 0.10

Non-Metals				
Total Dissolved Solids	SM 2540-C	mg/L	1.0	2700
pH	SM 4500-H-B	std. units	0.10	7.62

Trace Metals				
Aluminum	EPA 200.7	mg/L	0.10	< 0.10
Arsenic III	SM 3114-C	mg/L	0.001	< 0.001
Beryllium	EPA 200.7	mg/L	0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	< 0.005
Cobalt	EPA 200.7	mg/L	0.01	< 0.01
Lead	EPA 200.7	mg/L	0.05	< 0.05
Manganese	EPA 200.7	mg/L	0.01	1.07
Molybdenum	EPA 200.7	mg/L	0.10	< 0.10
Nickel	EPA 200.7	mg/L	0.05	< 0.05
Selenium IV	SM 3114-C	mg/L	0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10

Radiometrics				
Uranium		mg/L	0.0003	0.0120
Radium 226	EPA 903.0	pCi/L	0.2	1.4
Radium Error Estimate ±				0.2
Radium 228	EPA 904.0	pCi/L	1.0	3.3
Radium Error Estimate ±				0.2
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2
Thorium Error Estimate ±				
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0
Lead Error Estimate ±				
Gross Alpha	EPA 900.1	pCi/L	1.0	1.5
G. Alpha Error Estimate ±				0.8

Trace Organics				
Chloroform		µg/L	1.0	< 1.0

Quality Assurance Data		Target Range	
Anion	meq		34.69
Cation	meq		37.49
SM A/C Balance	%	-5 - +5	3.87
Calc TDS	mg/L		2239
TDS A/C Balance	dec. %	0.80 - 1.20	1.21

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UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 1 3 MONITOR WELLS

WELL ID:	711	711-Duplicate	711	711 (DUP)
LABORATORY ID:	32496-1	32496-2	00-34353-3	00-34353-4
SAMPLE DATE/TIME:	05-01-00	05-01-00	07/10/00 13:10	07/10/00 13:55
DATE RECEIVED:			07/14/2000	07/14/2000
REPORT DATE:	June 04, 2000	June 04, 2000	August 21, 2000	August 21, 2000
QUARTER REPRESENTED:	Second 2000	Second 2000	Third 2000	Third 2000
UNC SUBMITTAL #:	TE-3-5-2000	TE-3-5-2000	TE-6-7-2000	TE-6-7-2000

Major Ions	Method	Units	Reporting Limit	Results	Results	Results	Results
Calcium	EPA 200.7	mg/L	0.05	489	458	518	513
Magnesium	EPA 200.7	mg/L	0.01	522	494	542	537
Sodium	EPA 200.7	mg/L	0.05	100	96.7	101	101
Potassium	EPA 200.7	mg/L	0.10	11.1	10.7	10.9	10.9
Bicarbonate	SM 2320-B	mg/L	0.10	10.0	9.00	< 0.10	9.00
Sulfate	EPA 200.7	mg/L	1.0	3380	3220	3490	3510
Chloride	EPA 200.7	mg/L	1.0	14.2	15.4	20.0	19.8
Ammonium as N	SM 4500-NH_3-G	mg/L	0.05	0.57	0.56	0.58	0.59
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Non-Metals							
Total Dissolved Solids	SM 2540-C	mg/L	1.0	5410	5480	5400	5440
pH	SM 4500-H-B	std. units	0.10	5.61	5.66	3.98	5.31
Trace Metals							
Aluminum	EPA 200.7	mg/L	0.10	1.40	1.50	1.51	1.47
Arsenic III	SM 3114C	mg/L	0.001	0.039	0.039	< 0.001	0.032
Beryllium	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	0.020	0.016	< 0.005	< 0.005
Cobalt	EPA 200.7	mg/L	0.01	0.41	0.42	0.42	0.43
Iron	EPA 200.7	mg/L	0.05			119	128.3
Lead	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Manganese	EPA 200.7	mg/L	0.01	8.42	8.43	8.39	8.29
Molybdenum	EPA 200.7	mg/L	0.10	0.15	0.16	< 0.10	0.11
Nickel	EPA 200.7	mg/L	0.05	0.38	0.40	0.35	0.35
Selenium IV	SM 3114C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Radiometrics							
Uranium	EPA 200.8	mg/L	0.0003	0.0645	0.0655	0.0613	0.0595
Radium 226	EPA 903.0	pCi/L	0.2	13.7	12.6	9.6	9.8
Radium Error Estimate ±				1.2	1.2	0.5	0.5
Radium 228	EPA 904.0	pCi/L	1.0	12.9	14.8	18.6	16.3
Radium Error Estimate ±				1.2	1.3	0.2	0.2
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Thorium Error Estimate ±							
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Lead Error Estimate ±							
Gross Alpha	EPA 900.0	pCi/L	1.0	15.9	14.4	14.2	14.5
G. Alpha Error Estimate ±				1.1	1.0	1.3	1.3
Trace Organics							
Chloroform	EPA 601	µg/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0

Quality Assurance Data		Target Range				
Anion	meq		71.0	67.7	73.3	73.8
Cation	meq		72.8	68.8	76.2	75.6
SM A/C Balance	%	-5 - +5	1.25	0.79	1.98	1.16
Calc TDS	mg/L		4523	4301	4692	4706
TDS A/C Balance	dec. %	0.80 - 1.20	1.20	1.27	1.15	1.16

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UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE ~~1~~ 3 MONITOR WELLS

WELL ID:	711-DUPLICATE
LABORATORY ID:	00-36665-3
SAMPLE DATE/TIME:	10-02-00 13:30
DATE RECEIVED:	10-06-00
REPORT DATE:	November 9, 2000
QUARTER REPRESENTED:	Fourth 2000
UNC SUBMITTAL #:	TE-8-10-00

Major Ions	Method	Units	Reporting Limit	Results
Calcium	EPA 200.7	mg/L	0.05	503
Magnesium	EPA 200.7	mg/L	0.01	555
Sodium	EPA 200.7	mg/L	0.05	104
Potassium	EPA 200.7	mg/L	0.10	12.9
Bicarbonate	SM 2320-B	mg/L	0.10	11.0
Sulfate	EPA 200.7	mg/L	1.0	3970
Chloride	EPA 200.7	mg/L	1.0	15.7
Ammonia as N	SM 4500-NH3-G	mg/L	0.05	0.39
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	< 0.10
Non-Metals				
Total Dissolved Solids	SM 2540-C	mg/L	1.0	5310
pH	SM 4500-H-B	std. units	0.10	5.36
Trace Metals				
Aluminum	EPA 200.7	mg/L	0.10	1.33
Arsenic III	SM 3114-C	mg/L	0.001	0.042
Beryllium	EPA 200.7	mg/L	0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	< 0.005
Cobalt	EPA 200.7	mg/L	0.01	0.36
Lead	EPA 200.7	mg/L	0.05	< 0.05
Manganese	EPA 200.7	mg/L	0.01	7.93
Molybdenum	EPA 200.7	mg/L	0.10	< 0.10
Nickel	EPA 200.7	mg/L	0.05	0.34
Selenium IV	SM 3114-C	mg/L	0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10
Radiometrics				
Uranium	EPA 200.8	mg/L	0.0003	0.050
Radium 226	EPA 903.0	pCi/L	0.2	9.0
Radium Error Estimate ±				0.9
Radium 228	EPA 904.0	pCi/L	1.0	19.7
Radium Error Estimate ±				1.8
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2
Thorium Error Estimate ±				
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0
Lead Error Estimate ±				
Gross Alpha	EPA 900.0	pCi/L	1.0	22.9
G. Alpha Error Estimate ±				1.9
Trace Organics				
Chloroform	EPA 601	µg/L	1.0	< 1.0

Quality Assurance Data		Target Range	
Anion	meq		83.34
Cation	meq		76.71
SM A/C Balance	%	-5 - +5	-4.14
Calc TDS	mg/L		5175
TDS A/C Balance	dec. %	0.80 - 1.20	1.03

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ENERGY LABORATORIES
Billings • Casper • Gillette
Helena • Rapid City

ENERGY LABORATORIES, INC.

