

# Appendix A

## *Southwest Alluvium Monitoring Data*

The Southwest Alluvium Remedial Action System was installed in August 1989 and began operating in October 1989. The initial system consisted of three extraction wells (Wells 801, 802, and 803) and four water level observation wells (Wells 804, 805, 806, and 807). An additional extraction well, Well 808, was installed and began operating in June 1991, as required by the Nuclear Regulatory Commission and the U.S. Environmental Protection Agency (EPA). Extraction Wells 801, 802, and 803 are monitored for water quality, and Observation Wells 804, 805, 806, and 807 are monitored for water level elevations on a quarterly basis. Well 801 was decommissioned at the end of July 1999 because it pumped at a rate of less than 0.5 gallon per minute for the previous eight years.

Water level elevations and water quality data have also been collected on a quarterly basis from 18 monitoring wells located up-, down-, and cross-gradient from the tailings area. The 18 monitoring wells include Wells GW 1, GW 2, GW 3, GW 4, EPA 22A, EPA 23, EPA 25, EPA 27, EPA 28, 509 D, 632, 29 A, 624, 627, 639, 642, 644, and 645. All of these wells, except for Wells EPA 27 and 29 A, are completed in the alluvium. Well EPA 27 is completed partially in the alluvium and partially in the Mancos formation and Well 29 A is completed in the underlying Zone 1 formation. Consequently, water quality data collected from these two wells may not be representative of alluvial groundwater conditions.

Beginning with the second quarter of 2000, a revised monitoring program was implemented. Changes to the wells included in the monitoring program for the Southwest Alluvium are shown in Table 1B of this 2012 Annual Review Report. See the enclosed Figure A-1 for the current layout of the wells.

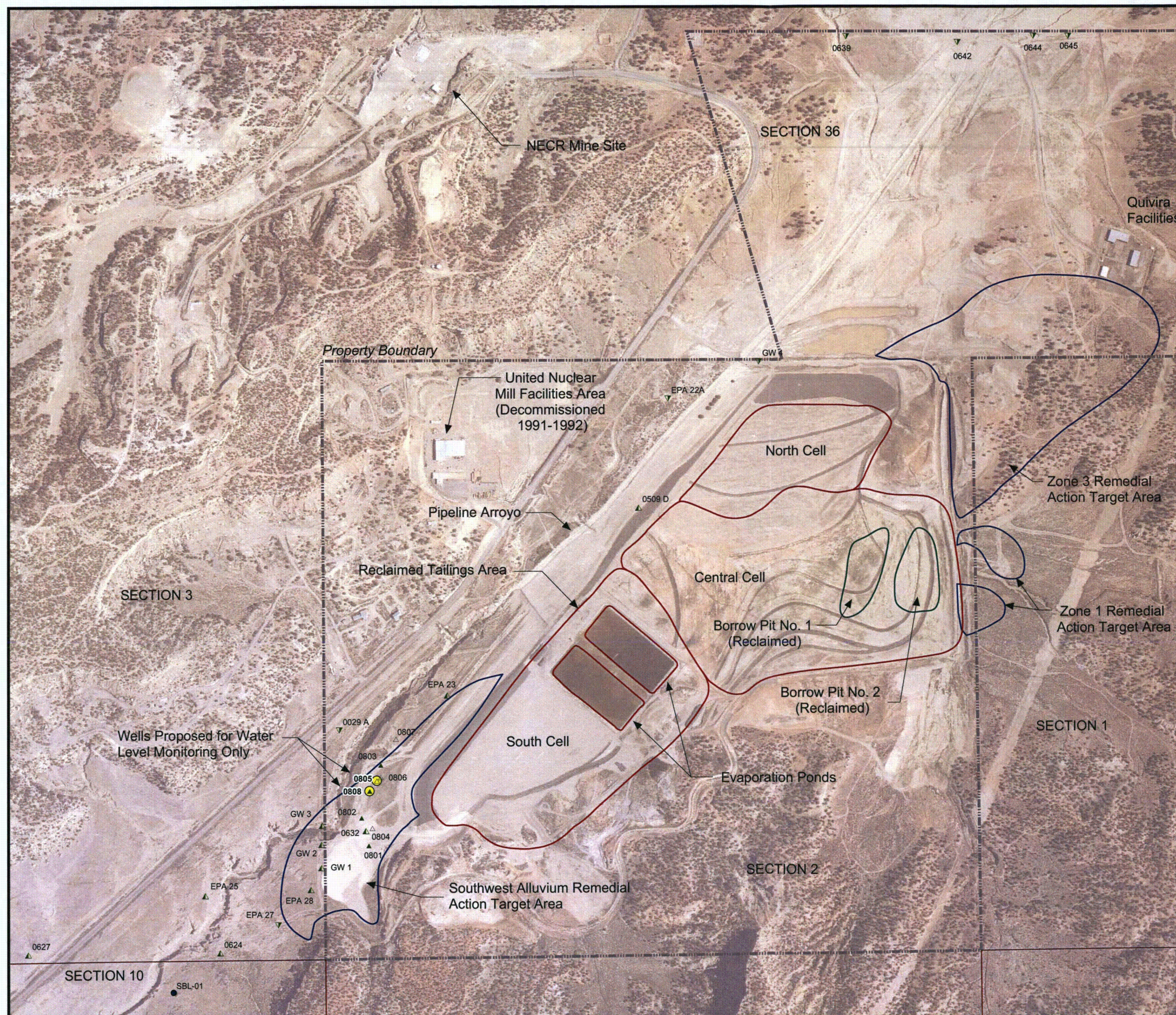
Beginning in January 2001, a natural attenuation test was implemented, as requested during the November 14, 2000, meeting in Sante Fe, New Mexico, and as documented in the EPA's email letter from Greg Lyssy, dated November 15, 2000 (Lyssy, 2000). For this test, Extraction Wells 802, 803, and 808 were turned off and added to the revised monitoring program wells. During the 18-month test period, the wells were sampled and water level elevations were measured on a monthly basis. The results of the first 18 months of the natural attenuation test were provided in a report submitted in November 2002 (Earth Tech, 2002c). The natural attenuation test has continued through October 2012 with a quarterly frequency of water quality and water level monitoring.

During July 2004, a new downgradient well was installed within the Southwest Alluvium: SBL 1. The first sampling and water-level measurement of this well occurred in October 2004; quarterly results through October 2012 are included in this appendix. This well is not part of the formal performance monitoring program.

Table A.1 presents the quarterly water level and water quality data for the observation and monitoring wells from the second quarter of 1989 through the fourth quarter of 2012. The laboratory analytical data for 2012 are presented at the end of this appendix.

**Figure A-1**





- Legend**
- Southwest Alluvium**
- ▲ Idled Extraction Well
  - ▼ Groundwater Quality and Water Level Monitoring Well
  - △ Water Level Monitoring Well
  - ▽ Dry Monitoring Well
  - Monitoring Well Installed in 2004
  - Well Proposed for Water Level Monitoring Only
  - Property Boundary
  - Section Boundary
  - Tailings Pond
  - Remedial Action Target Area

Aerial photo taken on August 1, 1996.

0 400 800 1,600  
Feet

**FIGURE A-1**

**Southwest Alluvium Proposed  
Revised Monitoring Well Locations**

United Nuclear Corporation Church Rock Site,  
Church Rock, New Mexico





**Notes For Table A.1****Southwest Alluvium Data Summary, 1989 – 2012***General Notes:*

1. NRC standard as listed in License Condition 30, Part B.
2. EPA standard as listed in Table 2, “Contaminant-Specific Groundwater ARARs” of the ROD (EPA, 1988).
3. Standards for TDS, sulfate, and nitrate changed to reflect revised standards recommended in the NRC’s 1996 evaluation of background water quality and documented in the January 6, 1998, letter from NMED to EPA.
4. NA – Not applicable.
5. “ND” for combined Ra-226 and Ra-228 indicates that both constituents were less than the laboratory reporting limits, which are 0.2 and 1.0 pCi/L, respectively.
6. All values that exceed the NRC and/or EPA standards are shaded.
7. Gross alpha value excludes contribution from radon and uranium.
8. “\*” (Asterisk) indicates a Point of Compliance well.
9. Reporting limit for bicarbonate changed from 0.0 mg/L to 0.1 mg/L in fourth quarter 1997.
10. Reporting limit for cadmium changed from 0.01 mg/L to 0.005 mg/L after fourth quarter 1997. The analytical method changed from EPA 200.7 (ICP) to 200.8 (ICP.MS).
11. NO<sub>3</sub> (nitrate) is reported by the laboratory as nitrate + nitrite as N.
12. During August 2007, the NRC issued License Amendment 37 (NRC, 2006b) revising the former 1 ug/L chloroform groundwater protection standard to 80 ug/L for total trihalomethanes (TTHMs) in the Southwest Alluvium, Zone 1 and Zone 3; and also revising the current combined radium-226 and -228 groundwater protection standard of 5 pCi/L to 5.2 pCi/L in the Southwest Alluvium and 9.4 pCi/L in Zone 1.
13. Energy Laboratory’s reporting of radiological analyses changed during 2008 (N.A. Water Systems, 2008d). This affected the reporting of Church Rock sample analyses beginning in April 2008 (2nd quarter). The changes were made to make the reporting methods consistent with Section 7.5 of The United States Nuclear Regulatory Commission’s Regulatory Guide 4.14.

The changes are summarized as follows:

- A minimum detectable concentration (MDC) is determined and reported for each analysis.

- Sample results are reported regardless of whether they are lower than the MDC for the analysis. This may result in the reporting of negative concentrations.
- Sample results lower than the MDC are qualified with a “U”.

These noted changes affected the reporting of all radiological parameters analyzed in Church Rock samples, except for thorium-230. Energy Labs did not have an approved methodology for determining MDC values for thorium-230. In the absence of MDC values, the historical reporting limit was used instead. Therefore, U-qualified results for thorium-230 indicate concentrations below a reporting limit rather than an MDC. Otherwise, the reporting of thorium-230 results was treated similarly to other radiological parameters. This means that measured concentrations were reported with a U qualification if the values were below the reporting limit.

The rationale for reporting values below the MDC or reporting limit, even if negative, is that errors associated with the reported values are expected, over time, to average to zero. This means that averages or sums (e.g. for total radium) of concentrations will tend to be more accurate if below limit (MDC or reporting) results are retained in the calculations.

14. At the request of EPA, UNC had the laboratory reduce the reporting limits for beryllium and lead. The new reporting limits are lower than the action levels. Beryllium's former reporting limit of 10 ug/L has been reduced to 1 ug/L (using lab method E200.7), and lead's former reporting limit of 50 ug/L has been reduced to 1 ug/L (using lab method E200.8). These changes were implemented during the July 2012 sampling event.

*Specific Notes:*

- Well 801 is monitored for water level only beginning in 2nd quarter 2000.
- Well 803 was not sampled in 3rd quarter 1999.
- Well EPA 22A contained insufficient water for sampling beginning 4th quarter 1997.
- Well EPA 27 contained insufficient water for sampling beginning 4th quarter 1997.
- Well GW 4 contained insufficient water for sampling, 1st and 3rd quarters 1996, and 3rd Quarter 1999.
- Well 29 A contained insufficient water for sampling, 1st quarter 1995.
- Well 639 contained insufficient water for sampling, 1st quarter 1995.
- Well 642 contained insufficient water for sampling, 4th quarter 1995.
- Well 644 contained insufficient water for sampling, 1st quarter 1993.
- Well 645 contained insufficient water for sampling, 1st quarter 1991.
- The following changes to the revised monitoring program were implemented for the Natural Attenuation test beginning January 2001:
  - Well 801 is monitored for water level and water quality.

- Pumping wells 802, 803, and 808 were temporarily shut off and are monitored for water level and water quality.
- At the request of EPA, UNC made turbidity measurements during the July and October 2012 sampling events.

**Table A.1**



TABLE A.1

Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water Elevation ft amsl	Field pH SU	Lab pH SU	Lab TDS mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NH4 as N mg/l	NO3 as N mg/l	TTHMs (Chloroform) ug/l	Al mg/l	As mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0624	N	7/19/1989	6,860.40	7.3	7.64	4637	565	412	226	4.1	378	2479	108	0.06	116	< 1	< 0.1	< 0.001
0624	N	10/16/1989	6,860.40	7.1	7.5	4760	535	399	211	5	456	2182	110	0.1	108	< 1	< 0.1	< 0.001
0624	N	1/10/1990	6,860.10	7.2	7.32	4642	562	363	208	3.61	473	2370	110	0.05	118	< 1	< 0.1	< 0.001
0624	N	4/5/1990	6,860.40	7.1	7.58	4722	559	390	206	3.8	537	2311	115	0.12	130	< 1	< 0.1	< 0.001
0624	N	7/3/1990	6,859.70	7.1	7.48	4839	553	371	195	3.9	512	2306	113	< 0.05	127	< 1	0.1	< 0.001
0624	N	10/3/1990	6,859.80	7	7.75	4783	565	384	215	4	561	2311	117	< 0.05	82	< 1	< 0.1	0.001
0624	N	1/15/1991	6,860.00	7.1	7.55	4686	612	405	212	5.6	528	2468	120	< 0.05	117	< 1	< 0.1	< 0.001
0624	N	4/2/1991	6,860.10	7.2	7.68	4832	555	362	203	3.2	524	2428	130	< 0.05	132	< 1	0.13	< 0.001
0624	N	7/17/1991	6,859.20	7.1	7.75	4689	540	335	195	2.9	595	2602	132	0.05	159	< 1	0.1	< 0.001
0624	N	10/15/1991	6,858.80	6.9	7.54	4640	609	373	186	2.5	549	2327	118	< 0.05	93.9	< 1	0.1	0.001
0624	N	1/15/1992	6,858.50	6.9	7.57	4267	525	348	197	2.8	539	2296	113	< 0.05	82	< 1	< 0.1	< 0.001
0624	N	4/8/1992	6,858.30	6.9	7.73	4279	581	371	208	3.5	597	2276	118	< 0.05	83.2	< 1	< 0.1	< 0.001
0624	N	7/8/1992	6,857.90	6.8	7.43	4323	581	360	254	4.3	432	2259	125	0.08	106	< 1	< 0.1	< 0.001
0624	N	10/6/1992	6,857.50	7	7.56	4704	626	364	218	2.1	593	2304	112	< 0.05	120	< 1	< 0.1	< 0.001
0624	N	1/7/1993	6,857.10	7	7.71	4698	587	348	211	3.9	586	2245	122	< 0.05	105	< 1	< 0.1	< 0.001
0624	N	4/7/1993	6,857.10	7	7.5	4111	553	307	230	15.9	581	2172	129	< 0.05	107	< 1	< 0.1	< 0.001
0624	N	7/14/1993	6,856.60	7	7.11	4803	645	361	211	2.4	748	2307	138	< 0.05	106	< 1	< 0.1	< 0.001
0624	N	10/7/1993	6,856.40	7.1	7.62	4371	602	326	188	1.4	700	2107	128	< 0.05	117	< 1	< 0.1	< 0.001
0624	N	1/6/1994	6,856.00	7.2	7.41	4425	618	345	200	2.2	694	2241	129	< 0.05	89.4	< 1	< 0.1	< 0.001
0624	N	4/12/1994	6,855.60	7.1	7.45	4779	623	344	197	1.7	625	2324	118	0.3	124	< 1	< 0.1	< 0.001
0624	N	7/21/1994	6,855.20	7.1	7.54	4592	674	356	203	2	649	2203	118	< 0.05	115	< 1	< 0.1	0.001
0624	N	10/5/1994	6,855.00	6.8	7.64	4815	661	391	212	3.8	843	2160	137	< 0.05	97.3	< 1	< 0.1	< 0.001
0624	N	1/4/1995	6,854.70	6.9	7.63	4803	665	375	202	3.5	814	2303	137	0.27	92.8	< 1	< 0.1	< 0.001
0624	N	4/5/1995	6,854.40	7	7.44	4661	630	342	195	3	475	2383	155	0.27	101	< 1	< 0.1	< 0.001
0624	N	7/6/1995	6,854.40	7.1	7.63	4358	655	405	207	3.9	766	2201	157	0.1	93.5	< 1	< 0.1	< 0.001
0624	N	10/3/1995	6,853.80	7	7.83	4950	655	415	197	3.8	972	2247	154	0.18	94.3	< 1	< 0.1	0.002
0624	N	1/3/1996	6,853.60	7	7.43	4553	610	392	203	4.8	1182	1879	123	< 0.05	97	< 1	< 0.1	< 0.001
0624	N	4/2/1996	6,853.20	6.8	7.92	4942	655	430	204	4.7	1048	2310	150	< 0.05	100	< 1	< 0.1	< 0.001
0624	N	7/7/1996	6,852.90	6.6	7.45	4946	645	405	206	4.6	1158	2190	145	0.07	84.4	< 1	< 0.1	< 0.001
0624	N	10/1/1996	6,852.90	6.8	7.25	5050	666	430	204	4.6	1180	2179	161	< 0.05	93	< 1	< 0.1	0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0624	N	7/19/1989	< 0.05	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.003	< 0.1	0.0217	0.6	< 1	0.6	6.9	< 1	6
0624	N	10/16/1989	< 0.05	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.003	< 0.1	0.021	1.6	< 1	1.6	0.5	< 1	1.8
0624	N	1/10/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.002	< 0.1	0.022	0.2	1.2	1.4	< 0.2	< 1	0.8
0624	N	4/5/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	0.003	< 0.1	0.02	0.4	< 1	0.4	< 0.2	1.1	0.9
0624	N	7/3/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.001	< 0.1	0.0242	0.7	< 1	0.7	< 0.2	< 1	< 1
0624	N	10/3/1990	< 0.05	< 0.01	0.02	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.022	< 0.2	1.8	1.8	< 0.2	< 1	< 1
0624	N	1/15/1991	< 0.01	< 0.01	0.01	< 0.05	0.01	< 0.1	< 0.05	0.001	< 0.1	0.0268	0.4	< 1	0.4	< 0.2	< 1	< 1
0624	N	4/2/1991	< 0.01	< 0.01	0.02	< 0.05	< 0.01	< 0.1	< 0.05	0.001	< 0.1	0.038	0.4	1.5	1.9	< 0.2	< 1	< 1
0624	N	7/17/1991	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.002	< 0.1	0.034	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	10/15/1991	< 0.01	< 0.01	0.01	< 0.05	0.01	< 0.1	< 0.05	0.002	< 0.1	0.034	0.4	1.8	2.2	< 0.2	< 1	< 1
0624	N	1/15/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.002	< 0.1	0.029	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	4/8/1992	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.002	< 0.1	0.034	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/8/1992	< 0.01	< 0.01	< 0.01	0.07	< 0.01	< 0.1	< 0.05	0.002	< 0.1	0.03	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	10/6/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.006	< 0.1	0.048	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/7/1993	< 0.01	< 0.01	0.02	< 0.05	0.02	< 0.1	< 0.05	0.008	< 0.1	0.043	< 0.2	4.2	4.2	< 0.2	< 1	< 1
0624	N	4/7/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.002	< 0.1	0.033	4.6	< 1	4.6	< 0.2	1.4	4.8
0624	N	7/14/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.003	< 0.1	0.019	< 0.2	< 1	0	< 0.2	2.8	< 1
0624	N	10/7/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.003	< 0.1	0.023	0.6	< 1	0.6	< 0.2	4.8	< 1
0624	N	1/6/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.027	1.3	5.1	6.4	< 0.2	< 1	9.9
0624	N	4/12/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.001	< 0.1	0.043	7.5	2.4	9.9	< 0.2	< 1	11.3
0624	N	7/21/1994	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.029	< 0.2	1.1	1.1	< 0.2	< 1	1.8
0624	N	10/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.035	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/4/1995	< 0.01	< 0.01	< 0.01	0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.033	0.6	1.3	1.9	< 0.2	< 1	2.7
0624	N	4/5/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.037	3.9	1.6	5.5	< 0.2	2.1	6.5
0624	N	7/6/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.002	< 0.1	0.0405	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	10/3/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.013	< 0.1	0.0331	0.3	< 1	0.3	< 0.2	< 1	< 1
0624	N	1/3/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.007	< 0.1	0.032	0.6	1.3	1.9	0.6	< 1	< 1
0624	N	4/2/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.033	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/7/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.043	0.3	< 1	0.3	< 0.2	< 1	< 1
0624	N	10/1/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.003	< 0.1	0.032	< 0.2	< 1	0	< 0.2	< 1	< 1



