UNITED NUCLEAR CORPORATION

P.O. Box 3077
Gallup, New Mexico 87305-3077

Telephone: (505) 722-6651
Fax: (505) 722-6654

CERTIFIED – RETURN RECEIPT REQUESTED

August 30, 2000

40-8907

Mr. Greg Lyssy
U.S. Environmental Protection Agency
OK/NM Superfund Enforcement Section (6H-EO)
Region IV
1445 Ross Avenue
Dallas, TX 75202-2733

Re: Semi-Annual Quality Assurance Report
Ground Water Monitoring – First 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 first half of 2000.

Two sampling episodes occurred in the first half of 2000 – in January and in April. Additionally, we also initiated and implemented the low purge and sampling procedure to our monitoring program during the 2nd quarter of 2000.

Sincerely,

Larry Bush
Manager

LB: r

Enclosure

Cc: NRC, Rockville, MD
NRC, Arlington, TX
Steve Cline, GE
Roy Blickwedel, GE

NMSS01F001

SEMI-ANNUAL QUALITY ASSURANCE
CHURCH ROCK SITE

JANUARY AND MAY SAMPLING EVENTS

AUGUST 2000

TABLE OF CONTENTS

1.0 Requirements

2.0 Field Sampling Procedures

3.0 Chain of Custody

4.0 Laboratory Quality Control

5.0 Data Validation

Appendix A: Field Data Sheets

Appendix B: Chain of Custody

Appendix C: Laboratory Quality Control and Performance Reports

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 sampling report sheets for the first and second quarters of 2000, are included as Appendix A. The sheets indicate the estimated volume of water purged from the well prior to sampling and the field parameters of pH, temperature, and conductivity. The field Blank and Rinsate (1st Qr. Only) 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 and error is discovered.

APPENDIX A

FIELD DATA SHEETS

GROUND WATER MONITORING FIELD DATA SHEET

WATER DEPTH AND PURGING

FRIST QUARTER 2000

WELL NO.	MONTH/ DAY	TIME	WATER DEPTH	PURGING METHOD	EST. VOL. PURGED
502-B	1-3	1445	161.8'	BAILED	3. GALS.
504-B	1-3	1420	160.2'	BAILED	3. "
509-D	1-3	1230	65.2'	AIR LIFT	20. "
515-A	1-3	1050	98.3'	AIR LIFT	2. "
516-A	1-3	1130	102.8'	AIR LIFT	2. "
517	1-3	1015	100.8'	AIR LIFT	2. "
518	1-3	1500	132.3'	BAILED	3. "
604	1-3	1100	98.2'	AIR LIFT	10. "
614	1-3	1030	96.8'	AIR LIFT	1. "
619	1-3	1110	127.4'	AIR LIFT	25. "
624	1-3	1300	47.4'	AIR LIFT	15. "
627	1-3	1400	53.1'	AIR LIFT	
632	1-3	1325	45.9'	AIR LIFT	
TWQ-141	1-3	0830	48.0'	AIR LIFT	50. gals.
TWQ-142	1-3	0850	204.1'	AIR LIFT	30. "
TWQ-143	1-3	0905	209.7'	AIR LIFT	30. "
804	1-12	0930	49.1'		
805	1-12	0935	51.6'		
806	1-12	0938	51.9'		
807	1-12	0941	54.1'		

GROUND WATER MONITORING FIELD DATA SHEET

WATER DEPTH AND PURGING

FRIST QUARTER 2000

WELL NO.	MONTH/ DAY	TIME	WATER DEPTH	PURGING METHOD	EST. VOL. PURGED
GW-1	1-3	1245	59.5'	AIR LIFT	15-gals.
GW-2	1-3	1310	54.2'	AIR LIFT	15-"
GW-3	1-3	1340	51.4'	AIR LIFT	5-"
GW-4		NO WATER			
EPA-1		NO WATER			
EPA-2	1-10	1015	170.0'	Pumped	12-gals
EPA-4	1-10	0910	200.3'	Pumped	92-gals.
EPA-5	1-10	0955	119.5'	pumped	48-"
EPA-7	1-10	1420	108.9'	pumped	46-"
EPA-8	1-10	0830	213.2'	pumped	62-"
EPA-9	1-10	0905	168.8'	pumped	5-"
EPA-13	1-10	0815	164.5'	pumped	12-"
EPA-14	1-10	1120	108.5'	pumped	188-"
EPA-22A	NO	WATER			
EPA-23	1-10	1050	46.7'	pumped	265-"
EPA-25	1-10	1245	51.1'	pumped	30-"
EPA-27	NO	WATER			
EPA-28	1-10	1035	61.1'	pumped	14-"
411					
420	1-3	1000	136.3'	AIR LIFT	2-"

GROUND WATER MONITORING FIELD DATA SHEET
FRIST QUARTER 2000
SAMPLING

Well No.	Month/ Day	Time	Sampling Method	pH	Cond.	C° Temp.	Comments
502-B	1-4	1515	BAILED	4.3	5040	13.7	
504-B	1-4	1500	BAILED	6.0	4890	13.7	
509-D	1-4	1233	BAILED	6.7	6530	13.3	
515-A	1-4	1050	BAILED	5.5	7240	13.8	
516-A	1-4	1130	BAILED	6.3	1070	14.1	
517	1-4	1025	BAILED	4.5	4440	13.4	
518	1-4	1525	BAILED	3.3	6140	13.9	
604	1-4	1102	BAILED	4.6	7040	14.1	
614	1-4	1040	BAILED	6.8	7860	13.3	
619	1-4	1112	BAILED	6.7	4970	13.6	
4	1-4	1320	BAILED	6.8	5380	12.7	
627	1-4	1445	BAILED	7.0	5520	13.8	
632	1-4	1355	BAILED	6.6	6270	13.9	
TWQ-141	1-4	0850	BAILED	7.0	3440	12.5	
TWQ-142	1-4	0910	BAILED	7.2	2120	13.0	
TWQ-143	1-4	0925	BAILED	7.8	1359	12.7	
801	1-4	1348	BAILED	6.5	7760	13.4	
802	1-11	0840	PUMPED	6.5	7090	13.4	
803	1-11	0845	PUMPED	6.6	6660	14.3	
Field Blank	1-4	1420		7.7	3030	11.8	
Rinsate	1-4	1415		7.6	2090	11.7	

GROUND WATER MONITORING FIELD DATA SHEET
FRIST QUARTER 2000
SAMPLING

Well No.	Month/ Day	Time	Sampling Method	pH	Cond.	C° Temp.	Comments
GW-1	1-4	1245	BAILED	6.7	4350	13.5	
GW-2	1-4	1335	BAILED	6.6	5400	12.5	
GW-3	1-4	1425	BAILED	6.6	4840	13.8	
★GW-4							
★EPA-1							
EPA-2	1-11	1015	Pumped	6.7	3330	11.7	
EPA-4	1-11	0940	Pumped	6.5	4380	13.0	
EPA-5	1-11	0955	Pumped	6.5	7000	13.6	
★EPA-6							
EPA-7	1-11	1420	Pumped	6.1	7220	13.6	
EPA-8	1-11	0925	Pumped	6.6	4290	12.7	
EPA-9	1-11	0935	Pumped	4.2	5020	11.5	
EPA-13	1-11	0910	Pumped	6.1	5520	13.3	
EPA-14	1-11	1122	Pumped	6.5	3820	13.7	
★EPA-15							
★EPA-22A							
EPA-23	1-11	1050	Pumped	6.6	4900	12.9	
EPA-25	1-11	1250	Pumped	6.8	4130	13.5	
★EPA-27							
EPA-28	1-11	1035	Pumped	6.8	4870	13.0	
★★411							
420	1-4	1005	BAILED	6.6	3900	13.2	

★ DELETED WELLS GW-4, EPA-1, EPA-6, EPA-15, EPA-22A AND EPA-27 due To Lack of WATER
★★ LARGE AMOUNT of oil in WELL #411. BAILER will NOT go THROUGHT oil To GET A WATER SAMPLE