SHIPPING: 2393 SALT CREEK HIGHWAY • CASPER, WY 82601
MAILING: P.O. BOX 3258 • CASPER, WY 82602
E-mail: casper@energylab.com • FAX: (307) 234-1639
PHONE: (307) 235-0515 • TOLL FREE: (888) 235-0515

UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: SOUTHWEST ALLUVIUM MONITOR WELLS

WELL ID:	EPA 23	EPA-23(DUP.)	EPA-23(DUP)	EPA-23 DUPLICATE
LABORATORY ID:	30268-4	00-32684-8	00-34507-6	00-36828-5
SAMPLE DATE/TIME:	01-11-00 10:50	05-09-00 00:00	07-17-00 13:35	10-09-00 11:30
DATE RECEIVED:		05-12-00	07-20-00	10-13-00
REPORT DATE:	February 18, 2000	June 21, 2000	August 21, 2000	November 20, 2000
QUARTER REPRESENTED:	First 2000	Second 2000	Third 2000	Fourth 2000
UNC SUBMITTAL #:	TE-2-1-2000	TE-4-5-2000	TE-7-7-2000	TE-9-10-2000

Major Ions	Method	Units	Reporting Limit	Results	Results	Results	Results
Calcium	EPA 200.7	mg/L	0.05	624	600	630	528
Magnesium	EPA 200.7	mg/L	0.01	379	365	377	325
Sodium	EPA 200.7	mg/L	0.05	144	125	120	111
Potassium	EPA 200.7	mg/L	0.10	11.2	9.6	9.6	10.4
Bicarbonate	SM 2320-B	mg/L	0.10	1190	1050	1050	1050
Sulfate	EPA 200.7	mg/L	1.0	1840	2150	2030	1740
Chloride	EPA 200.7	mg/L	1.0	92.6	70.0	68.9	56.1
Ammonia as N	SM 4500-NH3-G	mg/L	0.05	3.11	0.99	1.03	0.92
Nitrate + Nitrite as N	EPA 353.2	mg/L	0.10	60.5	1.38	1.54	1.01
Non-Metals							
Total Dissolved Solids	SM 2540-C	mg/L	1.0	4730	4430	4450	4380
pH	SM 4500-H-B	std. units	0.10	7.73	7.81	7.55	7.55
Trace Metals							
Aluminum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Arsenic III	SM 3114-C	mg/L	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Beryllium	EPA 200.7	mg/L	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Cadmium	EPA 200.8	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005
Cobalt	EPA 200.7	mg/L	0.01	< 0.01	0.01	< 0.01	< 0.01
ead	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese	EPA 200.7	mg/L	0.01	3.17	6.96	4.61	4.00
Molybdenum	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	EPA 200.7	mg/L	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Selenium IV	SM 3114-C	mg/L	0.001	0.001	< 0.001	< 0.001	< 0.001
Vanadium	EPA 200.7	mg/L	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Radiometrics							
Uranium	EPA 200.8	mg/L	0.0003	0.039	0.026	0.025	0.025
Radium 226	EPA 903.0	pCi/L	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Radium Error Estimate ±							
Radium 228	EPA 904.0	pCi/L	1.0	< 1.0	1.6	< 1.0	< 1.0
Radium Error Estimate ±					0.2		
Thorium 230	EPA 907.0	pCi/L	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Thorium Error Estimate ±							
Lead 210	NERHL-65-4	pCi/L	1.0	< 1.0	5.0	< 1.0	< 1.0
Lead Error Estimate ±					2.2		
Gross Alpha	EPA 900.0	pCi/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
G. Alpha Error Estimate ±							
Trace Organics							
Chloroform	EPA 601	µg/L	1.0	< 1.0	< 1.0	< 1.0	< 1.0
Quality Assurance Data			**Target Range**				
Anion		meq		64.77	64.08	61.56	55.12
Cation		meq		69.74	66.56	68.71	58.86
SM A/C Balance		%	-5 - +5	3.69	1.90	5.49	3.29
Calc TDS		mg/L		3961	3859	3773	3305
TDS A/C Balance		dec. %	0.80 - 1.20	1.19	1.15	1.18	1.33

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APPENDIX B

CHAIN OF CUSTODY FORMS

UNITED NUCLEAR CORPORATION
(State Road 566 - 21 Miles NE of Gallup)
P.O. Box 3077
Gallup, NM 87305-3077
505-722-6651

CHAIN OF CUSTODY

Energy Laboratories, Inc.
Laboratory

2393 N. Salt Creek Highway
Address

Casper WY 82601
City State Zip

307-235-0515
Phone No.

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

UNC Submittal No. TE- 6-7-2000 PG. 1 OF 2

Sample Description	Date	Time	Filter 0.45u	PRESERVATION plain	HNO_3	H_2SO_4	$Na_2S_2O_3$	NaOH	Preserved By	Analysis Required (For all samples listed)
TWQ-142	7-10-00	0900		✓	✓	✓	✓			As, Be, Ca, Cd, Cl, HCO_3, K, Mg, Mn, Na, NH_3, Ni, NO_3, Pb, Pb-210, pH, Se, SO_4, TDS, Th-230, U, V, Chloroform, Gross Alpha (-) U & Rn, Combined Ra-226 & Ra-228, Al, Co, Mo
TWQ-142 (DUP)		0945								
504-B		1025								
420		1120								
711		1310								
711 (DUP.)		1355								
EPA-2		1425								
FIELD BLANK	7-11-00	1000								
614		0830								
515-A		0925								~~Wells GW-3 and GW-4 require Pb-210 analysis in addition to above~~
604		1015								
EPA-1		1100								
EPA-5		1300								
EPA-4		1350								
613		1450								

Sampled by: [signature] Received by: M. Chischilly 7-10-00 7-11-00 Date 1200-1530 Time

Dispatched by: ~~UPS~~ Tammy K. 7-11-00 Date 1:08 PM Time

Carrier: UPS

Method of Shipment: 24 ICED cooler

Lab Receipt Signature: [signature]

7/14/00 Date 1020 Time

The above analysis to be performed is authorized by: [signature]

Signature

7-12-00
Date

TRACKING NO. PAGE NO.

