

SEMI-ANNUAL GROUND WATER MONITORING REPORT

JULY 1, 1996 THROUGH DECEMBER 31, 1996

Field Data

Third and Fourth Quarters

Controls

Alluvium

Zone 1

Zone 3

GROUND WATER MONITORING
WATER ELEVATIONS AND FIELD pH
3rd QUARTER 19 96

<u>Well No.</u>	<u>Date</u>	<u>Water Depth</u>	<u>Reference Elevation</u>	<u>Water Elevation</u>	<u>Sample Date</u>	<u>Field pH</u>
GW-1	7-9-96	58.1	6916.5	6858.4	7-10-96	6.3
GW-2	7-9-96	53.8	6912.9	6859.1	7-10-96	6.3
GW-3	7-9-96	50.3	6910.0	6859.7	7-10-96	6.3
GW-4	7-9-96	50.6	6959.2	6908.6	7-10-96	No water
EPA-1	7-15-96	240.8	7035.5	6794.7	7-16-96	7.0
EPA-2	7-15-96	171.0	7019.5	6848.5	7-16-96	6.7
EPA-4	7-15-96	199.6	7069.8	6870.2	7-16-96	6.8
EPA-5	7-15-96	118.4	7011.4	6893.0	7-16-96	6.4
EPA-7	7-15-96	108.1	7011.7	6903.6	7-16-96	6.2
EPA-8	7-15-96	214.1	7076.4	6862.3	7-16-96	6.8
EPA-9	7-15-96	169.2	7076.6	6907.4	7-16-96	5.9
EPA-13	7-15-96	164.2	7032.9	6868.7	7-16-96	6.2
EPA-14	7-15-96	104.6	6965.6	6861.0	7-15-96	6.5
EPA-15	7-15-96	142.0	7002.9	6860.9	No water	
EPA-22A	7-15-96	59.2	6954.5	6895.3	7-16-96	7.0
EPA-23	7-15-96	43.8	6926.3	6882.5	7-15-96	6.5
EPA-25	7-15-96	49.7	6903.4	6853.7	7-15-96	6.7
EPA-27	7-15-96	54.4	6910.9	6856.5	7-16-96	7.8
EPA-28	7-15-96	60.1	6917.9	6857.8	7-16-96	7.0
411	7-15-96	136.3	6980.4	6844.1	7-16-96	7.0
420	7-9-96	130.3	6982.5	6852.2	7-10-96	6.7
TWQ-126	7-9-96	103.3 est.	6968.9	6865.6	No water	
NR-1	7-15-96	62.2			7-15-96	7.0

GROUND WATER MONITORING
WATER ELEVATIONS AND FIELD pH
4TH QUARTER 1996

<u>Well No.</u>	<u>Date</u>	<u>Water Depth</u>	<u>Reference Elevation</u>	<u>Water Elevation</u>	<u>Sample Date</u>	<u>Field pH</u>
GW-1	9-30-96	58.1	6916.5	6858.4	10-1-96	6.5
GW-2	9-30-96	53.6	6912.9	6859.3	10-1-96	6.4
GW-3	9-30-96	50.3	6910.0	6859.7	10-1-96	6.4
GW-4	9-30-96	50.7	6959.2	6908.5	10-1-96	6.9
EPA-1	10-7-96	241.0	7035.5	6794.5	10-8-96	7.0
EPA-2	10-7-96	170.8	7019.5	6848.7	10-8-96	6.7
EPA-4	10-7-96	199.7	7069.8	6870.1	10-8-96	6.6
EPA-5	10-7-96	118.5	7011.4	6892.9	10-8-96	6.4
EPA-7	10-7-96	108.3	7011.7	6903.4	10-8-96	6.1
EPA-8	10-7-96	214.1	7076.4	6862.3	10-8-96	6.6
EPA-9	10-7-96	169.2	7076.6	6907.4	10-8-96	5.7
EPA-13	10-7-96	164.4	7032.9	6868.5	10-8-96	6.3
EPA-14	10-7-96	104.5	6965.6	6861.1	10-8-96	6.5
EPA-15	10-7-96	No water	7002.9	xxxx	xxxx	xxxx
EPA-22A	10-7-96	60.0	6954.5	6894.5	10-8-96	6.9
EPA-23	10-7-96	44.0	6926.3	6882.3	10-7-96	6.5
EPA-25	10-7-96	49.8	6903.4	6853.6	10-7-96	6.7
EPA-27	10-7-96	54.7	6910.9	6856.2	10-8-96	7.7
EPA-28	10-7-96	60.3	6917.9	6857.6	10-8-96	7.0
411	10-7-96	136.2	6980.4	6844.2	10-8-96	* 6.9
420	10-7-96	130.9	6982.5	6851.6	10-1-96	6.5
TWQ-126	10-7-96	103.3 est	6968.9	xxxx	xxxx	xxxx
NR-1	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx
	*Field data taken after filtering in lab					

GROUND WATER MONITORING
WATER ELEVATIONS AND FIELD pH
3rd QUARTER 19 96

<u>Well No.</u>	<u>Date</u>	<u>Water Depth</u>	<u>Reference Elevation</u>	<u>Water Elevation</u>	<u>Sample Date</u>	<u>Field pH</u>
502-B	7-9-96	160.3	7025.7	6865.4	7-11-96	4.5
504-B	7-9-96	159.0	7001.7	6842.7	7-11-96	6.0
509-D	7-9-96	59.3	6949.4	6890.1	7-10-96	6.2
515-A	7-9-96	96.5	7008.7	6912.2	7-10-96	5.3
516-A	7-9-96	98.2	7002.4	6904.2	7-10-96	6.1
517	7-9-96	97.8	6971.6	6873.8	7-10-96	4.5
518	7-9-96	130.2	7009.7	6879.5	7-11-96	3.5
604	7-9-96	95.8	7006.4	6910.6	7-10-96	4.4
614	7-9-96	91.6	7011.9	6920.3	7-10-96	6.3
619	7-9-96	124.7	7013.0	6888.3	7-10-96	6.4
624	7-9-96	45.7	6898.6	6852.9	7-10-96	6.6
627	7-9-96	51.0	6892.2	6841.2	7-10-96	6.8
632	7-9-96	44.7	6903.5	6858.8	7-10-96	6.4
TWQ-141	7-9-96	197.0	6978.5	6781.5	7-10-96	8.4
TWQ-142	7-9-96	207.2	6983.3	6776.1	7-10-96	7.9
TWQ-143	7-9-96	213.6	6989.6	6776.0	7-10-96	7.5
801					7-16-96	6.3
802					7-15-96	6.3
803					7-15-96	6.3
804	7-12-96	47.2	6906.8	6859.6		
805	7-12-96	50.2	6915.7	6865.5		
806	7-12-96	50.1	6916.0	6865.9		
807	7-12-96	51.3	6923.4	6872.1		
Field Blank					7-10-96	7.6
Rinsate					7-10-96	6.6

GROUND WATER MONITORING
WATER ELEVATIONS AND FIELD pH
4TH QUARTER 19 96

<u>Well No.</u>	<u>Date</u>	<u>Water Depth</u>	<u>Reference Elevation</u>	<u>Water Elevation</u>	<u>Sample Date</u>	<u>Field pH</u>
502-B	9-30-96	160.2	7025.7	6865.5	10-1-96	4.7
504-B	9-30-96	159.5	7001.7	6842.2	10-1-96	6.3
509-D	9-30-96	59.8	6949.4	6889.6	10-1-96	6.4
515-A	9-30-96	96.7	7008.7	6912.0	10-1-96	5.7
516-A	9-30-96	98.6	7002.4	6903.8	10-1-96	6.4
517	9-30-96	98.0	6971.6	6873.6	10-1-96	4.8
518	9-30-96	130.5	7009.7	6879.2	10-1-96	3.8
604	9-30-96	96.1	7006.4	6910.3	10-1-96	4.8
614	9-30-96	92.2	7011.9	6919.7	10-1-96	6.5
619	9-30-96	124.9	7013.0	6888.1	10-1-96	6.4
624	9-30-96	45.7	6898.6	6852.9	10-1-96	6.8
627	9-30-96	51.2	6892.2	6841.0	10-1-96	6.8
632	9-30-96	44.2	6903.5	6859.3	10-1-96	6.5
TWQ-141	9-30-96	196.9	6978.5	6781.6	10-1-96	7.3
TWQ-142	9-30-96	207.1	6983.3	6776.2	10-1-96	7.5
TWQ-143	9-30-96	213.3	6989.6	6776.3	10-1-96	7.2
801					10-8-96	6.3
802					10-8-96	6.7
803					10-8-96	6.4
804	9-30-96	47.4	6906.8	6859.4		
805	9-30-96	49.9	6915.7	6865.8		
806	9-30-96	49.9	6916.0	6866.1		
807	9-30-96	51.7	6923.4	6871.7		
Field Blank	xxxx	xxxx	xxxx	xxxx	10-1-96	7.7
Rinsate	xxxx	xxxx	xxxx	xxxx	10-1-96	7.3

QUARTERLY WATER LEVELS

3rd Quarter 19 96

Well No.	Date	Time	Depth to Water	Reference Elevation	Top of Water Elevation
608	<u>7/30</u>	<u>1022</u>	<u>90.3</u>	6972.2	<u>6881.9</u>
702	<u>"</u>	<u>932</u>	<u>78.9</u>	6974.2	<u>6895.3</u>
703	<u>"</u>	<u>934</u>	<u>88.2</u>	6978.9	<u>6890.7</u>
710	<u>"</u>	<u>1048</u>	<u>155.0</u>	7016.5	<u>6861.5</u>
712	<u>"</u>	<u>1117</u>	<u>162.7</u>	7022.2	<u>6854.5</u>
713	<u>Pumping</u>	<u>- Pumping</u>		7024.5	<u>-</u>
714	<u>7/30</u>	<u>1122</u>	<u>88.3</u>	6962.9	<u>6874.6</u>
715	<u>"</u>	<u>1124</u>	<u>90.2</u>	6964.5	<u>6865.3</u>

QUARTERLY WATER LEVELS

4th Quarter 1996

Well No.	Date	Time	Water Depth	Reference Elevation	Water Elevation
608	<u>10/10</u>	<u>1054</u>	<u>91.0'</u>	6972.2	<u>6882.2</u>
702	<u>"</u>	<u>1100</u>	<u>79.0'</u>	6974.2	<u>6895.2</u>
703	<u>"</u>	<u>1058</u>	<u>88.2'</u>	6978.9	<u>6890.7</u>
710	<u>"</u>	<u>1028</u>	<u>155.4'</u>	7016.5	<u>6861.1</u>
712	<u>"</u>	<u>1033</u>	<u>168.0'</u>	7022.2	<u>6854.2</u>
713	<u>—</u>	<u>Pumping</u>	<u>—</u>	7024.5	<u>—</u>
714	<u>10/10</u>	<u>1049</u>	<u>89.7'</u>	6962.9	<u>6873.2</u>
715	<u>"</u>	<u>1047</u>	<u>100.6'</u>	6964.5	<u>6863.9</u>

SEMI-ANNUAL GROUND WATER MONITORING REPORT

JULY 1, 1996 THROUGH DECEMBER 31, 1996

CONTROLS

FIELD BLANK

RINSATE

**ENERGY LABORATORIES, INC.**

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2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639

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**UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM**