EPA WELLS

FIRST Quarter 2000

Date	Well No.	HP	Elevation T.O.P.	Meter Reading Start	(-)	Meter Reading End	=	Gals. Purged	Time for Well To Go Dry Minutes/Seconds
*	EPA-1	1/2	7035.544	NO		WATER			
1-10	EPA-2	1/3	7019.485	2,556,889		2,556,901		12	5:51
1-10	EPA-4	1/2	7069.798	2,556,749		2,556,841		92	23:04
1-10	EPA-5	1/3	7011.444	2,556,841		2,556,889		48	6:56
1-10	EPA-7	1/3	7011.662	2,557,534		2,557,580		46	4:28
1-10	EPA-8	1/2	7076.402	2,556,682		2,556,744		62	22:42
1-10	EPA-9	1/3	7076.612	2,556,744		2,556,749		5	1:19
1-10	EPA-13	1/2	7030.467	2,556,670		2,556,682		12	1:22
	EPA-14	1/2	6965.611	2,557,180		2,557,368		188	2:16
*	EPA-22A	1/2	6954.512	NO		WATER			
1-10	EPA-23	2	6926.312	2,556,915		2,557,180		265	21:48
** 1-10	EPA-25	1/2	6903.383					EST. 30	20:10
*	EPA-27	1/3	6910.946	NO		WATER			
1-10	EPA-28	1	6917.861	2,556,901		2,556,915		14	1:06
1-10	NR-1	1/3		2,557,368		2,557,534		166	24:28

*Deleted EPA-3, EPA-12, EPA-17, EPA-18 due to lack of water.
Also EPA-15, EPA-1, EPA-22A EPA-27.
** METER WOULDN'T RECORD, DUE TO LARGE AMOUNT OF SAND IN WATER

Rev. 6-97

GROUND WATER MONITORING FIELD DATA SHEET
SECOND QUARTER 2000
SAMPLING

Date 5-1-00	Well Number 504-B	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond. 4,960	Reading Stable Cond. 4,900	Reading Ending Cond. 4.960
		160.4'	160.1'	1st pH 5.77	Stable pH 5.74	Ending pH 5.65
	Time	Bubbler Star	Bubbler End	1st Temp. 16.4°	Stable Temp. 15.2°	Ending Temp. 13.2°
	0907 hrs	6.340'	6.256'	Comments: FREEZE BLOW-OUT CHECK VALVE NOT holding.		
Date 5-1-00	Well Number 420	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond. 3,520	Reading Stable Cond. 3,550	Reading Ending Cond. 3.550
		135.3'	135.2'	1st pH 6.77	Stable pH 6.74	Ending pH 6.74
	Time	Bubbler Star	Bubbler End	1st Temp. 15.7°	Stable Temp. 15.5°	Ending Temp. 15.3°
	1030 hrs	13.198'	13.134'	Comments: FREEZE LINE . CHECK VALVE OK.		
Date 5-1-00	Well Number 517	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond. 4,420	Reading Stable Cond. 4400	Reading Ending Cond. 4,400
		100.2'	104.2'	1st pH 4.41	Stable pH 4.45	Ending pH 4.46
	Time	Bubbler Star	Bubbler End	1st Temp. 16.4°	Stable Temp. 15.8°	Ending Temp. 15.3°
	1250 hrs	0.830'	0.928'	Comments: BUBBLER NOT RECORDING RIGHT. FREEZE CHECK VALVE OK.		
Date 5-1-00	Well Number 711	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond. 4,720	Reading Stable Cond. 4,730	Reading Ending Cond. 4,720
		179.2'	179.1'	1st pH 4.77	Stable pH 4.77	Ending pH 4.75
	Time	Bubbler Star	Bubbler End	1st Temp. 16.7°	Stable Temp. 16.7°	Ending Temp. 16.6°
	1400 hrs	12.376'	11.923'	Comments: FREEZE CHECK VALVE OK.		
Date 5-1-00	Well Number 711 Duplicate	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond. 4,700	Reading Stable Cond.	Reading Ending Cond. 4,670
		179.2'	179.1'	1st pH 4.81	Stable pH	Ending pH 4.84
	Time	Bubbler Star	Bubbler End	1st Temp. 17.1°	Stable Temp.	Ending Temp. 17.9°
		12.376'	11.923'	Comments:		
Date 5-3-00	Well Number Field Blank	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond. 9.0	Reading Stable Cond.	Reading Ending Cond.
				1st pH 6.94	Stable pH	Ending pH
				1st Temp. 27.0°	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments:		

GROUND WATER MONITORING FIELD DATA SHEET
SECOND -QUARTER- 2000

SAMPLING

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-2-00	EPA-14	108.4'	108.3	1st Cond. 3,888	Stable Cond. 3,920	Ending Cond. 3,860
				1st pH 6.56	Stable pH 6.53	Ending pH 6.40
				1st Temp. 13.3°	Stable Temp. 13.4°	Ending Temp. 16.0°
	Time	Bubbler Star	Bubbler End	Comments:		
		14.888'	14.916'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-2-00	EPA-2	169.4'	169.7'	1st Cond. 2,960	Stable Cond. 2,990	Ending Cond. 2,880
				1st pH 6.60	Stable pH 6.60	Ending pH 6.58
				1st Temp. 16.4°	Stable Temp. 15.9°	Ending Temp. 17.1
	Time	Bubbler Star	Bubbler End	Comments:		
		13.520'	13.177'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-2-00	613	76.7'	78.0'	1st Cond. 10,770	Stable Cond. 11,010	Ending Cond. 10,970
				1st pH 2.91	Stable pH 3.02	Ending pH 3.03
				1st Temp. 27.2°	Stable Temp. 25.0°	Ending Temp. 20.6°
	Time	Bubbler Star	Bubbler End	Comments:		
		6.980'	6.387'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-2-00	614	97.4'	97.55'	1st Cond. 7,930	Stable Cond. 7,730	Ending Cond. 7,670
				1st pH 6.81	Stable pH 6.60	Ending pH 6.49
				1st Temp. 25.4°	Stable Temp. 22.9°	Ending Temp. 21.4°
	Time	Bubbler Star	Bubbler End	Comments:		
		8.883	8.578			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-2-00	803			1st Cond. 6,890	Stable Cond.	Ending Cond.
				1st pH 6.70	Stable pH	Ending pH
				1st Temp. 16.4	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments: This is a pumper well.		
	@ 0945 hrs.			SATURATION EXTENT, SEEPAGE.		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-2-00	802			1st Cond. 7,040	Stable Cond.	Ending Cond.
				1st pH 6.74	Stable pH	Ending pH
				1st Temp. 14.9°	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments: This is a pumper well.		
	@ 1005 hrs.			TURATION EXTENT, SEEPAGE		

GROUND WATER MONITORING FIELD DATA SHEET
SECOND QUARTER 2000
SAMPLING

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-3-00	604	97.0'	97.4'	1st Cond. 6,600	Stable Cond. 6,480	Ending Cond. 6,410
				1st pH 4.76	Stable pH 4.61	Ending pH 4.61
				1st Temp. 18.6°	Stable Temp. 16.1°	Ending Temp. 17.7°
	Time	Bubbler Star 12.212'	Bubbler End 11.861'	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-3-00	EPA-7	109.2'	109.7'	1st Cond. 7,030	Stable Cond. 7,040	Ending Cond. 6,980
				1st pH 6.07	Stable pH 5.88	Ending pH 5.88
				1st Temp. 17.2°	Stable Temp. 17.2°	Ending Temp. 20.0°
	Time	Bubbler Star 17.561'	Bubbler End 17.068	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-3-00	EPA-5	119.7'	119.9'	1st Cond. 5,510	Stable Cond. 5,460	Ending Cond. 5,480
				1st pH 6.12	Stable pH 6.30	Ending pH 6.34
				1st Temp. 20.7°	Stable Temp. 20.3°	Ending Temp. 20.9°
	Time	Bubbler Star 10.771'	Bubbler End 10.524'	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-3-00	509-D	65.8'	65.7	1st Cond. 6,020	Stable Cond. 5,760	Ending Cond. 5,730
				1st pH 6.81	Stable pH 6.39	Ending pH 6.26
				1st Temp. 27.5°	Stable Temp. 25.1	Ending Temp. 21.1
	Time	Bubbler Star 14.411'	Bubbler End 14.364'	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-8-00	632	46.7'	46.8'	1st Cond. 5970	Stable Cond. 5955	Ending Cond. 5,870
				1st pH 6.55	Stable pH 6.31	Ending pH 6.27
				1st Temp. 13.4°	Stable Temp. 14.7°	Ending Temp. 14.9°
	Time	Bubbler Star	Bubbler End	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-8-00	GW-2	54.5'	54.6'	1st Cond. 4940	Stable Cond. 5,151	Ending Cond. 5,000
				1st pH 6.40	Stable pH 6.34	Ending pH 6.38
				1st Temp. 14.1°	Stable Temp. 15.5°	Ending Temp. 15.8°
	Time	Bubbler Star 16.224	Bubbler End 15.839	Comments:		