34352R00006

UNITED NUCLEAR CORPORATION
(State Road 566 - 21 Miles NE of Gallup)
P.O. Box 3077
Gallup, NM 87305-3077
505-722-6651

CHAIN OF CUSTODY

Energy Laboratories, Inc.
Laboratory

2393 N. Salt Creek Highway
Address

Casper WY 82601
City State Zip

307-235-0515
Phone No.

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

UNC Submittal No. TE- 6-7-2000 PG. 2 OF 2

Sample Description	Date	Time	Filter 0.45u	PRESERVATION plain	HNO_3	H_2SO_4	$Na_2S_2O_3$	NaOH	Preserved By	Analysis Required (For all samples listed)
EPA-14	7-12-00	0820	~~✓~~	✓	✓	✓	✓			As, Be, Ca, Cd, Cl, HCO_3,
509-D	↓	0905		↓	↓	↓	↓			K, Mg, Mn, Na, NH_3, Ni,
632		0950								NO_3, Pb, Pb-210, pH, Se,
802		1030								SO_4, TDS, Th-230, U, V,
803		1040								Chloroform, Gross
MSX4										Alpha (-) U & Rn,
										Combined Ra-226 & Ra-228, Al,
										Co, Mo
										~~Wells SW-2 and SW-4 require Fe, Mn analysis in addition to above.~~

Sampled by: [signature]
Dispatched by: [signature]
Carrier: UPS
Method of Shipment: 4 ICED cooler

Received by M. Chadbly
7-11-00 Date 1:08 PM Time

7-12-00 Date 0820 Time
Lab Receipt Signature
7/14/00 Date 10:20 Time

The above analysis to be performed is authorized by:
Signature
7-12-00 Date

TRACKING NO. PAGE NO.
34352R00007

UNITED NUCLEAR CORPORATION
(State Road 566 - 21 Miles NE of Gallup)
P.O. Box 3077
Gallup, NM 87305-3077
505-722-6651

CHAIN OF CUSTODY

Energy Laboratories, Inc.
Laboratory

2393 N. Salt Creek Highway
Address

Casper — WY — 82601
City — State — Zip

307-235-0515
Phone No.

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

UNC Submittal No. TE- 7-7-2000

Sample Description	Date	Time	Filter 0.45u	PRESERVATION plain	HNO_3	H_2SO_4	$Na_2S_2O_3$	NaOH	Preserved By	Analysis Required (For all samples listed)
GW-1	7-17-00	0835		✓ JAB	✓ mc	✓ mc	✓ JAB			As, Be, Ca, Cd, Cl, HCO_3,
624	↓	0925		↓	↓	↓	↓			K, Mg, Mn, Na, NH_3, Ni,
EPA-28	↓	1005		↓	↓	↓	↓			NO_3, Pb, Pb-210, pH, Se,
GW-2	↓	1055		↓	↓	↓	↓			SO_4, TDS, Th-230, U, V,
EPA-23	↓	1300		↓	↓	↓	↓			Chloroform, Gross
EPA-23(DUP)	↓	1335		↓	↓	↓	↓			Alpha (-) U & Rn,
GW-3	↓	1415		↓	↓	↓	↓			Combined Ra-226 & Ra-228, Al,
Field Blank	↓	1400		↓	↓	↓	↓	N/A		Co, Mo, include Fe
EPA-25	7-18-00	0830		↓	↓	↓	↓	↓		
627	↓	0930		↓	↓	↓	↓	↓		~~Wells GW-3 and GW-1 require Pb-210 analysis in addition to above~~
517	↓	1000		↓	↓	↓	↓	↓		

Sampled by: [signature]
Dispatched by: T.V.
Carrier: UPS
Method of Shipment: ICED COOLER

Received by M. Chischilly
7-18-00 — Date
12:20PM — Time

7-17-00 — Date — 1500 — Time
7-18-00 — Date — 1100 — Time
Lab Receipt Signature
7/20/00 — Date — 1000 — Time

The above analysis to be performed is authorized by:
Signature
7-18-2000
Date

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345507R00011

UNITED NUCLEAR CORPORATION
(State Road 566 - 21 Miles NE of Gallup)
P.O. Box 3077
Gallup, NM 87305-3077
505-722-6651

CHAIN OF CUSTODY

Energy Laboratories, Inc.
Laboratory

2393 N. Salt Creek Highway
Address

Casper WY 82601
City State Zip

307-235-0515
Phone No.

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

UNC Submittal No. TE- 8-10-00 (PG. 1 OF 2)

Sample Description	Date	Time	Filter 0.45u	PRESERVATION plain	HNO_3	H_2SO_4	$Na_2S_2O_3$	NaOH	Preserved By	Analysis Required (For all samples listed)
TWQ-142	10-2-00	0830		✓	✓	✓	✓			As, Be, Ca, Cd, Cl, HCO_3,
504-B		1005								K, Mg, Mn, Na, NH_3, Ni,
420		1045								NO_3, Pb, Pb-210, pH, Se,
517		1130								SO_4, TDS, Th-230, U, V,
711		1255								Chloroform, Gross
711-DUPLICATE		1330								Alpha (-) U & Rn,
EPA-2		1430								Combined Ra-226 & Ra-228, Al,
613		1500						N A		Co, Mo
614	10-3-00	0825								~~Wells GW-3 and GW-4 require Ra-210 analysis in addition to above~~
515-A		0900								
604		0945								
EPA-7		1015								
EPA-5		1100								
EPA-4		11:45								
509-D		1300								

Sampled by: Lyle H Bogart
Dispatched by: K. Berenti
Carrier: UPS
ICED COOLER
Method of Shipment

Received by M. Chischilly Jr.
10-4-00 2:00pm
Date Time

10-2-00 1500
10-3-00 1000 & 1500
10-4-00 0900
Date Time

Lab Receipt Signature
10-6-00 10:00
Date Time

The above analysis to be performed is authorized by:
Signature
10-4-2000
Date

TRACKING NO. PAGE NO.

3666658000114

Sep. 00

UNITED NUCLEAR CORPORATION
(State Road 566 - 21 Miles NE of Gallup)
P.O. Box 3077
Gallup, NM 87305-3077
505-722-6651

CHAIN OF CUSTODY

Energy Laboratories, Inc.
Laboratory

2393 N. Salt Creek Highway
Address

Casper WY 82601
City State Zip

307-235-0515
Phone No.

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

UNC Submittal No. TE- 8-10-00 (PG. 2 OF 2.)