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Cl	NH4 as N	NO3 as N	TTHMs	Al	As
			Elevation	pH	pH											(Chloroform)		
			ft amsl	SU	SU											ug/l		
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0624	N	1/22/1997	6,852.60	6.7	7.69	4920	675	440	202	4.8	1070	2146	161	< 0.05	84.6	< 1	< 0.1	< 0.001
0624	N	4/8/1997	6,852.40	6.9	7.89	5000	683	427	195	3.8	1030	2227	169	0.06	103	< 1	< 0.1	< 0.001
0624	N	7/8/1997	6,852.00	7.1	7.54	5040	680	444	186	4.6	1060	2260	181	< 0.05	92.6	< 1	< 0.1	< 0.001
0624	N	10/7/1997	6,852.50	6.5	7.66	5140	712	459	179	3.51	1310	2160	166	< 0.05	86.3	< 1	< 0.1	< 0.001
0624	N	1/16/1998	6,852.40	7	7.78	5140	679	436	208	5.6	1300	2350	194	0.16	101	< 1	< 0.1	< 0.001
0624	N	4/7/1998	6,851.90	6.9	7.6	5190	691	442	197	4.4	1180	2400	153	< 0.05	98.7	< 1	< 0.1	< 0.001
0624	N	7/7/1998	6,851.70	7.2	7.79	5050	679	435	206	4.4	1080	2400	174	< 0.05	92.2	< 1	< 0.1	< 0.001
0624	N	10/6/1998	6,851.30	7.01	7.88	5210	708	464	216	6.2	1230	2220	175	< 0.05	101	< 1	< 0.1	< 0.001
0624	N	1/5/1999	6,851.20	6.8	7.85	5140	659	423	188	5.3	1160	2030	172	0.18	94.2	< 1	< 0.1	< 0.001
0624	N	4/6/1999	6,851.10	6.8	7.89	5150	692	451	188	5.4	1230	2000	180	0.08	94.5	< 1	< 0.1	< 0.001
0624	N	7/13/1999	6,850.77	6.7	7.85	5020	646	452	191	10.8	1070	2070	181	0.18	88.7	< 1	< 0.1	< 0.001
0624	N	10/5/1999	6,851.80	6.78	7.59	4900	618	411	199	6.1	1350	1860	179	0.09	88.3	< 1	< 0.1	< 0.001
0624	N	1/4/2000	6,851.20	6.8	7.76	4840	649	429	170	6.9	1160	2080	155	< 0.05	49.2	< 1	< 0.1	< 0.001
0624	N	5/9/2000	6,850.60	6.5	7.67	5130	652	438	207	6.3	1470	1970	177	< 0.05	93.6	< 1	< 0.1	< 0.001
0624	N	7/17/2000	6,850.40	6.55	7.62	5170	697	456	194	6.46	1480	1790	184	< 0.05	85.1	< 1	< 0.1	< 0.001
0624	N	10/9/2000	6,850.25	6.7	7.59	5090	606	412	185	7.6	1440	1530	147	0.1	98.5	< 1	< 0.1	< 0.001
0624	N	1/8/2001	6,850.10	6.65	7.4	5100	707	464	173	6.9	1480	1810	177	< 0.05	104	< 1	< 0.1	< 0.001
0624	N	2/5/2001	6,850.10	6.72	7.31	5110	801	510	171	7.6	1480	2320	170	0.21	93.9	< 1	< 0.1	< 0.001
0624	N	3/5/2001	6,850.10	7.03	7.47	4740	690	457	148	8.1	1450	2190	154	< 0.05	101	< 1	< 0.1	< 0.001
0624	N	4/10/2001	6,850.10	7.24	7.33	4910	791	497	238	7.3	1470	2250	176	< 0.05	103	< 1	< 0.1	< 0.001
0624	N	5/8/2001	6,849.90	6.62	7.54	5150	677	444	181	6.7	1450	1880	187	0.08	99.3	< 1	< 0.1	< 0.001
0624	N	6/5/2001	6,849.90	6.62	7.02	5050	683	454	182	6.5	1470	2000	182	0.11	101	< 1	< 0.1	< 0.001
0624	N	7/10/2001	6,849.90	6.62	7.4	5290	726	488	198	6.1	1480	2050	172	< 0.05	101	< 1	< 0.1	< 0.001
0624	N	8/7/2001	6,849.87	6.59	7.4	5230	660	450	200	6	1470	1900	180	0.05	88	< 1	0.13	< 0.001
0624	N	9/11/2001	6,850.30	6.52	7.3	5200	670	450	191	6.8	1490	1930	217	0.05	118	< 1	0.11	< 0.001
0624	N	10/2/2001	6,850.30	6.65	7.8	5210	660	450	192	7	1500	1850	240	< 0.05	100	< 1	< 0.1	< 0.001
0624	N	11/6/2001	6,850.15	6.6	7.2	5210	731	475	196	7.4	1490	2100	232	0.05	104	< 1	< 0.1	< 0.001
0624	N	12/4/2001	6,850.20	6.62	7.3	5250	673	433	172	6.4	1500	1750	197	< 0.05	101	< 1	< 0.1	< 0.001
0624	N	1/8/2002	6,850.10	6.95	7.3	5190	787	481	201	7	1490	2270	208	< 0.05	91.5	< 1	< 0.1	< 0.001
0624	N	2/5/2002	6,850.10	6.78	7.3	5190	762	461	193	7.8	1470	2120	219	0.06	90.5	< 1	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0624	N	1/22/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.027	0.6	< 1	0.6	< 0.2	< 1	< 1
0624	N	4/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.014	< 0.1	0.036	0.8	< 1	0.8	< 0.2	< 1	< 1
0624	N	7/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.034	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	10/7/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.12	< 0.1	< 0.05	< 0.001	< 0.1	0.03	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/16/1998	< 0.01	< 0.01	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.0379	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	4/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.039	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0409	0.7	< 1	0.7	< 0.2	< 1	< 1
0624	N	10/6/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	0.001	< 0.1	0.0409	0.7	< 1	0.7	< 0.2	< 1	< 1
0624	N	1/5/1999	< 0.01	0.006	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0395	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	4/6/1999	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0366	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/13/1999	< 0.01	< 0.005	0.02	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0339	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	10/5/1999	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0366	0.5	< 1	0.5	< 0.2	< 1	< 1
0624	N	1/4/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	0.001	< 0.1	0.0443	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	5/9/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0348	< 0.2	2	2	< 0.2	6.4	< 1
0624	N	7/17/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0325	< 0.2	1.5	1.5	< 0.2	< 1	< 1
0624	N	10/9/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.031	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/8/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.032	0.4	< 1	0.4	< 0.2	< 1	< 1
0624	N	2/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.033	0.3	< 1	0.3	< 0.2	< 1	< 1
0624	N	3/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0327	< 0.2	4	4	< 0.2	< 1	< 1
0624	N	4/10/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.031	0.3	< 1	0.3	< 0.2	< 1	< 1
0624	N	5/8/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.034	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	6/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	0.009	< 0.1	0.065	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/10/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0329	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	8/7/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.04	0.4	2.3	2.7	< 0.2	< 1	< 1
0624	N	9/11/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.03	< 0.2	2.9	2.9	< 0.2	< 1	< 1
0624	N	10/2/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0319	0.2	< 1	0.2	< 0.2	< 1	< 1
0624	N	11/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0288	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	12/4/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0295	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0301	0.4	< 1	0.4	< 0.2	< 1	< 1
0624	N	2/5/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0212	0.4	2	2.4	< 0.2	< 1	< 1



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water Elevation	Field pH	Lab pH	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Chl	NH4 as N	NO3 as N	TTHMs (Chloroform)	Al	As
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0624	Dup	2/5/2002	no data	6.78	7.2	5210	762	460	214	6.8	1470	2140	205	0.06	88.3	< 1	< 0.1	< 0.001
0624	N	3/5/2002	6,850.10	6.61	7.2	5170	726	463	228	6.8	1530	2190	207	0.06	95.1	< 1	< 0.1	< 0.001
0624	Dup	3/5/2002	no data	6.57	7.5	5130	714	456	223	6.6	1530	2170	193	0.06	97.2	< 1	< 0.1	< 0.001
0624	N	4/2/2002	6,850.16	6.54	7.45	5270	748	464	225	8.3	1500	2180	203	0.06	95.5	< 1	< 0.1	< 0.001
0624	Dup	4/2/2002	no data	6.53	7.48	5210	741	459	220	8	1500	2130	206	0.05	95.7	< 1	< 0.1	< 0.001
0624	N	5/7/2002	6,850.08	6.59	7.61	5220	719	448	226	7.4	1480	2100	186	0.13	104	< 1	< 0.1	< 0.001
0624	N	6/4/2002	6,850.10	6.52	7.66	5220	720	450	201	6.4	1480	1830	181	< 0.05	96.3	< 1	< 0.1	< 0.001
0624	Dup	6/4/2002	no data	6.51	7.68	5210	711	444	208	6	1480	1850	174	0.08	92.1	< 1	< 0.1	< 0.001
0624	N	7/9/2002	6,849.95	6.67	7.42	5300	713	463	223	7.3	1500	2150	200	0.05	92.4	< 1	< 0.1	< 0.001
0624	Dup	7/9/2002	no data	6.59	7.41	5320	709	460	225	7.8	1500	2110	201	0.05	91.4	< 1	< 0.1	< 0.001
0624	N	10/8/2002	6,849.90	6.67	7.25	5150	659	425	208	6.2	1490	1810	173	0.08	97.1	< 1	< 0.1	< 0.001
0624	Dup	10/8/2002	no data	6.47	7.4	5160	663	427	207	6.1	1480	1800	167	0.06	96.6	< 1	< 0.1	< 0.001
0624	N	1/7/2003	6,849.61	6.74	7.21	5210	733	480	242	7.4	1490	2250	175	0.19	92	< 1	< 0.1	< 0.001
0624	Dup	1/7/2003	no data	no data	7.24	5190	726	476	120	7.8	1500	2220	118	0.15	90	< 1	< 0.1	< 0.001
0624	N	4/8/2003	6,849.72	6.49	6.85	5250	685	422	230	8.3	1450	1900	184	0.11	102	< 1	< 0.1	< 0.001
0624	N	7/8/2003	6,849.70	6.36	7.41	4540	646	413	198	8.5	1480	2040	158	0.07	100	< 1	< 0.1	< 0.001
0624	Dup	7/8/2003	no data	no data	7.38	5290	657	418	208	7.8	1470	2080	160	0.5	93	< 1	< 0.1	< 0.001
0624	N	10/7/2003	6,849.72	6.4	7.76	5260	725	469	239	6.4	1430	2240	178	0.2	90	< 1	< 0.1	< 0.001
0624	Dup	10/7/2003	no data	no data	7.8	5290	723	467	240	6.6	1460	2210	178	0.17	92	< 1	< 0.1	< 0.001
0624	N	1/6/2004	6,849.60	6.57	7.71	5180	690	445	212	7	1440	2140	197	0.11	87.9 D	< 1.0	0.2	< 0.001
0624	Dup	1/6/2004	no data	no data	7.69	5170	698	452	214	6.4	1440	2190	172	0.08	100 D	< 1.0	0.2	< 0.001
0624	N	4/6/2004	6,849.67	6.76	6.87	5220	695	448	190	6.4	1460	2100 D	147	0.13	92.2 D	< 1	< 0.1	< 0.001
0624	Dup	4/6/2004	no data	no data	6.81	5240	693	448	212	7.1	1460	2120 D	173	0.14	92.8 D	< 1	< 0.1	< 0.001
0624	N	7/13/2004	6,849.52	6.41	6.87	5320	715	442	249	6.8	1440	2120 D	172	0.13	93.1 D	< 1.0	7.7	< 0.001
0624	Dup	7/13/2004	no data	no data	6.86	5310	714	441	245	7.2	1440	2130 D	175	0.14	92.0 D	< 1.0	1.8	< 0.001
0624	N	10/5/2004	6,849.34	6.46	7.07	5520	666 D	422 D	237	6.4	1380	2020 D	172	< 0.05	85.9 D	< 1.0	< 0.1	< 0.001
0624	Dup	10/5/2004	no data	no data	7.05	5380	664 D	420 D	227	6.1	1390	2030 D	163	< 0.05	83.2 D	< 1.0	< 0.1	< 0.001
0624	N	1/4/2005	6,849.37	6.87	6.99	5240	702 D	435 D	240	6.3	1360	2030 D	166	0.05	86 D	< 1.0	< 0.1	< 0.001
0624	Dup	1/4/2005	no data	no data	7.06	5240	692 D	430 D	234	6.3	1420	2000 D	162	0.05	86 D	< 1.0	< 0.1	< 0.001
0624	N	4/5/2005	6,849.37	6.65	7.3	5000	635	394	238	5.6	1400	1930	159	< 0.05	73	< 1.0	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0624	Dup	2/5/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0218	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	3/5/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0351	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	3/5/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	< 0.001	< 0.1	0.037	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	4/2/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0326	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	4/2/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0338	0.4	< 1	0.4	< 0.2	< 1	1.5
0624	N	5/7/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0355	0.5	< 1	0.5	< 0.2	< 1	< 1
0624	N	6/4/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0333	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	6/4/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0314	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/9/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.036	0.3	< 1	0.3	< 0.2	< 1	< 1
0624	Dup	7/9/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0363	0.4	< 1	0.4	< 0.2	< 1	< 1
0624	N	10/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0262	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	10/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0265	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0348	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0624	Dup	1/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0409	< 0.2	< 1	0	< 0.2	< 1	< 1.6
0624	N	4/8/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0336	0.5	< 1	0.5	< 0.2	< 1	< 1.0
0624	N	7/8/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0289	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0624	Dup	7/8/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0277	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0624	N	10/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0333	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0624	Dup	10/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0334	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0624	N	1/6/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.0296 D	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	Dup	1/6/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0284 D	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	N	4/6/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.045	< 0.1	< 0.05	< 0.001	< 0.1	0.0288 D	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	4/6/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0314 D	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/13/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0305 D	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	Dup	7/13/2004	< 0.01	< 0.005	0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0303 D	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	N	10/5/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.0321 D	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	Dup	10/5/2004	< 0.01	0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.0338 D	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	N	1/4/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.0343	0.4	< 1.0	0.4	< 0.2	< 1.0	2.2
0624	Dup	1/4/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.0324	0.3	< 1.0	0.3	< 0.2	< 1.0	< 1.0
0624	N	4/5/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.033	0.7	< 1.0	0.7	< 0.2	< 1.0	< 1.0



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Cl	NH4	NO3	TTHMs	Al	As	
			Elevation	pH	pH										as N	as N	(Chloroform)		
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05	
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05	
0624	Dup	4/5/2005	no data	no data	7.29	4970	599	382	237	4.5	1400	2060	169	< 0.05	70	< 1.0	< 0.1	< 0.001	
0624	N	7/12/2005	6,849.17	6.55	7.29	5120	673 D	434 D	246	5.9	1340	2100 D	176	0.09	70 D	< 1.0	< 0.1	< 0.001	
0624	Dup	7/12/2005	no data	no data	7.32	5010	694 D	424 D	244	5.9	1340	2100 D	177	< 0.05	81 D	< 1.0	< 0.1	< 0.001	
0624	N	10/4/2005	6,849.02	6.56	7.21	5130	693 D	436 D	241	6.2	1370	2170 D	184	< 0.05	75 D	< 1.0	< 0.1	< 0.001	
0624	Dup	10/4/2005	no data	no data	7.18	5070	696 D	434 D	242	6.3	1370	2160 D	188	< 0.05	75 D	< 1.0	< 0.1	< 0.001	
0624	N	1/10/2006	6,848.93	6.71	7.64	4890	631	392	236	5.1	1340	1950 D	161	< 0.05	82 D	< 1.0	< 0.1	< 0.001	
0624	Dup	1/10/2006	no data	no data	7.33	5020	660	409	247	5.2	1420	2050 D	164	< 0.05	85 D	< 1.0	< 0.1	< 0.001	
0624	N	4/4/2006	6,848.92	6.47	7.21	5070	730 D	463 D	230	6.4	1350	2180 D	184	< 0.05	86 D	< 1.0	0.2	< 0.001	
0624	Dup	4/4/2006	no data	no data	7.2	5080	711 D	452 D	233	6.5	1340	2140 D	186	< 0.05	86 D	< 1.0	< 0.1	< 0.001	
0624	N	7/18/2006	6,848.92	6.48	6.89	5030	713 D	443 D	260	6.9	1360	2300 D	178	0.05	82 D	< 1.0	< 0.1	< 0.001	
0624	Dup	7/18/2006	no data	no data	6.91	5010	698 D	434 D	258	6.3	1350	2270 D	173	< 0.05	79 D	< 1.0	< 0.1	< 0.001	
0624	N	10/3/2006	6,848.93	6.48	6.72	4920	682 D	419 D	231	6.2	1100	2100 D	144	0.08	76 D	< 0.5	< 0.1	< 0.001	
0624	Dup	10/3/2006	no data	no data	6.74	4970	672 D	411 D	224	6.2	1070	2070 D	134	0.08	77 D	< 0.5	< 0.1	< 0.001	
0624	N	1/9/2007	6,848.88	6.62	6.82	5130	704 D	437 D	226	6.9	1360	2250 D	168	< 0.05	74 D	< 0.5	< 0.1	< 0.001	
0624	Dup	1/9/2007	6,848.97	6.61	6.85	5130	680 D	421 D	228	6.7	1360	2130 D	169	0.05	77 D	< 0.5	< 0.1	< 0.001	
0624	N	4/10/2007	6,849.02	6.65	6.75	5090	693 D	427 D	226	8.1	1380	2150 D	182	< 0.05	82 D	< 0.5	< 0.1	< 0.001	
0624	Dup	4/10/2007	6,848.99	6.74	6.88	5070	689 D	425 D	222	7.7	1400	2140 D	169	< 0.05	83 D	< 0.5	< 0.1	< 0.001	
0624	N	7/10/2007	6,848.67	6.5	6.87	5020	702 D	433 D	245	6.2	1450	2230 D	154	0.08	77 D	< 0.5	< 0.1	0.009	
0624	Dup	7/10/2007	6,848.67	6.47	6.84	4930	688 D	435 D	243	6.1	1450	2250 D	162	0.08	77 D	< 0.5	< 0.1	0.009	
0624	N	10/2/2007	6,848.67	6.5	6.91	5030	626 D	385 D	246 D	6.9	1430	1990 D	188 D	< 0.05	74 D	< 0.5	< 0.1	< 0.001	
0624	N	1/15/2008	6,848.62	6.53	6.69	5110	650 D	396 D	246 D	7.1	1390	2000 D	205 D	< 0.05	68 D	< 0.5	< 0.1	< 0.001	
0624	N	4/8/2008	6,849.12	6.47	6.9	4830	708 D	442 D	280 D	8.2 D	1320	2240 D	174	< 0.05	108 D	< 0.50	< 0.1	< 0.001	
0624	N	7/8/2008	6,848.67	6.33	6.82	4700	657	396	233 D	5	1410	2170 D	184	< 0.05	74.9 D	< 0.5	< 0.1	< 0.003	
0624	N	10/7/2008	6,848.42	6.46	6.88	4920	662	403	248 D	6	1390	2380 D	178	< 0.1	94.9 D	< 0.5	< 0.1	< 0.001	
0624	N	1/13/2009	6,848.27	6.5	6.9	5180	614	383	257	6	1420	1870 D	169	< 0.05	111 D	< 0.5	< 0.1	< 0.001	
0624	N	4/7/2009	6,848.22	6.48	6.64	5080	650 D	413 D	271 D	6	1460	2190 D	191	< 0.05	77.4 D	< 0.50	< 0.1	< 0.001	
0624	N	7/7/2009	6,848.07	6.38	6.72	5080	692 D	405	253 D	6	1440	2560 D	187	< 0.05	71 D	< 0.50	< 0.1	< 0.001	
0624	N	10/5/2009	6,847.77	6.44	7.17	4950	643 D	396	245 D	6	1490	1960 D	187	< 0.05	75 D	< 0.50	< 0.1	< 0.001	
0624	N	1/5/2010	6,847.57	6.55	7.11	5230 D	693 D	404	255 D	6	1520	2370 D	194	< 0.05	76 D	< 0.50	< 0.1	< 0.001	
0624	N	4/6/2010	6,847.72	6.58	6.72	5220 D	725 D	433	287 D	6	1600	2230 D	198	< 0.05	77 D	< 0.50	< 0.1	< 0.001	