GROUND WATER MONITORING FIELD DATA SHEET

SECOND QUARTER 2000 SAMPLING

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-9-00	GW-1	60.2'	60.3'	1st Cond. 4,440	Stable Cond. 4,480	Ending Cond. 4,380
				1st pH 6.78	Stable pH 6.59	Ending pH 6.59
				1st Temp. 13.3°	Stable Temp. 13.7°	Ending Temp. 14.9°
	Time	Bubbler Start	Bubbler End	Comments:		
		10.382'	10.192'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-9-00	624	48.1'	48.1'	1st Cond. 4,640	Stable Cond. 5,230	Ending Cond. 5,170
				1st pH 6.67	Stable pH 6.55	Ending pH 6.51
				1st Temp. 18.5°	Stable Temp. 14.5°	Ending Temp. 15.6°
	Time	Bubbler Start	Bubbler End	Comments:		
		14.331'	14.073'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-9-00	EPA-28	61.3'	61.4'	1st Cond. 4,380	Stable Cond. 4,840	Ending Cond. 4,140
				1st pH 6.88	Stable pH 6.10	Ending pH 6.63
				1st Temp. 21.4°	Stable Temp. 16.7°	Ending Temp. 17.8°
	Time	Bubbler Start	Bubbler End	Comments:		
		8.953	8.268'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-9-00	EPA-23	47.3'	47.4'	1st Cond. 4,070	Stable Cond. 4,190	Ending Cond. 4,183
				1st pH 6.59	Stable pH 6.54	Ending pH 6.55
				1st Temp. 18.8°	Stable Temp. 18.3°	Ending Temp. 18.3°
	Time	Bubbler Start	Bubbler End	Comments:		
		14.388'	14.063'	CHECK VALVE NOT HOLDING, FREEZE LINE.		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-9-00	EPA-23 DUPLICATE	47.4'	47.5'	1st Cond. 4,183	Stable Cond. 4,070	Ending Cond. 3,970
				1st pH 6.54	Stable pH 6.50	Ending pH 6.50
				1st Temp. 18.3°	Stable Temp. 19.9°	Ending Temp. 18.0°
	Time	Bubbler Start	Bubbler End	Comments:		
		14.063'	14.057'	CHECK VALVE NOT HOLDING, FREEZE LINE		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-9-00	EPA-25	50.7'	50.9'	1st Cond. 3,890	Stable Cond. 4,010	Ending Cond. 3,930
				1st pH 6.99	Stable pH 6.84	Ending pH 6.78
				1st Temp. 19.9°	Stable Temp. 19.3°	Ending Temp. 18.5°
	Time	Bubbler Start	Bubbler End	Comments:		
		9.678'	7.683'			

GROUND WATER MONITORING FIELD DATA SHEET
SECOND QUARTER - 2000
Sampling

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-10-00	TWG-142	202.7'	202.9'	1st Cond. 1,663	Stable Cond. 1,654	Ending Cond. 1,618
				1st pH 8.37	Stable pH 8.41	Ending pH 8.31
				1st Temp. 16.2°	Stable Temp. 15.6°	Ending Temp. 17.5°
	Time	Bubbler Start	Bubbler End	Comments:		
		17.618'	17.530'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-10-00	TWG-142 Duplicate	202.9'	202.9'	1st Cond. 1,688	Stable Cond. 1,621	Ending Cond. 1,688
				1st pH 8.31	Stable pH 8.31	Ending pH 8.32
				1st Temp. 17.5°	Stable Temp. 18.1°	Ending Temp. 18.3°
	Time	Bubbler Start	Bubbler End	Comments:		
		17.530'	17.494'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-10-00	627	53.4'	53.5'	1st Cond. 4,600	Stable Cond. 5,370	Ending Cond. 5,310
				1st pH 7.18	Stable pH 6.92	Ending pH 6.95
				1st Temp. 26.0°	Stable Temp. 18.5°	Ending Temp. 20.3°
	Time	Bubbler Start	Bubbler End	Comments:		
		8,988	8,699			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-10-00	515-A	98.2'	98.9'	1st Cond. 5,960	Stable Cond. 7,210	Ending Cond. 7,220
				1st pH 5.83	Stable pH 5.41	Ending pH 5.51
				1st Temp. 32.3°	Stable Temp. 22.8°	Ending Temp. 21.8°
	Time	Bubbler Start	Bubbler End	Comments:		
		10.891'	9.623'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-15-00	GW-3	52.0'	52.5'	1st Cond. 4,430	Stable Cond. 4,930	Ending Cond. 4,810
				1st pH 6.53	Stable pH 6.53	Ending pH 6.57
				1st Temp. 18.7°	Stable Temp. 14.2°	Ending Temp. 16.1°
	Time	Bubbler Start	Bubbler End	Comments:		
		3.431'	2.763'			

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading	Reading	Reading
5-15-00	EPA-4	200.7'	201.0'	1st Cond. 4,200	Stable Cond. 4,330	Ending Cond. 4,260
				1st pH 6.81	Stable pH 6.69	Ending pH 6.69
				1st Temp. 19.3°	Stable Temp. 17.6°	Ending Temp. 16.9°
	Time	Bubbler Start	Bubbler End	Comments:		
		21.853'	21.375'			

GROUND WATER MONITORING FIELD DATA SHEET
SECOND QUARTER - 2000
SAMPLING

Date 5-15-00	Well Number FIELD BLANK	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond. 9.0	Reading Stable Cond.	Reading Ending Cond.
				1st pH 7.93	Stable pH	Ending pH
				1st Temp. 18.8°	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	Stable pH	Ending pH
				1st Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	Stable pH	Ending pH
				1st Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	Stable pH	Ending pH
				1st Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	Stable pH	Ending pH
				1st Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments:		

Date	Well Number	WL w/Probe Pre-Sample	WL w/Probe Post Sample	Reading 1st Cond.	Reading Stable Cond.	Reading Ending Cond.
				1st pH	Stable pH	Ending pH
				1st Temp.	Stable Temp.	Ending Temp.
	Time	Bubbler Star	Bubbler End	Comments:		

APPENDIX B

CHAIN OF CUSTODY FORMS

ZONE 3

1 of 2

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 ZONE-3

UNC Submittal No. TE-1-1-2000 (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-141	1-4-2000	0850	✓	✓	✓	✓	✓			As, Ba, 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		0910								
TWQ-143		0925								
420		1005								
517		1025								
614		1040								
515-A		1050						N/A		
604		1102								
619		1112								
516-A		1130								
5090		1233								
GW-1		1245								
624		1320								
GW-2		1335								
801	↓	1348	↓	↓	↓	↓	↓			

Sampled by: Lorie H. Bogart
Dispatched by: R. Becenti — Date 1-5-00 Time 4:00 PM
Received by Mark Chadbly Jr. — Date 1-4-2000 Time 1145
Lab Receipt Signature
Date 1/7/00 Time 1000
Carrier: UPS
Method of Shipment: ICED COOLER

The above analysis to be performed is authorized by:
Signature
Date 1-5-00

PAGE NO. 3015100007

Zone 3

2 of 2

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- 1-1-2000 (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
632	1-4-2000	1355	✓	✓	✓	JHB	✓	✓	✓	✓	✓	JHB		
RINSATE		1415												
FIELD BLANK		1420												
GW-3		1425												
627		1445												
504-B		1500												
502-B		1515												
518		1525											N/A	
UPS-G														
UPS-G														
UPS-G														
UPS-G														

Analysis Required (For all samples listed)

As, Ba, 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

[redacted]

Sampled by: Lee A Bogart
Dispatched by: R. Bucenti
Carrier: UPS
Method of Shipment: ICED COOLER

Received by: M. Chadley Jr.
Date: 1-5-00 Time: 2:15 Pm

1-4-2000 Date — 1400 1530 Time
Lab Receipt Signature

1/7/00 Date — 1000 Time

The above analysis to be performed is authorized by:
Signature
1-5-00
Date

PAGE NO.