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

Field Blank	Field Blank	Field Blank	Field Blank
96-12282	96-19723	96-41358	96-54991
01-04-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	0.23	< 0.05	0.40	0.76	0.05
Magnesium (Mg)	mg/L	0.16	0.20	0.20	0.20	0.01
Sodium (Na)	mg/L	3.5	7.6	6.0	5.6	0.05
Potassium (K)	mg/L	0.17	0.20	< 0.10	0.19	0.10
Bicarbonate (HCO ₃)	mg/L	8.8	12.0	11.9	11.9	0.10
Sulfate (SO ₄)	mg/L	1.6	5.4	5.0	3.8	1.0
Chloride (Cl)	mg/L	< 1.0	1.7	1.3	3.0	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	< 0.10	< 0.10	0.15	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	12.0	23.0	18.7	16.0	1.0
pH	std. units	6.60	7.29	6.79	7.05	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.003	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	< 0.0003	0.013	0.0014	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Radium Precision ±						
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	0.7	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.4				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	0.21	0.36	0.34	0.37	
Cation	meq	0.20	0.37	0.32	0.32	
WYDEQ A/C Balance	%	-3.98	0.78	-4.20	-7.45	-5 - +5
Calc TDS	mg/L	12	22	19	20	
TDS A/C Balance	dec. %	1.04	1.06	0.96	0.79	0.80 - 1.20

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UNC MINING AND MILLING: CHURCHROCK OPERATIONS GROUNDWATER MONITORING PROGRAM

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WELL NUMBER:
LAB I.D.:
SAMPLE DATE:
REPORT DATE:
QUARTER REPRESENTED:
UNC SUBMITTAL #:

Rinsate	Rinsate	Rinsate	Rinsate
96-12278	96-19724	96-41358	96-54990
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	4.0	4.1	4.0	6.3	0.05
Magnesium (Mg)	mg/L	1.2	6.3	4.5	3.2	0.01
Sodium (Na)	mg/L	5.0	10.7	9.1	7.7	0.05
Potassium (K)	mg/L	0.50	0.40	0.29	0.44	0.10
Bicarbonate (HCO ₃)	mg/L	13.8	18.4	15.1	15.0	0.10
Sulfate (SO ₄)	mg/L	14.5	41	31	22.6	1.0
Chloride (Cl)	mg/L	< 1.0	3.2	2.7	4.4	1.0
Ammonium (NH ₄) as N	mg/L	0.10	0.18	0.20	0.08	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	0.17	0.34	0.42	0.86	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	34.0	75.0	68.3	56.0	1.0
pH	std. units	5.40	7.34	6.88	7.17	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.02	0.08	0.05	0.01	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	< 0.0003	0.0067	< 0.0003	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Radium Precision ±						
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	1.0	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.5				
Lead 210 (Pb ²¹⁰)	pCi/L	2.4	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		2.1				
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	1.05	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	0.57	1.27	1.00	0.90	
Cation	meq	0.55	1.23	1.01	0.95	
WYDEQ A/C Balance	%	-1.71	-1.45	0.31	2.33	-5 - +5
Calc TDS	mg/L	34	77	61	56	
TDS A/C Balance	dec. %	1.00	0.98	1.11	1.00	0.80 - 1.20

SEMI-ANNUAL GROUND WATER MONITORING REPORT

July 1, 1996, through December 31, 1996

Alluvium

*GW-1
*GW-2
*509-D
*632
*EPA-22A
*EPA-23
*EPA-28
GW-3
GW-4
EPA-25
EPA-27
624
627

Samples Only

801
802
803

Levels Only

804
805
806
807

*Point of Compliance Wells



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

Page 1 of 9

WELL NUMBER:
 LAB I.D.:
 SAMPLE DATE:
 REPORT DATE:
 QUARTER REPRESENTED:
 UNC SUBMITTAL #:

GW-1	GW-1	GW-1	GW-1
96-12192	96-19698	96-41337	96-54997
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	08-27-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	605	594	605	624	0.05
Magnesium (Mg)	mg/L	405	388	395	422	0.01
Sodium (Na)	mg/L	274	274	290	264	0.05
Potassium (K)	mg/L	3.5	3.7	3.6	3.9	0.10
Bicarbonate (HCO ₃)	mg/L	1211	1160	1169	1170	0.10
Sulfate (SO ₄)	mg/L	2079	2162	2155	2063	1.0
Chloride (Cl)	mg/L	135	140	160	158	1.0
Ammonium (NH ₄) as N	mg/L	0.07	0.09	0.21	0.10	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	115	116	109	116	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	5086	5078	5119	5080	1.0
pH	std. units	6.8	7.55	7.08	6.99	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.002	< 0.001	0.002	0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.07	< 0.01	0.07	0.07	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.027	< 0.001	0.006	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.058	0.050	0.060	0.051	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	< 0.2	< 0.2	0.3	< 0.2	0.2
Radium Precision ±				0.2		
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	1.04	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	75.18	76.29	76.35	74.90	
Cation	meq	76.02	74.06	75.90	77.97	
WYDEQ A/C Balance	%	0.56	-1.48	-0.30	2.01	-5 - +5
Calc TDS	mg/L	4617	4673	4676	4634	
TDS A/C Balance	dec. %	1.10	1.09	1.09	1.10	0.80 - 1.20

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GROUNDWATER MONITORING PROGRAM: SOUTHWEST ALLUVIUM MONITOR WELLS

Page 2 of 9

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

GW-2	GW-2	GW-2	GW-2
96-12193	96-19699	96-41338	96-54998
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	08-27-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	595	622	600	628	0.05
Magnesium (Mg)	mg/L	575	550	595	673	0.01
Sodium (Na)	mg/L	280	282	286	289	0.05
Potassium (K)	mg/L	9.7	10.0	10.4	10.3	0.10
Bicarbonate (HCO ₃)	mg/L	1802	1732	1643	1670	0.10
Sulfate (SO ₄)	mg/L	2409	2936	2870	2955	1.0
Chloride (Cl)	mg/L	133.0	167	155	166	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	< 0.05	0.10	< 0.05	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	16.7	24.1	20.5	12.9	0.10

Non-Metals	Units	Results	Results	Results	Results	Detection Limit
Total Dissolved Solids (TDS) @ 180°C	mg/L	5302	6059	6246	6280	1.0
pH	std. units	6.91	7.64	7.19	6.99	0.10

Trace Metals	Units	Results	Results	Results	Results	Detection Limit
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	0.003	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.39	0.44	0.49	0.43	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric	Units	Results	Results	Results	Results	Detection Limit
Uranium (U ²³⁸)	mg/L	0.071	0.118	0.099	0.070	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Radium Precision ±				0.2		
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	1.0	0.2
Thorium Precision ±					0.6	
Lead 210 (Pb ²¹⁰)	pCi/L	2.4	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		2.1				
Gross Alpha	pCi/L	< 1	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics	Units	Results	Results	Results	Results	Detection Limit
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data	Units	Results	Results	Results	Results	Target Range
Anion	meq	84.67	95.99	92.56	94.54	
Cation	meq	90.13	89.49	92.33	100.35	
WYDEQ A/C Balance	%	3.12	-3.50	-0.12	2.98	-5 - +5
Calc TDS	mg/L	4977	5555	5429	5614	
TDS A/C Balance	dec. %	1.07	1.09	1.15	1.12	0.80 - 1.20

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GROUNDWATER MONITORING PROGRAM: SOUTHWEST ALLUVIUM MONITOR WELLS

Page 5 of 9

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

509D	509D	509D	509D
96-12195	96-19702	96-41340	96-55001
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	08-27-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	760	800	805	818	0.05
Magnesium (Mg)	mg/L	490	610	495	578	0.01
Sodium (Na)	mg/L	287	324	300	308	0.05
Potassium (K)	mg/L	13.3	15.0	14.7	15.2	0.10
Bicarbonate (HCO ₃)	mg/L	1903	1979	1769	1900	0.10
Sulfate (SO ₄)	mg/L	2229	3030	2580	2795	1.0
Chloride (Cl)	mg/L	227.0	342	255	297	1.0
Ammonium (NH ₄) as N	mg/L	2.22	3.86	2.45	3.97	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	50.4	53.6	44.5	86.1	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	5314	6804	6283	6440	1.0
pH	std. units	5.96	7.67	7.04	6.80	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.79	0.86	0.97	0.90	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.002	< 0.001	< 0.001	0.007	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.090	0.101	0.143	0.088	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.4	< 0.2	0.5	0.6	0.2
Radium Precision ±		0.3		0.2	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	1.5	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		1.1				
Gross Alpha	pCi/L	2	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±		0.9				

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	87.63	109.03	93.11	103.89	
Cation	meq	91.87	105.64	95.16	103.19	
WYDEQ A/C Balance	%	2.36	-1.58	1.09	-0.34	-5 - +5
Calc TDS	mg/L	5185	6354	5535	6149	
TDS A/C Balance	dec. %	1.02	1.07	1.14	1.05	0.80 - 1.20

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

Page 8 of 9

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

632	632	632	632
96-12274	96-19705	96-41343	96-55004
01-04-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	08-27-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	760	650	671	676	0.05
Magnesium (Mg)	mg/L	625	585	589	602	0.01
Sodium (Na)	mg/L	378	384	397	396	0.05
Potassium (K)	mg/L	7.9	8.1	8.8	8.5	0.10
Bicarbonate (HCO ₃)	mg/L	2239	1807	2035	2050	0.10
Sulfate (SO ₄)	mg/L	2595	2715	2749	2758	1.0
Chloride (Cl)	mg/L	250	278	233	255	1.0
Ammonium (NH ₄) as N	mg/L	0.22	0.26	0.29	0.20	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	16.4	17.4	10.9	11.5	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	6294	5940	6258	6280	1.0
pH	std. units	7.59	7.82	7.40	6.92	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	0.014	0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.74	0.55	0.61	0.57	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	0.012	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.092	0.090	0.092	0.078	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.0	1.7	0.8	0.8	0.2
Radium Precision ±		0.3	0.3	0.2	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	1.1	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±		1.0				
Thorium 230 (Th ²³⁰)	pCi/L	0.3	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.3				
Lead 210 (Pb ²¹⁰)	pCi/L	1.2	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		1.2				
Gross Alpha	pCi/L	1.8	5.8	< 1.0	3.4	1.0
G. Alpha Precision ±		0.8	1.2		0.3	

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	1.68	1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	98.98	95.26	97.97	99.07	
Cation	meq	106.79	98.21	100.19	101.46	
WYDEQ A/C Balance	%	3.79	1.53	1.12	1.19	-5 - +5
Calc TDS	mg/L	5809	5602	5715	5772	
TDS A/C Balance	dec. %	1.08	1.06	1.10	1.09	0.80 - 1.20

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UNC MINING AND MILLING: CHURCHROCK OPERATIONS

GROUNDWATER MONITORING PROGRAM: SOUTHWEST ALLUVIUM MONITOR WELLS

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA-22A	EPA-22A	EPA-22A	EPA-22A
96-12400	96-24786	96-41530	96-58640
01-08-96	04-10-96	07-17-96	10-08-96
02-13-96	05-28-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	329	350	326	401	0.05
Magnesium (Mg)	mg/L	68.0	74.5	72.4	92.0	0.01
Sodium (Na)	mg/L	94.0	83.5	93.6	93.0	0.05
Potassium (K)	mg/L	2.7	2.5	2.7	3.0	0.10
Bicarbonate (HCO ₃)	mg/L	549	550	548	543	0.10
Sulfate (SO ₄)	mg/L	824	881	816	1041	1.0
Chloride (Cl)	mg/L	11.5	12.4	12.1	16.7	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	0.06	< 0.05	0.07	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	1.73	1.85	1.29	1.44	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	1724	1782	1815	2040	1.0
pH	std. units	7.49	7.93	7.52	7.48	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.10	0.09	0.15	0.17	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ^{nat})	mg/L	0.038	0.048	0.048	0.051	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.4	0.5	0.7	2.1	0.2
Radium Precision ±		0.4	0.3	0.4	0.5	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	2.0	< 1.0	< 1.0	1.0
Radium Precision ±			0.6			
Thorium 230 (Th ²³⁰)	pCi/L	0.8	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.5				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	1.4	< 1.0	2.2	1.0
G. Alpha Precision ±			0.3		0.4	