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0624	Dup	4/5/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.0325	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	N	7/12/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.07	< 0.1	< 0.05	< 0.001	< 0.1	0.0304	0.3	< 1.0	0.3	< 0.2	< 1.0	< 1.0
0624	Dup	7/12/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.07	< 0.1	< 0.05	< 0.001	< 0.1	0.0307	0.3	< 1.0	0.3	< 0.2	< 1.0	< 1.0
0624	N	10/4/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0316	< 0.2	2.9	2.9	< 0.2	< 1.0	< 1.0
0624	Dup	10/4/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0318	< 0.2	1.7	1.7	< 0.2	< 1.0	1.4
0624	N	1/10/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.07	< 0.1	< 0.05	< 0.001	< 0.1	0.0363	0.4	1.9	2.3	< 0.2	< 1.0	< 1.0
0624	Dup	1/10/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.07	< 0.1	< 0.05	< 0.001	< 0.1	0.0379	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	N	4/4/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0338 D	< 0.2	1.6	1.6	< 0.2	< 1.0	< 1.0
0624	Dup	4/4/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0286 D	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0624	N	7/18/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0326	0.3	2.8	3.1	< 0.2	< 1.0	< 1.0
0624	Dup	7/18/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0324	0.6	2.9	3.5	< 0.2	< 1.0	< 1.0
0624	N	10/3/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0328	0.4	< 1	0.4	< 0.2	< 1	< 1
0624	Dup	10/3/2006	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.032	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/9/2007	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0313	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	1/9/2007	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0314	0.4	< 1	0.4	< 0.2	< 1	< 1
0624	N	4/10/2007	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0308	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	4/10/2007	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0336	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	7/10/2007	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0339	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	Dup	7/10/2007	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.033	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	10/2/2007	< 0.01	< 0.005	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.0341	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	1/15/2008	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0307	< 0.2	< 1	0	< 0.2	< 1	< 1
0624	N	4/8/2008	< 0.01	< 0.005	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.0325	0.2	-0.04 U	0.16	0.5	0 U	0.9 U
0624	N	7/8/2008	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0286	0.36	0.23 U	0.59	-0.1 U	1.1 U	0.4 U
0624	N	10/7/2008	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.0306	-0.06 U	-0.2 U	-0.26	0 U	0.3 U	0.9
0624	N	1/13/2009	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	< 0.001	< 0.1	0.0322	0.05 U	-0.1 U	-0.05	-0.1 U	-1 U	1.7
0624	N	4/7/2009	< 0.01	< 0.005	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.0289	-0.05 U	0.75 U	0.75	0.06 U	-1 U	0.2 U
0624	N	7/7/2009	< 0.01	< 0.005	< 0.01	< 0.05	0.13	< 0.1	< 0.05	< 0.001	< 0.1	0.031	0.32	0.75 U	1.07	0.1 U	-0.9 U	1.4
0624	N	10/5/2009	< 0.01	< 0.005	< 0.01	< 0.05	0.15	< 0.1	< 0.05	< 0.001	< 0.1	0.0315	0.56	0.79 U	1.35	0.08 U	2.4 U	-0.09 U
0624	N	1/5/2010	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	< 0.001	< 0.1	0.0307	0.08 U	1.5	1.58	0.1 U	-1 U	0.03 U
0624	N	4/6/2010	< 0.01	< 0.005	< 0.01	< 0.05	0.13	< 0.1	< 0.05	< 0.001	< 0.1	0.0311	0.23	0.09 U	0.32	0.02 U	2.3 U	0.6



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water Elevation	Field pH	Lab pH	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Chl	NH4 as N	NO3 as N	TTHMs (Chloroform)	Al	As
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l
<b>NRC Standard</b>			<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>80</b>	<b>NA</b>	<b>0.05</b>
<b>EPA Standard</b>			<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>4800</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>2125</b>	<b>250</b>	<b>NA</b>	<b>190</b>	<b>NA</b>	<b>5</b>	<b>0.05</b>
0624	N	7/13/2010	6,847.52	6.42	7.08	5190 D	712 D	417	273 D	6	1570	2200 D	194 D	<0.05	70 D	<0.50	<0.1	0.002
0624	N	10/5/2010	6,847.37	6.53	7.6	5340 D	666	395	271	6	1570	2210 D	195 D	0.07	74 D	<0.50	<0.1	<0.001
0624	N	1/4/2011	6,847.22	6.48	7.01	4970 D	720	427	273	6	1510	2190 D	206 D	<0.05	64 D	<0.50	<0.1	<0.001
0624	N	4/4/2011	6,847.10	6.62	6.81	5170 D	697	412	292	6	1520	2170 D	202 D	<0.05	69 D	<0.50	<0.1	<0.001
0624	N	7/12/2011	6,846.97	6.72	7.15	5100 D	691	419	282	6	1520	2180 D	200 D	<0.1	78 D	<0.50	<0.1	<0.001
0624	N	10/4/2011	6,846.89	6.68	7.49	4990 D	694	408	279	6	1420	2240 D	208 D	<0.1	74 D	<0.50	<0.1	<0.001
0624	N	1/3/2012	NA	6.68	6.75 H	5110 D	662	400	269	7	1400	2140 D	200 D	<0.05	75 D	2.47	<0.1	<0.001
0624	N	4/3/2012	6,846.57	6.74	6.59 H	5110 D	696	400	267	6	1510	2170 D	203 D	<0.05	76 D	<0.50	<0.1	<0.01
0624	N	7/10/2012	6,846.37	6.5	6.72 H	5250	671	419	261	5	1500	2120 D	198 D	0.14	78 D	<0.50	<0.1	<0.001
0624	N	10/9/2012	6,846.27	6.7	6.66 H	5110	728	418	285 D	6	1550	2180 D	212 D	<0.05	72 D	<0.50	<0.1	<0.001
0627	N	7/20/1989	6,846.40	7.1	6.95	4509	554	304	382	3.1	622	2429	36.7	0.06	103	< 1	< 0.1	< 0.001
0627	N	10/16/1989	6,846.80	6.9	7.36	4512	539	290	359	3.8	659	2151	36.6	0.12	112	< 1	< 0.1	< 0.001
0627	N	1/4/1990	6,846.70	6.8	7.24	4446	571	275	351	7.8	656	2277	39.7	0.07	113	< 1	< 0.1	< 0.001
0627	N	4/3/1990	6,846.40	6.8	7.32	4492	590	290	352	3.2	698	2168	40.1	0.09	90	< 1	< 0.1	< 0.001
0627	N	7/2/1990	6,846.20	6.7	7.34	4750	613	322	325	4.5	693	2265	41.5	< 0.05	109	< 1	< 0.1	< 0.001
0627	N	10/2/1990	6,846.20	6.8	7.6	4551	509	270	342	2.8	644	2404	41.6	< 0.05	78	< 1	< 0.1	< 0.001
0627	N	1/15/1991	6,846.20	6.8	7.77	4537	587	309	393	5.9	617	2480	49	< 0.05	118	< 1	0.1	< 0.001
0627	N	4/2/1991	6,846.20	6.8	7.7	4623	533	263	331	2.7	595	2407	45.9	< 0.05	94.8	< 1	< 0.1	< 0.001
0627	N	7/16/1991	6,845.90	6.8	7.44	4454	525	249	335	2.8	532	2537	45.4	0.36	97.2	< 1	< 0.1	< 0.001
0627	N	10/14/1991	6,845.60	6.7	7.37	4539	448	221	342	2.7	622	2161	55.7	< 0.05	104	< 1	< 0.1	0.001
0627	N	1/14/1992	6,845.40	6.6	7.12	4614	490	246	342	2.8	619	2317	54.7	< 0.05	101	< 1	< 0.1	< 0.001
0627	N	4/9/1992	6,845.10	6.6	7.91	4671	543	283	424	3.2	605	2346	52.3	< 0.05	68.4	< 1	< 0.1	< 0.001
0627	N	7/7/1992	6,844.90	6.5	8	4811	585	280	468	4.2	588	2403	59.2	0.13	108	< 1	< 0.1	< 0.001
0627	N	10/7/1992	6,844.60	6.8	7.45	4696	563	257	484	5	593	2402	56.3	< 0.05	125	< 1	< 0.1	< 0.001
0627	N	1/7/1993	6,844.40	6.8	7.88	4615	556	264	408	2.8	576	2324	57.4	< 0.05	116	< 1	< 0.1	< 0.001
0627	N	4/7/1993	6,844.30	6.8	7.59	4751	546	228	448	2.3	553	2341	61	< 0.05	100	< 1	< 0.1	< 0.001
0627	N	7/14/1993	6,843.80	6.9	7.21	5045	645	255	512	2.6	570	2476	72.5	< 0.05	99.3	< 1	< 0.1	< 0.001
0627	N	10/7/1993	6,843.60	6.9	7.57	5187	568	239	453	2.3	532	2548	62.4	0.05	133	< 1	< 0.1	< 0.001
0627	N	1/6/1994	6,843.40	6.9	7.51	4941	563	246	474	2.6	512	2693	63.1	< 0.05	61	< 1	< 0.1	< 0.001
0627	N	4/13/1994	6,843.20	7	7.15	4787	564	242	486	2.6	510	2428	58.5	0.12	107	< 1	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0624	N	7/13/2010	<0.01	<0.005	<0.01	<0.05	0.16	<0.1	<0.05	<0.001	<0.1	0.0358	0.2	0.47 U	0.67	0.05 U	-1 U	0.3 U
0624	N	10/5/2010	<0.01	<0.005	<0.01	<0.05	0.17	<0.1	<0.05	<0.001	<0.1	0.0355	-0.04 U	1.4	1.36	0.03 U	1.7	0.2 U
0624	N	1/4/2011	<0.01	<0.005	<0.01	<0.05	0.16	<0.1	<0.05	<0.001	<0.1	0.0345	0.06 U	0.71 U	0.77	0.02 U	0.6 U	1.1
0624	N	4/4/2011	<0.01	<0.005	<0.01	<0.05	0.19	<0.1	<0.05	<0.001	<0.1	0.0327	0.05 U	0.95 U	1	0.02 U	-0.3 U	-0.04 U
0624	N	7/12/2011	<0.01	<0.005	<0.01	<0.05	0.25	<0.1	<0.05	<0.001	<0.1	0.0351	0.05 U	0.95 U	1	0.02 U	-0.04 U	1
0624	N	10/4/2011	<0.01	<0.005	<0.01	<0.05	0.19	<0.1	<0.05	<0.001	<0.1	0.0308	0.12 U	0.71 U	0.83	0.008 U	0.04 U	0.4 U
0624	N	1/3/2012	<0.01	<0.005	<0.01	<0.05	0.17	<0.1	<0.05	<0.001	<0.1	0.0347	0.46	0.88 U	2.22	0.01 U	0.07 U	0.5
0624	N	4/3/2012	<0.01	<0.005	<0.01	<0.05	0.19	<0.1	<0.05	<0.001	<0.1	0.0355	0.39	1.4	3.19	0.01 U	-0.4 U	0.003 U
0624	N	7/10/2012	<0.001	<0.005	<0.01	<0.001	0.23	<0.1	<0.05	<0.001	<0.1	0.0319	0.42	-0.4 U	0.42	0.2 U	0.04 U	0.2 U
0624	N	10/9/2012	<0.001	<0.005	<0.01	<0.001	0.22	<0.1	<0.05	<0.001	<0.1	0.0351	0.24	-0.3 U	0.24	0.05 U	0.7 U	0.9
0627	N	7/20/1989	< 0.05	< 0.01	0.02	< 0.05	0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0143	0.9	< 1	0.9	2.5	2.2	2.7
0627	N	10/16/1989	< 0.05	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	0.002	< 0.1	0.0181	0.6	< 1	0.6	3.3	1.1	3.8
0627	N	1/4/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.014	2	< 1	2	< 0.2	2.4	3.4
0627	N	4/3/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.06	< 0.1	< 0.05	0.001	< 0.1	0.015	0.4	< 1	0.4	< 0.2	< 1	1.1
0627	N	7/2/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0175	0.3	< 1	0.3	< 0.2	1.9	< 1
0627	N	10/2/1990	< 0.05	< 0.01	0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.014	0.2	< 1	0.2	< 0.2	< 1	< 1
0627	N	1/15/1991	< 0.01	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.0176	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	4/2/1991	< 0.01	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.049	1	3.8	4.8	< 0.2	< 1	1
0627	N	7/16/1991	< 0.01	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	< 0.001	< 0.1	0.014	< 0.2	2.8	2.8	< 0.2	< 1	< 1
0627	N	10/14/1991	< 0.01	< 0.01	0.01	< 0.05	0.05	< 0.1	< 0.05	0.002	< 0.1	0.02	< 0.2	1.5	1.5	< 0.2	< 1	< 1
0627	N	1/14/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	0.002	< 0.1	0.017	0.9	1.2	2.1	< 0.2	< 1	< 1
0627	N	4/9/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	0.003	< 0.1	0.019	< 0.2	2.9	2.9	< 0.2	1.2	< 1
0627	N	7/7/1992	< 0.1	< 0.01	< 0.01	< 0.05	0.05	< 0.1	< 0.05	0.001	< 0.1	0.02	0.7	< 1	0.7	< 0.2	< 1	< 1
0627	N	10/7/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.06	< 0.1	< 0.05	0.003	< 0.1	0.025	0.7	2.1	2.8	< 0.2	1.7	< 1
0627	N	1/7/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.06	< 0.1	< 0.05	0.014	< 0.1	0.018	0.5	1.5	2	< 0.2	< 1	< 1
0627	N	4/7/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.08	< 0.1	< 0.05	0.004	< 0.1	0.033	< 0.2	< 1	0	< 0.2	1.2	< 1
0627	N	7/14/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.08	< 0.1	< 0.05	0.018	< 0.1	0.016	0.6	2.3	2.9	< 0.2	< 1	< 1
0627	N	10/7/1993	< 0.01	< 0.01	0.02	< 0.05	0.08	< 0.1	< 0.05	0.009	< 0.1	0.012	0.6	< 1	0.6	< 0.2	< 1	< 1
0627	N	1/6/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.08	< 0.1	< 0.05	0.003	< 0.1	0.015	0.9	< 1	0.9	< 0.2	< 1	< 1
0627	N	4/13/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.09	< 0.1	< 0.05	0.002	< 0.1	0.015	0.8	< 1	0.8	< 0.2	3.2	< 1



TABLE A.1

Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water Elevation	Field pH	Lab pH	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Cl	NH4 as N	NO3 as N	TTHMs (Chloroform)	Al	As
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0627	N	7/21/1994	6,842.90	6.9	7.53	4899	620	259	455	2.9	529	2908	54.6	< 0.05	108	< 1	< 0.1	0.001
0627	N	10/5/1994	6,842.90	6.9	7.86	5024	610	282	535	3.6	549	2719	62.6	< 0.05	137	< 1	< 0.1	< 0.001
0627	N	1/5/1995	6,842.60	6.9	7.49	5292	634	280	530	4.2	540	2650	58.9	0.15	105	< 1	< 0.1	< 0.001
0627	N	4/5/1995	6,842.50	6.9	7.22	5324	540	275	505	3.9	542	2682	66	0.24	125	< 1	< 0.1	< 0.001
0627	N	7/6/1995	6,842.00	6.9	7.91	5112	585	315	490	3.6	560	2555	61	< 0.05	90.5	< 1	< 0.1	< 0.001
0627	N	10/3/1995	6,841.80	6.9	7.65	5241	580	280	535	3.9	544	2760	58	0.48	126	< 1	< 0.1	0.001
0627	N	1/3/1996	6,841.70	7.1	7.52	5293	640	300	531	3.6	542	2995	60	< 0.05	131	< 1	< 0.1	< 0.001
0627	N	4/2/1996	6,841.50	7.1	8.06	5230	570	287	530	3.6	558	2740	65.1	< 0.05	129	< 1	< 0.1	< 0.001
0627	N	7/7/1996	6,841.20	6.8	7.56	5403	585	280	570	4.1	534	2725	64	0.13	113	< 1	< 0.1	< 0.001
0627	N	10/1/1996	6,841.00	6.8	7.23	4980	592	277	470	3.5	575	2468	54	< 0.05	119	< 1	< 0.1	< 0.001
0627	N	1/22/1997	6,840.80	6.8	7.85	5020	595	290	503	3.7	577	2673	63.3	< 0.05	121	< 1	< 0.1	< 0.001
0627	N	4/8/1997	6,840.50	6.9	7.59	5240	590	286	578	4.1	564	2524	56.6	< 0.05	153	< 1	< 0.1	< 0.001
0627	N	7/8/1997	6,840.20	7.4	7.75	5600	616	303	543	4.3	560	2570	64.1	< 0.05	190	< 1	< 0.1	< 0.001
0627	N	10/7/1997	6,840.20	6.6	7.69	4960	601	276	439	3.5	599	2440	66	< 0.05	122	< 1	< 0.1	< 0.001
0627	N	1/16/1998	6,840.00	7.3	7.91	5260	582	289	545	4.6	682	2850	70.6	1.28	107	< 1	< 0.1	< 0.001
0627	N	4/7/1998	6,840.20	6.9	7.74	5200	621	294	508	3.9	590	2400	54.6	< 0.05	141	< 1	< 0.1	< 0.001
0627	N	7/7/1998	6,840.00	7.2	7.8	5210	598	288	529	4.3	588	2500	59.6	0.05	133	< 1	< 0.1	< 0.001
0627	N	10/6/1998	6,839.80	6.97	7.85	5380	589	288	530	4.8	579	2670	61.5	0.06	109	< 1	< 0.1	< 0.001
0627	N	1/6/1999	6,839.50	7.7	8.02	5340	566	284	509	4.8	586	2740	60	0.17	142	< 1	< 0.1	< 0.001
0627	N	4/6/1999	6,839.50	7.1	7.84	5650	580	309	504	4.7	580	2660	68	0.27	131	< 1	< 0.1	< 0.001
0627	N	7/13/1999	6,839.22	7	8.21	5320	579	308	498	10.6	594	2620	67.7	0.17	126	< 1	< 0.1	< 0.001
0627	N	10/5/1999	6,839.20	7.09	7.7	5320	521	274	512	5.1	594	2320	58.5	0.38	127	< 1	< 0.1	< 0.001
0627	N	1/4/2000	6,839.10	7	8.1	5150	530	283	425	7.3	597	2430	57.2	0.14	144	< 1	< 0.1	< 0.001
0627	N	5/10/2000	6,839.00	7	7.65	5200	535	278	501	4.1	588	2370	55.3	< 0.05	144	< 1	< 0.1	< 0.001
0627	N	7/18/2000	6,838.60	6.96	7.91	5320	567	292	502	4.32	590	2390	53.3	< 0.05	149	< 1	< 0.1	< 0.001
0627	N	10/10/2000	6,838.65	7.03	7.78	5100	496	261	512	5.4	580	2160	44.8	< 0.05	150	< 1	< 0.1	< 0.001
0627	N	1/9/2001	6,838.55	7.23	8.03	5170	583	303	454	5	595	2460	57.9	< 0.05	160	< 1	< 0.1	< 0.001
0627	N	2/6/2001	6,838.50	7.53	7.48	5040	654	321	558	6.1	592	2780	52.5	< 0.05	158	< 1	< 0.1	< 0.001
0627	N	3/6/2001	6,838.30	7.31	7.69	4770	553	286	552	6.5	586	2680	53	< 0.05	156	< 1	< 0.1	0.001
0627	N	4/10/2001	6,838.60	7.52	7.47	5020	656	319	446	5.3	590	2840	57.3	< 0.05	149	< 1	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0627	N	7/21/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.09	< 0.1	< 0.05	0.003	< 0.1	0.017	0.8	2.4	3.2	< 0.2	< 1	4.6
0627	N	10/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.08	< 0.1	< 0.05	0.001	< 0.1	0.016	0.4	< 1	0.4	< 0.2	< 1	< 1
0627	N	1/5/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.016	0.3	< 1	0.3	< 0.2	< 1	< 1
0627	N	4/5/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	< 0.001	< 0.1	0.016	1.2	< 1	1.2	< 0.2	1.4	1.4
0627	N	7/6/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	0.003	< 0.1	0.0205	0.8	< 1	0.8	0.3	< 1	1.4
0627	N	10/3/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.09	< 0.1	< 0.05	0.019	< 0.1	0.0168	< 0.2	< 1	0	< 0.2	1.7	2
0627	N	1/3/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	0.001	< 0.1	0.018	0.7	< 1	0.7	1.2	2.4	1.2
0627	N	4/2/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	< 0.001	< 0.1	0.019	0.5	< 1	0.5	< 0.2	< 1	< 1
0627	N	7/7/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.13	< 0.1	< 0.05	< 0.001	< 0.1	0.024	0.3	< 1	0.3	< 0.2	< 1	< 1
0627	N	10/1/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.09	< 0.1	< 0.05	0.002	< 0.1	0.024	0.5	< 1	0.5	< 0.2	< 1	< 1
0627	N	1/22/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.018	1	< 1	1	< 0.2	< 1	< 1
0627	N	4/8/1997	< 0.01	< 0.01	0.01	< 0.05	0.1	< 0.1	< 0.05	0.195	< 0.1	0.02	0.9	< 1	0.9	< 0.2	< 1	< 1
0627	N	7/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.02	0.4	< 1	0.4	< 0.2	< 1	< 1
0627	N	10/7/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.12	< 0.1	< 0.05	< 0.001	< 0.1	0.023	0.8	< 1	0.8	< 0.2	< 1	< 1
0627	N	1/16/1998	< 0.01	< 0.01	0.02	< 0.05	1.47	< 0.1	< 0.05	< 0.001	< 0.1	0.0222	0.9	< 1	0.9	< 0.2	< 1	< 1
0627	N	4/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	< 0.001	< 0.1	0.0221	0.7	< 1	0.7	< 0.2	< 1	< 1
0627	N	7/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.0233	1.6	2.6	4.2	< 0.2	< 1	< 1
0627	N	10/6/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.14	< 0.1	< 0.05	< 0.001	< 0.1	0.0345	1.2	< 1	1.2	< 0.2	< 1	< 1
0627	N	1/6/1999	< 0.01	0.006	< 0.01	< 0.05	0.22	< 0.1	< 0.05	< 0.001	< 0.1	0.0239	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	4/6/1999	< 0.01	< 0.005	< 0.01	< 0.05	0.18	< 0.1	< 0.05	0.002	< 0.1	0.0233	1	2.5	3.5	< 0.2	< 1	< 1
0627	N	7/13/1999	< 0.01	< 0.005	0.02	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.002	0.8	< 1	0.8	< 0.2	3	2.9
0627	N	10/5/1999	< 0.01	< 0.005	< 0.01	< 0.05	0.73	< 0.1	< 0.05	0.002	< 0.1	0.0247	1.3	< 1	1.3	< 0.2	< 1	< 1
0627	N	1/4/2000	< 0.01	< 0.005	0.06	< 0.05	0.86	< 0.1	< 0.05	0.003	< 0.1	0.0233	4.1	2	6.1	< 0.2	< 1	5.5
0627	N	5/10/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.0259	0.4	6.3	6.7	< 0.2	5.7	< 1
0627	N	7/18/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	< 0.0003	0.6	2.5	3.1	< 0.2	< 1	< 1
0627	N	10/10/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.024	0.5	< 1	0.5	< 0.2	< 1	< 1
0627	N	1/9/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	0.001	< 0.1	0.023	0.4	2.5	2.9	< 0.2	< 1	< 1
0627	N	2/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	0.002	< 0.1	0.0239	0.5	1.5	2	< 0.2	< 1	< 1
0627	N	3/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	0.001	< 0.1	0.024	0.4	< 1	0.4	< 0.2	< 1	< 1
0627	N	4/10/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.14	< 0.1	< 0.05	0.001	< 0.1	0.03	0.4	< 1	0.4	< 0.2	< 1	< 1