ALLUVIUM

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- 2-1-2000

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)
802	1-11-2000	0840	✓	MC	✓	LKB	✓	MC	✓	MC	✓	LKB			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
803		0845													
EPA-13		0910													
EPA-8		0925													
EPA-9		0935													
EPA-4		0940													
EPA-5		0955													
EPA-2		1015											N A		
EPA-28		1035													
EPA-23		1050													
EPA-14		1122													
EPA-25		1250													
NR-1		1330													
EPA-7		1420													

MC

~~Wetlands and GW samples to be analyzed immediately upon receipt~~

Sampled by: [signature] — Date: 1-11-2000 — Time: 0930-1400

Received by: Max Chischilly Jr. — Date: 1/12/00 — Time: 2:00pm

Dispatched by: R. Bucenti

Lab Receipt Signature: [signature]

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

Signature

Carrier: UPS

Method of Shipment: 3 ICED COOLER

Date: 1/14/00 — Time: 1030

Date: 1-17-00

TRANSMITTAL NO. PAGE NO.

3026880007

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- 3-5-2000

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)
711	5-1-00			✓	✓	✓	✓			As, B, Ca, Cd, Cl, HCO_3,
711-DUPLICATE	5-1-00									K, Mg, Mn, Na, NH_3, Ni,
517	5-1-00									NO_3, Pb-210, pH, Se,
420	5-1-00									SO_4, TDS, Th-230, U, V,
504-B	5-1-00									Chloroform, Gross
802	5-2-00									Alpha (-) U & Rn,
803	5-2-00							N A		Combined Ra-226 & Ra-228, Al,
EPA-14	5-2-00									Co, Mo
EPA-2	5-2-00									
613	5-2-00									Well [illegible] CWA require Ra-210
614	5-2-00									[illegible]
EPA-5	5-3-00									
EPA-7	5-3-00									
604	5-3-00									
FIELD BLANK	5-3-00				✓	✓	✓			
509-D	5-3-00				✓	✓	✓			

Sampled by: [signature]

Dispatched by: [signature]

Received by: Mac Chadley — Date: 5/3/00 — Time: 2:45 pm

Date: 5/4/3/00 — Time: 1000-1530

Lab Receipt Signature: [signature]

Date: 5-5-00 — Time: 1000

The above analysis to be performed is authorized by:

Signature: [signature]

Date: 5-3-[illegible]

Carrier: UPS

3 ICED COOLER
Method of Shipment

3X UPS-6

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 Highw
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- 4-5-2000

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-2	5-8-00			✓	✓	✓	✓			As, Be, Ca, Cd, Cl, HCO_3,
632	5-8-00									K, Mg, Mn, Na, NH_3, Ni,
GW-1	5-9-00									NO_3, Pb, Pb-210, pH, Se,
EPA-28	5-9-00									SO_4, TDS, Th-230, U, V,
624	5-9-00									Chloroform, Gross
EPA-25	5-9-00									Alpha (-) U & Rn,
EPA-23	5-9-00							N/A		Combined Ra-226 & Ra-228, Al,
EPA-23 (DUP.)	5-9-00									Co, Mo
TWQ-142	5-10-00									
TWQ-142 (DUP.)	5-10-00									~~Wells GW-3 and GW-4 require TO 2.0~~
627	5-10-00									~~analysis in addition to above~~
515-A	5-10-00			✓	✓	✓	✓			
ARS										
ARS										

seperate coc

Sampled by: [illegible]

Dispatched by: [illegible]

Carrier: UPS

2 ICED COOLERS
Method of Shipment

Received by Mary Chandler Jr.
5.10.00 4:00 PM
Date Time

5-8-00 @ 1130, 5-9-00 @ 1130-1530
5-10-00 @ 1030-1400
Date Time

Sabrina Fassett
Lab Receipt Signature

5.12.00 10:00
Date Time

The above analysis to be performed is authorized by:

Signature

5-10-00
Date

TRACKING NO. PAGE NO.
32504R00011

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 Highw
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- 5-5-2000

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-3	5-15-00			✓ LHB	✓	✓	✓ LHB			As, Be, Ca, Cd, Cl, HCO_3,
EPA-4	5-15-00			✓ LHB	✓	✓	✓ LHB			K, Mg, Mn, Na, NH_3, Ni,
FIELD BLANK	5-15-00			✓ LHB	✓	✓	✓ LHB			NO_3, Pb, Pb-210, pH, Se,
ARS										SO_4, TDS, Th-230, U, V,
										Chloroform, Gross
										Alpha (-) U & Rn,
										Combined Ra-226 & Ra-228, Al,
								N A		Co, Mo
										[redacted]
										[redacted]

Sampled by: [illegible]
Dispatched by: [illegible]
Carrier: UPS
ONE (1) ICE COOLER
Method of Shipment

Received by Mary Chischilly Jr.
Date 5/16/00 Time 7:00 PM

5-15-00 Date 1200 Time
Lab Receipt Signature
5/18/00 Date 10:20 Time

The above analysis to be performed is authorized by:
Mary Chischilly Jr.
Signature
5-16-00
Date

TRACKING NO. PAGE NO.
32838R00003

APPENDIX C

LABORATORY QUALITY CONTROL AND PERFORMANCE REPORTS

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: S.W. Alluvium 1st Quarter
Laboratory ID Range: 30143-1-8
Report Date: February 22, 2000

Major Ions	Method	RPD[1] #1 %	RPD #2 %	Spike[2] #1 %	Spk #2 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.4	-	90	-	CP	01-02-00
Magnesium	EPA 200.7	0.8	-	91	-	CP	01-02-00
Sodium	EPA 200.7	1.0	-	85	-	CP	01-02-00
Potassium	EPA 200.7	2.8	-	93	-	CP	01-02-00
Bicarbonate	SM 2320 B.	0.2	-	-	-	JL	01-12-00
Sulfate	EPA 200.7	0.0	-	92	-	CP	01-02-00
Chloride	EPA 200.7	0.8	-	97	-	CP	01-02-00
Ammonium	SM 4500-NH_3 G.	0.0	-	99	-	RK	01-17-00
Nitrite + Nitrate	EPA 353.2	1.5	-	103	-	RK	01-12-00
PARAMETERS with 48 hour holding time							**Date/Time Analyzed**
pH	SM 4500-H B.	0.2	-	-	-	JL	01-12-00/08:42
Non-Metals							
Total Dissolved Solids	SM 2540 C. Mod.	0.0	-	98	-	JR	01-12-00
Trace Metals							
Aluminum	EPA 200.8	2.0	-	99	-	TS	01-19-00
Arsenic	SM 3114C	0.0	-	96	-	JL	02-04-00
Beryllium	EPA 200.8	0.0	-	102	-	TS	01-19-00
Cadmium	EPA 200.8	0.0	-	96	-	SD	01-19-00
Cobalt	EPA 200.8	0.1	-	92	-	TS	01-19-00
Lead	EPA 200.8	0.0	-	99	-	TS	01-19-00
Manganese	EPA 200.8	0.3	-	93	-	TS	01-19-00
Molybdenum	EPA 200.8	0.0	-	96	-	TS	01-19-00
Nickel	EPA 200.8	0.8	-	89	-	TS	01-19-00
Selenium	SM 3114C	0.0	-	102	-	JL	02-03-00
Vanadium	EPA 200.8	0.0	-	98	-	TS	01-19-00
Radiometrics							
Uranium	EPA 200.8	8.7	-	101	-	TS	01-19-00
Radium 226	EPA 903.0	0.4	-	104	-	RS	01-20-00
Radium 228	EPA 904.0	0.0	-	103	-	LH	02-01-00
Thorium 230	EPA 907.0	8.5	-	92	-	PH	01-27-00
Lead 210	NEHRL-65-4	-	-	100	-	LH	01-24-00
Polonium 210	RMO-3008	0.0	-	94	-	RS	01-17-00
Gross Alpha	EPA 900.1	0.0	-	101	-	RS	01-25-00
Trace Organics							
Chloroform	EPA 601	-	-	-	-	RLO/SEC	01-18-00

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 W. COMLING, DATA VALIDATOR

Reviewed By STEVEN E. CAPLSTON, ORGANICS SUPERVISOR

msj r:\reports\clients2000\unc_mining_&_milling\water\qa\30143-1-8.xls

TRACKING NO. PAGE NO.