Sample Description	Date	Time	Filter 0.45u	PRESERVATION plain	HNO_3	H_2SO_4	$Na_2S_2O_3$	NaOH	Preserved By	Analysis Required (For all samples listed)
632	10-3-00	1420		✓ JHB	✓	✓	✓ JHB			As, Be, Ca, Cd, Cl, HCO_3,
FIELD BLANK	10-3-00	1450								K, Mg, Mn, Na, NH_3, Ni,
803	10-4-00	0845								NO_3, Pb, Pb-210, pH, Se,
802	10-4-00	0850								SO_4, TDS, Th-230, U, V,
										Chloroform, Gross
										Alpha (-) U & Rn,
								N A		Combined Ra-226 & Ra-228, Al,
										Co, Mo
										[redacted]
										[redacted]

Sampled by: Lee H Bryant
Dispatched by: K Bisenti
Carrier: UPS
Method of Shipment: ICED COOLER

Received by M. Churchilly Jr.
Date 10.4.00 Time 2:00pm

Date 10-3-00 10-4-00 Time 1500 0900
Lab Receipt Signature Sabrina Tassett
Date 10.6.00 Time 10:00

The above analysis to be performed is authorized by:
Signature
Date 10-4-00

Sep.UC

TRACKING NO. PAGE NO.
3965R00015

Zone 1

UNITED NUCLEAR CORPORATION
(State Road 566 - 21 Miles NE of Gallup)
P.O. Box 3077
Gallup, NM 87305-3077
505-722-6651

CHAIN OF CUSTODY

Energy Laboratories, Inc.
Laboratory

2393 N. Salt Creek Highway
Address

Casper — WY — 82601
City — State — Zip

307-235-0515
Phone No.

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

UNC Submittal No. TE- 9-10-2000

Sample Description	Date	Time	Filter 0.45u	PRESERVATION plain	HNO_3	H_2SO_4	$Na_2S_2O_3$	NaOH	Preserved By	Analysis Required (For all samples listed)
GW-1	10-9-00	0845		✓ LHB	✓	✓	✓ LHB			As, Be, Ca, Cd, Cl, HCO_3,
624		0925								K, Mg, Mn, Na, NH_3, Ni,
EPA-28		1000								NO_3, Pb, Pb-210, pH, Se,
EPA-23		1100								SO_4, TDS, Th-230, U, V,
EPA-23 DUPLICATE		1130								Chloroform, Gross
GW-2		1315								Alpha (-) U & Rn,
EPA-14		1355								Combined Ra-226 & Ra-228, Al,
EPA-2 DUPLICATE		1435								Co, Mo
GW-3	10-10-00	0850								[redacted]
EPA-25		0925								
FIELD BLANK		1005								
627		1030								
~~AR5~~ X3										

Sampled by: [signature]

Dispatched by: R.T. Bacenti 10/11/00 Date 7:00 pm Time

Carrier: UPS

ICED COOLERS
Method of Shipment

Received by M. Chischilly Jr. 10-9-00 Date 1200 Time
10-10-00 1100

Lab Receipt Signature

10/13/00 Date 1000 Time

The above analysis to be performed is authorized by:

Mark Chischilly Jr.
Signature

10/11/00
Date

TRACKING NO. PAGE NO.

35832R000004

Energy Laboratories, Inc.
SAMPLE CONDITION REPORT

T report provides information about the condition of the sample(s), and assocated sample custody information on receipt at the laboratory.

Client: **United Nuclear Corporation** Description: **WATER**
Lab ID(s): **00-36828-1 Thru 00-36828-9** Matrix: **Liquid**
Delivered by: **UPS** Date&Time Rec'd: **13-OCT-00 0000** Date&Time Col'd: **09-OCT-00 0845**
Received by: **Linda Spicer/ T. Fassett** Logged In by: **Linda Spicer**

Chain of custody form completed & signed:	**Yes**	Comments:
Chain of custody seal:	**No**	Comments:
Chain of custody seal intact:	**N/A**	Comments:
Signature match, chain of custody vs. seal:	**N/A**	Comments:
Sample received Temperature:	**5C**	Comments:
Samples received within holding time:	**Yes**	Comments:
Samples received in proper containers:	**Yes**	Comments:
Samples Properly Preserved:	**Yes**	Comments:

Bottle Types Received: 9-2L P F HNO3,9-16OZP F NP,9-12OZP NFNP,9-12OZP F H2SO4,18-40ML VOA NA2S2O3

Comments: DID NOT RECEIVE ALL OF SHIPMENT UNTIL 16-OCT-00 @ 10.00

TRACKING NO. PAGE NO.

36828R00014

Energy Laboratories, Inc.

REPORT PACKAGE SUMMARY - FINAL PAGE

Acronyms and Definitions

ELI-B Energy Laboratories, Inc. - Billings, Montana
ELI-G Energy Laboratories, Inc. - Gillette, Wyoming
ELI-H Energy Laboratories, Inc. - Helena, Montana
ELI-R Energy Laboratories, Inc. - Rapid City,South Dakota

N/A - Not Applicable
NA - Not Analyzed
ND - Analyte Not Detected at Stated Limit of Detection
NR - Analyte Not Requested
NST - No Sample Time Given
NSD - No Sample Date Given

This Package Contains the following Client ID(s) and Lab ID(s)

Client ID: **624** is associated to Lab ID: **00-36828-2**
Client ID: **627** is associated to Lab ID: **00-36828-9**
Client ID: **EPA-23** is associated to Lab ID: **00-36828-4**
Client ID: **EPA-23 DUPLICATE** is associated to Lab ID: **00-36828-5**
Client ID: **EPA-25** is associated to Lab ID: **00-36828-8**
Client ID: **EPA-28** is associated to Lab ID: **00-36828-3**
Client ID: **GW-1** is associated to Lab ID: **00-36828-1**
Client ID: **GW-2** is associated to Lab ID: **00-36828-6**
Client ID: **GW-3** is associated to Lab ID: **00-36828-7**

This is the last page of the Laboratory Analysis Report.
The report contains the number of pages indicated by the last 4 digits.

TRACKING NO. PAGE NO.
36828R00015

APPENDIX C

LABORATORY QUALITY CONTROL AND PERFORMANCE REPORTS

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Alluvium 3rd Quarter
Laboratory ID Range: 34352-1-4
Report Date: August 21, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.3	96	jal	07-19-00
Magnesium	EPA 200.7	1.2	81	jal	07-19-00
Sodium	EPA 200.7	1.9	80	jal	07-19-00
Potassium	EPA 200.7	0.2	84	jal	07-19-00
Bicarbonate	SM 2320 B.	1.0	-	lm	07-20-00
Sulfate	EPA 200.7	1.0	96	jal	07-19-00
Chloride	EPA 200.7	4.8	86	jal	07-19-00
Ammonium	SM 4500-NH_3-G	0.0	115	rk	07-17-00
Nitrite + Nitrate	EPA 353.2	1.9	104	rk	07-21-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H-B	1.0	-	lm	07/20/2000 8:02

Non-Metals					
Total Dissolved Solids	SM 2540-C	0.1	99	jr	07-19-00

Trace Metals					
Aluminum	EPA 200.7	2.6	80	jal	07-19-00
Arsenic III	SM 3114C	3.2	92	jl	07-25-00
Beryllium	EPA 200.7	3.6	85	jal	07-19-00
Cadmium	EPA 200.8	-	99	ts	07-26-00
Cobalt	EPA 200.7	1.2	83	jal	07-19-00
Iron	EPA 200.7	2.8	81	jal	07-19-00
Lead	EPA 200.7	2.6	77	jal	07-19-00
Manganese	EPA 200.7	2.4	83	jal	07-19-00
Molybdenum	EPA 200.7	1.1	87	jal	07-19-00
Nickel	EPA 200.7	3.9	78	jal	07-19-00
Selenium IV	SM 3114C	0.0	96	jl	07-25-00
Vanadium	EPA 200.7	2.2	90	jal	07-19-00