Trace Organics						
Chloroform	µg/l	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	26.61	27.85	26.42	31.16	
Cation	meq	26.29	27.42	26.50	31.86	
WYDEQ A/C Balance	%	-0.61	-0.78	0.15	1.11	-5 - +5
Calc TDS	mg/L	1612	1687	1603	1925	
TDS A/C Balance	dec. %	1.07	1.06	1.13	1.06	0.80 - 1.20

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

Page 5 of 9

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA-23	EPA-23	EPA-23	EPA-23
96-12401	96-24787	96-41523	96-58641
01-08-96	04-09-96	07-17-96	10-08-96
02-13-96	05-28-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	690	725	620	658	0.05
Magnesium (Mg)	mg/L	390	411	350	378	0.01
Sodium (Na)	mg/L	162	150	135	150	0.05
Potassium (K)	mg/L	10.1	9.7	10.0	10.1	0.10
Bicarbonate (HCO ₃)	mg/L	1114	1172	1048	1094	0.10
Sulfate (SO ₄)	mg/L	2267	2440	2368	2269	1.0
Chloride (Cl)	mg/L	86.0	95.3	68.0	81.1	1.0
Ammonium (NH ₄) as N	mg/L	1.39	1.51	1.09	1.04	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	42.5	45.0	8.94	25.8	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	4421	4880	4518	4670	1.0
pH	std. units	7.35	7.67	7.07	7.18	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	0.002	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	3.40	3.29	4.20	3.65	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.003	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.037	0.040	0.025	0.031	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	< 0.2	< 0.2	< 0.2	0.3	0.2
Radium Precision ±		0.2			0.2	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	1.9	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		1.4				
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/l	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	70.95	75.95	69.07	69.33	
Cation	meq	74.60	77.57	66.61	71.47	
WYDEQ A/C Balance	%	2.51	1.06	-1.81	1.51	-5 - +5
Calc TDS	mg/L	4356	4622	4120	4212	
TDS A/C Balance	dec. %	1.02	1.06	1.10	1.11	0.80 - 1.20

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

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA-28	EPA-28	EPA-28	EPA-28
96-12404	96-24790	96-41528	96-58644
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-28-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	535	508	525	538	0.05
Magnesium (Mg)	mg/L	520	500	550	498	0.01
Sodium (Na)	mg/L	207	209	227	223	0.05
Potassium (K)	mg/L	11.6	10.8	12.1	11.8	0.10
Bicarbonate (HCO ₃)	mg/L	528	556	531	360	0.10
Sulfate (SO ₄)	mg/L	2979	3165	3045	2849	1.0
Chloride (Cl)	mg/L	112	124	112	108	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	0.07	< 0.05	0.07	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	55.3	48.5	125	47.3	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	5029	5273	5267	5260	1.0
pH	std. units	7.29	7.73	7.08	7.23	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	0.002	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.29	0.27	0.22	0.27	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.005	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.027	0.033	0.032	0.038	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.6	< 0.2	1.8	1.0	0.2
Radium Precision ±		0.4		0.4	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/l	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	77.82	82.01	84.23	71.68	
Cation	meq	79.41	76.46	82.29	78.43	
WYDEQ A/C Balance	%	1.01	-3.50	-1.16	4.50	-5 - +5
Calc TDS	mg/L	4874	5010	5291	4618	
TDS A/C Balance	dec. %	1.03	1.05	1.00	1.14	0.80 - 1.20

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

WELL NUMBER:
LAB I.D.:
SAMPLE DATE:
REPORT DATE:
QUARTER REPRESENTED:
UNC SUBMITTAL #:

GW-3	GW-3	GW-3	GW-3
96-12194	96-19700	96-41339	96-54999
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-11-96	08-27-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	805	875	865	909	0.05
Magnesium (Mg)	mg/L	240	275	260	277	0.01
Sodium (Na)	mg/L	235	260	245	239	0.05
Potassium (K)	mg/L	6.1	7.0	7.4	6.7	0.10
Bicarbonate (HCO ₃)	mg/L	1521	1510	1434	1480	0.10
Sulfate (SO ₄)	mg/L	1650	1915	1860	1884	1.0
Chloride (Cl)	mg/L	138	155	150	141	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	< 0.05	0.14	0.05	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	106	111	102	115	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	4495	5010	4844	4970	1.0
pH	std. units	6.96	7.64	7.13	6.99	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.002	< 0.001	0.010	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.74	1.82	1.99	1.92	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.014	< 0.001	< 0.001	0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.081	0.087	0.100	0.072	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.4	< 0.2	0.3	< 0.2	0.2
Radium Precision ±		0.3		0.2		
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	0.4	< 0.2	1.2	0.4	0.2
Thorium Precision ±		0.3		0.6	0.2	
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Polonium 210 (Po ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Polonium Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	70.77	76.94	73.77	75.70	
Cation	meq	70.73	78.26	75.89	79.22	
WYDEQ A/C Balance	%	-0.02	0.85	1.42	2.27	-5 - +5
Calc TDS	mg/L	4306	4736	4558	4708	
TDS A/C Balance	dec. %	1.04	1.06	1.06	1.06	0.80 - 1.20

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

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

GW-4	GW-4
96-19701	96-55000
04-02-96	10-01-96
05-11-96	Dec. 11, 1996
Second '96	Fourth '96
TE-5-4-96	TE-9-10-96

Major Ions	Units	Results	Results	Detection Limit
Calcium (Ca)	mg/L	718	743	0.05
Magnesium (Mg)	mg/L	193	194	0.01
Sodium (Na)	mg/L	166	165	0.05
Potassium (K)	mg/L	12.4	12.1	0.10
Bicarbonate (HCO ₃)	mg/L	706	806	0.10
Sulfate (SO ₄)	mg/L	1688	1671	1.0
Chloride (Cl)	mg/L	46.6	44.0	1.0
Ammonium (NH ₄) as N	mg/L	0.37	0.28	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	146	126	0.10

Non-Metals				
Total Dissolved Solids (TDS) @ 180°C	mg/L	4092	3900	1.0
pH	std. units	7.83	7.66	0.10

Trace Metals				
Aluminum (Al)	mg/L	< 0.10	0.19	0.10
Arsenic (As) III	mg/L	< 0.001	0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.12	0.08	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	0.007	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	0.10

Radiometric				
Uranium (U ²³⁸)	mg/L	0.065	0.063	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.3	0.8	0.2
Radium Precision ±		0.2	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	1.0
Radium Precision ±				
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	0.8	0.2
Thorium Precision ±			0.5	
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	1.0
Lead Precision ±				
Polonium 210 (Po ²¹⁰)	pCi/L	< 1.0	< 1.0	1.0
Polonium Precision ±				
Gross Alpha	pCi/L	< 1.0	< 1.0	1.0
G. Alpha Precision ±				

Trace Organics				
Chloroform	µg/L	< 1.00	< 1.00	1.00

Quality Assurance Data				Target Range
Anion	meq	58.48	58.27	
Cation	meq	59.56	60.85	
WYDEQ A/C Balance	%	0.91	2.17	-5 - +5
Calc TDS	mg/L	3824	3791	
TDS A/C Balance	dec. %	1.07	1.03	0.80 - 1.20

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

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA-25	EPA-25	EPA-25	EPA-25
96-12402	96-24788	96-41526	96-58642
01-08-96	04-09-96	07-17-96	10-08-96
02-13-96	05-28-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-86	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	745	790	710	767	0.05
Magnesium (Mg)	mg/L	212	206	182	199	0.01
Sodium (Na)	mg/L	139	135	145	144	0.05
Potassium (K)	mg/L	6.9	7.2	7.9	7.9	0.10
Bicarbonate (HCO ₃)	mg/L	841	937	964	981	0.10
Sulfate (SO ₄)	mg/L	1826	1766	1816	1742	1.0
Chloride (Cl)	mg/L	71.0	87.4	95.0	89.0	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	0.11	0.07	0.08	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	86.4	62.6	67.2	59.6	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	3963	3942	3928	4000	1.0
pH	std. units	7.36	7.76	7.10	7.09	0.10

Trace Metals

Element	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Aluminum (Al)	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Arsenic (As) III	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.25	0.46	0.39	0.41	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Radionuclide		Concentration				
Uranium (U^{238})	mg/L	0.0090	0.066	0.189	0.078	0.0003
Radium 226 (Ra^{226})	pCi/L	< 0.2	0.4	< 0.2	< 0.2	0.2
Radium Precision \pm			0.3			
Radium 228 (Ra^{228})	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision \pm						
Thorium 230 (Th^{230})	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision \pm						
Lead 210 (Pb^{210})	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision \pm						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision \pm						

Trace Organics

Chloroform	µg/l	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

Quality Assurance Data						Target Range
Anion	meq	60.00	59.09	61.11	59.14	
Cation	meq	61.22	62.76	57.21	61.44	
WYDEQ A/C Balance	%	1.01	3.02	-3.30	1.91	-5 - +5
Calc TDS	mg/L	3804	3738	3736	3704	
TDS A/C Balance	dec %	1.04	1.05	1.05	1.08	0.80 - 1.20

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

Page 7 of 9

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA-27	EPA-27	EPA-27	EPA-27
96-12403	96-24789	96-41527	96-56643
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-28-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	530	552	560	524	0.05
Magnesium (Mg)	mg/L	126	133	118	127	0.01
Sodium (Na)	mg/L	328	324	348	343	0.05
Potassium (K)	mg/L	16.1	14.1	16.4	16.5	0.10
Bicarbonate (HCO ₃)	mg/L	62.2	57.6	45.5	40.4	0.10
Sulfate (SO ₄)	mg/L	1929	2080	2009	1865	1.0
Chloride (Cl)	mg/L	116	126	124	112	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	0.07	< 0.05	0.13	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	132	123	143	121	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	3743	3875	3730	3720	1.0
pH	std. units	7.9	7.97	7.82	8.04	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	0.002	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.038	0.009	< 0.001	0.009	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.011	0.013	0.010	0.012	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	< 0.2	< 0.2	2.1	< 0.2	0.2
Radium Precision ±				0.4		
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/l	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	53.90	56.61	56.31	51.31	
Cation	meq	51.69	53.15	53.40	52.14	
WYDEQ A/C Balance	%	-2.10	-3.16	-2.65	0.80	-5 - +5
Calc TDS	mg/L	3661	3803	3832	3544	
TDS A/C Balance	dec. %	1.02	1.02	0.97	1.05	0.80 - 1.20

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2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639**UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: SOUTHWEST ALLUVIUM MONITOR WELLS**

Page 6 of 9

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

624	624	624	624
96-12196	96-19703	96-41341	96-55002
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	08-27-96	Dec. 1, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	610	655	645	666	0.05
Magnesium (Mg)	mg/L	392	430	405	430	0.01
Sodium (Na)	mg/L	203	204	206	204	0.05
Potassium (K)	mg/L	4.8	4.7	4.6	4.6	0.10
Bicarbonate (HCO ₃)	mg/L	1182	1048	1158	1180	0.10
Sulfate (SO ₄)	mg/L	1879	2310	2190	2179	1.0
Chloride (Cl)	mg/L	123.0	150	145	161	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	< 0.05	0.07	< 0.05	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	97.0	100	84.4	93.0	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	4553	4942	4946	5050	1.0
pH	std. units	7.43	7.92	7.45	7.25	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	< 0.01	0.02	0.02	0.02	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.007	< 0.001	< 0.001	0.003	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ^{nat})	mg/L	0.032	0.033	0.043	0.032	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.6	< 0.2	0.3	< 0.2	0.2
Radium Precision ±		0.4		0.2		
Radium 228 (Ra ²²⁸)	pCi/L	1.3	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±		1.1				
Thorium 230 (Th ²³⁰)	pCi/L	0.6	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.4				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	68.92	76.67	74.72	75.92	
Cation	meq	72.13	77.59	75.09	78.14	
WYDEQ A/C Balance	%	2.28	0.59	0.25	1.44	-5 - +5
Calc TDS	mg/L	4233	4721	4549	4647	
TDS A/C Balance	dec. %	1.08	1.05	1.09	1.09	0.80 - 1.20