30143R00009

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 2nd Quarter
Laboratory ID Range: 30147-1-10
Report Date: February 23, 2000
Revised Report Date: August 25, 2000

Major Ions	Method	RPD[1] #1 %	RPD #2 %	Spike[2] #1 %	Spk #2 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.4	-	90	-	CP	01-20-00
Magnesium	EPA 200.7	0.8	-	91	-	CP	01-20-00
Sodium	EPA 200.7	1.0	-	85	-	CP	01-20-00
Potassium	EPA 200.7	2.8	-	93	-	CP	01-20-00
Bicarbonate	SM 2320 B.	0.2	-	-	-	JL	01-12-00
Sulfate	EPA 200.7	0.0	-	92	-	CP	01-20-00
Chloride	EPA 200.7	0.8	-	97	-	CP	01-20-00
Ammonium	SM 4500-NH_3 G.	0.0	-	99	-	RK	01-17-00
Nitrite + Nitrate	EPA 353.2	0.0	-	110	-	RK	01-12-00
PARAMETERS with 48 hour holding time							**Date/Time Analyzed**
pH	SM 4500-H B.	0.2	-	-	-	JL	01-12-00/10:18
Non-Metals							
Total Dissolved Solids	SM 2540 C. Mod.	0.0	-	98	-	JR	01-12-00
Trace Metals							
Aluminum	EPA 200.8	3.2	-	94	-	TS	01-19-00
Arsenic	SM 3114C	0.0	-	96	-	JL	02-04-00
Beryllium	EPA 200.8	0.0	-	96	-	TS	01-19-00
Cadmium	EPA 200.8	0.0	-	97	-	TS	01-19-00
Cobalt	EPA 200.8	0.0	-	104	-	TS	01-19-00
Lead	EPA 200.8	4.6	-	100	-	TS	01-19-00
Manganese	EPA 200.8	0.2	-	102	-	TS	01-19-00
Molybdenum	EPA 200.8	0.0	-	101	-	TS	01-19-00
Nickel	EPA 200.8	2.7	-	98	-	TS	01-19-00
Selenium	SM 3114C	0.0	-	102	-	JL	02-03-00
Vanadium	EPA 200.8	0.0	-	98	-	TS	01-19-00
Radiometrics							
Uranium	EPA 200.8	0.3	-	99	-	TS	01-19-00
Radium 226	EPA 903.0	0.4	-	104	-	RS	01-20-00
Radium 228	EPA 904.0	0.0	-	104	-	LH	02-01-00
Thorium 230	EPA 907.0	7.1	-	91	-	PH	02-16-00
Lead 210	NEHRL-65-4	6.1	-	98	-	LH	01-27-00
Gross Alpha	EPA 900.1	0.0	-	101	-	RS	01-25-00
Trace Organics							
Chloroform	EPA 601	-	-	-	-	RLO/SEC	01-20-00

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:

msj r:\reports\clients2000\unc_mining_&_milling\water\qa\30147-1-10r1.xlsdmc

TRACKING NO. PAGE NO.
30174R10001

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 3 2nd Quarter
Laboratory ID Range: 30151-1-5
Report Date: February 22, 2000
Revised Report Date: August 25, 2000

Major Ions	Method	RPD[1] #1 %	RPD #2 %	Spike[2] #1 %	Spk #2 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.4	-	90	-	CP	01-20-00
Magnesium	EPA 200.7	0.8	-	91	-	CP	01-20-00
Sodium	EPA 200.7	1.0	-	85	-	CP	01-20-00
Potassium	EPA 200.7	2.8	-	93	-	CP	01-20-00
Bicarbonate	SM 2320 B.	1.5	-	-	-	JL	01-12-00
Sulfate	EPA 200.7	0.0	-	92	-	CP	01-20-00
Chloride	EPA 200.7	0.8	-	97	-	CP	01-20-00
Ammonium	SM 4500-NH_3 G.	0.0	-	99	-	RK	01-17-00
Nitrite + Nitrate	EPA 353.2	0.0	-	110	-	RK	01-12-00
PARAMETERS with 48 hour holding time							**Date/Time Analyzed**
pH	SM 4500-H B.	1.5	-	-	-	JL	01-12-00/12:46
Non-Metals							
Total Dissolved Solids	SM 2540 C. Mod.	0.0	-	101	-	JR	01-12-00
Trace Metals							
Aluminum	EPA 200.8	3.2	-	94	-	TS	01-19-00
Arsenic	SM 3114C	0.0	-	96	-	JL	02-04-00
Beryllium	EPA 200.8	0.0	-	96	-	TS	01-19-00
Cadmium	EPA 200.8	0.0	-	97	-	SD	01-19-00
Cobalt	EPA 200.8	0.0	-	104	-	TS	01-19-00
Lead	EPA 200.8	4.6	-	100	-	TS	01-19-00
Manganese	EPA 200.8	0.2	-	102	-	TS	01-19-00
Molybdenum	EPA 200.8	0.0	-	103	-	TS	01-19-00
Nickel	EPA 200.8	2.7	-	98	-	TS	01-19-00
Selenium	SM 3114C	0.0	-	102	-	JL	02-03-00
Vanadium	EPA 200.8	0.0	-	98	-	TS	01-19-00
Radiometrics							
Uranium	EPA 200.8	0.3	-	99	-	TS	01-19-00
Radium 226	EPA 903.0	1.9	-	94	-	RS	01-26-00
Radium 228	EPA 904.0	0.9	-	88	-	LH	02-07-00
Thorium 230	EPA 907.0	8.5	-	92	-	PH	01-27-00
Lead 210	NEHRL-65-4	0.9	-	102	-	LH	01-31-00
Gross Alpha	EPA 900.1	2.3	-	107	-	RS	01-27-00
Trace Organics							
Chloroform	EPA 601	-	-	-	-	RLO/SEC	01-20-00

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. Garling
ROGER GARLING
LABORATORY SUPERVISOR

Reviewed by:

msj r:\reports\clients2000\unc_mining_&_milling\water\qa\30151-1-5r1.xlsdmc

TRACKING NO. PAGE NO.
30151R10001

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: S.W. Alluvium 1st Quarter
Laboratory ID Range: 30268-1-5
Report Date: February 28, 2000

Major Ions	Method	RPD[1] #1 %	RPD #2 %	Spike[2] #1 %	Spk #2 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.0	-	92	-	CP	01-26-00
Magnesium	EPA 200.7	0.4	-	91	-	CP	01-26-00
Sodium	EPA 200.7	1.4	-	84	-	CP	01-26-00
Potassium	EPA 200.7	0.4	-	89	-	CP	01-26-00
Bicarbonate	SM 2320 B.	0.4	-	-	-	JL	01-19-00
Sulfate	EPA 200.7	2.6	-	91	-	CP	01-26-00
Chloride	EPA 200.7	0.3	-	89	-	CP	01-26-00
Ammonium	SM 4500-NH_3 G.	0.0	-	103	-	RK	01-17-00
Nitrite + Nitrate	EPA 353.2	1.5	-	100	-	RK	01-19-00
PARAMETERS with 48 hour holding time							**Date/Time Analyzed**
pH	SM 4500-H B.	0.4	-	-	-	JL	01-19-00/08:21
Non-Metals							
Total Dissolved Solids	SM 2540 C. Mod.	0.0	-	105	-	JR	01-18-00
Trace Metals							
Aluminum	EPA 200.8	5.4	-	99	-	SD	01-28-00
Arsenic	SM 3114C	0.0	-	96	-	JL	02-04-00
Beryllium	EPA 200.8	0.0	-	102	-	SD	01-28-00
Cadmium	EPA 200.8	8.1	-	99	-	SD	01-28-00
Cobalt	EPA 200.8	1.6	-	91	-	SD	01-28-00
Lead	EPA 200.8	3.7	-	98	-	SD	01-28-00
Manganese	EPA 200.8	1.4	-	106	-	SD	01-28-00
Molybdenum	EPA 200.8	0.0	-	100	-	SD	01-28-00
Nickel	EPA 200.8	1.5	-	105	-	SD	01-28-00
Selenium	SM 3114C	0.0	-	102	-	JL	02-03-00
Vanadium	EPA 200.8	0.0	-	95	-	SD	01-28-00
Radiometrics							
Uranium	EPA 200.8	5.5	-	104	-	SD	01-28-00
Radium 226	EPA 903.0	0.0	-	99	-	RS	01-31-00
Radium 228	EPA 904.0	0.0	-	91	-	LH	02-14-00
Thorium 230	EPA 907.0	12.3	-	98	-	PH	02-16-00
Lead 210	NEHRL-65-4	3.1	-	100	-	LH	02-07-00
Gross Alpha	EPA 900.1	0.0	-	96	-	RS	02-01-00
Trace Organics							
Chloroform	EPA 601	-	-	-	-	RLO/SEC	01-25-00

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 W. COWLING DATA VALIDATOR

Reviewed by

msj r:\reports\clients2000\unc_mining_&_milling\water\qa\30268-1-5.xls

TRACKING NO. PAGE NO.