Radiometrics					
Uranium	EPA 200.8	1.9	118	ts	07-26-00
Radium 226	EPA 903.0	0.3	104	rs	08-01-00
Radium 228	EPA 904.0	8.6	101	lh	08-07-00
Thorium 230	EPA 907.0	2.8	82	ph	08-03-00
Lead 210	NERHL-65-4	24.3	103	lh	07-25-00
Gross Alpha	EPA 900.0	9.4	107	rs	07-25-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	07-20-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: STEVEN E. CARLSTON, ORGANICS SUPERVISOR

Reviewed By: CATHY FOSTER, PROJECT MANAGER

msj: r:\reports\clients2000\unc_mining_&_milling\water\qa\34352-1-4.xls

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34352R00005

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Southwest Alluvium 3rd Quarter
Laboratory ID Range: 34507-1-9
Report Date: August 21, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.2	96	jal	07-21-00
Magnesium	EPA 200.7	0.8	98	jal	07-21-00
Sodium	EPA 200.7	1.0	94	jal	07-21-00
Potassium	EPA 200.7	0.5	89	jal	07-21-00
Bicarbonate	SM 2320 B.	0.4	-	lm	07-26-00
Sulfate	EPA 200.7	0.5	84	jal	07-21-00
Chloride	EPA 200.7	0.1	93	jal	07-21-00
Ammonium	SM 4500-NH_3-G	5.7	107	rk	07-24-00
Nitrite + Nitrate	EPA 353.2	1.0	96	rk	07-26-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H-B	0.4	-	lm	07/26/2000 9:27

Non-Metals					
Total Dissolved Solids	SM 2540-C	0.6	100	jr	07-25-00

Trace Metals					
Aluminum	EPA 200.7	2.1	93	jal	07-21-00
Arsenic III	SM 3114C	3.2	92	jl	07-25-00
Beryllium	EPA 200.7	0.0	96	jal	07-21-00
Cadmium	EPA 200.8	0.0	98	ts	08-03-00
Cobalt	EPA 200.7	0.0	97	jal	07-21-00
Iron	EPA 200.7	0.0	92	jal	07-21-00
Lead	EPA 200.7	2.2	90	jal	07-21-00
Manganese	EPA 200.7	0.0	96	jal	07-21-00
Molybdenum	EPA 200.7	4.2	93	jal	07-21-00
Nickel	EPA 200.7	0.0	96	jal	07-21-00
Selenium IV	SM 3114C	0.0	100	jl	07-25-00
Vanadium	EPA 200.7	0.0	97	jal	07-21-00

Radiometrics					
Uranium	EPA 200.8	0.4	100	ts	08-03-00
Radium 226	EPA 903.0	0.0	95	rs	08-05-00
Radium 228	EPA 904.0	8.0	99	lh	08-11-00
Thorium 230	EPA 907.0	14.3	117	ph	08-11-00
Lead 210	NERHL-65-4	0.0	108	lh	08-03-00
Gross Alpha	EPA 900.0	0.0	100	lh	08-03-00

Trace Organics					
Chloroform	EPA 601	2.4	96	rlo/sec	07-24-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: R. A. Garling — Roger Garling, Laboratory Supervisor

Reviewed By:

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ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Southwest Alluvium 4th Quarter
Laboratory ID Range: 36667-1-4
Report Date: November 11, 2000

Major Ions	Method	RPD[1]	Spike	Analyst	Date Analyzed
Calcium	EPA 200.7	0.9	95	jal	10-16-00
Magnesium	EPA 200.7	0.7	97	jal	10-16-00
Sodium	EPA 200.7	0.7	94	jal	10-16-00
Potassium	EPA 200.7	1.1	94	jal	10-16-00
Bicarbonate	SM 2320 B.	0.4	98	nlm	10-10-00
Sulfate	EPA 200.7	2.2	87	jal	10-16-00
Chloride	EPA 200.7	1.2	94	jal	10-16-00
Ammonia	SM 4500-NH_3-G	3.7	95	rk	10-09-00
Nitrite + Nitrate	EPA 353.2	1.0	103	rk	10-11-00
PARAMETERS with 48 hour holding time					**Date/Time Analyzed**
pH	SM 4500-H-B	0.4	-	nlm	10-10-00 17:34
Non-Metals					
Total Dissolved Solids	SM 2540-C	0.1	101	jlr	10-11-00
Trace Metals					
Aluminum	EPA 200.7	2.2	91	jal	10-16-00
Arsenic III	SM 3114-C	0.0	98	jl	10-11-00
Beryllium	EPA 200.7	1.1	92	jal	10-16-00
Cadmium	EPA 200.8	0.0	101	ts	10-20-00
Cobalt	EPA 200.7	1.1	91	jal	10-16-00
Lead	EPA 200.7	2.4	83	jal	10-16-00
Manganese	EPA 200.7	1.1	91	jal	10-16-00
Molybdenum	EPA 200.7	3.3	90	jal	10-16-00
Nickel	EPA 200.7	2.3	87	jal	10-16-00
Selenium IV	SM 3114-C	0.0	94	jl	10-11-00
Vanadium	EPA 200.7	1.0	96	jal	10-16-00
Radiometrics					
Uranium	EPA 200.8	0.5	94	ts	10-20-00
Radium 226	EPA 903.0	0.6	101	rs	10-21-00
Radium 228	EPA 904.0	11.9	103	lmh	11-02-00
Thorium 230	EPA 907.0	11.1	93	ph	10-24-00
Lead 210	NERHL-65-4	0.0	92	lmh	10-24-00
Gross Alpha	EPA 900.0	1.2	130	rs	10-17-00
Trace Organics					
Chloroform	EPA 601	1.3	92	rlo	10-11-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: R.A. Gapling
ROGER GAPLING
LABORATORY SUPERVISOR

Reviewed By: Sheryl Gapling
SHERYL GAPLING
ADMINISTRATIVE SUPERVISOR

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ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Southwest Alluvium 4th Quarter
Laboratory ID Range: 36828-1-9
Report Date: November 21, 2000