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

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WELL NUMBER:
LAB I.D.:
SAMPLE DATE:
REPORT DATE:
QUARTER REPRESENTED:
UNC SUBMITTAL #:

627	627	627	627
96-12197	96-19704	96-41342	96-55003
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	08-27-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	640	570	585	592	0.05
Magnesium (Mg)	mg/L	300	287	280	277	0.01
Sodium (Na)	mg/L	531	530	570	470	0.05
Potassium (K)	mg/L	3.6	3.6	4.1	3.5	0.10
Bicarbonate (HCO ₃)	mg/L	542	558	534	575	0.10
Sulfate (SO ₄)	mg/L	2995	2740	2725	2468	1.0
Chloride (Cl)	mg/L	60.0	65.1	64.0	54.0	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	< 0.05	0.13	< 0.05	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	131	129	113	119	0.10

Non-Metals	Units	Results	Results	Results	Results	Detection Limit
Total Dissolved Solids (TDS) @ 180°C	mg/L	5293	5230	5403	4980	1.0
pH	std. units	7.52	8.06	7.56	7.23	0.10

Trace Metals	Units	Results	Results	Results	Results	Detection Limit
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.07	0.07	0.13	0.09	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric	Units	Results	Results	Results	Results	Detection Limit
Uranium (U ^{nat})	mg/L	0.018	0.019	0.024	0.024	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.7	0.5	0.3	0.5	0.2
Radium Precision ±		0.3	0.2	0.2	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	1.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.5				
Lead 210 (Pb ²¹⁰)	pCi/L	2.4	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		2.1				
Gross Alpha	pCi/L	1.2	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±		0.8				

Trace Organics	Units	Results	Results	Results	Results	Detection Limit
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data	Units	Results	Results	Results	Results	Target Range
Anion	meq	82.33	77.28	75.40	70.86	
Cation	meq	80.20	75.57	77.50	73.23	
WYDEQ A/C Balance	%	-1.31	-1.12	1.37	1.64	-5 - +5
Calc TDS	mg/L	5381	5046	4996	4679	
TDS A/C Balance	dec. %	0.98	1.04	1.08	1.06	0.80 - 1.20

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UNC MINING AND MILLING: CHURCHROCK OPERATIONS

Page 3 of 9

GROUNDWATER MONITORING PROGRAM: SOUTHWEST ALLUVIUM MONITOR WELLS

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

801	801	801	801
96-12275	96-19706	96-41529	96-58639
01-03-96	04-02-96	07-17-96	10-08-96
02-13-96	05-12-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	629	550	527	554	0.05
Magnesium (Mg)	mg/L	952	1000	864	915	0.01
Sodium (Na)	mg/L	414	408	411	404	0.05
Potassium (K)	mg/L	12.3	13.0	15.1	13.9	0.10
Bicarbonate (HCO ₃)	mg/L	1620	1623	1532	1526	0.10
Sulfate (SO ₄)	mg/L	4640	4370	4100	4325	1.0
Chloride (Cl)	mg/L	242	224	241	233	1.0
Ammonium (NH ₄) as N	mg/L	16.8	21.5	20.6	19.9	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	9.91	9.08	8.22	4.46	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	7962	8061	8133	8130	1.0
pH	std. units	7.18	7.31	6.79	6.97	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	18.6	17.0	19.5	17.1	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.042	0.063	0.051	0.046	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.3	0.3	0.9	1.3	0.2
Radium Precision ±		0.5	0.2	0.3	0.4	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	1.1	< 0.2	0.2
Thorium Precision ±				0.3		
Lead 210 (Pb ²¹⁰)	pCi/L	3.1	2.9	< 1.0	< 1.0	1.0
Lead Precision ±		2.2	1.8			
Gross Alpha	pCi/L	2.0	3.0	1.2	< 1.0	1.0
G. Alpha Precision ±		0.9	0.6	0.4		

Trace Organics						
Chloroform	µg/l	2.81	3.36	4.32	3.60	1.00

Quality Assurance Data						Target Range
Anion	meq	130.75	124.61	117.91	121.90	
Cation	meq	131.33	131.38	119.15	124.24	
WYDEQ A/C Balance	%	0.22	2.65	0.53	0.95	-5 - +5
Calc TDS	mg/L	7783	7461	7007	7267	
TDS A/C Balance	dec. %	1.02	1.08	1.16	1.12	0.80 - 1.20

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

Page 2 of 9

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

802	802	802	802
96-12276	96-19707	96-41525	96-58638
01-03-96	04-02-96	07-17-96	10-08-96
02-13-96	05-12-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-5-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	817	796	701	756	0.05
Magnesium (Mg)	mg/L	805	845	723	778	0.01
Sodium (Na)	mg/L	361	380	366	357	0.05
Potassium (K)	mg/L	5.5	11.4	6.0	6.4	0.10
Bicarbonate (HCO ₃)	mg/L	2166	2250	2196	2200	0.10
Sulfate (SO ₄)	mg/L	3530	3560	3164	3291	1.0
Chloride (Cl)	mg/L	222	227	236	220	1.0
Ammonium (NH ₄) as N	mg/L	1.84	1.88	1.60	1.70	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	85.8	88.4	91.2	76.5	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	7477	7595	7488	7600	1.0
pH	std. units	7.92	7.37	6.96	7.25	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.09	0.80	0.81	1.06	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.022	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.168	0.167	0.086	0.171	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.4	< 0.2	< 0.2	0.5	0.2
Radium Precision ±		0.2			0.3	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	3.6	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		2.3				
Gross Alpha	pCi/L	< 1.0	1.2	< 1.0	< 1.0	1.0
G. Alpha Precision ±			0.5			

Trace Organics						
Chloroform	µg/l	< 1.00	< 1.00	1.21	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	121.43	123.76	115.08	116.29	
Cation	meq	123.92	127.22	111.54	118.51	
WYDEQ A/C Balance	%	1.01	1.38	-1.56	0.95	-5 - +5
Calc TDS	mg/L	7206	7339	6701	6851	
TDS A/C Balance	dec. %	1.04	1.03	1.12	1.11	0.80 - 1.20

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GROUNDWATER MONITORING PROGRAM: SOUTHWEST ALLUVIUM MONITOR WELLS**

Page 1 of 9

WELL NUMBER:**LAB I.D.:****SAMPLE DATE:****REPORT DATE:****QUARTER REPRESENTED:****UNC SUBMITTAL #:**

803	803	803	803
96-12277	96-19708	96-41524	96-58637
01-03-96	04-02-96	07-17-96	10-08-96
02-13-96	05-12-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	893	831	735	809	0.05
Magnesium (Mg)	mg/L	609	639	490	675	0.01
Sodium (Na)	mg/L	307	310	287	310	0.05
Potassium (K)	mg/L	10.3	10.8	11.2	11.5	0.10
Bicarbonate (HCO ₃)	mg/L	1929	2014	1967	2022	0.10
Sulfate (SO ₄)	mg/L	3160	3160	2869	3202	1.0
Chloride (Cl)	mg/L	174	198	184	173	1.0
Ammonium (NH ₄) as N	mg/L	0.62	0.66	0.98	0.52	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	30.6	32.5	29.0	33.2	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	6427	6557	6277	6930	1.0
pH	std. units	7.16	7.43	6.70	7.03	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.17	1.14	1.52	1.14	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	0.002	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.083	0.082	0.068	0.079	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	< 0.2	< 0.2	0.4	< 0.2	0.2
Radium Precision ±		0.2		0.2		
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±		1.0				
Thorium 230 (Th ²³⁰)	pCi/L	0.3	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.3				
Lead 210 (Pb ²¹⁰)	pCi/L	1.5	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		1.2				
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±		0.7				

Trace Organics						
Chloroform	µg/l	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	104.54	106.75	99.27	107.10	
Cation	meq	109.13	108.68	90.51	110.58	
WYDEQ A/C Balance	%	2.15	0.89	-4.61	1.60	-5 - +5
Calc TDS	mg/L	6255	6302	5691	6340	
TDS A/C Balance	dec. %	1.03	1.04	1.10	1.09	0.80 - 1.20

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SEMI-ANNUAL GROUND WATER MONITORING REPORT

July 1, 1996, through December 31, 1996

ZONE 1

*516-A

*604

*614

*EPA-4

*EPA-7

TWQ-141

TWQ-142

TWQ-143

515-A

619

EPA-2

EPA-5

EPA-8

*Point of Compliance Wells



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

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

516A	516A	516A	516A
96-12201	96-19719	96-41357	96-54986
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	469	527	465	494	0.05
Magnesium (Mg)	mg/L	1340	1530	1480	1600	0.01
Sodium (Na)	mg/L	485	491	485	485	0.05
Potassium (K)	mg/L	18.5	19.0	19.6	18.9	0.10
Bicarbonate (HCO ₃)	mg/L	1302	1320	1309	1270	0.10
Sulfate (SO ₄)	mg/L	6480	7150	6190	6640	1.0
Chloride (Cl)	mg/L	237	259	240	247	1.0
Ammonium (NH ₄) as N	mg/L	137	152	150	149	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	142	146	134	128	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	11314	11345	11529	11500	1.0
pH	std. units	7.03	7.29	7.15	6.93	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	0.002	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	0.02	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	2.3	2.1	2.0	2.2	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.014	0.014	0.018	0.013	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.1	0.8	0.7	0.9	0.2
Radium Precision ±		0.4	0.3	0.2	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	1.4	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±		0.7				
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	1.7	< 1	< 1	< 1.0	1.0
Lead Precision ±		1.2				
Gross Alpha	pCi/L	2.7	1.4	< 1.0	< 1.0	1.0
G. Alpha Precision ±		1.0	0.4			

Trace Organics						
Chloroform	µg/L	1.76	2.09	2.56	2.13	1.00

Quality Assurance Data						Target Range
Anion	meq	173.16	188.32	166.75	175.25	
Cation	meq	166.60	186.67	179.01	190.38	
WYDEQ A/C Balance	%	-1.93	-0.44	3.55	4.14	-5 - +5
Calc TDS	mg/L	10489	11481	10323	10881	
TDS A/C Balance	dec. %	1.08	0.99	1.12	1.06	0.80 - 1.20

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Page 6 of 11

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

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

604	604	604	604
96-12202	96-19720	96-41354	96-54987
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	440	497	452	464	0.05
Magnesium (Mg)	mg/L	827	920	816	850	0.01
Sodium (Na)	mg/L	277	260	262	265	0.05
Potassium (K)	mg/L	11.8	12	12.4	12.3	0.10
Bicarbonate (HCO ₃)	mg/L	0	2.5	0	0.90	0.10
Sulfate (SO ₄)	mg/L	4760	5180	4610	4708	1.0
Chloride (Cl)	mg/L	54.5	64.2	64.3	57.9	1.0
Ammonium (NH ₄) as N	mg/L	0.20	0.15	0.24	0.36	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	96.1	100	83.2	88.7	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	7223	7638	7742	7690	1.0
pH	std. units	4.43	4.58	4.48	4.52	0.10

Trace Metals						
Aluminum (Al)	mg/L	26.2	22	26.3	24.9	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.04	0.32	0.36	0.35	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	12.0	10.8	12.7	11.4	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	0.36	0.41	0.42	0.05
Selenium (Se) IV	mg/L	0.031	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.0034	< 0.0003	0.0034	0.0011	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	3.1	2.1	2.5	2.3	0.2
Radium Precision ±		0.6	0.3	0.4	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	2.2	6.9	< 1.0	7.4	1.0
Radium Precision ±		0.8	1		0.4	
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	2.8	< 1	< 1	< 1.0	1.0
Lead Precision ±		2.1				
Gross Alpha	pCi/L	9.0	5.3	3.1	3.3	1.0
G. Alpha Precision ±		1.7	0.7	0.5	0.4	