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water Elevation	Field pH	Lab pH	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Chl	NH4 as N	NO3 as N	TTHMs (Chloroform)	Al	As
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0627	N	5/8/2001	6,838.10	7.08	7.68	5190	557	289	530	4.9	577	2320	60.2	0.09	154	< 1	< 0.1	< 0.001
0627	N	6/5/2001	6,838.30	7.14	7.67	4950	576	304	521	3.8	580	2660	55.1	0.09	142	< 1	< 0.1	< 0.001
0627	N	7/10/2001	6,838.05	7.48	7.45	5270	585	313	585	4.4	600	2450	55.9	0.06	149	< 1	< 0.1	< 0.001
0627	N	8/8/2001	6,838.00	7.09	7.6	5220	540	290	460	4.1	596	2300	64	0.11	140	< 1	< 0.1	< 0.001
0627	N	9/11/2001	6,838.00	6.99	7.8	4190	550	290	540	4.9	600	2380	64.4	0.08	158	< 1	< 0.1	< 0.001
0627	N	10/2/2001	6,838.05	7.08	7.7	5230	540	290	540	5.6	609	2300	74	< 0.05	152	< 1	< 0.1	< 0.001
0627	N	11/6/2001	6,838.00	7.13	7.9	5310	595	305	451	5.8	602	2600	69	0.06	142	< 1	< 0.1	< 0.001
0627	N	12/4/2001	6,838.25	7.3	7.8	5190	559	277	498	4.7	610	2290	65.2	0.07	148	< 1	< 0.1	< 0.001
0627	N	1/8/2002	6,837.90	7.27	7.7	5150	641	314	407	6.5	603	2290	73.6	< 0.05	134	< 1	< 0.1	< 0.001
0627	N	2/5/2002	6,837.80	7.34	7.7	5190	625	298	436	6.1	601	2560	70.8	< 0.05	133	< 1	< 0.1	< 0.001
0627	N	3/5/2002	6,837.80	7.17	7.8	5160	595	300	495	5.1	611	2670	64.3	0.07	133	< 1	< 0.1	< 0.001
0627	N	4/9/2002	6,837.50	7.08	7.64	5250	559	286	486	6.5	612	2440	74.1	0.09	142	< 1	< 0.1	< 0.001
0627	N	5/7/2002	6,837.73	7.09	7.84	5180	594	294	512	5.9	601	2500	59.7	0.08	137	< 1	< 0.1	< 0.001
0627	N	6/4/2002	6,837.61	7.17	7.71	5190	607	300	479	4.6	602	2550	53.8	0.12	122	< 1	< 0.1	< 0.001
0627	N	7/9/2002	6,837.42	7.13	7.9	5350	587	306	495	5.5	608	2590	76	< 0.05	133	< 1	< 0.1	< 0.001
0627	N	10/7/2002	6,837.30	7.1	7.65	4170	543	280	455	4.7	611	2160	50.1	0.06	139	< 1	< 0.1	< 0.001
0627	N	1/7/2003	6,836.79	7.49	7.78	5190	586	315	556	4.6	614	2710	71.9	0.17	128	< 1	< 0.1	< 0.001
0627	N	4/8/2003	6,836.52	6.98	7.5	5220	555	277	496	7.9	603	2280	58.1	0.11	147	< 1	< 0.1	< 0.001
0627	N	7/8/2003	6,836.50	6.82	7.7	5190	534	282	455	6	317	2530	48.7	0.09	142	< 1	< 0.1	< 0.001
0627	N	10/7/2003	6,836.43	6.9	7.74	5310	613	321	531	5	625	2700	56.7	0.13	134	< 1	< 0.1	< 0.001
0627	N	1/6/2004	6,836.28	7.04	7.68	5200	533	285	489	5.2	637	2470	57.8	0.06	142 D	< 1.0	0.1	< 0.001
0627	N	4/6/2004	6,836.24	7.38	7.3	5170	591	304	491	5.3	619	2550 D	58.1	0.17	144 D	< 1	< 0.1	< 0.001
0627	N	7/13/2004	6,835.89	6.81	7.23	5320	592	298	497	6.1	618	2480 D	57	0.15	135 D	< 1.0	< 0.1	< 0.001
0627	N	10/5/2004	6,835.97	6.92	7.5	5440	571 D	294 D	530 E	4.5	600	2470 D	54	< 0.05	125 D	< 1.0	< 0.1	< 0.001
0627	N	1/12/2005	6,836.02	7.08	7.24	5190	598 D	304 D	518 D	5.9	596	2520 D	62	0.08	112 D	< 1.0	< 0.1	< 0.001
0627	N	4/5/2005	6,835.55	7.19	7.7	5000	602	318	518	5.1	612	2590	56	< 0.05	110	< 1.0	< 0.1	< 0.001
0627	N	7/12/2005	6,835.37	7.01	7.76	4950	594 D	299 D	494	4.4	581	2570 D	52	< 0.05	108 D	< 1.0	< 0.1	< 0.001
0627	N	10/4/2005	6,835.48	7	7.6	4930	554 D	284 D	495	5.2	595	2530 D	54	< 0.05	108 D	< 1.0	< 0.1	< 0.001
0627	N	1/10/2006	6,835.12	7.06	7.79	4810	527	270	507	4.3	640	2380 D	48	< 0.05	112 D	< 1.0	< 0.1	< 0.001
0627	N	4/4/2006	6,835.02	6.98	7.3	4800	587 D	303 D	486	5.9	587	2560 D	55	< 0.05	117 D	< 1.0	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0627	N	5/8/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.13	< 0.1	< 0.05	0.001	< 0.1	0.024	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	6/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	0.003	< 0.1	0.024	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	7/10/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	0.001	< 0.1	0.024	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	8/8/2001	< 0.01	0.006	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.025	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	9/11/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	0.001	< 0.1	0.023	0.6	< 1	0.6	< 0.2	< 1	< 1
0627	N	10/2/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.1	< 0.1	< 0.05	0.001	< 0.1	0.0235	0.7	< 1	0.7	< 0.2	< 1	< 1
0627	N	11/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	0.002	< 0.1	0.0224	0.6	< 1	0.6	< 0.2	< 1	< 1
0627	N	12/4/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0223	0.8	< 1	0.8	< 0.2	< 1	< 1
0627	N	1/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.0228	0.8	< 1	0.8	< 0.2	< 1	< 1
0627	N	2/5/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.014	0.5	< 1	0.5	< 0.2	< 1	< 1
0627	N	3/5/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.12	< 0.1	< 0.05	< 0.001	< 0.1	0.0251	0.4	< 1	0.4	< 0.2	< 1	< 1
0627	N	4/9/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.0244	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	5/7/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.13	< 0.1	< 0.05	0.001	< 0.1	0.0249	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	6/4/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.13	< 0.1	< 0.05	< 0.001	< 0.1	0.0246	0.7	< 1	0.7	< 0.2	< 1	< 1
0627	N	7/9/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.0228	0.3	< 1	0.3	< 0.2	< 1	< 1
0627	N	10/7/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0198	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	1/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.1	< 0.1	< 0.05	< 0.001	< 0.1	0.0291	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0627	N	4/8/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0278	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0627	N	7/8/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.09	< 0.1	< 0.05	< 0.001	< 0.1	0.0241	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0627	N	10/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	0.06	< 0.1	< 0.05	< 0.001	< 0.1	0.0279	< 0.2	< 1	0	< 0.2	< 1	< 1.0
0627	N	1/6/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.05	< 0.1	< 0.05	0.003	< 0.1	0.0244 D	< 0.2	6.6	6.6	< 0.2	< 1.0	< 1.0
0627	N	4/6/2004	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	0.02	< 0.1	0.025 D	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	7/13/2004	< 0.01	< 0.005	0.01	< 0.05	0.01	< 0.1	< 0.05	0.001	< 0.1	0.0254 D	0.5	< 1.0	0.5	< 0.2	< 1.0	< 1.0
0627	N	10/5/2004	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.009	< 0.1	0.0261 D	0.3	2	2.3	< 0.2	< 1.0	< 1.0
0627	N	1/12/2005	< 0.01	< 0.005	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.001	< 0.1	0.0269	0.5	< 1.0	0.5	< 0.2	< 1.0	< 1.0
0627	N	4/5/2005	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.028	1	< 1.0	1	< 0.2	< 1.0	< 1.0
0627	N	7/12/2005	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0254	0.4	< 1.0	0.4	< 0.2	< 1.0	< 1.0
0627	N	10/4/2005	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0271	0.3	1.4	1.7	< 0.2	< 1.0	< 1.0
0627	N	1/10/2006	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.01	< 0.1	0.0268	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0627	N	4/4/2006	< 0.01	0.006	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.005	< 0.1	0.0251 D	< 0.2	2.7	2.7	< 0.2	< 1.0	< 1.0



TABLE A.1

Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water Elevation ft amsl	Field pH SU	Lab pH SU	Lab TDS mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NH4 as N mg/l	NO3 as N mg/l	TTHMs (Chloroform) ug/l	Al mg/l	As mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0627	N	7/18/2006	6,834.87	6.92	6.91	4790	554 D	279 D	538	6.4	571	2660 D	45	< 0.05	109 D	< 1.0	< 0.1	< 0.001
0627	N	10/3/2006	6,834.82	6.92	6.92	4670	528 D	261 D	460	5.7	592	2350 D	39	0.08	108 D	< 0.5	< 0.1	< 0.001
0627	N	1/9/2007	6,834.77	7.09	6.96	4870	512 D	263 D	443	5.6	580	2460 D	47	< 0.05	103 D	< 0.5	< 0.1	< 0.001
0627	N	4/10/2007	6,835.02	7.18	7.18	4740	548 D	272 D	446	7.4	573	2430 D	45	0.06	115 D	< 0.5	< 0.1	< 0.001
0627	N	7/10/2007	6,834.67	6.97	6.81	4590	571 D	278 D	489	5.8	612	2590 D	41	0.05	117 D	< 0.5	< 0.1	0.01
0627	N	10/2/2007	6,834.55	6.87	7.26	4710	486 D	244 D	469 D	6.2	593	2270 D	63 D	0.18	107 D	< 0.5	< 0.1	< 0.001
0627	N	1/15/2008	6,834.77	7.05	7.03	4750	532 D	256 D	513 D	6.7	568	2340 D	64 D	< 0.05	109 D	< 0.5	< 0.1	< 0.001
0627	N	4/8/2008	6,834.72	6.94	7.32	4600	565 D	282 D	528 D	6.4 D	546	2530 D	36	< 0.1	159 D	< 0.50	< 0.1	< 0.001
0627	N	7/8/2008	6,834.47	6.68	7.23	4610	527	250	458 D	5	578	2460 D	50	< 0.05	178 D	< 0.5	< 0.1	< 0.003
0627	N	10/7/2008	6,833.99	6.98	7.09	4510	530	253	477 D	5	560	2420 DH	36	< 0.1	167 D	< 0.5	< 0.1	< 0.001
0627	N	1/13/2009	6,834.22	6.9	7.1	4720	580	274	518	6	565	2210 D	28	< 0.05	172 D	< 0.5	< 0.1	< 0.001
0627	N	4/7/2009	6,834.02	6.82	6.99	4650	509 D	244 D	472 D	6	586	2410 D	39	< 0.05	107 D	< 0.50	< 0.1	< 0.001
0627	N	7/7/2009	6,834.02	6.76	7.23	4610	510	239	473	5	579	2310 D	44	< 0.05	105 D	< 0.50	< 0.1	< 0.001
0627	N	10/6/2009	6,834.02	6.93	7.67	4530	510	240	483	5	583	2440 D	44	< 0.05	111 D	< 0.50	< 0.1	< 0.001
0627	N	1/5/2010	6,833.82	6.9	7.48	4810 D	517 D	234	466 D	6	599	2580 D	39	< 0.05	102 D	< 0.50	< 0.1	< 0.001
0627	N	4/6/2010	6,833.67	6.91	7.12	4540 D	510 D	220	451 D	6	625	2430 D	40	< 0.05	102 D	< 0.50	< 0.1	< 0.001
0627	N	7/13/2010	6,833.57	6.72	7.29	4570 D	536	242	487	6	614	2370 D	39 D	< 0.05	96 D	< 0.50	0.1	< 0.001
0627	N	10/5/2010	6,833.47	6.94	7.59	4550 D	524	230	478	6	618	2410 D	38 D	0.06	97 D	< 0.50	< 0.1	< 0.001
0627	N	1/4/2011	6,833.42	6.85	7.47	4300 D	526	238	456	6	601	2350 D	40 D	< 0.05	85 D	< 0.50	< 0.1	< 0.001
0627	N	4/5/2011	6,833.32	6.86	7.12	4320 D	530	231	503	6	594	2390 D	38 D	< 0.05	94 D	< 0.50	< 0.1	< 0.001
0627	N	7/12/2011	6,833.17	6.98	7.67	4330 D	538	239	490	6	599	2350 D	37 D	< 0.1	101 D	< 0.50	< 0.1	< 0.001
0627	N	10/4/2011	6,833.11	6.99	7.7	4260 D	509	227	460	6	559	2420 D	39 D	< 0.1	96 D	< 0.50	< 0.1	< 0.001
0627	N	1/3/2012	6,832.82	7.12	7.07 H	4250 D	552	238	445	7	552	2300 D	38 D	< 0.05	94 D	< 0.50	< 0.1	< 0.001
0627	N	4/3/2012	6,832.87	7.01	6.91 H	4360 D	556	213	400	6	589	2310 D	38 D	< 0.05	91 D	< 0.50	< 0.1	< 0.01
0627	N	7/10/2012	6,832.62	6.86	7.00 H	4380	542	242	460 D	6	585	2270 D	37 D	< 0.05	96 D	< 0.50	< 0.1	< 0.001
0627	N	10/9/2012	6,832.52	7.03	6.97 H	4510	555	231	443 D	7	609	2280 D	39 D	< 0.05	89 D	< 0.50	< 0.1	< 0.001
0632	N	7/19/1989	6,874.20	6.5	6.77	6819	788	667	330	9.2	2123	2840	242	0.5	107	< 1	< 0.1	< 0.001
0632	N	10/16/1989	6,874.00	6.8	7.1	6466	781	671	408	10.7	2257	2578	246	0.47	95	< 1	< 0.1	< 0.001
0632	N	1/10/1990	6,872.30	6.4	6.54	6860	783	712	407	8.35	2111	2747	251	0.43	83	< 1	< 0.1	< 0.001
0632	N	4/10/1990	6,870.40	6.3	7.16	6977	778	688	380	7.4	2208	2677	258	0.44	107	< 1	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0627	N	7/18/2006	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0245	0.4	2.2	2.6	< 0.2	< 1.0	2
0627	N	10/3/2006	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0235	0.7	< 1	0.7	< 0.2	< 1	< 1
0627	N	1/9/2007	<0.01	<0.005	<0.01	<0.05	<0.01	<0.1	<0.05	<0.001	<0.1	0.0228	<0.2	<1	0	<0.2	<1	<1
0627	N	4/10/2007	<0.01	<0.005	<0.01	<0.05	<0.01	<0.1	<0.05	<0.001	<0.1	0.0252	<0.2	<1	0	<0.2	<1	<1
0627	N	7/10/2007	<0.01	<0.005	<0.01	<0.05	<0.01	<0.1	<0.05	<0.001	<0.1	0.0246	<0.2	<1	0	<0.2	<1	<1
0627	N	10/2/2007	<0.01	<0.005	<0.01	<0.05	<0.01	<0.1	<0.05	<0.001	<0.1	0.0243	<0.2	<1	0	<0.2	<1	<1
0627	N	1/15/2008	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0224	< 0.2	< 1	0	< 0.2	< 1	< 1
0627	N	4/8/2008	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0227	0.003 U	-0.7 U	-0.697	0.2	0 U	1 U
0627	N	7/8/2008	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0214	0.35	1.2 U	1.55	0.3	-0.2 U	0.6 U
0627	N	10/7/2008	< 0.01	< 0.005	< 0.01	< 0.05	0.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0201	0.05 U	0.06 U	0.11	-0.1 U	0 U	1
0627	N	1/13/2009	<0.01	<0.005	<0.01	<0.05	0.09	<0.1	<0.05	<0.001	<0.1	0.0215	0.07 U	0.61 U	0.68	-0.2 U	-1 U	1.4
0627	N	4/7/2009	<0.01	<0.005	<0.01	<0.05	0.03	<0.1	<0.05	0.001	<0.1	0.0196	0.16 U	0.52 U	0.68	0.02 U	0.6 U	0.4 U
0627	N	7/7/2009	<0.01	<0.005	<0.01	<0.05	0.02	<0.1	<0.05	<0.001	<0.1	0.0198	0.06 U	0.89 U	0.95	0.01 U	-1 U	0.8
0627	N	10/6/2009	<0.01	<0.005	<0.01	<0.05	0.02	<0.1	<0.05	<0.001	<0.1	0.0213	0.36	0.81 U	1.17	0.02 U	-1 U	0.6 U
0627	N	1/5/2010	<0.01	<0.005	<0.01	<0.05	0.02	<0.1	<0.05	<0.001	<0.1	0.0188	-0.02 U	0.10 U	0.08	0.05 U	-2 U	0.7 U
0627	N	4/6/2010	<0.01	<0.005	<0.01	<0.05	<0.01	<0.1	<0.05	<0.001	<0.1	0.0196	0.33	0.19 U	0.52	0.01 U	2.6 U	0.2 U
0627	N	7/13/2010	<0.01	<0.005	<0.01	<0.05	0.01	<0.1	<0.05	<0.001	<0.1	0.0197	0.23	0.15 U	0.38	0.04 U	0.7 U	-0.1 U
0627	N	10/5/2010	<0.01	<0.005	<0.01	<0.05	0.05	<0.1	<0.05	<0.001	<0.1	0.0209	-0.05 U	0.70 U	0.65	0.06 U	1.6 U	0.3 U
0627	N	1/4/2011	<0.01	<0.005	<0.01	<0.05	0.03	<0.1	<0.05	<0.001	<0.1	0.0201	0.14 U	0.60 U	0.74	0.09 U	0.4 U	0.08 U
0627	N	4/5/2011	<0.01	<0.005	<0.01	<0.05	0.03	<0.1	<0.05	<0.001	<0.1	0.0189	0.009 U	0.34 U	0.349	0.005 U	0.2 U	0.09 U
0627	N	7/12/2011	<0.01	<0.005	<0.01	<0.05	0.02	<0.1	<0.05	<0.001	<0.1	0.0198	0.16	0.28 U	0.44	0.04 U	0.7 U	0.4 U
0627	N	10/4/2011	<0.01	<0.005	<0.01	<0.05	0.02	<0.1	<0.05	<0.001	<0.1	0.0184	0.15	0.06 U	0.21	0.03 U	0.9 U	-0.009 U
0627	N	1/3/2012	<0.01	<0.005	<0.01	<0.05	0.02	<0.1	<0.05	<0.001	<0.1	0.0192	0.57	-0.1 U	0.57	0.05 U	1.2 U	0.5
0627	N	4/3/2012	<0.01	<0.005	<0.01	<0.05	0.02	<0.1	<0.05	<0.001	<0.1	0.0208	0.06 U	0.39 U	0.84	0.005 U	0.2 U	0.2 U
0627	N	7/10/2012	<0.001	<0.005	<0.01	0.001	0.07	<0.1	<0.05	<0.001	<0.1	0.0183	0.17	0.19 U	0.55	0.02 U	1 U	0.07 U
0627	N	10/9/2012	<0.001	<0.005	<0.01	<0.001	0.03	<0.1	<0.05	<0.001	<0.1	0.0199	0.24	0.23 U	0.24	0.2	0.7 U	0.3 U
0632	N	7/19/1989	< 0.05	< 0.01	< 0.01	< 0.05	0.15	< 0.1	< 0.05	0.004	< 0.1	0.111	1.7	1.7	3.4	1.1	< 1	4.1
0632	N	10/16/1989	< 0.05	< 0.01	< 0.01	< 0.05	0.12	< 0.1	< 0.05	0.003	< 0.1	0.111	1.5	1.4	2.9	< 0.2	< 1	< 1
0632	N	1/10/1990	< 0.05	< 0.01	0.04	< 0.05	0.15	< 0.1	0.07	0.003	< 0.1	0.084	1	1.6	2.6	< 0.2	< 1	1.2
0632	N	4/10/1990	< 0.05	< 0.01	0.03	< 0.05	0.24	< 0.1	< 0.05	0.003	< 0.1	0.084	1	1.6	2.6	< 0.2	< 1	1.2