Major Ions	Method	RPD[1]	Spike[2]	Analyst	Date Analyzed
Calcium	EPA 200.7	2.0	94	jal	10-17-00
Magnesium	EPA 200.7	2.1	99	jal	10-17-00
Sodium	EPA 200.7	2.3	78	jal	10-17-00
Potassium	EPA 200.7	0.6	98	jal	10-17-00
Bicarbonate	SM 2320-B	0.3	100	nlm	10-17-00
Sulfate	EPA 200.7	0.3	85	jal	10-17-00
Chloride	EPA 200.7	2.7	90	jal	10-17-00
Ammonia	SM 4500-NH_3-G	1.0	102	jl	10-23-00
Nitrite + Nitrate	EPA 353.2	0.0	106	jl	10-18-00
PARAMETERS with 48 hour holding time					**Date/Time Analyzed**
pH	SM 4500-H-B	0.3	-	nlm	10-17-00 13:29
Non-Metals					
Total Dissolved Solids	SM 2540-C	0.2	101	jlr	10-18-00
Trace Metals					
Aluminum	EPA 200.7	2.2	88	jal	10-17-00
Arsenic III	SM 3114-C	0.0	88	jl	10-19-00
Beryllium	EPA 200.7	1.1	89	jal	10-17-00
Cadmium	EPA 200.8	0.0	102	ts	10-30-00
Cobalt	EPA 200.7	3.4	88	jal	10-17-00
Lead	EPA 200.7	2.4	80	jal	10-17-00
Manganese	EPA 200.7	3.2	89	jal	10-17-00
Molybdenum	EPA 200.7	0.0	91	jal	10-17-00
Nickel	EPA 200.7	0.0	80	jal	10-17-00
Selenium IV	SM 3114-C	0.0	92	jl	10-19-00
Vanadium	EPA 200.7	2.4	92	jal	10-17-00
Radiometrics					
Uranium	EPA 200.8	0.2	113	ts	10-30-00
Radium 226	EPA 903.0	4.1	87	rs	11-07-00
Radium 228	EPA 904.0	0.0	83	lmh	11-15-00
Thorium 230	EPA 907.0	2.2	96	ph	11-02-00
Lead 210	NERHL-65-4	0.0	107	lmh	11-13-00
Polonium 210	RMO-3008	0.0	99	rs	10-19-00
Gross Alpha	EPA 900.0	7.3	91	rs	11-12-00
Trace Organics					
Chloroform	EPA 601	2.3	90	rlo	10-19-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: R.A. Gapling — ROGER GAPLING, LABORATORY SUPERVISOR

Reviewed By: Sheryl Gapling — SHERYL GAPLING, ADMINISTRATIVE SUPERVISOR

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ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 3rd Quarter
Laboratory ID Range: 34353-1-13
Report Date: August 21, 2000

Major Ions	Method	RPD[1]	Spike[2]	Analyst	Date Analyzed
Calcium	EPA 200.7	1.3	96	jal	07-19-00
Magnesium	EPA 200.7	1.2	81	jal	07-19-00
Sodium	EPA 200.7	1.9	80	jal	07-19-00
Potassium	EPA 200.7	0.2	84	jal	07-19-00
Bicarbonate	SM 2320 B.	1.0	-	lm	07-20-00
Sulfate	EPA 200.7	1.0	96	jal	07-19-00
Chloride	EPA 200.7	4.8	86	jal	07-19-00
Ammonium	SM 4500-NH_3-G	0.0	109	rk	07-17-00
Nitrite + Nitrate	EPA 353.2	1.8	104	rk	07-21-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H-B	1.0	-	lm	07/20/2000 8:52

Non-Metals					
Total Dissolved Solids	SM 2540-C	0.1	99	jr	07-19-00

Trace Metals					
Aluminum	EPA 200.7	2.6	80	jal	07-19-00
Aluminum	EPA 200.8	0.0	90	ts	07-26-00
Arsenic III	SM 3114C	3.2	92	jl	07-25-00
Beryllium	EPA 200.7	3.6	85	jal	07-19-00
Cadmium	EPA 200.8	8.5	103	ts	07-26-00
Cobalt	EPA 200.7	1.2	83	jal	07-19-00
Iron	EPA 200.7	2.8	81	jal	07-19-00
Lead	EPA 200.7	2.6	77	jal	07-19-00
Manganese	EPA 200.7	2.4	83	jal	07-19-00
Molybdenum	EPA 200.7	1.1	87	jal	07-19-00
Nickel	EPA 200.7	3.9	78	jal	07-19-00
Selenium IV	SM 3114C	0.0	96	jl	07-25-00
Vanadium	EPA 200.7	2.2	90	jal	07-19-00

Radiometrics					
Uranium	EPA 200.8	0.0	118	ts	07-26-00
Radium 226	EPA 903.0	0.3	99	rs	08-01-00
Radium 228	EPA 904.0	8.6	101	lh	08-07-00
Thorium 230	EPA 907.0	2.8	82	ph	08-03-00
Lead 210	NERHL-65-4	0.0	85	lh	07-27-00
Gross Alpha	EPA 900.0	0.0	93	rs	07-28-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	07-20-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: **Reviewed By:**

Cathy Fosnes
Project Manager

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34353R00014

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 3rd Quarter
Laboratory ID Range: 34509-1
Report Date: August 21, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.2	96	jal	07-21-00
Magnesium	EPA 200.7	0.8	98	jal	07-21-00
Sodium	EPA 200.7	1.0	94	jal	07-21-00
Potassium	EPA 200.7	0.5	89	jal	07-21-00
Bicarbonate	SM 2320 B.	0.4	-	lm	07-26-00
Sulfate	EPA 200.7	0.5	84	jal	07-21-00
Chloride	EPA 200.7	0.1	93	jal	07-21-00
Ammonium	SM 4500-NH_3-G	3.6	109	rk	07-24-00
Nitrite + Nitrate	EPA 353.2	1.8	97	rk	07-26-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H-B	0.4	-	lm	07/26/2000 13:49

Non-Metals					
Total Dissolved Solids	SM 2540-C	1.3	99	jr	07-25-00

Trace Metals					
Aluminum	EPA 200.7	2.1	93	jal	07-21-00
Arsenic III	SM 3114C	3.2	92	jl	07-25-00
Beryllium	EPA 200.7	0.0	96	jal	07-21-00
Cadmium	EPA 200.8	1.4	95	ts	08-07-00
Cobalt	EPA 200.7	0.0	97	jal	07-21-00
Iron	EPA 200.7	0.0	92	jal	07-21-00
Lead	EPA 200.7	2.2	90	jal	07-21-00
Manganese	EPA 200.7	0.0	96	jal	07-21-00
Molybdenum	EPA 200.7	4.2	93	jal	07-21-00
Nickel	EPA 200.7	0.0	96	jal	07-21-00
Selenium IV	SM 3114C	0.0	100	jl	07-25-00
Vanadium	EPA 200.7	0.0	97	jal	07-21-00

Radiometrics					
Uranium	EPA 200.8	-	98	ts	08-07-00
Radium 226	EPA 903.0	0.0	95	rs	08-06-00
Radium 228	EPA 904.0	8.0	99	lh	08-11-00
Thorium 230	EPA 907.0	14.2	117	ph	08-11-00
Lead 210	NERHL-65-4	0.0	90	lh	08-10-00
Gross Alpha	EPA 900.0	11.8	115	lh	08-02-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	07-24-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: R. A. Garling — Roger Garling, Laboratory Supervisor