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	107.57	116.91	103.80	106.06	
Cation	meq	106.84	116.17	105.94	109.29	
WYDEQ A/C Balance	%	-0.34	-0.32	1.02	1.50	-5 - +5
Calc TDS	mg/L	6808	7388	6598	6762	
TDS A/C Balance	dec. %	1.06	1.03	1.17	1.14	0.80 - 1.20

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

Page 7 of 11

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

614	614	614	614
96-12203	96-19721	96-41352	96-54988
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	543	605	537	574	0.05
Magnesium (Mg)	mg/L	750	852	750	805	0.01
Sodium (Na)	mg/L	470	442	432	436	0.05
Potassium (K)	mg/L	17.7	17.2	18.5	18.4	0.10
Bicarbonate (HCO ₃)	mg/L	1352	1286	1313	1320	0.10
Sulfate (SO ₄)	mg/L	4260	4780	4210	4394	1.0
Chloride (Cl)	mg/L	204	221	238	223	1.0
Ammonium (NH ₄) as N	mg/L	234	262	243	288	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	179	182	181	189	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	7886	7896	8045	8120	1.0
pH	std. units	7.20	7.92	6.99	6.89	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	0.60	0.10
Arsenic (As) III	mg/L	0.002	0.003	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.35	0.32	0.37	0.41	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.047	0.050	0.053	0.044	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	6.0	1.2	4.9	1.6	0.2
Radium Precision ±		0.8	0.3	0.3	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	1.2	3.4	< 1.0	< 1.0	1.0
Radium Precision ±		0.6	0.7			
Thorium 230 (Th ²³⁰)	pCi/L	0.7	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.4				
Lead 210 (Pb ²¹⁰)	pCi/L	1.5	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		1.2				
Gross Alpha	pCi/L	12.0	3.5	5.3	2.1	1.0
G. Alpha Precision ±		1.9	0.6	0.7	0.3	

Trace Organics						
Chloroform	µg/L	583	624	497	598	1.00

Quality Assurance Data						Target Range
Anion	meq	129.45	139.89	128.87	132.96	
Cation	meq	127.28	139.65	126.00	135.87	
WYDEQ A/C Balance	%	-0.84	-0.09	-1.13	1.08	-5 - +5
Calc TDS	mg/L	8016	8705	7958	8320	
TDS A/C Balance	dec. %	0.98	0.91	1.01	0.98	0.80 - 1.20

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

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WELL NUMBER:

LA3 I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA 4	EPA 4	EPA 4	EPA 4
96-12411	96-24796	96-41514	96-58651
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	505	544	485	555	0.05
Magnesium (Mg)	mg/L	335	338	300	358	0.01
Sodium (Na)	mg/L	213	199	221	211	0.05
Potassium (K)	mg/L	8.3	7.6	8.3	8.3	0.10
Bicarbonate (HCO ₃)	mg/L	257	223	216	196	0.10
Sulfate (SO ₄)	mg/L	2637	3002	2580	2721	1.0
Chloride (Cl)	mg/L	34.4	36.6	38	35.3	1.0
Ammonium (NH ₄) as N	mg/L	0.75	0.85	0.69	0.79	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	4093	4412	4161	4390	1.0
pH	std. units	7.89	7.63	6.76	7.12	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.003	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	2.83	3.2	2.85	2.89	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.0010	< 0.0003	0.0009	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.1	1.2	0.5	1.2	0.2
Radium Precision ±		0.3	0.3	0.2	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	2.4	3.3	< 1	< 1.0	1.0
Radium Precision ±		1.6	0.2			
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	2.6	< 1	< 1	< 1.0	1.0
Lead Precision ±		2.5				
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	60.13	67.24	58.37	60.90	
Cation	meq	62.86	64.46	59.29	67.20	
WYDEQ A/C Balance	%	2.22	-2.11	0.78	4.91	-5 - +5
Calc TDS	mg/L	3865	4243	3744	3991	
TDS A/C Balance	dec. %	1.06	1.04	1.11	1.10	0.80-1.20

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

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WELL NUMBER:
LAB I.D.:
SAMPLE DATE:
REPORT DATE:
QUARTER REPRESENTED:
UNC SUBMITTAL #:

EPA-7	EPA-7	EPA-7	EPA-7
96-12413	96-24798	96-41615	96-58653
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	474	552	483	534	0.05
Magnesium (Mg)	mg/L	894	1040	923	1018	0.01
Sodium (Na)	mg/L	352	349	344	346	0.05
Potassium (K)	mg/L	7.6	7.4	7.9	7.9	0.10
Bicarbonate (HCO ₃)	mg/L	438	428	392	400	0.10
Sulfate (SO ₄)	mg/L	4400	5070	4529	4920	1.0
Chloride (Cl)	mg/L	200	214	222	206	1.0
Ammonium (NH ₄) as N	mg/L	1.03	1.07	0.72	1.20	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	141	147	156	142	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	7349	8204	8403	8440	1.0
pH	std. units	7.36	7.26	6.36	6.97	0.10

Trace Metals						
Aluminum (Al)	mg/L	0.17	0.22	0.25	0.27	0.10
Arsenic (As) III	mg/L	0.003	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.04	0.06	0.08	0.08	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	5.4	6.6	9.7	10.5	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	0.08	0.09	0.05
Selenium (Se) IV	mg/L	0.067	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ^{nat})	mg/L	0.0038	0.0024	0.0032	0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	3.4	0.9	1.2	1.3	0.2
Radium Precision ±		0.6	0.3	0.2	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	1.3	2.4	< 1	< 1.0	1.0
Radium Precision ±		0.6	0.2			
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	0.8	< 0.2	< 0.2	0.2
Thorium Precision ±			0.4			
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	2.4	3.1	4.3	< 1.0	1.0
G. Alpha Precision ±		0.9	0.5	0.6		

Trace Organics						
Chloroform	µg/L	1.05	< 1.00	1.56	5.02	1.00

Quality Assurance Data						Target Range
Anion	meq	114.55	129.17	118.18	125.00	
Cation	meq	114.09	130.09	116.84	127.47	
WYDEQ A/C Balance	%	-0.20	0.36	-0.57	0.98	-5 - +5
Calc TDS	mg/L	7178	8106	7407	7873	
TDS A/C Balance	dec. %	1.02	1.01	1.13	1.07	0.80-1.20

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2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639**UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS**

Page 1 of 11

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

TWQ 141	TWQ 141	TWQ 141	TWQ 141
96-12205	96-19716	96-41349	96-54982
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 8, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	26.6	25.5	26.2	25.1	0.05
Magnesium (Mg)	mg/L	12.1	11.4	11.1	11.7	0.01
Sodium (Na)	mg/L	319	283	288	300	0.05
Potassium (K)	mg/L	3.2	3.3	3.0	3.1	0.10
Bicarbonate (HCO ₃)	mg/L	255	259	254	254	0.10
Sulfate (SO ₄)	mg/L	554	526	481	498	1.0
Chloride (Cl)	mg/L	15.4	29.1	23.2	25.4	1.0
Ammonium (NH ₄) as N	mg/L	0.08	0.39	0.36	0.31	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	0.32	0.16	< 0.10	< 0.10	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	1097	1008	1034	1010	1.0
pH	std. units	8.24	8.36	7.75	8.07	0.10

Trace Metals

Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.002	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	< 0.01	0.10	0.13	0.12	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.007	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ²³⁸)	mg/L	0.0006	0.0016	0.0039	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.3	< 0.2	< 0.2	< 0.2	0.2
Radium Precision ±		0.3				
Radium 228 (Ra ²²⁸)	pCi/L	1.4	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±		0.7				
Thorium 230 (Th ²³⁰)	pCi/L	0.6	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.4				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	1.1	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±		0.8				

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

						Target Range
Anion	meq	16.18	16.04	14.85	15.26	
Cation	meq	16.31	14.66	14.88	15.39	
WYDEQ A/C Balance	%	0.40	-4.49	0.11	0.43	-5 - +5
Calc TDS	mg/L	1059	1009	961	991	
TDS A/C Balance	dec. %	1.04	1.00	1.08	1.02	0.80 - 1.20

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GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

TWQ 142	TWQ 142	TWQ 142	TWQ 142
96-12206	96-19716	96-41350	96-54983
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	23.2	28.3	26.1	25.2	0.05
Magnesium (Mg)	mg/L	11.9	12.7	11.4	11.3	0.01
Sodium (Na)	mg/L	302	298	300	318	0.05
Potassium (K)	mg/L	3.0	3.2	3.1	3.2	0.10
Bicarbonate (HCO ₃)	mg/L	253	250	243	245	0.10
Sulfate (SO ₄)	mg/L	492	593	481	540	1.0
Chloride (Cl)	mg/L	25.3	17.7	23.2	21.3	1.0
Ammonium (NH ₄) as N	mg/L	0.2	0.19	0.26	0.19	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	0.19	0.25	0.44	0.20	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	1018	1074	1075	1060	1.0
pH	std. units	8.05	8.42	7.72	8.12	0.10

Trace Metals

Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.14	< 0.01	< 0.01	0.01	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.003	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ²³⁸)	mg/L	0.0034	0.0004	0.0007	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.4	< 0.2	0.5	0.3	0.2
Radium Precision ±		0.3		0.2	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	0.6	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.4				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

						Target Range
Anion	meq	15.12	16.97	14.69	15.88	
Cation	meq	15.39	15.54	15.41	16.14	
WYDEQ A/C Balance	%	0.88	-4.40	2.39	0.79	-5 - +5
Calc TDS	mg/L	985	1079	969	1043	
TDS A/C Balance	dec. %	1.03	1.00	1.11	1.02	0.80 - 1.20

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GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS**

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WELL NUMBER:**LAB I.D.:****SAMPLE DATE:****REPORT DATE:****QUARTER REPRESENTED:****UNC SUBMITTAL #:**

TWQ 143	TWQ 143	TWQ 143	TWQ 143
96-12207	96-19717	96-41351	96-54984
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	29.1	32.5	30.2	30.7	0.05
Magnesium (Mg)	mg/L	15.3	16.7	15.3	15.9	0.01
Sodium (Na)	mg/L	272	257	260	275	0.05
Potassium (K)	mg/L	3.0	3.3	3.1	3.2	0.10
Bicarbonate (HCO ₃)	mg/L	244	244	240	240	0.10
Sulfate (SO ₄)	mg/L	489	519	468	488	1.0
Chloride (Cl)	mg/L	13.9	16.9	14.3	17.8	1.0
Ammonium (NH ₄) as N	mg/L	0.2	0.33	0.37	0.36	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	0.13	0.14	0.21	0.10	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	971	958	964	975	1.0
pH	std. units	8.05	8.41	7.77	8.13	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.02	0.02	0.02	0.02	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	0.19	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.003	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.0014	< 0.0003	0.002	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.0	0.5	< 0.2	0.5	0.2
Radium Precision ±		0.4	0.3		0.2	
Radium 228 (Ra ²²⁸)	pCi/L	2.5	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±		0.9				
Thorium 230 (Th ²³⁰)	pCi/L	0.4	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.3				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		1.0				
Gross Alpha	pCi/L	2.1	< 1.0	3.8	< 1.0	1.0
G. Alpha Precision ±		0.9		0.6		

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	14.59	15.30	14.10	14.61	
Cation	meq	14.66	14.31	14.21	14.94	
WYDEQ A/C Balance	%	0.24	-3.34	0.37	1.11	-5 - +5
Calc TDS	mg/L	945	968	912	952	
TDS A/C Balance	dec. %	1.03	0.99	1.06	1.02	0.80 - 1.20