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water Elevation ft amsl	Field pH SU	Lab pH SU	Lab TDS mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NH4 as N mg/l	NO3 as N mg/l	TTHMs (Chloroform) ug/l	Al mg/l	As mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0632	N	7/10/1990	6,871.10	6.3	6.86	7355	819	674	412	7.9	2296	3007	248	0.37	124	< 1	< 0.1	< 0.001
0632	N	10/9/1990	6,870.40	6.2	7.27	7558	839	707	433	9	2239	2945	258	0.52	106	< 1	< 0.1	< 0.001
0632	N	1/10/1991	6,869.90	6.3	7.18	7367	900	760	429	8.9	2184	3027	267	0.4	113	< 1	< 0.1	0.002
0632	N	4/11/1991	6,869.90	6.2	7.36	7346	857	663	451	9.4	2285	3053	274	0.37	146	< 1	< 0.1	0.002
0632	N	7/9/1991	6,868.30	6.3	6.68	7472	833	636	390	6.9	2336	2964	273	0.61	117	< 1	0.14	< 0.001
0632	N	10/17/1991	6,867.50	6.1	7.08	7677	886	630	426	8.4	2510	2959	267	0.72	87.6	< 1	< 0.1	0.001
0632	N	1/21/1992	6,867.60	6.2	6.95	7030	747	758	424	7.2	2211	3200	261	0.6	76.1	< 1	< 0.1	< 0.001
0632	N	4/14/1992	6,868.30	6.1	7.56	7706	677	557	460	9.1	2184	3126	263	0.55	75.7	< 1	< 0.1	0.002
0632	N	7/14/1992	6,864.50	6	8.05	6323	815	547	451	11.3	1568	2948	265	0.36	119	< 1	< 0.1	0.001
0632	N	10/13/1992	6,863.00	6.4	7.02	6472	719	594	417	7.4	2495	2903	269	0.18	89.5	< 1	< 0.1	< 0.001
0632	N	1/12/1993	6,864.80	6.4	7.02	5933	750	571	438	11.2	1220	3037	265	0.24	92.7	< 1	< 0.1	< 0.001
0632	N	4/14/1993	6,865.60	6.4	7.11	6925	696	633	433	6.7	2113	2962	269	0.31	95.3	< 1	< 0.1	< 0.001
0632	N	7/15/1993	6,862.20	6.4	6.72	6303	701	607	426	9.1	2098	3107	264	0.19	62.1	< 1	< 0.1	< 0.001
0632	N	10/7/1993	6,860.40	6.5	7.1	5715	676	555	384	6.6	2240	2392	255	0.13	56.6	< 1	< 0.1	< 0.001
0632	N	1/6/1994	6,862.40	6.5	7.51	6091	690	549	409	6.9	1984	2705	252	0.17	36.5	1	< 0.1	< 0.001
0632	N	4/14/1994	6,862.50	6.4	6.74	5930	683	579	426	7.8	2063	2807	251	0.33	25.9	< 1	< 0.1	< 0.001
0632	N	7/21/1994	6,862.70	6.4	7.19	6160	745	632	383	7.5	2123	3080	246	0.23	30.3	< 1	< 0.1	0.002
0632	N	10/5/1994	6,861.10	6.3	7.47	6288	692	619	431	8.1	2200	2689	255	0.23	20.9	< 1	< 0.1	< 0.001
0632	N	1/10/1995	6,861.70	6.4	7.45	6458	708	655	348	8.2	2184	2857	250	0.41	21.9	< 1	< 0.1	< 0.001
0632	N	4/5/1995	6,860.90	6.5	6.93	6453	685	650	420	10.8	2119	2905	250	2.51	23.9	< 1	< 0.1	< 0.001
0632	N	7/6/1995	6,860.30	6.4	7.52	6335	696	646	393	8.5	2281	2647	285	0.43	24.1	< 1	< 0.1	< 0.001
0632	N	10/3/1995	6,860.30	6.3	7.52	6319	695	585	374	8.2	2247	2745	250	0.44	16.8	< 1	< 0.1	0.003
0632	N	1/4/1996	6,859.10	6.5	7.59	6294	760	625	378	7.9	2239	2595	250	0.22	16.4	< 1	< 0.1	< 0.001
0632	N	4/2/1996	6,859.30	6.6	7.82	5940	650	585	384	8.1	1807	2715	278	0.26	17.4	< 1	< 0.1	< 0.001
0632	N	7/7/1996	6,858.80	6.4	7.4	6258	671	589	397	8.8	2035	2749	233	0.29	10.9	1.68	< 0.1	0.014
0632	N	10/1/1996	6,859.30	6.5	6.92	6280	676	602	396	8.5	2050	2758	255	0.2	11.5	1	< 0.1	0.001
0632	N	1/22/1997	6,858.60	6.5	7.49	6120	670	590	379	8.7	2130	2740	285	0.2	10	1.1	< 0.1	< 0.001
0632	N	4/8/1997	6,858.30	6.5	7.75	6180	679	591	369	8.6	2010	2694	287	0.2	9.8	1.05	< 0.1	< 0.001
0632	N	7/8/1997	6,858.80	6.8	7.64	6330	707	613	362	8.5	2020	2560	264	0.18	8.15	1.14	< 0.1	< 0.001
0632	N	10/7/1997	6,858.40	6.4	7.63	6170	679	592	369	8.4	2020	2740	290	0.12	6.37	1.48	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0632	N	7/10/1990	< 0.05	< 0.01	0.01	< 0.05	0.27	< 0.1	< 0.05	0.004	< 0.1	0.0785	1	1.8	2.8	< 0.2	< 1	1
0632	N	10/9/1990	< 0.05	< 0.01	0.02	< 0.05	0.22	< 0.1	< 0.05	0.003	< 0.1	0.1312	0.5	2.3	2.8	< 0.2	< 1	< 1
0632	N	1/10/1991	< 0.01	< 0.01	0.02	< 0.05	0.25	< 0.1	0.05	0.005	< 0.1	0.0795	2.2	< 1	2.2	< 0.2	< 1	2.7
0632	N	4/11/1991	< 0.01	< 0.01	0.02	< 0.05	0.29	< 0.1	< 0.05	0.005	< 0.1	0.0931	1.1	< 1	1.1	< 0.2	< 1	1
0632	N	7/9/1991	< 0.01	< 0.01	< 0.01	< 0.05	0.25	< 0.1	< 0.05	0.003	< 0.1	0.0818	0.7	1.8	2.5	< 0.2	< 1	< 1
0632	N	10/17/1991	< 0.01	< 0.01	< 0.01	< 0.05	0.43	< 0.1	< 0.05	0.018	< 0.1	0.169	0.8	< 1	0.8	< 0.2	1.6	< 1
0632	N	1/21/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.25	< 0.1	< 0.05	0.004	< 0.1	0.072	1.2	2.6	3.8	< 0.2	< 1	1
0632	N	4/14/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.28	< 0.1	< 0.05	0.008	< 0.1	0.08	0.9	3.7	4.6	< 0.2	1.6	< 1
0632	N	7/14/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.16	< 0.1	< 0.05	0.003	< 0.1	0.095	2.2	1.1	3.3	< 0.2	4.2	2.5
0632	N	10/13/1992	< 0.01	< 0.01	0.02	< 0.05	0.16	< 0.1	< 0.05	0.003	< 0.1	0.147	1.3	6.4	7.7	< 0.2	< 1	1.5
0632	N	1/12/1993	< 0.01	< 0.01	< 0.01	< 0.05	1.85	< 0.1	< 0.05	0.004	< 0.1	0.068	1.1	4.5	5.6	< 0.2	< 1	1.5
0632	N	4/14/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.32	< 0.1	< 0.05	0.002	< 0.1	0.113	6.4	2	8.4	1.3	1.2	8.1
0632	N	7/15/1993	< 0.01	< 0.01	0.01	< 0.05	0.18	< 0.1	< 0.05	0.005	< 0.1	0.082	1.2	< 1	1.2	< 0.2	< 1	1.5
0632	N	10/7/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.27	< 0.1	< 0.05	0.003	< 0.1	0.093	1.8	1.1	2.9	< 0.2	1.2	1.8
0632	N	1/6/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.34	< 0.1	< 0.05	< 0.001	< 0.1	0.082	1.6	3.4	5	< 0.2	< 1	7.7
0632	N	4/14/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.37	< 0.1	< 0.05	0.001	< 0.1	0.088	1.7	2.4	4.1	< 0.2	2.4	5.5
0632	N	7/21/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.39	< 0.1	< 0.05	0.002	< 0.1	0.09	0.9	5.1	6	< 0.2	< 1	8.7
0632	N	10/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.42	< 0.1	< 0.05	< 0.001	< 0.1	0.08	1	< 1	1	< 0.2	3.6	1.2
0632	N	1/10/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.43	< 0.1	< 0.05	< 0.001	< 0.1	0.086	2	< 1	2	< 0.2	1.7	3.7
0632	N	4/5/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.52	< 0.1	< 0.05	0.002	< 0.1	0.077	1.2	3.1	4.3	< 0.2	1.1	6
0632	N	7/6/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.5	< 0.1	< 0.05	0.002	< 0.1	0.0954	1.6	< 1	1.6	0.4	< 1	4.2
0632	N	10/3/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.11	< 0.1	< 0.05	< 0.001	< 0.1	0.0899	1.1	< 1	1.1	< 0.2	3.3	2.6
0632	N	1/4/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.74	< 0.1	< 0.05	< 0.001	< 0.1	0.092	1	1.1	2.1	0.3	1.2	1.8
0632	N	4/2/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.55	< 0.1	< 0.05	< 0.001	< 0.1	0.09	1.7	< 1	1.7	< 0.2	< 1	5.8
0632	N	7/7/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.61	< 0.1	< 0.05	0.012	< 0.1	0.092	0.8	< 1	0.8	< 0.2	< 1	< 1
0632	N	10/1/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.57	< 0.1	< 0.05	0.002	< 0.1	0.078	0.8	< 1	0.8	< 0.2	< 1	3.4
0632	N	1/22/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.63	< 0.1	< 0.05	< 0.001	< 0.1	0.077	1.4	< 1	1.4	< 0.2	< 1	< 1
0632	N	4/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.63	< 0.1	< 0.05	< 0.001	< 0.1	0.088	1	3.2	4.2	< 0.2	< 1	< 1
0632	N	7/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.57	< 0.1	< 0.05	< 0.001	< 0.1	0.077	0.8	5	5.8	< 0.2	< 1	< 1
0632	N	10/7/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.82	< 0.1	< 0.05	< 0.001	< 0.1	0.075	0.7	< 1	0.7	< 0.2	< 1	< 1