Reviewed By: [illegible] — Project Manager

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34509R00002

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 4th Quarter
Laboratory ID Range: 36665-1-12
Report Date: November 9, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	0.9	98	jal	10-11-00
Magnesium	EPA 200.7	0.8	102	jal	10-11-00
Sodium	EPA 200.7	0.8	97	jal	10-11-00
Potassium	EPA 200.7	0.8	98	jal	10-11-00
Bicarbonate	SM 2320-B	0.4	102	nlm	10-10-00
Sulfate	EPA 200.7	0.0	80	jal	10-11-00
Chloride	EPA 200.7	0.0	90	jal	10-11-00
Ammonia	SM 4500-NH_3-G	1.6	95	rk	10-09-00
Nitrite + Nitrate	EPA 353.2	1.0	108	rk	10-11-00
PARAMETERS with 48 hour holding time					**Date/Time Analyzed**
pH	SM 4500-H-B	0.4	-	nlm	10-10-00 15:15
Non-Metals					
Total Dissolved Solids	SM 2540-C	0.0	101	jlr	10-11-00
Trace Metals					
Aluminum	EPA 200.7	0.0	90	jal	10-11-00
Arsenic III	SM 3114C	0.0	98	jl	10-11-00
Beryllium	EPA 200.7	1.1	91	jal	10-11-00
Cadmium	EPA 200.8	0.0	101	ts	10-20-00
Cobalt	EPA 200.7	0.0	93	jal	10-11-00
Lead	EPA 200.7	1.2	85	jal	10-11-00
Manganese	EPA 200.7	0.0	92	jal	10-11-00
Molybdenum	EPA 200.7	0.0	90	jal	10-11-00
Nickel	EPA 200.7	0.0	93	jal	10-11-00
Selenium IV	SM 3114C	0.0	100	jl	10-11-00
Vanadium	EPA 200.7	0.0	93	jal	10-11-00
Radiometrics					
Uranium	EPA 200.8	0.5	94	ts	10-20-00
Radium 226	EPA 903.0	0.5	96	rs	10-24-00
Radium 228	EPA 904.0	0.0	108	lmh	11-03-00
Thorium 230	EPA 907.0	11.1	93	ph	10-24-00
Lead 210	NERHL-65-4	0.0	92	lmh	10-24-00
Gross Alpha	EPA 900.0	0.0	92	rs	10-19-00
Trace Organics					
Chloroform	EPA 601	1.3	92	rlo	10-11-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: R.A. Gaeling ROGER GAEBLING

Reviewed By: Sheryl Gaeling SHERYL GAEBLING ADMINISTRATIVE SUPERVISOR

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ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 4th Quarter
Laboratory ID Range: 36832-1-2
Report Date: November 11, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.0	90	jal	10-26-00
Magnesium	EPA 200.7	1.1	97	jal	10-26-00
Sodium	EPA 200.7	1.6	89	jal	10-26-00
Potassium	EPA 200.7	0.4	93	jal	10-26-00
Bicarbonate	SM 2320 B.	0.3	-	nlm	10-17-00
Sulfate	EPA 200.7	1.3	89	jal	10-26-00
Chloride	EPA 200.7	1.0	84	jal	10-26-00
Ammonium	SM 4500-NH_3-G	0.0	104	jl	10-23-00
Nitrite + Nitrate	EPA 353.2	0.0	109	jl	10-18-00
PARAMETERS with 48 hour holding time					**Date/Time Analyzed**
pH	SM 4500-H-B	0.3	-	nlm	10-17-00 16:28
Non-Metals					
Total Dissolved Solids	SM 2540-C	0.5	101	jlr	10-18-00
Trace Metals					
Aluminum	EPA 200.7	1.1	87	jal	10-26-00
Arsenic III	SM 3114-C	0.0	88	jl	10-19-00
Beryllium	EPA 200.7	1.1	94	jal	10-26-00
Cadmium	EPA 200.8	0.0	102	ts	10-30-00
Cobalt	EPA 200.7	1.1	89	jal	10-26-00
Lead	EPA 200.7	2.3	87	jal	10-26-00
Manganese	EPA 200.7	1.1	89	jal	10-26-00
Molybdenum	EPA 200.7	1.1	89	jal	10-26-00
Nickel	EPA 200.7	0.0	84	jal	10-26-00
Selenium IV	SM 3114-C	0.0	92	jl	10-19-00
Vanadium	EPA 200.7	1.0	96	jal	10-26-00
Radiometrics					
Uranium	EPA 200.8	0.2	113	ts	10-30-00
Radium 226	EPA 903.0	6.9	84	rs	10-29-00
Radium 228	EPA 904.0	1.1	122	lmh	11-09-00
Thorium 230	EPA 907.0	2.2	96	ph	11-02-00
Lead 210	NERHL-65-4	0.0	106	lmh	11-07-00
Gross Alpha	EPA 900.0	0.0	97	rs	11-03-00
Trace Organics					
Chloroform	EPA 601	2.3	90	rlo	10-20-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: Roger Gapling, Laboratory Supervisor

Reviewed By: Sheryl Gapling, Administrative Supervisor

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ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 3 3rd Quarter
Laboratory ID Range: 34356-1-3
Report Date: August 21, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.3	96	jal	07-19-00
Magnesium	EPA 200.7	1.2	81	jal	07-19-00
Sodium	EPA 200.7	1.9	80	jal	07-19-00
Potassium	EPA 200.7	0.2	84	jal	07-19-00
Bicarbonate	SM 2320 B.	1.0	-	lm	07-20-00
Sulfate	EPA 200.7	1.0	96	jal	07-19-00
Chloride	EPA 200.7	4.8	86	jal	07-19-00
Ammonium	SM 4500-NH_3-G	2.1	109	rk	07-17-00
Nitrite + Nitrate	EPA 353.2	2.8	104	rk	07-21-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H-B	1.0	-	lm	07/20/2000 12:10

Non-Metals					
Total Dissolved Solids	SM 2540-C	2.4	100	jr	07-19-00

Trace Metals					
Aluminum	EPA 200.7	2.6	80	jal	07-19-00
Arsenic III	SM 3114C	3.2	92	jl	07-25-00
Beryllium	EPA 200.7	3.6	85	jal	07-19-00
Cadmium	EPA 200.8	0.0	96	ts	07-27-00
Cobalt	EPA 200.7	1.2	83	jal	07-19-00
Iron	EPA 200.7	2.8	81	jal	07-19-00
Lead	EPA 200.7	2.6	77	jal	07-19-00
Manganese	EPA 200.7	2.4	83	jal	07-19-00
Molybdenum	EPA 200.7	1.1	87	jal	07-19-00
Nickel	EPA 200.7	3.9	78	jal	07-19-00
Selenium IV	SM 3114C	0.0	96	jl	07-25-00
Vanadium	EPA 200.7	2.2	90	jal	07-19-00

Radiometrics					
Uranium	EPA 200.8	1.1	91	ts	07-27-00
Radium 226	EPA 903.0	0.0	95	rs	08-05-00
Radium 228	EPA 904.0	8.0	99	lh	08-11-00
Thorium 230	EPA 907.0	2.2	96	ph	08-03-00
Lead 210	NERHL-65-4	0.0	85	lh	07-27-00
Gross Alpha	EPA 900.0	0.0	100	lh	08-03-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	07-20-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: Steven E. Carlston **Reviewed By:**

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34356R00004

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 3 3rd Quarter
Laboratory ID Range: 34508-1
Report Date: August 21, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.2	96	jal	07-21-00
Magnesium	EPA 200.7	0.8	98	jal	07-21-00
Sodium	EPA 200.7	1.0	94	jal	07-21-00
Potassium	EPA 200.7	0.5	89	jal	07-21-00
Bicarbonate	SM 2320 B.	0.4	-	lm	07-26-00
Sulfate	EPA 200.7	0.5	84	jal	07-21-00
Chloride	EPA 200.7	0.1	93	jal	07-21-00
Ammonium	SM 4500-NH_3-G	5.7	109	rk	07-24-00
Nitrite + Nitrate	EPA 353.2	1.8	97	rk	07-26-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H-B	0.4	-	lm	07/26/2000 13:46