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GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS**

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

515A	515A	515A	515A
96-12200	96-19718	96-41353	96-54985
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	450	506	447	441	0.05
Magnesium (Mg)	mg/L	876	997	853	910	0.01
Sodium (Na)	mg/L	468	457	426	457	0.05
Potassium (K)	mg/L	13.5	14	13.6	14.5	0.10
Bicarbonate (HCO ₃)	mg/L	475	392	210	342	0.10
Sulfate (SO ₄)	mg/L	4830	5360	4670	4834	1.0
Chloride (Cl)	mg/L	252	279	250	268	1.0
Ammonium (NH ₄) as N	mg/L	5.6	6.57	1.76	6.97	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	56.9	61	54.7	53.5	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	8017	8300	8117	8270	1.0
pH	std. units	6.43	7.53	5.94	6.58	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	0.60	1.42	0.85	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	0.08	0.11	0.08	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	11.4	11.8	12.9	13.2	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	0.14	0.14	0.17	0.15	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.0038	< 0.0003	0.0023	0.0028	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	3.4	2.4	2.6	2.1	0.2
Radium Precision ±		0.9	0.4	0.3	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	3.1	3.9	< 1.0	5.4	1.0
Radium Precision ±		1.4	0.2		0.4	
Thorium 230 (Th ²³⁰)	pCi/L	0.8	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.4				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	7.4	5.4	3.4	3.8	1.0
G. Alpha Precision ±		1.5	0.7	0.6	0.4	

Trace Organics						
Chloroform	µg/L	236	247	211	238	1.00

Quality Assurance Data						Target Re: µ
Anion	meq	119.57	130.31	111.68	117.69	
Cation	meq	117.23	129.79	113.29	119.44	
WYDEQ A/C Balance	%	-0.99	-0.20	0.71	0.74	-5 - +5
Calc TDS	mg/L	7398	8100	7022	7355	
TDS A/C Balance	dec. %	1.08	1.02	1.16	1.12	0.80 - 1.20

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

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

#19	619	619	619
96-12204	96-19722	96-41356	96-54989
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 9, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	505	545	515	547	0.05
Magnesium (Mg)	mg/L	445	473	450	478	0.01
Sodium (Na)	mg/L	182	164	180	182	0.05
Potassium (K)	mg/L	7.8	7.9	8.6	8.1	0.10
Bicarbonate (HCO ₃)	mg/L	179	204	179	190	0.10
Sulfate (SO ₄)	mg/L	3260	3395	3195	3232	1.0
Chloride (Cl)	mg/L	39.5	47.0	50.0	47.1	1.0
Ammonium (NH ₄) as N	mg/L	0.62	0.52	0.69	0.46	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	0.12	0.11	< 0.10	< 0.10	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	4731	5039	5207	5140	1.0
pH	s'd units	7.31	7.9	7.15	6.95	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.78	1.71	1.90	1.86	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.0067	0.018	0.008	0.0036	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.5	1.7	1.7	1.5	0.2
Radium Prec. ion ±		0.4	0.3	0.2	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	4.8	< 1.0	< 1.0	1.0
Radium Precision ±			0.8			
Thorium 230 (Th ²³⁰)	pCi/L	1.0	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.5				
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	4.1	< 1.0	< 1.0	1.0
Lead Precision ±			2			
Gross Alpha	pCi/L	2.5	3.5	1.1	2.0	1.0
G. Alpha Precision ±		1.0	0.6	0.2	0.3	

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	71.97	75.41	70.91	71.78	
Cation	meq	70.60	74.14	71.46	75.45	
WYDEQ A/C Balance	%	-0.96	-0.85	0.39	2.49	-5 - +5
Calc TDS	mg/L	4532	4737	4491	4592	
TDS A/C Balance	dec. %	1.04	1.06	1.16	1.12	0.80 - 1.20

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GROUNDWATER MONITORING PROGRAM: ZONE 1 MONITOR WELLS

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WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA 2	EPA 2	EPA 2	EPA 2
96-12410	96-24795	96-41817	96-58650
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	382	408	390	453	0.05
Magnesium (Mg)	mg/L	155	168	164	198	0.01
Sodium (Na)	mg/L	213	191	208	211	0.01
Potassium (K)	mg/L	6.7	6.0	16.0	6.7	0.10
Bicarbonate (HCO ₃)	mg/L	334	321	312	315	0.10
Sulfate (SO ₄)	mg/L	1791	1831	1746	1866	1.0
Chloride (Cl)	mg/L	24.7	22.7	29.0	24.5	1.0
Ammonium (NH ₄) as N	mg/L	0.46	0.52	0.45	0.56	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	2801	3018	3042	3150	1.0
pH	std. units	7.73	7.70	6.88	7.17	0.10

Trace Metals

Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.003	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.48	1.52	1.58	1.53	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ^{nat})	mg/L	0.0026	0.0008	0.0011	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.0	0.7	0.9	0.8	0.2
Radium Precision ±		0.5	0.3	0.4	0.1	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Radium Precision ±						
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	0.7	0.9	< 0.2	0.2
Thorium Precision ±			0.4	0.4		
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	1.7	1.0
G. Alpha Precision ±					0.3	

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

						Target Range
Anion	meq	43.49	44.05	42.31	44.74	
Cation	meq	41.57	42.99	42.75	48.63	
WYDEQ A/C Balance	%	-2.25	-1.22	0.51	4.17	-5 - +5
Calc TDS	mg/L	2742	2790	2712	2919	
TDS A/C Balance	dec. %	1.02	1.08	1.12	1.08	0.80-1.20

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

Page 3 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA-5	EPA-5	EPA-5	EPA-5
96-12412	96-24797	96-41516	96-58652
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	508	590	510	581	0.05
Magnesium (Mg)	mg/L	966	1110	957	1091	0.01
Sodium (Na)	mg/L	376	362	372	389	0.05
Potassium (K)	mg/L	10.9	10.7	11.9	12.0	0.10
Bicarbonate (HCO ₃)	mg/L	1182	1221	1275	1294	0.10
Sulfate (SO ₄)	mg/L	4420	5200	4404	4869	1.0
Chloride (Cl)	mg/L	198	211	221	211	1.0
Ammonium (NH ₄) as N	mg/L	1.44	2.74	1.05	5.80	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	94.0	89.2	100	93.1	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	7693	8569	8522	8870	1.0
pH	std. units	7.52	7.54	6.87	7.29	0.10

Trace Metals

Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.06	0.05	0.06	0.06	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	0.49	0.47	0.49	0.51	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	0.06	0.06	0.05
Selenium (Se) IV	mg/L	0.018	< 0.001	0.004	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ²³⁸)	mg/L	0.124	0.126	0.125	0.117	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.3	0.8	0.9	0.6	0.2
Radium Precision ±		0.4	0.3	0.2	0.1	
Radium 228 (Ra ²²⁸)	pCi/L	1.2	2.7	< 1	< 1.0	1.0
Radium Precision ±		0.8	0.2			
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	0.7	< 0.2	< 0.2	0.2
Thorium Precision ±			0.2			
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	1.5	< 1	< 1	< 1.0	1.0
G. Alpha Precision ±		0.8				

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	1.42	1.42	1.00
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Quality Assurance Data

						Target Range
Anion	meq	123.75	140.66	126.02	135.24	
Cation	meq	122.67	138.25	121.84	137.64	
WYDEQ A/C Balance	%	-0.44	-0.87	-1.69	0.88	-5 - +5
Calc TDS	mg/L	7489	8493	7558	8220	
TDS A/C Balance	dec. %	1.03	1.01	1.13	1.08	0.80-1.20

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

Page 5 of 6

WELL NUMBER:

U.S. I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA 8	EPA 8	EPA 8	EPA 8
96-12414	96-24799	96-41513	96-58654
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 10, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	545	620	560	603	0.05
Magnesium (Mg)	mg/L	401	444	395	441	0.01
Sodium (Na)	mg/L	156	148	159	157	0.05
Potassium (K)	mg/L	7.9	7.6	8.0	8.0	0.10
Bicarbonate (HCO ₃)	mg/L	162	149	165	148	0.10
Sulfate (SO ₄)	mg/L	2863	3460	3085	3061	1.0
Chloride (Cl)	mg/L	37.6	41.8	37.6	39.0	1.0
Ammonium (NH ₄) as N	mg/L	0.68	0.75	0.13	0.73	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	4185	4857	4876	4880	1.0
pH	std. units	7.29	7.24	6.63	6.98	0.10

Trace Metals

Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	2.80	2.96	3.21	3.00	0.01
Molybdenum (Mo)	mg/L	0.13	0.14	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	0.002	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ²³⁸)	mg/L	0.0010	0.0006	0.0016	0.0005	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	1.0	1.2	0.7	0.9	0.2
Radium Precision ±		0.3	0.4	0.2	0.1	
Radium 228 (Ra ²²⁸)	pCi/L	1.5	1.3	< 1	< 1.0	1.0
Radium Precision ±		1.5	0.2			
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	0.7	0.8	< 0.2	0.2
Thorium Precision ±			0.2	0.2		
Lead 210 (Pb ²¹⁰)	pCi/L	3.8	< 1	< 1	< 1.0	1.0
Lead Precision ±		2.6				
Gross Alpha	pCi/L	< 1.0	1.2	< 1.0	< 1.0	1.0
G. Alpha Precision ±			0.4			

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

						Target Range
Anion	meq	63.37	75.71	68.04	67.30	
Cation	meq	67.86	74.86	68.23	74.16	
WYDEQ A/C Balance	%	3.43	-0.57	0.14	4.85	-5 - +5
Calc TDS	mg/L	4096	4800	4331	4387	
TDS A/C Balance	dec. %	1.02	1.01	1.13	1.11	0.80-1.20

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SEMI-ANNUAL GROUND WATER MONITORING REPORT

July 1, 1996, through December 31, 1996

ZONE 3

*517

*518

411

420

502-B

504-B

EPA-1

EPA-9

EPA-13

EPA-14

*Point of Compliance Wells

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

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

517	517	517	517
96-12199	96-19713	96-41345	96-54995
01-03-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	510	481	460	477	0.05
Magnesium (Mg)	mg/L	530	550	485	518	0.01
Sodium (Na)	mg/L	174	170	175	182	0.05
Potassium (K)	mg/L	10.1	10.5	10.6	10.5	0.10
Bicarbonate (HCO ₃)	mg/L	0	0	0	0	0.10
Sulfate (SO ₄)	mg/L	4100	3995	3590	3578	1.0
Chloride (Cl)	mg/L	61.2	61.9	67.0	66.0	1.0
Ammonium (NH ₄) as N	mg/L	28.6	27.8	24.9	22.5	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	1.51	1.38	1.44	1.35	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	5807	5804	5635	5520	1.0
pH	std. units	4.10	4.44	4.33	4.30	0.10

Trace Metals						
Aluminum (Al)	mg/L	40.0	27.3	21.2	16.6	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	0.02	< 0.01	< 0.01		0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01		0.01
Cobalt (Co)	mg/L	0.83	0.82	0.78		0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	13.7	12.2	12.1	10.9	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	0.79	0.72	0.71	0.66	0.05
Selenium (Se) IV	mg/L	0.002	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ^{nat})	mg/L	0.125	0.149	0.113	0.087	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	21.1	14.4	10.0	9.7	0.2
Radium Precision ±		1.4	1.5	0.5	0.7	
Radium 228 (Ra ²²⁸)	pCi/L	7.9	17.4	23.1	20.9	1.0
Radium Precision ±		1.5	1.6	1.9	1.6	
Thorium 230 (Th ²³⁰)	pCi/L	1.9	1.4	1.3	1.5	0.2
Thorium Precision ±		0.7	0.9	0.4	0.4	
Lead 210 (Pb ²¹⁰)	pCi/L	1.8	21.4	5.4	< 1.0	1.0
Lead Precision ±		1.1	2.3	0.9		
Gross Alpha	pCi/L	44.6	34.6	25.5	29.5	1.0
G. Alpha Precision ±		3.4	3.2	2.1	2.2	