TABLE A.1

Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water Elevation	Field pH	Lab pH	Lab TDS	Ca	Mg	Na	K	HCO <sub>3</sub>	SO <sub>4</sub>	Cl	NH <sub>4</sub> as N	NO <sub>3</sub> as N	TTHMs (Chloroform)	Al	As
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0632	N	1/16/1998	6,858.10	6.6	7.68	6170	660	573	383	9.3	2020	2900	288	0.27	7.24	1.9	< 0.1	< 0.001
0632	N	4/7/1998	6,857.90	6.5	7.39	5970	681	594	385	8.4	2030	2500	234	0.1	7.95	1.9	< 0.1	< 0.001
0632	N	7/7/1998	6,858.10	6.7	7.81	6250	658	594	392	8.5	1880	2600	264	0.26	5	2.3	< 0.1	< 0.001
0632	N	10/6/1998	6,859.00	6.58	7.71	6200	664	598	401	9.1	1820	2730	279	0.22	7.89	2.4	< 0.1	< 0.001
0632	N	1/5/1999	6,857.40	6.7	7.82	6200	629	559	331	8.6	1930	2440	242	0.21	5.94	1.6	< 0.1	< 0.001
0632	N	4/6/1999	6,857.30	6.6	7.9	6320	662	594	354	8.1	1890	2720	251	0.21	6.37	1.5	< 0.1	< 0.001
0632	N	7/13/1999	6,857.09	6.3	7.78	6140	651	602	336	14.3	1910	2830	244	0.21	5.72	1.8	< 0.1	< 0.001
0632	N	10/5/1999	6,858.10	6.6	7.75	6060	691	667	375	8.3	1850	3140	235	0.16	6.03	2.1	< 0.1	< 0.001
0632	N	1/4/2000	6,857.60	6.6	7.93	6210	581	555	283	10.8	1790	2610	217	0.24	4.44	2	< 0.1	< 0.001
0632	N	5/8/2000	6,856.90	6.3	7.6	6020	579	560	366	8.3	1800	2640	238	0.05	2.44	2.8	< 0.1	< 0.001
0632	N	7/12/2000	6,856.90	6.25	6.98	6070	595	580	366	8.09	1810	2510	239	0.08	2.92	2	< 0.1	< 0.001
0632	N	10/3/2000	6,856.70	6.28	7.18	6020	622	610	240	9.7	1780	2820	230	0.07	3.17	2.5	< 0.1	< 0.001
0632	N	1/8/2001	6,858.50	6.38	7.38	6180	624	612	347	8.7	1740	3020	223	0.17	2.69	3.5	< 0.1	< 0.001
0632	N	2/5/2001	6,859.80	6.55	7.04	6410	729	701	428	10.3	1660	3420	233	0.35	5.9	2.8	< 0.1	< 0.001
0632	N	3/6/2001	6,860.20	6.51	7.31	6100	630	653	450	10.3	1640	3400	199	0.34	12.7	3.2	< 0.1	< 0.001
0632	N	4/3/2001	6,860.70	6.45	7.17	6800	710	713	359	8.1	1600	3370	228	0.33	21.6	3.49	< 0.1	< 0.001
0632	N	5/7/2001	6,860.90	6.3	7.41	6860	625	650	410	8.7	1600	3000	244	0.36	26.5	1.9	< 0.1	< 0.001
0632	N	6/4/2001	6,861.20	6.36	7.22	6620	622	663	316	8.9	1580	3180	246	0.38	32.7	3.1	< 0.1	< 0.001
0632	N	7/9/2001	6,861.43	6.84	7.08	6990	682	742	348	8.5	1680	3260	253	0.33	35.9	3.1	< 0.1	< 0.001
0632	N	8/6/2001	6,861.39	6.27	7.2	7000	620	680	340	9	1670	3000	300	0.31	34.2	2.7	< 0.1	< 0.001
0632	N	9/10/2001	6,861.60	6.25	7	7020	630	700	355	9.4	1700	3100	273	0.32	45.3	2.46	< 0.1	< 0.001
0632	N	10/1/2001	6,861.65	6.35	7.4	7080	610	690	336	10.1	1730	2900	311	0.28	40.2	1.95	< 0.1	< 0.001
0632	N	11/5/2001	6,861.80	6.34	7.5	7060	669	732	360	10	1680	3390	293	0.3	43.2	2.4	< 0.1	< 0.001
0632	N	12/3/2001	6,861.90	6.37	6.8	7100	613	671	309	8.7	1740	3000	272	0.33	46	1.8	< 0.1	< 0.001
0632	N	1/8/2002	6,862.00	6.45	7	7020	719	748	289	10.5	1700	3530	294	0.33	40.2	2.4	< 0.1	< 0.001
0632	N	2/4/2002	6,862.10	6.37	7	7070	690	717	332	10.1	1720	3330	292	0.37	41.1	2.36	< 0.1	< 0.001
0632	N	3/4/2002	6,862.05	6.36	7.1	7080	649	721	376	9.4	1690	3460	278	0.32	44	2.5	< 0.1	< 0.001
0632	N	4/2/2002	6,862.31	6.32	7.04	7140	674	733	378	11.8	1730	3530	280	0.34	42.5	2.7	< 0.1	< 0.001
0632	N	5/6/2002	6,862.32	6.22	7.16	7130	649	715	388	10.7	1720	3270	260	0.34	43.7	2.4	< 0.1	< 0.001
0632	N	6/3/2002	6,862.41	6.24	7.3	7150	645	717	349	8.9	1710	3290	240	0.34	45.1	2.8	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0632	N	1/16/1998	< 0.01	< 0.01	< 0.01	< 0.05	0.75	< 0.1	< 0.05	< 0.001	< 0.1	0.089	0.9	< 1	0.9	< 0.2	< 1	2
0632	N	4/7/1998	< 0.1	< 0.005	< 0.01	< 0.05	0.71	< 0.1	< 0.05	0.005	< 0.1	0.086	1.6	< 1	1.6	< 0.2	< 1	< 1
0632	N	7/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.72	< 0.1	< 0.05	< 0.001	< 0.1	0.0859	1.7	3.4	5.1	< 0.2	< 1	< 1
0632	N	10/6/1998	< 0.01	< 0.005	< 0.01	< 0.05	0.74	< 0.1	< 0.05	< 0.001	< 0.1	0.144	1.3	< 1	1.3	< 0.2	< 1	< 1
0632	N	1/5/1999	< 0.01	< 0.005	< 0.01	< 0.05	0.66	< 0.1	< 0.05	< 0.001	< 0.1	0.0817	< 0.2	< 1	0	< 0.2	< 1	< 1
0632	N	4/6/1999	< 0.01	0.008	< 0.01	< 0.05	0.7	< 0.1	< 0.05	< 0.001	< 0.1	0.124	1.7	< 1	1.7	< 0.2	< 1	< 1
0632	N	7/13/1999	< 0.01	< 0.005	< 0.01	< 0.05	0.72	< 0.1	< 0.05	< 0.001	< 0.1	0.0775	0.5	< 1	0.5	< 0.2	2.9	3.5
0632	N	10/5/1999	< 0.01	0.006	< 0.01	< 0.05	0.85	< 0.1	< 0.05	0.001	< 0.1	0.0795	2.1	< 1	2.1	< 0.2	< 1	1.6
0632	N	1/4/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.87	< 0.1	0.05	0.001	< 0.1	0.0704	1.3	< 1	1.3	< 0.2	< 1	2.1
0632	N	5/8/2000	< 0.01	< 0.005	< 0.01	< 0.05	1.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0774	0.5	< 1	0.5	< 0.2	< 1	< 1
0632	N	7/12/2000	< 0.01	< 0.005	< 0.01	< 0.05	0.79	< 0.1	< 0.05	< 0.001	< 0.1	0.0739	0.9	2.1	3	< 0.2	< 1	< 1
0632	N	10/3/2000	< 0.01	< 0.005	< 0.01	0.06	0.73	< 0.1	< 0.05	0.001	< 0.1	0.018	0.8	< 1	0.8	< 0.2	< 1	< 1
0632	N	1/8/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.85	< 0.1	< 0.05	0.001	< 0.1	0.064	0.7	1.9	2.6	< 0.2	< 1	< 1
0632	N	2/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.85	< 0.1	< 0.05	< 0.001	< 0.1	0.066	1.2	2.4	3.6	< 0.2	< 1	< 1
0632	N	3/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.92	< 0.1	< 0.05	< 0.001	< 0.1	0.0601	1	< 1	1	< 0.2	< 1	< 1
0632	N	4/3/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.87	< 0.1	< 0.05	< 0.001	< 0.1	0.059	1.1	< 1	1.1	< 0.2	< 1	1.7
0632	N	5/7/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.95	< 0.1	< 0.05	< 0.001	< 0.1	0.062	< 0.2	< 1	0	< 0.2	< 1	< 1
0632	N	6/4/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.98	< 0.1	< 0.05	0.004	< 0.1	0.06	1.4	3.1	4.5	< 0.2	< 1	< 1
0632	N	7/9/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.97	< 0.1	< 0.05	< 0.001	< 0.1	0.0632	1.1	< 1	1.1	< 0.2	< 1	< 1
0632	N	8/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	1.1	< 0.1	< 0.05	< 0.001	< 0.1	0.072	0.7	2.2	2.9	< 0.2	< 1	< 1
0632	N	9/10/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.91	< 0.1	< 0.05	< 0.001	< 0.1	0.0582	1	2.7	3.7	< 0.2	< 1	< 1
0632	N	10/1/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.85	< 0.1	< 0.05	< 0.001	< 0.1	0.0608	1.1	< 1	1.1	< 0.2	< 1	< 1
0632	N	11/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.97	< 0.1	< 0.05	< 0.001	< 0.1	0.0542	1	< 1	1	< 0.2	< 1	< 1
0632	N	12/3/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.87	< 0.1	< 0.05	< 0.001	< 0.1	0.0577	0.9	3.4	4.3	< 0.2	< 1	< 1
0632	N	1/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.95	< 0.1	< 0.05	< 0.001	< 0.1	0.0575	1.2	1.2	2.4	< 0.2	< 1	3.2
0632	N	2/4/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.92	< 0.1	< 0.05	< 0.001	< 0.1	0.051	1.3	1.8	3.1	< 0.2	< 1	< 1
0632	N	3/4/2002	< 0.01	< 0.005	< 0.01	< 0.05	1.08	< 0.1	< 0.05	< 0.001	< 0.1	0.066	0.6	< 1	0.6	< 0.2	< 1	1.8
0632	N	4/2/2002	< 0.01	< 0.005	< 0.01	< 0.05	1.13	< 0.1	< 0.05	< 0.001	< 0.1	0.059	1.3	2.9	4.2	< 0.2	< 1	< 1
0632	N	5/6/2002	< 0.01	< 0.005	< 0.01	< 0.05	1.12	< 0.1	< 0.05	< 0.001	< 0.1	0.0636	0.8	2.2	3	< 0.2	< 1	2.1
0632	N	6/3/2002	< 0.01	< 0.005	< 0.01	< 0.05	1	< 0.1	< 0.05	< 0.001	< 0.1	0.058	0.6	< 1	0.6	< 0.2	< 1	< 1



TABLE A.1

Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water Elevation ft amsl	Field pH SU	Lab pH SU	Lab TDS mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NH4 as N mg/l	NO3 as N mg/l	TTHMs (Chloroform) ug/l	Al mg/l	As mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0632	N	7/8/2002	6,862.21	6.47	7.75	7200	645	761	292	11.4	1710	3490	229	0.36	43.3	2.4	< 0.1	< 0.001
0632	N	10/8/2002	6,862.08	6.61	7.29	7100	578	685	356	8.7	1700	3150	221	0.3	45.7	2.6	< 0.1	< 0.001
0632	N	1/6/2003	6,861.98	6.61	7.52	7170	637	798	424	9.7	1660	3620	232	0.44	45.2	2.2	< 0.1	< 0.001
0632	N	4/7/2003	6,862.11	6.29	7.15	7210	607	744	388	12.6	1670	3070	242	0.4	48	2.4	< 0.1	< 0.001
0632	N	7/7/2003	6,862.04	6.19	6.74	5700	593	726	340	12.2	1700	3330	217	0.42	49.2	0.2	< 0.1	< 0.001
0632	N	10/7/2003	6,861.84	6.18	7.7	7310	644	812	394	9.4	1690	3610	250	0.44	49.5	2.4	< 0.1	< 0.001
0632	N	1/5/2004	6,861.76	6.36	7.36	7200	652	824	353	10	1720	3700	263	0.44	54.2 D	2.6	0.2	< 0.001
0632	N	4/5/2004	6,862.09	6.54	6.63	7320	616	788	364	10.4	1760	3380 D	243	0.67	56.9 D	2.5	< 0.1	< 0.001
0632	N	7/12/2004	6,861.69	6.16	6.77	7400	635	777	420	11.1	1740	3370 D	249	0.49	54.2 D	2	< 0.1	< 0.001
0632	N	10/4/2004	6,861.41	6.19	6.89	7470	738 D	945 D	395	9.3	1750	4020 D	252	0.33	59.5 D	2.6	< 0.1	< 0.001
0632	N	1/3/2005	6,861.60	6.49	6.81	7400	626 D	795 D	387	9.4	1770	3230 D	233	0.45	60.1 D	2.5	< 0.1	< 0.001
0632	N	4/5/2005	6,861.45	6.46	7.01	6980	634	811	392	9	1820	3330	237	0.5	60.5	2.7	< 0.1	< 0.001
0632	N	7/11/2005	6,861.37	6.36	7.25	7240	610	811 D	389	9.6	1780	3360 D	284	0.53	63.6 D	3.6	< 0.1	< 0.001
0632	N	10/4/2005	6,861.11	6.39	7.03	7210	626 D	792 D	399	9.2	1860	3350 D	244	0.49	58 D	2.9	< 0.1	< 0.001
0632	N	1/9/2006	6,860.99	6.47	7.11	7260	572	772 D	385	8.8	1890	3090 D	232	0.64	66.1 D	2.8	< 0.1	< 0.001
0632	N	4/3/2006	6,861.04	6.27	7.04	7140	632 D	808 D	391	9.6	1860	3290 D	234	0.64	68.1 D	2.7	< 0.1	< 0.001
0632	N	7/17/2006	6,860.79	6.26	6.63	7070	644 D	829 D	418	10.5	1880	3590 D	241	0.58	67.5 D	2.9	< 0.1	< 0.001
0632	N	10/2/2006	6,860.67	6.37	6.66	7120	616 D	784 D	357	10.3	1920	3230 D	188	0.73	64.9 D	2.89	0.2	< 0.001
0632	N	1/8/2007	6,860.61	6.38	6.66	7430	629 D	813 D	368	11.2	1890	3420 D	236	0.75	69.5 D	3.02	< 0.1	< 0.001
0632	N	4/9/2007	6,860.87	6.47	6.64	7190	608 D	782 D	346	12.2	1930	3290 D	240	0.64	75 D	2.59	< 0.1	< 0.001
0632	N	7/9/2007	6,860.59	6.29	6.64	7200	605 D	820 D	410 D	10.9 D	2030	3400 D	140	0.62	78 D	3.56	< 0.1	0.01
0632	N	10/2/2007	6,860.32	6.29	6.62	7350	568 D	774 D	388 D	10.9	1970	3210 D	259 D	0.61	70 D	3.57	< 0.1	< 0.001
0632	N	1/15/2008	6,860.29	6.39	6.58	7350 H	551 D	738 D	366 D	10.3	1910	3000 D	248 D	0.7	68 D	3.6	< 0.1	< 0.001
0632	N	4/7/2008	6,860.49	6.32	6.75	6910	647 D	870 D	436 D	12.6 D	1830	3550 D	231	0.6 D	113 D	3.3	< 0.1	< 0.001
0632	N	7/7/2008	6,860.29	6.16	6.74 H	7090 H	618	802	377 D	9	1910	3500 D	241	0.56	122 D	4.56	< 0.1	< 0.003
0632	N	10/6/2008	6,859.79	6.21	6.81	7220	605	826	384 D	9	1870	3760 D	227	0.7	96.3 D	3.03	< 0.1	< 0.001
0632	N	1/12/2009	6,859.74	6.23	6.62	7460	598	906	429	10	1920	3290 D	226	0.28	114 D	3.52	< 0.1	< 0.001
0632	N	4/6/2009	6,859.64	6.29	6.43	7370	580 D	820 D	423 D	9	1960	3460 D	237	0.38	77.3 D	3.96	< 0.1	< 0.001
0632	N	7/6/2009	6,859.59	6.25	6.59	7280 H	628 D	817	393 D	10	1920	3910 D	258	0.74	68 D	2.86	< 0.1	< 0.001
0632	N	10/6/2009	6,859.09	6.24	7.37	7240	589 D	776	390 D	9	1970	3610 D	258	0.64	80 D	3.06	0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0632	N	7/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.96	< 0.1	< 0.05	< 0.001	< 0.1	0.0708	1	< 1	1	< 0.2	< 1	< 1
0632	N	10/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	1.07	< 0.1	< 0.05	< 0.001	< 0.1	0.0521	2.1	< 1	2.1	< 0.2	< 1	< 1
0632	N	1/6/2003	< 0.01	< 0.005	< 0.01	< 0.05	1.04	< 0.1	< 0.05	< 0.001	< 0.1	0.0636	1	< 1	1	< 0.2	< 1	1.8
0632	N	4/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	1.22	< 0.1	< 0.05	< 0.001	< 0.1	0.0646	0.8	< 1	0.8	< 0.2	< 1	< 1.0
0632	N	7/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	1.27	< 0.1	< 0.05	< 0.001	< 0.1	0.0593	0.8	< 1	0.8	< 0.2	< 1	2
0632	N	10/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	1.24	< 0.1	< 0.05	< 0.001	< 0.1	0.07	0.5	< 1	0.5	< 0.2	< 1	1.6
0632	N	1/5/2004	< 0.01	< 0.005	< 0.01	< 0.05	1.44	< 0.1	< 0.05	< 0.001	< 0.1	0.0625 D	1.1	< 1.0	1.1	< 0.2	< 1.0	1.5
0632	N	4/5/2004	< 0.01	< 0.005	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.001	< 0.1	< 0.0008 D	0.5	< 1	0.5	< 0.2	< 1	< 1
0632	N	7/12/2004	< 0.01	< 0.005	< 0.01	< 0.05	1.35	< 0.1	< 0.05	< 0.001	< 0.1	0.0678 D	1.2	6.4	7.6	< 0.2	< 1.0	1.5
0632	N	10/4/2004	< 0.01	< 0.005	< 0.01	< 0.05	1.42	< 0.1	< 0.05	< 0.001	< 0.1	0.0652 D	2.3	3.5	5.8	< 0.2	< 1.0	1.1
0632	N	1/3/2005	< 0.01	< 0.005	< 0.01	< 0.05	1.45	< 0.1	< 0.05	< 0.001	< 0.1	0.0755	1.4	1.5	2.9	< 0.2	< 1.0	3.2
0632	N	4/5/2005	< 0.01	< 0.005	< 0.01	< 0.05	1.4	< 0.1	< 0.05	< 0.001	< 0.1	0.0768	1.2	< 1.0	1.2	< 0.2	< 1.0	< 1.0
0632	N	7/11/2005	< 0.01	< 0.005	< 0.01	< 0.05	1.72	< 0.1	< 0.05	< 0.001	< 0.1	0.0734	1.3	< 1.0	1.3	< 0.2	< 1.0	1.3
0632	N	10/4/2005	< 0.01	< 0.005	< 0.01	< 0.05	1.62	< 0.1	< 0.05	< 0.001	< 0.1	0.0880 D	0.6	3.3	3.9	< 0.2	< 1.0	2.4
0632	N	1/9/2006	< 0.01	< 0.005	< 0.01	< 0.05	1.98	< 0.1	< 0.05	< 0.001	< 0.1	0.0762	0.9	< 1.0	0.9	< 0.2	< 1.0	1
0632	N	4/3/2006	< 0.01	< 0.005	< 0.01	< 0.05	1.84	< 0.1	< 0.05	< 0.001	< 0.1	0.0725 D	1.1	< 1.0	1.1	< 0.2	< 1.0	1
0632	N	7/17/2006	< 0.01	< 0.005	< 0.01	< 0.05	1.98	< 0.1	< 0.05	< 0.001	< 0.1	0.083	0.9	4.3	5.2	< 0.2	< 1.0	< 1.0
0632	N	10/2/2006	< 0.01	< 0.005	< 0.01	< 0.05	2	< 0.1	< 0.05	< 0.001	< 0.1	0.0767 D	1	1.6	2.6	< 0.2	< 1	< 1
0632	N	1/8/2007	< 0.01	< 0.005	< 0.01	< 0.05	1.98	< 0.1	< 0.05	< 0.001	< 0.1	0.0798	0.8	< 1	0.8	< 0.2	< 1	1
0632	N	4/9/2007	< 0.01	< 0.005	< 0.01	< 0.05	2.13	< 0.1	< 0.05	< 0.001	< 0.1	0.0825	0.6	< 1	0.6	< 0.2	< 1	1.4
0632	N	7/9/2007	< 0.01	< 0.005	< 0.01	< 0.05	1.99	< 0.1	< 0.05	< 0.001	< 0.1	0.0847	0.6	< 1	0.6	< 0.2	< 1	1.4
0632	N	10/2/2007	< 0.01	< 0.005	< 0.01	< 0.05	2.35	< 0.1	< 0.05	< 0.001	< 0.1	0.0819	0.7	< 1	0.7	1.6	< 1	2.4
0632	N	1/15/2008	< 0.01	< 0.005	< 0.01	< 0.05	1.94	< 0.1	< 0.05	< 0.001	< 0.1	0.0667 D	0.9	< 1	0.9	< 0.2	< 1	2
0632	N	4/7/2008	< 0.01	< 0.005	< 0.01	< 0.05	2.29	< 0.1	< 0.05	< 0.001	< 0.1	0.0836	0.8	2.5	3.3	0.6	0 U	1.7
0632	N	7/7/2008	< 0.01	< 0.005	< 0.01	< 0.05	2.63	< 0.1	< 0.05	< 0.001	< 0.1	0.0797	0.74	2.6	3.34	0.4	0.5 U	1.5
0632	N	10/6/2008	< 0.01	< 0.005	< 0.01	< 0.05	2.39	< 0.1	< 0.05	< 0.001	< 0.1	0.076	0.57	1.2 U	1.77	-0.9 U	-2 U	0.9
0632	N	1/12/2009	< 0.01	< 0.005	< 0.01	< 0.05	2.52	< 0.1	< 0.05	0.001	< 0.1	0.0411	0.67	3.2	3.87	-0.3 U	-3 U	1.8
0632	N	4/6/2009	< 0.01	< 0.005	< 0.01	< 0.05	2.63	< 0.1	< 0.05	0.002	< 0.1	0.0801	0.73	1.7	2.43	-0.2 U	-0.5 U	1.4
0632	N	7/6/2009	< 0.01	< 0.005	< 0.01	< 0.05	2.48	< 0.1	< 0.05	< 0.001	< 0.1	0.0718	0.85	2.5	3.35	0.05 U	0.2 U	1.6
0632	N	10/6/2009	< 0.01	< 0.005	< 0.01	< 0.05	2.32	< 0.1	< 0.05	< 0.001	< 0.1	0.0764	0.99	2.6	3.59	-0.02 U	-2 U	0.5 U