Non-Metals					
Total Dissolved Solids	SM 2540-C	1.3	99	jr	07-25-00

Trace Metals					
Aluminum	EPA 200.7	2.1	93	jal	07-21-00
Arsenic III	SM 3114C	3.2	92	jl	07-25-00
Beryllium	EPA 200.7	0.0	96	jal	07-21-00
Cadmium	EPA 200.8	0.0	98	ts	08-03-00
Cobalt	EPA 200.7	0.0	97	jal	07-21-00
Iron	EPA 200.7	0.0	92	jal	07-21-00
Lead	EPA 200.7	2.2	90	jal	07-21-00
Manganese	EPA 200.7	0.0	96	jal	07-21-00
Molybdenum	EPA 200.7	4.2	93	jal	07-21-00
Nickel	EPA 200.7	0.0	96	jal	07-21-00
Selenium IV	SM 3114C	0.0	100	jl	07-25-00
Vanadium	EPA 200.7	0.0	97	jal	07-21-00

Radiometrics					
Uranium	EPA 200.8	0.4	100	ts	08-03-00
Radium 226	EPA 903.0	0.0	95	rs	08-06-00
Radium 228	EPA 904.0	8.0	99	lh	08-11-00
Thorium 230	EPA 907.0	14.3	117	ph	08-11-00
Lead 210	NERHL-65-4	0.0	90	lh	08-10-00
Gross Alpha	EPA 900.0	11.8	115	lh	08-02-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	07-24-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: Steven E. Carlston, Organics Supervisor

Reviewed By: Cathy Fosting, Cathy Fosting

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ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 3 4th Quarter
Laboratory ID Range: 36668-1-3
Report Date: November 11, 2000

Major Ions	Method	RPD[1]	95	Analyst	Date Analyzed
Calcium	EPA 200.7	0.9	97	jal	10-16-00
Magnesium	EPA 200.7	0.7	94	jal	10-16-00
Sodium	EPA 200.7	0.7	94	jal	10-16-00
Potassium	EPA 200.7	1.1		jal	10-16-00
Bicarbonate	SM 2320 B.	0.4	87	nlm	10-11-00
Sulfate	EPA 200.7	2.2	94	jal	10-16-00
Chloride	EPA 200.7	1.2		jal	10-16-00
Ammonia	SM 4500-NH_3-G	3.7	99	rk	10-09-00
Nitrite + Nitrate	EPA 353.2	1.5	103	rk	10-11-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H-B	0.4	-	nlm	10-11-00 09:35

Non-Metals					
Total Dissolved Solids	SM 2540-C	0.0	101	jlr	10-11-00

Trace Metals					
Aluminum	EPA 200.7	2.2	91	jal	10-16-00
Arsenic III	SM 3114-C	0.0	98	jl	10-11-00
Beryllium	EPA 200.7	1.1	92	jal	10-16-00
Cadmium	EPA 200.8	0.0	101	ts	10-20-00
Cobalt	EPA 200.7	1.1	91	jal	10-16-00
Lead	EPA 200.7	2.4	83	jal	10-16-00
Manganese	EPA 200.7	1.1	91	jal	10-16-00
Molybdenum	EPA 200.7	3.3	90	jal	10-16-00
Nickel	EPA 200.7	2.3	87	jal	10-16-00
Selenium IV	SM 3114-C	0.0	100	jl	10-11-00
Vanadium	EPA 200.7	1.0	96	jal	10-16-00

Radiometrics					
Uranium	EPA 200.8	0.5	94	ts	10-20-00
Radium 226	EPA 903.0	0.6	101	rs	10-22-00
Radium 228	EPA 904.0	11.9	103	lmh	11-02-00
Thorium 230	EPA 907.0	0.7	94	ph	10-27-00
Lead 210	NERHL-65-4	-	87	lmh	11-02-00
Gross Alpha	EPA 900.0	1.2	130	rs	10-17-00

Trace Organics					
Chloroform	EPA 601	15.7	85	rlo	10-12-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: R.A. Gabling — ROGER GABLING, LABORATORY SUPERVISOR

Reviewed By: Sheryl Gabling — SHERYL GABLING, ADMINISTRATIVE SUPERVISOR

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ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 3 4th Quarter
Laboratory ID Range: 36833-1
Report Date: November 11, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.0	90	jal	10-26-00
Magnesium	EPA 200.7	1.1	97	jal	10-26-00
Sodium	EPA 200.7	1.6	89	jal	10-26-00
Potassium	EPA 200.7	0.4	93	jal	10-26-00
Bicarbonate	SM 2320 B.	0.3	-	nlm	10-17-00
Sulfate	EPA 200.7	1.3	89	jal	10-26-00
Chloride	EPA 200.7	1.0	84	jal	10-26-00
Ammonium	SM 4500-NH_3-G	0.0	104	jl	10-23-00
Nitrite + Nitrate	EPA 353.2	11.8	109	jl	10-18-00
PARAMETERS with 48 hour holding time					**Date/Time Analyzed**
pH	SM 4500-H-B	0.3	-	nlm	10-17-00 16:41
Non-Metals					
Total Dissolved Solids	SM 2540-C	4.0	101	jlr	10-18-00
Trace Metals					
Aluminum	EPA 200.7	1.1	87	jal	10-26-00
Arsenic III	SM 3114-C	0.0	88	jl	10-19-00
Beryllium	EPA 200.7	1.1	94	jal	10-26-00
Cadmium	EPA 200.8	0.0	102	ts	10-30-00
Cobalt	EPA 200.7	1.1	89	jal	10-26-00
Lead	EPA 200.7	2.3	87	jal	10-26-00
Manganese	EPA 200.7	1.1	89	jal	10-26-00
Molybdenum	EPA 200.7	1.1	89	jal	10-26-00
Nickel	EPA 200.7	0.0	84	jal	10-26-00
Selenium IV	SM 3114-C	0.0	92	jl	10-19-00
Vanadium	EPA 200.7	1.0	96	jal	10-26-00
Radiometrics					
Uranium	EPA 200.8	0.2	113	ts	10-30-00
Radium 226	EPA 903.0	6.9	84	rs	10-29-00
Radium 228	EPA 904.0	1.1	122	lmh	11-09-00
Thorium 230	EPA 907.0	2.2	96	ph	11-02-00
Lead 210	NERHL-65-4	0.0	106	lmh	11-07-00
Gross Alpha	EPA 900.0	0.0	93	rs	10-19-00
Trace Organics					
Chloroform	EPA 601	2.3	90	rlo	10-20-00

NOTES:

(1) These values are an assessment of analytical precision. The acceptance range is 0-20% for sample results above 10 times the reporting limit. This range is not applicable to samples with results below 10 times the reporting limit.

(2) These values are an assessment of analytical accuracy. They are a percent recovery of the spike addition. ELI performs a matrix spike on 10 percent of all samples for each analytical method.

Report Approved By: R. A. Gaeling — Roger Gaeling, Laboratory Supervisor

Reviewed By: Sheryl Gaeling — Sheryl Gaeling, Administrative Supervisor

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