30268R00006

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: S.W. Alluvium 1st Quarter
Laboratory ID Range: 30271-1-3
Report Date: February 28, 2000

Major Ions	Method	RPD[1] #1 %	RPD #2 %	Spike[2] #1 %	Spk #2 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.0	-	92	-	CP	01-26-00
Magnesium	EPA 200.7	0.4	-	91	-	CP	01-26-00
Sodium	EPA 200.7	1.4	-	84	-	CP	01-26-00
Potassium	EPA 200.7	0.4	-	89	-	CP	01-26-00
Bicarbonate	SM 2320 B.	0.4	-	-	-	JL	01-19-00
Sulfate	EPA 200.7	2.6	-	91	-	CP	01-26-00
Chloride	EPA 200.7	0.3	-	89	-	CP	01-26-00
Ammonium	SM 4500-NH_3 G.	0.0	-	98	-	RK	01-17-00
Nitrite + Nitrate	EPA 353.2	1.5	-	100	-	RK	01-19-00
PARAMETERS with 48 hour holding time							**Date/Time Analyzed**
pH	SM 4500-H B.	0.4	-	-	-	JL	01-19-00/08:31
Non-Metals							
Total Dissolved Solids	SM 2540 C. Mod.	0.0	-	105	-	JR	01-18-00
Trace Metals							
Aluminum	EPA 200.8	5.4	-	99	-	SD	01-28-00
Arsenic	SM 3114C	0.0	-	96	-	JL	02-04-00
eryllium	EPA 200.8	0.0	-	102	-	SD	01-28-00
Cadmium	EPA 200.8	8.1	-	99	-	SD	01-28-00
Cobalt	EPA 200.8	1.3	-	93	-	SD	01-28-00
Lead	EPA 200.8	3.7	-	98	-	SD	01-28-00
Manganese	EPA 200.8	1.4	-	106	-	SD	01-28-00
Molybdenum	EPA 200.8	0.0	-	100	-	SD	01-28-00
Nickel	EPA 200.8	1.5	-	105	-	SD	01-28-00
Selenium	SM 3114C	0.0	-	102	-	JL	02-03-00
Vanadium	EPA 200.8	0.0	-	95	-	SD	01-28-00
Radiometrics							
Uranium	EPA 200.8	5.5	-	104	-	SD	01-28-00
Radium 226	EPA 903.0	1.9	-	94	-	RS	01-26-00
Radium 228	EPA 904.0	0.9	-	88	-	LH	02-07-00
Thorium 230	EPA 907.0	8.4	-	93	-	PH	02-22-00
Lead 210	NEHRL-65-4	3.1	-	100	-	LH	02-07-00
Gross Alpha	EPA 900.1	2.3	-	107	-	RS	01-27-00
Trace Organics							
Chloroform	EPA 601	-	-	-	-	RLO/SEC	01-25-00

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 W. COWLING DATA VALIDATOR

Reviewed by:

msj r:\reports\clients2000\unc_mining_&_milling\water\qa\30271-1-3.xls

TRACKING NO. PAGE NO.
30271R00006

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 2nd Quarter
Laboratory ID Range: 30274-1-6
Report Date: February 23, 2000
Revised Report Date: August 25, 2000

Major Ions	Method	RPD[1] #1 %	RPD #2 %	Spike[2] #1 %	Spk #2 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.0	-	92	-	CP	01-26-00
Magnesium	EPA 200.7	0.4	-	91	-	CP	01-26-00
Sodium	EPA 200.7	1.4	-	84	-	CP	01-26-00
Potassium	EPA 200.7	0.4	-	89	-	CP	01-26-00
Bicarbonate	SM 2320 B.	0.4	-	-	-	JL	01-19-00
Sulfate	EPA 200.7	2.6	-	91	-	CP	01-26-00
Chloride	EPA 200.7	0.3	-	89	-	CP	01-26-00
Ammonium	SM 4500-NH_3 G.	1.1	-	103	-	RK	01-17-00
Nitrite + Nitrate	EPA 353.2	0.0	-	100	-	RK	01-19-00
PARAMETERS with 48 hour holding time							**Date/Time Analyzed**
pH	SM 4500-H B.	0.4	-	-	-	JL	01-19-00/12:26
Non-Metals							
Total Dissolved Solids	SM 2540 C. Mod.	0.0	-	105	-	JR	01-18-00
Trace Metals							
Aluminum	EPA 200.8	5.4	-	99	-	SD	01-28-00
Arsenic	SM 3114C	0.0	-	96	-	JL	02-04-00
Beryllium	EPA 200.8	0.0	-	102	-	SD	01-28-00
Cadmium	EPA 200.8	8.1	-	99	-	SD	01-28-00
Cobalt	EPA 200.8	1.6	-	93	-	SD	01-28-00
Lead	EPA 200.8	3.7	-	98	-	SD	01-28-00
Manganese	EPA 200.8	1.4	-	106	-	SD	01-28-00
Molybdenum	EPA 200.8	0.0	-	100	-	SD	01-28-00
Nickel	EPA 200.8	1.5	-	105	-	SD	01-28-00
Selenium	SM 3114C	0.0	-	102	-	JL	02-03-00
Vanadium	EPA 200.8	0.0	-	95	-	SD	01-28-00
Radiometrics							
Uranium	EPA 200.8	1.9	-	102	-	SD	01-28-00
Radium 226	EPA 903.0	0.0	-	99	-	RS	01-31-00
Radium 228	EPA 904.0	0.0	-	111	-	LH	02-14-00
Thorium 230	EPA 907.0	7.1	-	91	-	PH	02-16-00
Lead 210	NEHRL-65-4	3.1	-	100	-	LH	02-07-00
Gross Alpha	EPA 900.1	0.0	-	96	-	RS	02-01-00
Trace Organics							
Chloroform	EPA 601	-	-	-	-	RLO/SEC	01-25-00

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:

msj r:\reports\clients2000\unc_mining_&_milling\water\qa\30274-1-6r1.xlsdmc

TRACKING NO. PAGE NO.
30274R10001

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: S.W. Alluvium 2nd Quarter
Laboratory ID Range: 32499-1-2
Report Date: 05-28-00

Major Ions	Method	RPD[1] #1 %	Spike[2] #1 %	Analyst	Date Analyzed
Calcium	EPA 200.7	1.8	90	CP	05-09-00
Magnesium	EPA 200.7	0.9	90	CP	05-09-00
Sodium	EPA 200.7	0.3	86	CP	05-09-00
Potassium	EPA 200.7	0.9	88	CP	05-09-00
Bicarbonate	SM 2320 B.	1.1	90	LM	05-15-00
Sulfate	EPA 200.7	0.2	86	CP	05-09-00
Chloride	EPA 200.7	2.6	89	CP	05-09-00
Ammonium	SM 4500-NH_3 G.	0.8	103	RK	05-08-00
Nitrite + Nitrate	EPA 353.2	2.7	109	RK	05-10-00
PARAMETERS with 48 hour holding time					**Date/Time Analyzed**
pH	SM 4500-H B.	0.0	-	LM	05-15-00
Non-Metals					
Total Dissolved Solids	SM 2540 C. Mod.	0.3	102	JR	05-10-00
Trace Metals					
Aluminum	EPA 200.8	2.5	104	SD	05-14-00
Arsenic III	SM 3114C	0.0	92	JL	05-09-00
Beryllium	EPA 200.8	0.0	119	SD	05-14-00
Cadmium	EPA 200.8	0.0	101	SD	05-14-00
Cobalt	EPA 200.8	0.0	110	SD	05-14-00
Lead	EPA 200.8	0.0	102	SD	05-14-00
Manganese	EPA 200.8	1.9	115	SD	05-14-00
Molybdenum	EPA 200.8	2.3	94	SD	05-14-00
Nickel	EPA 200.8	2.8	107	SD	05-14-00
Selenium IV	SM 3114C	1.9	104	JL	05-09-00
Vanadium	EPA 200.8	0.0	107	SD	05-14-00
Radiometrics					
Uranium	EPA 200.8	0.4	98	SD	05-14-00
Radium 226	EPA 903.0	4.6	99	RS	05-16-00
Radium 228	EPA 904.0	0.4	85	LH	05-24-00
Thorium 230	EPA 907.0	25.8	112	PH	05-16-00
Lead 210	NEHRL-65-4	0.1	90	RS	05-22-00
Gross Alpha	EPA 900.1	0.4	93	RS	05-15-00
Trace Organics					
Chloroform	EPA 601	3.4	86.7	RLO/SEC	05-09-00