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Chl	NH4	NO3	TTHMs	Al	As	
			Elevation	pH	pH														
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05	
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05	
0632	N	1/4/2010	6,858.94	6.35	6.84	7470 D	603 D	786	392 D	10	2010	3650 D	240	0.68	76 D	2.77	<0.1	<0.00	
0632	N	4/5/2010	6,859.09	6.34	6.58	7380 DH	655 D	887	443 D	10	2080	3550 D	483	0.75	78 D	2.96	<0.1	<0.001	
0632	N	7/12/2010	6,858.79	6.37	6.99	7360 D	626 D	820	410 D	10	2030	3330 D	226 D	0.72	70 D	3.6	<0.1	<0.001	
0632	N	10/4/2010	6,858.59	6.41	7.42	7400 D	610 D	801	412 D	10	2020	3320 D	218 D	0.66	75 D	2.86	0.2	<0.001	
0632	N	1/4/2011	6,858.39	6.38	6.63	6780 D	602 D	818	395 D	9	1930	3380 D	238 D	0.71	64 D	2.76	0.2	<0.001	
0632	N	4/5/2011	6,858.31	6.42	6.63	7230 D	613	802	432 D	10	1910	3440 D	238 D	0.59 D	68 D	3.23	<0.1	<0.001	
0632	N	7/11/2011	6,858.16	6.48	7.31	7000 D	630	837	431 D	10	1900	3310 D	228 D	0.7 D	74 D	3.28	<0.1	<0.001	
0632	N	10/3/2011	6,857.83	6.5	7.39	7050 D	604	793	406 D	10	1790	3410 D	235 D	0.6 D	70 D	3.16	<0.1	<0.001	
0632	N	1/3/2012	6,857.77	6.59	6.67 H	7100 D	660	805	407	11	1730	3370 D	236 D	0.44	73 D	3.41	<0.1	<0.001	
0632	N	4/2/2012	6,857.69	6.65	6.54 H	7120 D	622	750	378	10	1860	3380 D	237 D	0.6	71 D	3.52	<0.1	<0.01	
0632	N	7/9/2012	6,857.39	6.39	6.61 H	7280	603	862	420 D	10	1840	3270 D	227 D	0.52	72 D	2.73	<0.1	<0.001	
0632	N	10/8/2012	6,857.19	6.51	6.56 H	6770	632	790	402 D	11	1890	3400 D	247 D	0.56	66 D	2.98	<0.1	<0.001	
0639	N	7/23/1989	6,940.70	6.9	7.16	3752	366	390	168	4.2	390	2319	33.9	0.09	3.6	< 1	< 0.1	< 0.001	
0639	N	10/8/1989	6,940.30	6.6	7.4	4076	410	375	177	6.6	448	2508	34.2	0.06	4	< 1	< 0.1	< 0.001	
0639	N	1/11/1990	6,939.60	6.7	7.13	4734	444	478	186	5.55	497	2830	37.5	0.11	3.4	< 1	< 0.1	< 0.001	
0639	N	4/10/1990	6,939.00	6.7	7.48	5351	467	590	193	5.6	565	3153	40.1	0.11	3.3	< 1	< 0.1	< 0.001	
0639	N	7/10/1990	6,938.60	6.7	7.08	5461	419	583	194	5.1	583	3265	39	< 0.05	3	< 1	< 0.1	< 0.001	
0639	N	10/9/1990	6,938.40	6.7	7.59	4043	305	464	176	6.5	516	2452	27.1	< 0.05	2.05	< 1	< 0.1	< 0.001	
0639	N	1/17/1991	6,938.00	6.2	7.25	4672	382	508	178	6.3	508	2944	32	< 0.05	2	< 1	0.12	< 0.001	
0639	N	4/10/1991	6,937.80	6.5	7.51	4523	347	531	173	7.8	551	2690	29.2	< 0.05	4.8	< 1	< 0.1	< 0.001	
0639	N	7/10/1991	6,937.40	6.5	7.26	4877	309	449	150	5.6	555	3046	27.6	< 0.05	3.3	< 1	< 0.1	< 0.001	
0639	N	10/17/1991	6,937.00	6.4	7.37	4899	412	531	158	7.1	626	2803	40.8	< 0.05	4.4	< 1	< 0.1	< 0.001	
0639	N	1/21/1992	6,936.80	6.4	7.2	4330	409	510	153	5.3	620	2792	29.4	< 0.05	2.93	< 1	< 0.1	< 0.001	
0639	N	4/13/1992	6,936.70	6.3	7.54	5005	363	499	165	6.1	618	2922	33.5	< 0.05	3.31	< 1	< 0.1	< 0.001	
0639	N	7/14/1992	6,936.50	6.3	7.36	4857	393	507	175	6.6	616	2845	28	< 0.05	3.74	< 1	< 0.1	< 0.001	
0639	N	10/13/1992	6,936.40	6.4	7.55	4661	335	437	154	6.6	619	2801	27	0.13	2.1	< 1	< 0.1	< 0.001	
0639	N	1/21/1993	6,936.10	6.5	7.09	3924	340	416	131	5.8	570	2359	23.3	0.15	2	< 1	< 0.1	< 0.001	
0639	N	4/14/1993	6,936.00	6.6	7.85	3417	301	343	123	3.7	561	1988	18.6	0.07	2	< 1	< 0.1	< 0.001	
0639	N	7/15/1993	6,935.70	6.6	6.91	3046	300	300	123	6.9	576	1959	19.2	0.19	1.63	< 1	< 0.1	< 0.001	
0639	N	10/6/1993	6,934.60	6.6	6.76	3060	264	321	115	3.6	539	1862	16.8	< 0.05	2.3	< 1	< 0.1	< 0.001	



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0632	N	1/4/2010	<0.01	<0.005	<0.01	<0.05	2.57	<0.1	<0.05	0.002	<0.1	0.074	0.84	2.5	3.34	-0.02 U	-0.9 U	1.4
0632	N	4/5/2010	<0.01	<0.005	<0.01	<0.05	2.37	<0.1	<0.05	0.001	<0.1	0.0786	0.85	2.3	3.15	0.005 U	4.7	0.8
0632	N	7/12/2010	<0.01	<0.005	<0.01	<0.05	2.76	<0.1	<0.05	<0.001	<0.1	0.0855	0.59	1.2	1.79	0.07 U	0.3 U	0.7 U
0632	N	10/4/2010	<0.01	<0.005	<0.01	<0.05	2.58	<0.1	<0.05	0.002	<0.1	0.0803	0.54	2	2.54	0.05 U	2.6	1.3
0632	N	1/4/2011	<0.01	<0.005	<0.01	<0.05	2.95	<0.1	<0.05	0.001	<0.1	0.0947	0.75	2.3	3.05	0.009 U	1.6 U	1.9
0632	N	4/5/2011	<0.01	<0.005	<0.01	<0.05	2.9	<0.1	<0.05	<0.001	<0.1	0.081	0.65	2.3	2.95	0.07 U	0.3 U	0.9
0632	N	7/11/2011	<0.01	<0.005	<0.01	<0.05	2.79	<0.1	<0.05	0.002	<0.1	0.0817	0.49	2.2	2.69	0.07 U	0.7 U	1.1
0632	N	10/3/2011	<0.01	<0.005	<0.01	<0.05	2.64	<0.1	<0.05	<0.001	<0.1	0.0742	0.6	2	2.6	0.02 U	0.8 U	0.8
0632	N	1/3/2012	<0.01	<0.005	<0.01	<0.05	2.26	<0.1	<0.05	<0.001	<0.1	0.0686	1.3	1.5	4.3	0.03 U	0.7 U	1.2
0632	N	4/2/2012	<0.01	<0.005	<0.01	<0.05	2.59	<0.1	<0.05	<0.001	<0.1	0.0756	0.56	0.72 U	2	0.05 U	0.3 U	0.9
0632	N	7/9/2012	<0.001	<0.005	<0.01	<0.001	2.58	<0.1	<0.05	0.001	<0.1	0.0731	1.2	1.0 U	3.2	0.07 U	0.1 U	1.1
0632	N	10/8/2012	<0.001	<0.005	<0.01	<0.001	2.85	<0.1	<0.05	<0.001	<0.1	0.078	0.84	2.2	3.04	0.03 U	0.8 U	1.1
0639	N	7/23/1989	<0.05	<0.01	0.01	<0.05	1.8	<0.1	<0.05	0.001	<0.1	0.174	0.3	<1	0.3	<0.2	<1	2.5
0639	N	10/8/1989	<0.05	<0.01	<0.01	<0.05	0.27	<0.1	<0.05	0.001	<0.1	0.291	1.8	<1	1.8	14.3	<1	17.8
0639	N	1/11/1990	<0.05	<0.01	0.04	<0.05	0.41	<0.1	<0.05	<0.001	<0.1	0.276	<0.2	<1	0	3.4	10.3	4
0639	N	4/10/1990	<0.05	<0.01	<0.01	<0.05	0.56	<0.1	<0.05	0.002	<0.1	0.096	1.3	1.2	2.5	<0.2	<1	1.7
0639	N	7/10/1990	<0.05	<0.01	<0.01	<0.05	0.89	<0.1	<0.05	0.001	<0.1	0.2416	<0.2	<1	0	<0.2	<1	<1
0639	N	10/9/1990	<0.05	<0.01	0.02	<0.05	0.99	<0.1	<0.05	<0.001	<0.1	0.2623	<0.2	1.3	1.3	<0.2	1.9	<1
0639	N	1/17/1991	<0.01	<0.01	<0.01	<0.05	1.34	<0.1	<0.05	0.002	<0.1	0.1984	1.4	<1	1.4	<0.2	<1	1.9
0639	N	4/10/1991	<0.01	<0.01	<0.01	<0.05	1.14	<0.1	<0.05	0.002	<0.1	0.196	<0.2	<1	0	<0.2	<1	<1
0639	N	7/10/1991	<0.01	<0.01	0.01	<0.05	1.47	<0.1	<0.05	0.035	<0.1	0.2739	1	<1	1	<0.2	<1	1
0639	N	10/17/1991	<0.01	<0.01	<0.01	<0.05	1.48	<0.1	<0.05	0.002	<0.1	0.272	0.2	<1	0.2	<0.2	<1	<1
0639	N	1/21/1992	<0.01	<0.01	<0.01	<0.05	1.27	<0.1	<0.05	0.002	<0.1	0.17	0.7	1.8	2.5	<0.2	2.2	<1
0639	N	4/13/1992	<0.01	<0.01	<0.01	<0.05	1.59	<0.1	<0.05	0.006	<0.1	0.367	2.1	2.8	4.9	<0.2	3.3	2.2
0639	N	7/14/1992	<0.01	<0.01	<0.01	<0.05	1.41	<0.1	<0.05	0.002	<0.1	0.245	0.3	1.6	1.9	<0.2	1.9	<1
0639	N	10/13/1992	<0.01	<0.01	<0.01	<0.05	1.51	<0.1	<0.05	0.003	<0.1	0.223	0.8	3.5	4.3	<0.2	<1	<1
0639	N	1/21/1993	<0.01	<0.01	<0.01	<0.05	0.07	<0.1	<0.05	0.002	<0.1	0.094	<0.2	4.1	4.1	<0.2	3.9	<1
0639	N	4/14/1993	<0.01	<0.01	<0.01	<0.05	1.67	<0.1	<0.05	0.003	<0.1	0.08	6	6	12	<0.2	<1	6.4
0639	N	7/15/1993	<0.01	<0.01	<0.01	<0.05	1.44	<0.1	<0.05	0.009	<0.1	0.109	0.2	<1	0.2	<0.2	<1	<1
0639	N	10/6/1993	<0.01	<0.01	<0.01	<0.05	1.15	<0.1	<0.05	0.003	<0.1	0.071	3	1.9	4.9	<0.2	2	5.8



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Cl	NH4	NO3	TTHMs	Al	As
			Elevation	pH	pH											as N	as N	(Chloroform)
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0639	N	1/5/1994	6,935.60	6.5	7.38	3018	323	325	104	3.3	559	1781	17	0.22	1.38	< 1	< 0.1	< 0.001
0639	N	4/13/1994	6,935.30	6.7	7.1	3058	303	304	104	2.8	458	1862	15.8	0.18	1.31	< 1	< 0.1	< 0.001
0639	N	10/5/1994	6,935.50	6.6	7.99	3396	368	348	119	2.6	373	2142	16.3	0.15	1.61	< 1	< 0.1	< 0.001
0642	N	7/23/1989	6,928.10	6.9	7.36	4083	675	233	179	2.7	405	2209	37.1	0.13	80	< 1	< 0.1	< 0.001
0642	N	10/8/1989	6,927.50	6.8	7.4	4140	634	227	177	3.6	414	2182	37.9	0.08	93	< 1	< 0.1	< 0.001
0642	N	1/11/1990	6,926.50	6.8	7.2	4080	628	229	174	2.61	421	2176	26.5	0.06	85	< 1	< 0.1	< 0.001
0642	N	4/10/1990	6,925.70	6.8	7.5	4161	634	250	171	2.4	430	2129	35.7	0.12	75	< 1	< 0.1	< 0.001
0642	N	7/10/1990	6,924.80	6.9	7.3	4232	714	263	171	1.9	426	2209	34	< 0.05	83.4	< 1	< 0.1	< 0.001
0642	N	10/9/1990	6,924.10	6.7	7.62	4168	582	242	174	3.2	415	2319	34.4	< 0.05	66.9	< 1	< 0.1	< 0.001
0642	N	1/17/1991	6,923.50	6.7	7.58	4131	676	268	181	2.4	414	2323	35.1	< 0.05	61.5	< 1	< 0.1	< 0.001
0642	N	4/10/1991	6,922.80	6.8	7.84	4110	623	273	162	4.4	432	2216	34.1	< 0.05	87	< 1	< 0.1	< 0.001
0642	N	7/10/1991	6,922.20	6.7	7.49	4089	625	257	155	2.8	423	2309	33.1	< 0.05	68.1	< 1	< 0.1	< 0.001
0642	N	10/17/1991	6,921.60	6.7	7.52	4093	639	233	167	3.6	442	2229	34.5	< 0.05	55.4	< 1	< 0.1	< 0.001
0642	N	1/21/1992	6,920.60	6.8	7.35	4133	684	223	158	2.4	425	2307	75	< 0.05	38.1	< 1	< 0.1	< 0.001
0642	N	4/13/1992	6,920.00	6.7	7.43	4096	562	238	185	3.1	399	1851	31.5	< 0.05	29	< 1	< 0.1	< 0.001
0642	N	7/14/1992	6,919.30	6.4	7.72	4196	668	266	183	3.2	405	2518	28.4	< 0.05	46	< 1	< 0.1	0.001
0642	N	10/13/1992	6,918.50	6.8	7.59	3909	617	260	169	3	422	2721	29	< 0.05	45.9	< 1	< 0.1	0.001
0642	N	1/21/1993	6,917.60	6.9	7.52	4295	642	268	157	3.5	422	2575	31.6	< 0.05	32.8	< 1	< 0.1	0.001
0642	N	4/14/1993	6,917.00	7	7.95	4460	640	283	166	2.2	453	2621	30.4	< 0.05	35.1	< 1	< 0.1	< 0.001
0642	N	7/15/1993	6,916.20	7	7.02	4023	598	266	182	5.1	478	2657	33	0.08	2.2	< 1	< 0.1	< 0.001
0642	N	10/6/1993	6,912.90	7.1	7.1	4659	598	325	192	2.2	432	2849	28.6	< 0.05	29.5	< 1	< 0.1	< 0.001
0642	N	1/5/1994	6,915.00	7.1	7.68	4362	580	326	150	2.8	450	2709	29.5	< 0.05	22.3	< 1	< 0.1	< 0.001
0642	N	4/13/1994	6,914.40	7.1	7.33	4446	610	334	149	2.8	442	2782	30	0.18	21.2	< 1	< 0.1	< 0.001
0642	N	7/21/1994	6,913.70	7.1	7.37	4667	789	374	164	4.1	471	3117	27.3	0.08	21.3	< 1	< 0.1	0.001
0642	N	10/5/1994	6,913.30	7	7.7	4699	649	377	178	4.5	490	2863	29.8	0.11	20.6	< 1	< 0.1	< 0.001
0642	N	1/5/1995	6,912.60	7	7.57	4800	630	379	163	5.2	505	2823	30.7	0.17	18.2	< 1	< 0.1	< 0.001
0642	N	4/5/1995	6,912.60	7	7.44	4804	583	390	156	3.9	519	2869	30	0.2	17	< 1	< 0.1	< 0.001
0642	N	7/6/1995	6,911.60	7	7.99	4613	605	377	167	5.3	527	2781	29	< 0.05	20.7	< 1	< 0.1	< 0.001
0642	N	10/4/1995	6,911.80	7	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
0644	N	7/23/1989	6,936.30	7.3	7.52	4441	769	206	187	5.2	498	1812	72.9	0.07	178	< 1	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0639	N	1/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	1.71	< 0.1	< 0.05	< 0.001	< 0.1	0.107	3.8	< 1	3.8	< 0.2	3.2	4.8
0639	N	4/13/1994	< 0.01	< 0.01	< 0.01	< 0.05	1.18	< 0.1	< 0.05	0.002	< 0.1	0.11	0.3	< 1	0.3	< 0.2	7.2	< 1
0639	N	10/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.8	< 0.1	< 0.05	< 0.001	< 0.1	0.07	< 0.2	7	7	< 0.2	< 1	10.8
0642	N	7/23/1989	< 0.05	< 0.01	< 0.01	< 0.05	0.01	< 0.1	< 0.05	0.002	< 0.1	0.0356	0.7	< 1	0.7	5.4	< 1	4.3
0642	N	10/8/1989	< 0.05	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.002	< 0.1	0.083	2.8	1.2	4	3.6	< 1	6.4
0642	N	1/11/1990	< 0.05	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.001	< 0.1	0.001	< 0.2	< 1	0	0.2	< 1	1
0642	N	4/10/1990	< 0.05	< 0.01	0.01	< 0.05	0.1	< 0.1	< 0.05	0.002	< 0.1	0.036	4.7	< 1	4.7	4.3	< 1	0.4
0642	N	7/10/1990	< 0.05	< 0.01	0.02	< 0.05	< 0.01	< 0.1	< 0.05	0.002	< 0.1	0.055	< 0.02	< 1	0	< 0.2	< 1	< 1
0642	N	10/9/1990	< 0.05	< 0.01	0.02	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.0446	< 0.2	< 1	0	< 0.2	< 1	< 1
0642	N	1/17/1991	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0357	< 0.2	< 1	0	< 0.2	< 1	< 1
0642	N	4/10/1991	< 0.01	< 0.01	0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.001	< 0.1	0.0363	< 0.2	< 1	0	< 0.2	3	< 1
0642	N	7/10/1991	< 0.01	< 0.01	0.02	< 0.05	< 0.01	< 0.1	< 0.05	0.004	< 0.1	0.0557	0.8	< 1	0.8	< 0.2	3.2	< 1
0642	N	10/17/1991	< 0.01	< 0.01	< 0.01	< 0.05	< 0.03	< 0.1	< 0.05	0.002	< 0.1	0.04	0.3	< 1	0.3	< 0.2	< 1	< 1
0642	N	1/21/1992	< 0.01	< 0.01	< 0.01	< 0.05	< 0.01	< 0.1	< 0.05	0.002	< 0.1	0.029	0.5	< 1	0.5	< 0.2	< 1	< 1
0642	N	4/13/1992	< 0.01	< 0.01	0.02	< 0.05	0.04	< 0.1	< 0.05	0.002	< 0.1	0.108	0.5	< 1	0.5	< 0.2	< 1	< 1
0642	N	7/14/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.05	< 0.1	< 0.05	0.003	< 0.1	0.05	0.4	1.1	1.5	< 0.2	< 1	< 1
0642	N	10/13/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	0.001	< 0.1	0.055	0.3	3	3.3	< 0.2	< 1	< 1
0642	N	1/21/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.05	< 0.1	< 0.05	0.003	< 0.1	0.046	0.4	< 1	0.4	< 0.2	2.7	1.3
0642	N	4/14/1993	< 0.001	< 0.01	< 0.01	< 0.05	0.16	< 0.1	< 0.05	0.001	< 0.1	0.06	0.7	< 1	0.7	< 0.2	< 1	< 1
0642	N	7/15/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.1	< 0.1	< 0.05	0.003	< 0.1	0.051	0.5	< 1	0.5	< 0.2	< 1	< 1
0642	N	10/6/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	< 0.001	< 0.1	0.036	0.5	1.3	1.8	< 0.2	< 1	< 1
0642	N	1/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.05	< 0.1	< 0.05	< 0.001	< 0.1	0.046	0.4	< 1	0.4	< 0.2	3.1	< 1
0642	N	4/13/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	0.003	< 0.1	0.043	0.9	< 1	0.9	< 0.2	2.7	< 1
0642	N	7/21/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.12	< 0.1	< 0.05	0.006	< 0.1	0.038	0.8	4.6	5.4	< 0.2	3.5	5.3
0642	N	10/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.039	0.7	1.7	2.4	< 0.2	3.9	3.4
0642	N	1/5/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.08	< 0.1	< 0.05	< 0.001	< 0.1	0.038	1.3	< 1	1.3	< 0.2	< 1	1.5
0642	N	4/5/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.09	< 0.1	< 0.05	0.002	< 0.1	0.042	3.4	2.9	6.3	< 0.2	2.8	7.9
0642	N	7/6/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.14	< 0.1	< 0.05	0.003	< 0.1	0.0549	0.6	< 1	0.6	< 0.2	1.2	4.8
0642	N	10/4/1995	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
0644	N	7/23/1989	< 0.05	< 0.01	< 0.01	< 0.05	0.02	< 0.1	< 0.05	0.013	< 0.1	0.0652	0.5	< 1	0.5	< 0.2	1.2	1.7