Trace Organics						
Chloroform	µg/L	5.05	5.21	5.26	4.39	1.00

Quality Assurance Data						Target Range
Anion	meq	87.25	85.07	76.78	76.50	
Cation	meq	84.73	83.23	76.09	79.25	
WYDEQ A/C Balance	%	-1.47	-1.09	-0.45	1.77	-5 - +5
Calc TDS	mg/L	5447	5323	4838	4877	
TDS A/C Balance	dec. %	1.07	1.09	1.16	1.13	0.80 - 1.20

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

Page 5 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

518	518	518	518
96-12281	96-19714	96-41348	96-54996
01-04-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	670	661	453	448	0.05
Magnesium (Mg)	mg/L	660	700	691	688	0.01
Sodium (Na)	mg/L	145	141	155	144	0.05
Potassium (K)	mg/L	10.5	11.6	12.5	12.9	0.10
Bicarbonate (HCO ₃)	mg/L	0	0	0	0	0.10
Sulfate (SO ₄)	mg/L	5245	5180	5139	4928	1.0
Chloride (Cl)	mg/L	33.4	37.3	42.8	35.8	1.0
Ammonium (NH ₄) as N	mg/L	9.00	9.20	13.0	8.95	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	0.13	1.20	0.25	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	7039	7408	5648	7580	1.0
pH	std. units	3.11	3.50	3.24	3.31	0.10

Trace Metals						
Aluminum (Al)	mg/L	98.5	97.0	122	100	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	0.05	0.05	< 0.01	0.06	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	1.01	1.02	1.14	1.06	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	15.5	15.4	17.3	15.9	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	0.91	0.87	1.08	0.99	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	0.16	0.13	0.14	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.472	0.587	0.548	0.420	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	8.6	9.4	7.2	6.0	0.2
Radium Precision ±		0.9	1.6	0.4	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	5.1	6.4	7.0	< 1.0	1.0
Radium Precision ±		1.4	0.5	0.4		
Thorium 230 (Th ²³⁰)	pCi/L	25.0	16.2	23.2	18.6	0.2
Thorium Precision ±		3.1	4.4	2.3	2.5	
Lead 210 (Pb ²¹⁰)	pCi/L	4.2	< 1.0	6.2	< 1.0	1.0
Lead Precision ±		2.2		0.9		
Gross Alpha	pCi/L	17.9	28.3	49.2	31.3	1.0
G. Alpha Precision ±		2.2	2.9	5.1	2.3	

Trace Organics						
Chloroform	µg/L	15.3	14.7	15.6	13.2	1.00

Quality Assurance Data						Target Range
Anion	meq	110.22	108.98	108.35	103.69	
Cation	meq	107.51	110.09	102.72	98.94	
WYDEQ A/C Balance	%	-1.25	0.51	-2.67	-2.34	-5 - +5
Calc TDS	mg/L	6791	6759	6533	6285	
TDS A/C Balance	dec %	1.04	1.10	0.86	1.21	0.80 - 1.20

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Page 1 of 6

**UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 3 MONITOR WELLS**WELL NUMBER:
LAB I.D.:
SAMPLE DATE:
REPORT DATE:
QUARTER REPRESENTED:
UNC SUBMITTAL #:

411	411	411	411
96-12278	96-19709	96-41522	96-58645
01-04-96	04-02-96	07-17-96	10-08-96
02-13-96	08-13-96 (r)	09-03-96	Dec. 7, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-5-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	630	604	580	611	0.05
Magnesium (Mg)	mg/L	310	300	290	318	0.01
Sodium (Na)	mg/L	173	146	168	151	0.05
Potassium (K)	mg/L	9.5	9.8	10.1	10.1	0.10
Bicarbonate (HCO ₃)	mg/L	382	366	410	429	0.10
Sulfate (SO ₄)	mg/L	2655	2666	2730	2542	1.0
Chloride (Cl)	mg/L	45.3	40.0	52.1	45.6	1.0
Ammonium (NH ₄) as N	mg/L	0.06	0.20	0.25	0.30	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	29.2	8.92	28.1	45.4	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	4445	4338	4459	4370	1.0
pH	std. units	6.69	7.67	6.8	7.61	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.006	0.014	0.007	0.012	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.09	0.08	0.09	0.07	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	3.18	3.80	3.39	3.38	0.01
Molybdenum (Mo)	mg/L	10.6	8.8	10.0	9.97	0.10
Nickel (Ni)	mg/L	0.07	0.07	0.06	0.06	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.287	0.306	0.281	0.164	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	5.0	4.5	5.0	3.5	0.2
Radium Precision ±		0.7	0.9	0.6	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	4.6	3.1	4.7	7.8	1.0
Radium Precision ±		1.3	0.3	3.4	0.4	
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	2.6	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		2.2				
Gross Alpha	pCi/L	5.7	4.8	8.2	2.4	1.0
G. Alpha Precision ±		1.3	0.7	0.8	0.4	

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	64.94	63.31	67.07	64.52	
Cation	meq	65.29	62.03	60.94	64.09	
WYDEQ A/C Balance	%	0.27	-1.02	-4.79	-0.33	-5 - +5
Calc TDS	mg/L	4146	3992	4163	4097	
TDS A/C Balance	dec. %	1.07	1.09	1.07	1.07	0.80 - 1.20

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**ENERGY LABORATORIES, INC.**P.O. BOX 3258 • CASPER, WY 82602 • PHONE (307) 235-0515
2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639**UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 3 MONITOR WELLS**

Page 1 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

420	420	420	420
96-12198	96-19710	96-41344	96-54992
01-03-96	04-02-96	07-07-96	10-01-96
02-11-96	05-12-96	09-03-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-1-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	545	588	586	614	0.05
Magnesium (Mg)	mg/L	162	140	134	146	0.01
Sodium (Na)	mg/L	115	122	127	131	0.05
Potassium (K)	mg/L	6.1	6.2	6.6	6.6	0.10
Bicarbonate (HCO ₃)	mg/L	322	344	332	339	0.10
Sulfate (SO ₄)	mg/L	1856	1890	1816	1821	1.0
Chloride (Cl)	mg/L	26.4	30.2	30.2	30.4	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	0.10	0.24	< 0.05	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	8.66	18.4	16.7	22.8	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	3084	3165	3225	3250	1.0
pH	std. units	7.14	7.85	7.40	6.97	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.001	0.003	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.88	1.90	1.98	1.90	0.01
Molybdenum (Mo)	mg/L	0.64	0.54	0.59	0.61	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.003	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.039	0.100	0.051	0.044	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	2.7	2.2	2.9	2.1	0.2
Radium Precision ±		0.5	0.5	0.3	0.2	
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	2.5	7.3	< 1.0	1.0
Radium Precision ±			0.3	0.4		
Thorium 230 (Th ²³⁰)	pCi/L	0.8	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±		0.4				
Lead 210 (Pb ²¹⁰)	pCi/L	1.6	< 1.0	3.1	< 1.0	1.0
Lead Precision ±		1.1		0.8		
Gross Alpha	pCi/L	3.7	3.2	2.1	2.1	1.0
G. Alpha Precision ±		1.1	0.6	0.6	0.4	

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	45.31	47.18	45.32	45.98	
Cation	meq	46.02	46.65	46.29	48.85	
WYDEQ A/C Balance	%	0.78	-0.56	1.06	3.03	-5 - +5
Calc TDS	mg/L	2912	3032	2942	3021	
TDS A/C Balance	dec. %	1.06	1.04	1.10	1.08	0.80 - 1.20

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

Page 2 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

502-B	502-B	502-B	502-B
96-12279	96-19711	96-41347	96-54993
01-04-96	01-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-5-4-96	TE-7-7-96	TE-9-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	470	478	460	480	0.05
Magnesium (Mg)	mg/L	485	525	475	517	0.01
Sodium (Na)	mg/L	122	119	120	123	0.05
Potassium (K)	mg/L	13.3	13.5	14.2	13.9	0.10
Bicarbonate (HCO ₃)	mg/L	0	0	0	0	0.10
Sulfate (SO ₄)	mg/L	3710	3810	3550	3648	1.0
Chloride (Cl)	mg/L	29.3	31.2	34.0	29.3	1.0
Ammonium (NH ₄) as N	mg/L	3.16	3.62	3.83	3.58	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	< 0.10	0.11	< 0.10	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	5022	5428	5317	5570	1.0
pH	std. units	3.82	4.47	3.40	3.72	0.10

Trace Metals						
Aluminum (Al)	mg/L	16.1	12.1	16.9	13.6	0.10
Arsenic (As) III	mg/L	0.002	< 0.001	0.002	0.001	0.001
Beryllium (Be)	mg/L	0.02	0.02	< 0.01	0.02	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.66	0.63	0.68	0.62	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	10.3	9.08	10.3	9.60	0.01
Molybdenum (Mo)	mg/L	0.12	0.11	0.13	< 0.10	0.10
Nickel (Ni)	mg/L	0.72	0.66	0.74	0.68	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.134	0.154	0.148	0.105	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	7.6	6.0	5.9	5.8	0.2
Radium Precision ±		0.8	1.0	0.5	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	14.1	13.6	24.7	23.1	1.0
Radium Precision ±		2.0	1.4	2.4	1.7	
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	2.1	0.6	1.1	0.2
Thorium Precision ±			1.0	0.3	0.3	
Lead 210 (Pb ²¹⁰)	pCi/L	2.7	< 1.0	5.3	< 1.0	1.0
Lead Precision ±		2.2		0.9		
Gross Alpha	pCi/L	11.6	11.2	16.2	16.3	1.0
G. Alpha Precision ±		1.8	1.0	1.7	1.7	

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	78.12	80.26	74.92	76.83	
Cation	meq	72.14	75.27	70.88	75.08	
WYDEQ A/C Balance	%	-3.98	-3.21	-2.77	-1.15	-5 - +5
Calc TDS	mg/L	4844	4991	4669	4826	
TDS A/C Balance	dec. %	1.04	1.09	1.14	1.15	0.80 - 1.20

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2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639**UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 3 MONITOR WELLS**

Page 3 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

504-B	504-B	504-B	504-B
96-12280	96-19712	96-41346	96-54994
01-04-96	04-02-96	07-07-96	10-01-96
02-13-96	05-12-96	09-03-96	Dec. 11, 1996
First '96	Second '96	Third '96	Fourth '96
TE-2-1-96	TE-5-4-96	TE-7-7-96	TE-8-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	530	530	515	539	0.05
Magnesium (Mg)	mg/L	455	515	475	509	0.01
Sodium (Na)	mg/L	156	59.4	153	154	0.05
Potassium (K)	mg/L	11.3	13.1	13.4	12.7	0.10
Bicarbonate (HCO ₃)	mg/L	92	61.5	44.0	53.7	0.10
Sulfate (SO ₄)	mg/L	3116	3630	3440	3427	1.0
Chloride (Cl)	mg/L	32	37.5	39.2	34.6	1.0
Ammonium (NH ₄) as N	mg/L	0.66	0.74	0.67	0.62	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	1.68	< 0.10	< 0.10	< 0.10	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	4519	5270	5316	5260	1.0
pH	std. units	6.44	6.82	6.22	6.00	0.10