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:**

SHERYL CARLING
ADMINISTRATIVE SUPERVISOR

rag r:\reports\clients2000\unc_mining_&_milling\water\qa\32499

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 3 2nd Quarter
Laboratory ID Range: 32500-1-4
Report Date: 05-28-00

Major Ions	Method	RPD[1] #1 %	Spike[2] #1 %	Analyst	Date Analyzed
Calcium	EPA 200.7	1.8	90	CP	05-09-00
Magnesium	EPA 200.7	0.9	90	CP	05-09-00
Sodium	EPA 200.7	0.3	86	CP	05-09-00
Potassium	EPA 200.7	0.9	88	CP	05-09-00
Bicarbonate	SM 2320 B.	1.1	90	LM	05-15-00
Sulfate	EPA 200.7	0.2	86	CP	05-09-00
Chloride	EPA 200.7	2.6	89	CP	05-09-00
Ammonium	SM 4500-NH_3 G.	0.8	103	RK	05-08-00
Nitrite + Nitrate	EPA 353.2	2.7	109	RK	05-10-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H B.	0.0	-	LM	05-15-00

Non-Metals					
Total Dissolved Solids	SM 2540 C. Mod.	0.3	100	JR	05-10-00

Trace Metals					
Aluminum	EPA 200.8	2.5	104	SD	05-14-00
Arsenic III	SM 3114C	0.0	92	JL	05-09-00
Beryllium	EPA 200.8	0.0	119	SD	05-14-00
Cadmium	EPA 200.8	0.0	101	SD	05-14-00
Cobalt	EPA 200.8	0.0	110	SD	05-14-00
Lead	EPA 200.8	0.0	102	SD	05-14-00
Manganese	EPA 200.8	1.9	115	SD	05-14-00
Molybdenum	EPA 200.8	2.3	94	SD	05-14-00
Nickel	EPA 200.8	2.8	107	SD	05-14-00
Selenium IV	SM 3114C	1.9	104	JL	05-09-00
Vanadium	EPA 200.8	0.0	107	SD	05-14-00

Radiometrics					
Uranium	EPA 200.8	0.4	98	SD	05-14-00
Radium 226	EPA 903.0	4.6	99	RS	05-16-00
Radium 228	EPA 904.0	0.4	85	LH	05-24-00
Thorium 230	EPA 907.0	8.9	110	PH	05-16-00
Lead 210	NEHRL-65-4	0.1	90	RS	05-22-00
Gross Alpha	EPA 900.1	0.4	93	RS	05-15-00

Trace Organics					
Chloroform	EPA 601	3.4	86.7	RLO/SEC	05-09-00

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:**

Sheryl Harling
SHERYL HARLING
ADMINISTRATIVE SUPERVISOR

rag r:\reports\clients2000\unc_mining_&_milling\water\qa\32500

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 2nd Quarter
Laboratory ID Range: 32496-1-10
Report Date: 06-04-00

Major Ions	Method	RPD[1] #1 %	Spike[2] #1 %	Analyst	Date Analyzed
Calcium	EPA 200.7	2.6	99	CP	05-10-00
Magnesium	EPA 200.7	2.0	100	CP	05-10-00
Sodium	EPA 200.7	1.8	84	CP	05-10-00
Potassium	EPA 200.7	2.1	93	CP	05-10-00
Bicarbonate	SM 2320 B.	1.9	103	LM	05-12-00
Sulfate	EPA 200.7	2.6	96	CP	05-10-00
Chloride	EPA 200.7	2.0	97	CP	05-10-00
Ammonium	SM 4500-NH_3 G.	0.9	102	RK	05-08-00
Nitrite + Nitrate	EPA 353.2	2.3	107	RK	05-10-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H B.	0.0	-	LM	05-12-00/15:46

Non-Metals					
Total Dissolved Solids	SM 2540 C. Mod.	0.0	101	JR	05-10-00

Trace Metals					
Aluminum	EPA 200.8	2.5	104	SD	05-14-00
Arsenic III	SM 3114C	0.0	92	JL	05-09-00
Beryllium	EPA 200.8	0.0	119	SD	05-14-00
Cadmium	EPA 200.8	0.0	101	SD	05-14-00
Cobalt	EPA 200.8	0.0	110	SD	05-14-00
Lead	EPA 200.8	0.0	102	SD	05-14-00
Manganese	EPA 200.8	1.9	115	SD	05-14-00
Molybdenum	EPA 200.8	2.3	94	SD	05-14-00
Nickel	EPA 200.8	2.8	107	SD	05-14-00
Selenium IV	SM 3114C	1.9	104	JL	05-09-00
Vanadium	EPA 200.8	0.0	107	SD	05-14-00

Radiometrics					
Uranium	EPA 200.8	0.4	98	SD	05-14-00
Radium 226	EPA 903.0	4.6	99	RS	05-16-00
Radium 228	EPA 904.0	0.4	85	LH	05-24-00
Thorium 230	EPA 907.0	25.8	112	PH	05-16-00
Lead 210	NERHL-65-4	0.1	90	LH	05-22-00
Gross Alpha	EPA 900.1	0.4	93	RS	05-15-00

Trace Organics					
Chloroform	EPA 601	3.4	86.7	RLO/SEC	05-09-00

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 W. COLLINS DATA VALIDATOR **Reviewed By:**

rag r:\reports\clients2000\unc_mining_&_milling\water\qa\32496

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: S.W. Alluvium 2nd Quarter
Laboratory ID Range: 32684-1-9
Report Date: June 21, 2000

Major Ions	Method	RPD_1	$Spike_2$	Analyst	Date Analyzed
Calcium	EPA 200.7	1.5	102	jal	06-05-00
Magnesium	EPA 200.7	1.4	99	jal	06-05-00
Sodium	EPA 200.7	1.1	91	jal	06-05-00
Potassium	EPA 200.7	1.3	90	jal	06-05-00
Bicarbonate	SM 2320 B.	0.4	-	lm	05-22-00
Sulfate	EPA 200.7	3.6	100	jal	06-05-00
Chloride	EPA 200.7	1.7	90	jal	06-05-00
Ammonium	SM 4500-NH_3 G.	1.4	105	rk	05-17-00
Nitrite + Nitrate	EPA 353.2	0.5	105	rk	05-14-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H B.	0.4	-	lm	05-22-00/12:19

Non-Metals					
Total Dissolved Solids	SM 2540 C	0.0	100	jr	05-17-00

Trace Metals					
Aluminum	EPA 200.8	4.2	91	ts	05-25-00
Arsenic	SM 3114C	2.0	100	jl	05-16-00
Beryllium	EPA 200.8	0.0	96	ts	05-25-00
Cadmium	EPA 200.8	0.0	102	ts	05-25-00
Cobalt	EPA 200.8	0.0	106	ts	05-25-00
Lead	EPA 200.8	-	104	ts	05-25-00
Manganese	EPA 200.8	-	109	ts	05-25-00
Molybdenum	EPA 200.8	2.9	102	ts	05-25-00
Nickel	EPA 200.8	14.1	102	ts	05-25-00
Selenium	SM 3114C	6.6	94	jl	05-16-00
Vanadium	EPA 200.8	10.0	105	ts	05-25-00

Radiometrics					
Uranium	EPA 200.8	1.2	111	ts	05-25-00
Radium 226	EPA 903.0	5.2	91	rs	05-30-00
Radium 228	EPA 904.0	12.6	103	lh	06-08-00
Thorium 230	EPA 907.0	5.9	93	ph	06-08-00
Lead 210	NEHRL-65-4	0.1	88	lh	06-14-00
Gross Alpha	EPA 900.1	0.0	89	rs	05-26-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	05-18-00

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 W. Cowling, Data Validator

Reviewed By: Roger Gapling, Laboratory Supervisor

msj: r:\reports\clients2000\unc_mining_&_milling\water\qa\32684-1-9.xls

TRACKING NO. PAGE NO

32684R00010

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 2nd Quarter
Laboratory ID Range: 32687-1-3
Report Date: June 21, 2000

Major Ions	Method	RPD[1] #1 %	Spike[2] #1 %	Analyst	Date Analyzed
Calcium	EPA 200.7	1.5	102	jal	06-05-00
Magnesium	EPA 200.7	1.4	99	jal	06-05-00
Sodium	EPA 200.7	1.1	91	jal	06-05-00
Potassium	EPA 200.7	1.3	90	jal	06-05-00
Bicarbonate	SM 2320 B.	0.4	-	lm	05-22-00
Sulfate	EPA 200.7	3.6	100	jal	06-05-00
Chloride	EPA 200.7	1.7	90	jal	06-05-00
Ammonium	SM 4500-NH_3 G.	0.5	105	rk	05-14-00
Nitrite + Nitrate	EPA 353.2	1.4	104	rk	05-17-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H B.	0.4	-	lm	05-22-00/16:04

Non-Metals					
Total Dissolved Solids	SM 2540 C	0.0	99	jl	05-17-00

Trace Metals					
Aluminum	EPA 200.8	13.2	100	ts	06-01-00
Arsenic	SM 3114C	2.0	100	jl	05-16-00
Beryllium	EPA 200.8	0.0	104	ts	06-01-00
Cadmium	EPA 200.8	0.0	102	ts	06-01-00
Cobalt	EPA 200.8	0.0	103	ts	06-01-00
Lead	EPA 200.8	0.0	104	ts	06-01-00
Manganese	EPA 200.8	3.4	102	ts	06-01-00
Molybdenum	EPA 200.8	9.0	102	ts	06-01-00
Nickel	EPA 200.8	0.0	103	ts	06-01-00
Selenium	SM 3114C	6.6	94	jl	05-16-00
Vanadium	EPA 200.8	0.0	103	ts	06-01-00

Radiometrics					
Uranium	EPA 200.8	0.0	104	ts	06-01-00
Radium 226	EPA 903.0	10.5	105	rs	05-26-00
Radium 228	EPA 904.0	14.3	84	lh	06-07-00
Thorium 230	EPA 907.0	2.2	98	ph	05-22-00
Lead 210	NEHRL-65-4	0.1	88	lh	05-22-00
Gross Alpha	EPA 900.1	0.0	105	rs	05-19-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	05-19-00

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: STEVEN W. COMLING, DATA VALIDATOR

Reviewed By: ROGER GARLING, LABORATORY SUPERVISOR

msj: r:\reports\clients2000\unc_mining_&_milling\water\qa\32687-1-3.xls

TRACKING NO. PAGE NO.

32687R00004

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: S.W. Alluvium 2nd Quarter
Laboratory ID Range: 32838-1
Report Date: June 21, 2000
Revised Report Date: August 25, 2000

Major Ions	Method	RPD[1] #1 %	Spike[2] #1 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.0	95	jal	05-30-00
Magnesium	EPA 200.7	0.0	97	jal	05-30-00
Sodium	EPA 200.7	0.0	82	jal	05-30-00
Potassium	EPA 200.7	0.0	94	jal	05-30-00
Bicarbonate	SM 2320 B.	1.5	-	lm	05-23-00
Sulfate	EPA 200.7	1.0	98	jal	05-30-00
Chloride	EPA 200.7	1.3	102	jal	05-30-00
Ammonium	SM 4500-NH_3 G.	0.0	105	rk	05-22-00
Nitrite + Nitrate	EPA 353.2	0.0	106	rk	05-24-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H B.	1.5	-	lm	05-23-00/15:41

Non-Metals					
Total Dissolved Solids	SM 2540 C	0.6	100	jr	05-24-00

Trace Metals					
Aluminum	EPA 200.8	3.3	100	ts	06-01-00
Arsenic	SM 3114C	1.9	100	jl	06-09-00
Beryllium	EPA 200.8	0.0	101	ts	06-01-00
Cadmium	EPA 200.8	0.0	104	ts	06-01-00
Cobalt	EPA 200.8	2.6	102	ts	06-01-00
Lead	EPA 200.8	0.0	100	ts	06-01-00
Manganese	EPA 200.8	14.4	102	ts	06-01-00
Molybdenum	EPA 200.8	0.0	102	ts	06-01-00
Nickel	EPA 200.8	0.0	103	ts	06-01-00
Selenium	SM 3114C	0.0	104	jl	06-09-00
Vanadium	EPA 200.8	0.0	103	ts	06-01-00

Radiometrics					
Uranium	EPA 200.8	0.0	103	ts	06-01-00
Radium 226	EPA 903.0	12.8	83	rs	06-06-00
Radium 228	EPA 904.0	0.0	115	lh	06-13-00
Thorium 230	EPA 907.0	3.5	99	ph	05-26-00
Lead 210	NEHRL-65-4	0.1	88	lh	06-14-00
Polonium 210	RMO-3008	-	-	rs	05-28-00
Gross Alpha	EPA 900.1	4.3	104	rs	05-31-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	06-19-00

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. Gerling
ROGER GERLING
LABORATORY MANAGER

Reviewed By:

msj: r:\reports\clients2000\unc_mining_&_milling\water\qa\32838-1r1.xlsdmc

TRACKING NO. PAGE NO.
32838R10001

ELI

QUALITY ASSURANCE REPORT
UNC MINING & MILLING

Project: Zone 1 2nd Quarter
Laboratory ID Range: 32840-1
Report Date: June 21, 2000

Major Ions	Method	RPD[1] #1 %	Spike[2] #1 %	Analyst	Date Analyzed
Calcium	EPA 200.7	0.2	85	cp	05-19-00
Magnesium	EPA 200.7	0.0	95	cp	05-19-00
Sodium	EPA 200.7	0.3	89	cp	05-19-00
Potassium	EPA 200.7	0.0	90	cp	05-19-00
Bicarbonate	SM 2320 B.	0.7	-	lm	05-24-00
Sulfate	EPA 200.7	0.0	80	cp	05-19-00
Chloride	EPA 200.7	1.0	91	cp	05-19-00
Ammonium	SM 4500-NH_3 G.	0.5	105	rk	05-22-00
Nitrite + Nitrate	EPA 353.2	0.0	106	rk	05-24-00

PARAMETERS with 48 hour holding time					Date/Time Analyzed
pH	SM 4500-H B.	0.7	-	lm	05-24-00/13:42

Non-Metals					
Total Dissolved Solids	SM 2540 C	0.6	100	jr	05-24-00

Trace Metals					
Aluminum	EPA 200.8	3.3	100	ts	06-01-00
Arsenic	SM 3114C	1.9	100	jl	06-09-00
Beryllium	EPA 200.8	0.0	101	ts	06-01-00
Cadmium	EPA 200.8	0.0	104	ts	06-01-00
Cobalt	EPA 200.8	2.6	102	ts	06-01-00
Lead	EPA 200.8	0.0	100	ts	06-01-00
Manganese	EPA 200.8	3.2	102	ts	06-01-00
Molybdenum	EPA 200.8	0.0	102	ts	06-01-00
Nickel	EPA 200.8	0.0	103	ts	06-01-00
Selenium	SM 3114C	0.0	104	jl	06-09-00
Vanadium	EPA 200.8	0.0	103	ts	06-01-00

Radiometrics					
Uranium	EPA 200.8	0.0	104	ts	06-01-00
Radium 226	EPA 903.0	12.8	83	rs	06-06-00
Radium 228	EPA 904.0	0.0	115	lh	06-13-00
Thorium 230	EPA 907.0	4.4	114	ph	06-07-00
Lead 210	NEHRL-65-4	0.1	88	lh	06-14-00
Gross Alpha	EPA 900.1	4.3	104	rs	05-31-00

Trace Organics					
Chloroform	EPA 601	-	-	rlo/sec	05-19-00

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: STEVEN W. COMLING DATA VALIDATOR

Reviewed By: ROGER GARLING LABORATORY SUPERVISOR

msj: r:\reports\clients2000\unc_mining_&_milling\water\qa\32840-1.xls

TRACKING NO. PAGE NO.

32840R00003