Trace Metals

Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.005	0.010	0.010	0.005	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.43	0.50	0.49	0.48	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	4.79	5.73	6.04	5.68	0.01
Molybdenum (Mo)	mg/L	0.52	0.41	0.47	0.36	0.10
Nickel (Ni)	mg/L	0.50	0.61	0.63	0.60	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	0.002	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ²³⁸)	mg/L	0.119	0.088	0.081	0.072	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	14.0	15.3	16.9	14.9	0.2
Radium Precision ±		1.4	1.6	0.6	0.9	
Radium 228 (Ra ²²⁸)	pCi/L	23.1	20.9	30.6	25.2	1.0
Radium Precision ±		3.3	1.7	4.0	1.7	
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	0.7	0.8	0.2
Thorium Precision ±				0.2	0.3	
Lead 210 (Pb ²¹⁰)	pCi/L	3.4	< 1.0	2.3	< 1.0	1.0
Lead Precision ±		2.2		0.8		
Gross Alpha	pCi/L	27.4	23.3	20.4	25.2	1.0
G. Alpha Precision ±		2.7	2.6	1.9	2.0	

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

						Target Range
Anion	meq	67.45	77.70	73.50	73.26	
Cation	meq	71.81	72.71	72.72	76.75	
WYDEQ A/C Balance	%	3.13	-3.31	-0.53	2.33	-5 - +5
Calc TDS	mg/L	4359	4823	4665	4710	
TDS A/C Balance	dec. %	1.04	1.09	1.14	1.12	0.80 - 1.20

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

Page 2 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA 1	EPA 1	EPA 1	EPA 1
96-12405	96-24791	96-41519	96-58645
01-10-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 7, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	595	615	560	635	0.05
Magnesium (Mg)	mg/L	360	370	330	377	0.01
Sodium (Na)	mg/L	129	128	135	134	0.05
Potassium (K)	mg/L	9.1	10.2	10.4	10.2	0.10
Bicarbonate (HCO ₃)	mg/L	276	248	242	248	0.10
Sulfate (SO ₄)	mg/L	2935	3000	2925	2926	1.0
Chloride (Cl)	mg/L	33.0	26.1	25.2	24.1	1.0
Ammonium (NH ₄) as N	mg/L	0.06	0.07	< 0.05	0.11	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	0.31	0.22	< 0.10	< 0.10	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	4572	4540	4458	4440	1.0
pH	std. units	7.34	7.88	7.29	7.43	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.016	0.017	0.015	0.019	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.04	0.05	0.10	0.11	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	3.48	3.21	3.54	3.34	0.01
Molybdenum (Mo)	mg/L	26.9	28.5	24.6	23.8	0.10
Nickel (Ni)	mg/L	0.08	0.09	0.18	0.20	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.0098	0.012	0.0087	0.0078	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	0.6	0.3	< 0.2	< 0.2	0.2
Radium Precision ±		0.6	0.2			
Radium 228 (Ra ²²⁸)	pCi/L	< 1.0	1.7	< 1.0	< 1.0	1.0
Radium Precision ±			0.6			
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
G. Alpha Precision ±						

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	66.62	67.32	65.62	65.71	
Cation	meq	65.80	67.60	61.84	69.46	
WYDEQ A/C Balance	%	-0.62	0.21	-2.96	2.77	-5 - +5
Calc TDS	mg/L	4223	4297	4111	4234	
TDS A/C Balance	dec. %	1.08	1.06	1.08	1.05	0.80 - 1.20

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2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 3 MONITOR WELLS

Page 3 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA 9	EPA 9	EPA 9	EPA 9
96-12406	96-24792	96-41621	96-58647
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 7, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	485	525	505	542	0.05
Magnesium (Mg)	mg/L	550	575	555	609	0.01
Sodium (Na)	mg/L	109	107	117	116	0.05
Potassium (K)	mg/L	11.3	11.7	12.1	12.1	0.10
Bicarbonate (HCO ₃)	mg/L	52.8	27.5	23.4	0	0.10
Sulfate (SO ₄)	mg/L	3790	3905	3816	3943	1.0
Chloride (Cl)	mg/L	28.4	28.2	32.0	29.0	1.0
Ammonium (NH ₄) as N	mg/L	0.24	0.35	0.31	0.33	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	5085	5494	5615	5590	1.0
pH	std. units	5.94	6.20	5.58	4.44	0.10

Trace Metals

Aluminum (Al)	mg/L	1.87	0.34	0.56	0.50	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.17	0.11	0.15	0.13	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	5.15	4.20	4.94	4.61	0.01
Molybdenum (Mo)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Nickel (Ni)	mg/L	0.14	0.09	0.12	0.11	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ²³⁸)	mg/L	0.0024	0.0008	0.0007	< 0.0003	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	9.0	6.6	8.0	6.6	0.2
Radium Precision ±		0.9	0.5	0.7	0.4	
Radium 228 (Ra ²²⁸)	pCi/L	4.9	2.3	3.8	9.0	1.0
Radium Precision ±		1.7	0.3	3.3	0.4	
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	8.7	10.2	7.3	9.2	1.0
G. Alpha Precision ±		1.4	1.8	0.8	0.6	

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

						Target Range
Anion	meq	80.63	82.61	80.79	82.97	
Cation	meq	75.62	79.41	77.25	83.53	
WYDEQ A/C Balance	%	-3.21	-1.97	-2.24	0.34	-5 - +5
Calc TDS	mg/L	5016	5190	5055	5277	
TDS A/C Balance	dec. %	1.01	1.06	1.11	1.06	0.80 - 1.20

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ENERGY LABORATORIES, INC.

P.O. BOX 3258 • CASPER, WY 82602 • PHONE (307) 235-0515
2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639

UNC MINING AND MILLING: CHURCH ROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 3 MONITOR WELLS

Page 4 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA 13	EPA 13	EPA 13	EPA 13
96-12407	96-24793	96-41520	96-58648
01-09-96	04-10-96	07-17-96	10-08-96
02-13-96	05-29-96	09-03-96	Dec. 7, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-5-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	465	544	468	519	0.05
Magnesium (Mg)	mg/L	730	877	761	830	0.01
Sodium (Na)	mg/L	141	148	149	151	0.05
Potassium (K)	mg/L	10.4	11.1	11.7	11.5	0.10
Bicarbonate (HCO ₃)	mg/L	95.0	85.8	74.0	79.1	0.10
Sulfate (SO ₄)	mg/L	4440	5040	4320	4689	1.0
Chloride (Cl)	mg/L	33.6	35.9	39.0	36.0	1.0
Ammonium (NH ₄) as N	mg/L	0.45	0.53	0.45	0.50	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Non-Metals						
Total Dissolved Solids (TDS) @ 180°C	mg/L	6144	6642	6694	6670	1.0
pH	std. units	6.47	7.09	6.23	6.32	0.10

Trace Metals						
Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	0.127	0.295	0.269	0.301	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.01	0.06	0.06	0.06	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.19	5.65	5.94	5.71	0.01
Molybdenum (Mo)	mg/L	< 0.10	0.35	0.41	0.34	0.10
Nickel (Ni)	mg/L	< 0.05	0.11	0.12	0.12	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric						
Uranium (U ²³⁸)	mg/L	0.028	0.029	0.022	0.027	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	5.3	4.3	3.3	3.6	0.2
Radium Precision ±		0.7	0.6	0.6	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	8.2	10.6	15.4	7.9	1.0
Radium Precision ±		2.1	1.1	6	0.4	
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	0.7	< 0.2	0.2
Thorium Precision ±				0.2		
Lead 210 (Pb ²¹⁰)	pCi/L	< 1.0	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±						
Gross Alpha	pCi/L	5.4	7.6	6.0	4.4	1.0
G. Alpha Precision ±		1.2	0.8	0.7	0.4	

Trace Organics						
Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00

Quality Assurance Data						Target Range
Anion	meq	95.01	107.42	92.33	100.01	
Cation	meq	90.59	107.36	93.96	102.34	
WYDEQ A/C Balance	%	-2.38	-0.03	0.88	1.15	-5 - +5
Calc TDS	mg/L	5889	6725	5793	6283	
TDS A/C Balance	dec. %	1.04	0.99	1.16	1.06	0.80 - 1.20

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**ENERGY LABORATORIES, INC.**P.O. BOX 3258 • CASPER, WY 82602 • PHONE (307) 235-0515
2393 SALT CREEK HIGHWAY • CASPER, WY 82601 • FAX (307) 234-1639UNC MINING AND MILLING: CHURCHROCK OPERATIONS
GROUNDWATER MONITORING PROGRAM: ZONE 3 MONITOR WELLS

Page 5 of 6

WELL NUMBER:

LAB I.D.:

SAMPLE DATE:

REPORT DATE:

QUARTER REPRESENTED:

UNC SUBMITTAL #:

EPA 14	EPA 14	EPA 14	EPA 14
96-12406	97-24794	96-41518	96-58649
01-08-96	04-09-96	07-17-96	10-03-96
02-13-96	05-29-96	09-03-96	Dec. 7, 1996
First '96	Second '96	Third '96	Fourth '96
TE-3-1-96	TE-6-4-96	TE-8-7-96	TE-10-10-96

Major Ions	Units	Results	Results	Results	Results	Detection Limit
Calcium (Ca)	mg/L	525	551	532	610	0.05
Magnesium (Mg)	mg/L	103	109	116	143	0.01
Sodium (Na)	mg/L	120	121	132	137	0.05
Potassium (K)	mg/L	4.7	5.1	5.6	5.9	0.10
Bicarbonate (HCO ₃)	mg/L	490	516	498	511	0.10
Sulfate (SO ₄)	mg/L	1440	1468	1616	1589	1.0
Chloride (Cl)	mg/L	26.0	30.0	35.0	33.0	1.0
Ammonium (NH ₄) as N	mg/L	< 0.05	0.12	0.13	0.11	0.05
Nitrite + Nitrate (NO ₂ + NO ₃) as N	mg/L	24.6	23.9	23.8	23.9	0.10

Non-Metals

Total Dissolved Solids (TDS) @ 180°C	mg/L	2773	2825	2907	2900	1.0
pH	std. units	7.27	7.75	6.91	7.24	0.10

Trace Metals

Aluminum (Al)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10
Arsenic (As) III	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Beryllium (Be)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cadmium (Cd)	mg/L	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Cobalt (Co)	mg/L	0.01	0.01	0.02	0.02	0.01
Lead (Pb)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Manganese (Mn)	mg/L	1.15	1.26	1.44	1.52	0.01
Molybdenum (Mo)	mg/L	< 0.10	0.18	0.18	0.18	0.10
Nickel (Ni)	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Selenium (Se) IV	mg/L	< 0.001	< 0.001	< 0.001	< 0.001	0.001
Vanadium (V)	mg/L	< 0.10	< 0.10	< 0.10	< 0.10	0.10

Radiometric

Uranium (U ²³⁸)	mg/L	0.081	0.083	0.090	0.075	0.0003
Radium 226 (Ra ²²⁶)	pCi/L	3.2	3.4	3.4	2.5	0.2
Radium Precision ±		0.6	0.7	0.7	0.3	
Radium 228 (Ra ²²⁸)	pCi/L	2.3	2.5	< 1.0	8.0	1.0
Radium Precision ±		1.6	0.3		0.4	
Thorium 230 (Th ²³⁰)	pCi/L	< 0.2	< 0.2	< 0.2	< 0.2	0.2
Thorium Precision ±						
Lead 210 (Pb ²¹⁰)	pCi/L	1.8	< 1.0	< 1.0	< 1.0	1.0
Lead Precision ±		1.4				
Gross Alpha	pCi/L	2.6	3.9	3.5	1.9	1.0
G. Alpha Precision ±		0.9	0.6	0.6	0.4	

Trace Organics

Chloroform	µg/L	< 1.00	< 1.00	< 1.00	< 1.00	1.00
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Quality Assurance Data

						Target Range
Anion	meq	40.52	41.59	44.52	44.12	
Cation	meq	40.25	42.11	42.25	48.63	
WYDEQ A/C Balance	%	-0.34	0.62	-2.61	4.86	-5 - +5
Calc TDS	mg/L	2574	2649	2793	2881	
TDS A/C Balance	dec. %	1.08	1.07	1.04	1.01	0.80 - 1.20

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