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Cl	NH4	NO3	TTHMs	Al	As		
			Elevation	pH	pH											as N	as N	(Chloroform)		
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05		
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05		
0644	N	10/8/1989	6,935.70	6.8	7.5	4778	860	227	203	5.8	676	1776	89.3	0.1	300	< 1	< 0.1	< 0.001		
0644	N	1/11/1990	6,935.00	6.7	7.16	4994	860	254	220	4.15	653	1789	99	0.07	384	< 1	< 0.1	< 0.001		
0644	N	4/10/1990	6,934.30	6.8	7.52	5426	854	260	222	4.2	623	1669	100	0.11	396	< 1	< 0.1	< 0.001		
0644	N	7/10/1990	6,933.80	6.8	7.24	6272	855	274	236	3.7	633	1706	94.8	< 0.05	615	< 1	< 0.1	< 0.001		
0644	N	10/9/1990	6,933.00	6.7	7.68	5576	809	280	232	5.1	586	1689	97.4	< 0.05	377	< 1	< 0.1	< 0.001		
0644	N	1/17/1991	6,932.50	6.6	7.28	5447	922	294	242	5.6	526	1731	97	< 0.05	512	< 1	0.14	< 0.001		
0644	N	4/10/1991	6,932.10	6.6	7.8	5265	855	293	244	6.2	616	1661	99.5	0.05	435	< 1	< 0.1	< 0.001		
0644	N	7/10/1991	6,931.70	6.7	7.55	5991	845	272	218	4.2	586	1852	96.2	0.06	534	< 1	< 0.1	< 0.001		
0644	N	10/17/1991	6,931.00	6.6	7.5	5606	929	291	251	7	617	1839	111	< 0.05	401	< 1	0.14	< 0.001		
0644	N	1/21/1992	6,930.50	6.7	7.4	4715	794	280	225	4.1	591	1896	98	< 0.05	234	< 1	< 0.1	< 0.001		
0644	N	4/13/1992	6,930.00	6.6	7.4	5318	786	271	268	5.5	539	1851	103	0.08	244	< 1	< 0.1	< 0.001		
0644	N	7/14/1992	6,929.00	6.3	7.38	5770	824	270	285	6.6	464	1884	92.1	< 0.05	338	< 1	< 0.1	< 0.001		
0644	N	10/13/1992	6,929.00	6.7	7.34	5731	771	263	241	5.4	488	2121	97.5	0.07	250	< 1	< 0.1	< 0.001		
0645	N	10/8/1989	6,941.30	7.1	7.4	7992	957	440	518	6.9	378	1982	159	0.13	798	< 1	< 0.1	< 0.001		
0645	N	1/11/1990	6,940.80	6.7	7.18	8426	929	539	574	4.48	354	2299	168	0.14	926	< 1	< 0.1	< 0.001		
0645	N	4/10/1990	6,940.60	6.9	7.54	9179	917	600	560	4.2	369	2489	169	0.13	840	< 1	< 0.1	< 0.001		
0645	N	7/10/1990	6,940.00	7	7.28	10530	829	680	637	4.2	365	2728	157	< 0.05	1225	< 1	< 0.1	< 0.001		
0645	N	10/10/1990	6,940.00	6.9	7.41	9343	742	604	644	4.6	351	2674	150	0.09	800	< 1	< 0.1	< 0.001		
0645	N	1/17/1991	6,939.80	6.9	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		
0645	N	4/10/1991	6,939.60	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data		
0801	N	10/17/1989	6,873.40	6.5	6.69	9214	626	1102	472	23	1940	4591	246	33.6	26	1.8	< 0.1	< 0.001		
0801	N	1/11/1990	no data	6.5	6.74	8830	628	997	470	14.9	2111	4416	262	25.1	62	< 1	< 0.1	< 0.001		
0801	N	4/5/1990	no data	6.8	7.16	5543	774	852	500	9.1	2103	2946	228	9.3	115	< 1	< 0.1	< 0.001		
0801	N	7/9/1990	no data	6.5	6.82	9507	626	1095	436	15.5	2020	4826	254	40	39.6	1.92	0.19	< 0.001		
0801	N	10/3/1990	no data	6.3	7.09	9800	565	1187	493	15.3	1875	5090	269	34.6	21.1	1.6	< 0.1	< 0.001		
0801	N	1/3/1991	no data	6.1	6.84	9316	628	1232	482	23.6	1930	4650	239	32.4	31.4	2.72	0.59	< 0.001		
0801	N	4/11/1991	no data	6.1	7.09	9510	601	1092	415	16.6	1991	4788	274	30	27.5	3.4	0.19	< 0.001		
0801	N	7/11/1991	no data	6.3	7.08	9566	620	1142	410	12.8	1872	5121	240	40	26.5	3.5	0.12	< 0.001		
0801	N	10/23/1991	no data	6.3	7.08	9049	566	1127	432	13.1	1870	4508	271	27.7	10.1	3.3	0.63	< 0.001		
0801	N	1/16/1992	no data	6.2	7.28	8346	502	961	441	13	1825	4891	247	41.5	13.6	3.6	< 0.1	< 0.001		



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0644	N	10/8/1989	< 0.05	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	0.018	< 0.1	0.093	0.4	< 1	0.4	0.7	< 1	< 1
0644	N	1/11/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.03	< 0.1	< 0.05	0.011	< 0.1	0.071	0.3	< 1	0.3	1.2	< 1	4.2
0644	N	4/10/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.04	< 0.1	< 0.05	0.007	< 0.1	0.069	0.7	1.4	2.1	< 0.2	< 1	1.2
0644	N	7/10/1990	< 0.05	< 0.01	0.01	< 0.05	0.04	< 0.1	< 0.05	0.007	< 0.1	0.11	0.6	< 1	0.6	< 0.2	< 1	< 1
0644	N	10/9/1990	< 0.05	< 0.01	0.02	< 0.05	0.04	< 0.1	< 0.05	0.004	< 0.1	0.0656	< 0.2	< 1	0	< 0.2	< 1	< 1
0644	N	1/17/1991	< 0.01	< 0.01	0.01	< 0.05	0.07	< 0.1	< 0.05	0.002	< 0.1	0.0627	< 0.2	6.6	6.6	< 0.2	1.3	< 1
0644	N	4/10/1991	< 0.01	< 0.01	0.02	< 0.05	0.07	< 0.1	< 0.05	0.005	< 0.1	0.0608	0.4	1.9	2.3	< 0.2	3.8	< 1
0644	N	7/10/1991	< 0.01	< 0.01	0.02	< 0.05	0.05	< 0.1	< 0.05	0.007	< 0.1	0.1133	0.6	< 1	0.6	< 0.2	< 1	< 1
0644	N	10/17/1991	< 0.01	< 0.01	< 0.01	< 0.05	0.07	< 0.1	< 0.05	0.008	< 0.1	0.078	0.6	< 1	0.6	< 0.2	4.9	< 1
0644	N	1/21/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.08	< 0.1	< 0.05	0.004	< 0.1	0.042	1.8	3	4.8	< 0.2	< 1	2
0644	N	4/13/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.12	< 0.1	< 0.05	0.008	< 0.1	0.043	1.6	< 1	1.6	< 0.2	< 1	1.8
0644	N	7/14/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.15	< 0.1	< 0.05	0.005	< 0.1	0.08	0.8	3.1	3.9	< 0.2	< 1	< 1
0644	N	10/13/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.15	< 0.1	< 0.05	0.012	< 0.1	0.109	2.2	< 1	2.2	< 0.2	< 1	2.3
0645	N	10/8/1989	< 0.05	0.052	< 0.01	< 0.05	1.2	< 0.1	< 0.05	0.04	< 0.1	0.068	< 0.2	< 1	0	< 0.2	< 1	< 1
0645	N	1/11/1990	< 0.05	0.074	< 0.01	< 0.05	1.3	< 0.1	< 0.05	0.022	< 0.1	0.038	0.2	< 1	0.2	< 0.2	< 1	1.1
0645	N	4/10/1990	< 0.05	< 0.01	0.01	< 0.05	0.9	< 0.1	< 0.05	0.022	< 0.1	0.041	0.4	1.1	1.5	< 0.2	< 1	1
0645	N	7/10/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.72	< 0.1	< 0.05	0.018	< 0.1	0.052	< 0.2	< 1	0	1.1	< 1	1
0645	N	10/10/1990	< 0.05	0.068	0.01	< 0.05	0.54	< 0.1	< 0.05	0.016	< 0.1	< 0.034	< 0.2	1.6	1.6	< 0.2	< 1	< 1
0645	N	1/17/1991	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
0645	N	4/10/1991	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
0801	N	10/17/1989	< 0.05	< 0.01	0.48	< 0.05	31	< 0.01	0.31	< 0.001	< 0.1	0.0636	1.1	< 1	1.1	1.6	2.4	3.1
0801	N	1/11/1990	< 0.05	< 0.01	0.13	< 0.05	19	< 0.1	0.14	< 0.001	< 0.1	0.057	0.7	< 1	0.7	2.3	< 1	4
0801	N	4/5/1990	< 0.05	< 0.01	0.02	< 0.05	5.8	< 0.1	0.15	0.001	< 0.1	0.099	0.6	< 1	0.6	< 0.2	< 1	1
0801	N	7/9/1990	< 0.05	< 0.01	0.08	< 0.05	31.6	< 0.1	0.17	0.001	< 0.1	0.071	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	10/3/1990	< 0.05	< 0.01	0.18	< 0.05	39.6	< 0.1	0.13	< 0.001	< 0.1	0.037	1	< 1	1	< 0.2	< 1	< 1
0801	N	1/3/1991	< 0.01	0.01	0.2	< 0.05	32.4	< 0.1	0.17	< 0.001	< 0.1	0.0654	1.8	< 1	1.8	< 0.2	< 1	2
0801	N	4/11/1991	< 0.01	< 0.01	0.13	< 0.05	30.1	< 0.1	0.13	< 0.001	< 0.1	0.047	1.1	< 1	1.1	< 0.2	< 1	1
0801	N	7/11/1991	< 0.01	< 0.01	0.08	< 0.05	32	< 0.1	< 0.05	0.001	< 0.1	0.1228	1.6	2.3	3.9	< 0.2	2.4	2
0801	N	10/23/1991	< 0.01	< 0.01	0.09	no data	34	< 0.1	0.1	< 0.001	< 0.1	0.186	0.5	4.8	5.3	< 0.2	< 1	< 1
0801	N	1/16/1992	< 0.01	< 0.01	0.11	< 0.05	32.5	< 0.1	0.12	0.005	< 0.1	0.031	0.3	3.7	4	< 0.2	1.5	< 1



**TABLE A.1**  
 Southwest Alluvium Data Summary, 1989-2012  
 United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Cl	NH4	NO3	TTHMs	Al	As	
			Elevation	pH	pH														
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05	
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05	
0801	N	4/13/1992	no data	6.2	7.11	9240	518	635	444	15.1	1869	4650	255	31.7	12.8	4.2	0.18	< 0.001	
0801	N	7/8/1992	no data	6.1	7.38	8276	635	634	539	16	1915	4512	246	28.1	38.1	3	0.23	< 0.001	
0801	N	10/8/1992	no data	6.4	7.72	9244	517	1003	478	17.4	1832	5132	229	39.5	14.7	3.8	0.3	< 0.001	
0801	N	1/7/1993	no data	6.3	7.28	8060	555	1030	469	14.1	1575	4709	249	42.8	9.9	4.6	< 0.1	< 0.001	
0801	N	4/7/1993	no data	6.4	7.19	8253	476	955	472	12.1	1603	4867	247	43.9	10.2	4	< 0.1	< 0.001	
0801	N	7/14/1993	no data	6.4	6.93	8158	555	1011	432	13	1709	4887	247	34	14.7	4.5	< 0.1	< 0.001	
0801	N	10/7/1993	no data	6.3	7.08	7688	525	931	393	12.6	1641	4231	229	32	19	3.5	< 0.1	< 0.001	
0801	N	1/6/1994	no data	6.4	6.82	7788	522	909	438	12.6	1540	4519	230	32.3	28.6	4.3	0.7	< 0.001	
0801	N	4/12/1994	no data	6.4	6.8	8786	515	905	415	12.8	1454	5061	233	42.7	9.9	2.7	0.36	< 0.001	
0801	N	7/27/1994	no data	6.4	7.24	8502	599	902	382	13.3	1530	4930	222	35.6	25.2	4.2	< 0.1	< 0.001	
0801	N	10/5/1994	no data	6.2	7.29	8093	564	998	440	13.1	1619	4544	236	29.9	10.7	3.25	0.44	< 0.001	
0801	N	1/4/1995	no data	6.2	6.97	8714	635	945	425	14.7	1599	4925	226	45	9.57	3.58	0.51	< 0.001	
0801	N	4/6/1995	no data	6.2	6.7	8297	560	910	402	13.1	1652	4455	258	31.8	10.2	2.28	< 0.1	< 0.001	
0801	N	7/6/1995	no data	6.3	7.64	8028	535	883	405	13.7	1627	4335	230	30.4	8.82	4.11	< 0.1	< 0.001	
0801	N	10/4/1995	no data	6.3	7.29	8115	535	890	406	12.1	1619	4668	212	24.4	11	2.91	< 0.1	< 0.001	
0801	N	1/3/1996	no data	6.5	7.18	7962	629	952	414	12.3	1620	4640	242	16.8	9.91	2.81	< 0.1	< 0.001	
0801	N	4/2/1996	no data	6.5	7.31	8061	550	1000	408	13	1623	4370	224	21.5	9.08	3.36	< 0.1	< 0.001	
0801	N	7/17/1996	no data	6.3	6.79	8133	527	864	411	15.1	1532	4100	241	20.6	8.22	4.32	< 0.1	< 0.001	
0801	N	10/8/1996	no data	6.3	6.97	8130	554	915	404	13.9	1520	4325	233	19.9	4.46	3.6	< 0.1	< 0.001	
0801	N	1/28/1997	no data	6.5	7.73	8340	555	906	361	13.8	1678	4460	324	22.2	3.75	3.49	< 0.1	< 0.001	
0801	N	4/8/1997	no data	6.4	7.57	8190	562	944	399	14.5	1520	4500	232	21.2	6.33	3.5	< 0.1	< 0.001	
0801	N	7/8/1997	no data	6.6	7.43	8240	575	956	420	15	1520	4480	243	21.2	6.43	3.42	< 0.1	< 0.001	
0801	N	10/8/1997	no data	6.2	7.51	8100	568	924	379	13.8	1520	4350	273	21.1	5.06	4.06	< 0.1	< 0.001	
0801	N	1/20/1998	no data	6.2	7.72	8090	553	898	397	14.9	1500	4400	269	21	7.07	4.1	< 0.1	< 0.001	
0801	N	4/7/1998	no data	6.5	7.42	8140	553	915	375	13.3	1480	4260	214	20.4	7.42	3.9	< 0.1	< 0.001	
0801	N	7/7/1998	no data	6.6	7.42	8250	563	969	407	14.1	1450	4200	233	22.5	4.86	3.9	< 0.1	< 0.001	
0801	N	10/6/1998	no data	6.4	7.58	8040	546	924	401	14.7	1440	4300	250	23.2	6.56	1.3	< 0.1	< 0.001	
0801	N	1/12/1999	no data	6.5	7.49	8010	470	858	347	14.3	1390	4450	222	20.3	6.05	3.3	< 0.1	< 0.001	
0801	N	4/13/1999	no data	6.4	7.65	7940	534	902	357	13	1410	4060	221	19.8	6.37	3.9	< 0.1	< 0.001	
0801	N	7/20/1999	no data	6.5	7.63	7950	545	932	414	15.5	1420	4240	220	19.7	5.51	3.5	< 0.1	< 0.001	



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0801	N	4/13/1992	< 0.01	< 0.01	0.09	< 0.05	31.3	< 0.1	0.1	0.005	< 0.1	0.034	0.5	1	1.5	< 0.2	< 1	< 1
0801	N	7/8/1992	< 0.01	< 0.01	0.03	< 0.05	24.3	< 0.1	< 0.05	0.001	< 0.1	0.04	0.9	< 1	0.9	< 0.2	< 1	< 1
0801	N	10/8/1992	< 0.01	< 0.01	0.06	< 0.05	37	< 0.1	0.07	< 0.001	< 0.1	0.022	1.7	< 1	1.7	< 0.2	< 1	1.9
0801	N	1/7/1993	< 0.01	< 0.01	0.12	< 0.05	45.3	< 0.1	< 0.05	0.006	< 0.1	0.03	0.7	< 1	0.7	< 0.2	< 1	< 1
0801	N	4/7/1993	< 0.001	< 0.01	0.11	< 0.05	45.1	< 0.1	0.16	< 0.001	< 0.1	0.069	0.4	< 1	0.4	< 0.2	1.8	< 1
0801	N	7/14/1993	< 0.01	< 0.01	0.08	< 0.05	30	< 0.1	0.1	< 0.001	< 0.1	0.028	0.7	3.8	4.5	< 0.2	< 1	< 1
0801	N	10/7/1993	< 0.01	< 0.01	0.09	< 0.05	31.9	< 0.1	< 0.05	< 0.001	< 0.1	0.035	1.5	3.3	4.8	< 0.2	< 1	2
0801	N	1/6/1994	< 0.01	< 0.01	0.09	< 0.05	33.4	< 0.1	0.09	< 0.001	< 0.1	0.047	1.3	1	2.3	< 0.2	< 1	3.9
0801	N	4/12/1994	< 0.01	< 0.01	0.12	< 0.05	34.3	< 0.1	0.15	< 0.001	< 0.1	0.039	0.9	< 1	0.9	< 0.2	3.2	< 1
0801	N	7/27/1994	< 0.01	< 0.01	0.1	< 0.05	20.5	< 0.1	0.09	0.001	< 0.1	0.036	1.1	5.2	6.3	< 0.2	1.9	5.5
0801	N	10/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	20.4	< 0.1	0.07	< 0.001	< 0.1	0.036	0.8	1.7	2.5	< 0.2	1	3.5
0801	N	1/4/1995	< 0.01	< 0.01	0.06	< 0.05	31.5	< 0.1	0.09	< 0.001	< 0.1	0.034	1.2	< 1	1.2	< 0.2	< 1	2.9
0801	N	4/6/1995	< 0.01	< 0.01	< 0.01	< 0.05	23.4	< 0.1	< 0.05	< 0.001	< 0.1	0.039	1.6	2.4	4	< 0.2	1.9	5.4
0801	N	7/6/1995	< 0.01	< 0.01	0.03	< 0.05	23	< 0.1	< 0.05	0.001	< 0.1	0.0435	1.5	1.5	3	0.3	< 1	4.8
0801	N	10/4/1995	< 0.01	< 0.01	< 0.01	< 0.05	18.1	< 0.1	< 0.05	< 0.001	< 0.1	0.038	1.3	< 1	1.3	0.6	< 1	1.1
0801	N	1/3/1996	< 0.01	< 0.01	< 0.01	< 0.05	18.6	< 0.1	< 0.05	< 0.001	< 0.1	0.042	1.3	< 1	1.3	< 0.2	3.1	2
0801	N	4/2/1996	< 0.01	< 0.01	< 0.01	< 0.05	17	< 0.1	< 0.05	< 0.001	< 0.1	0.063	0.3	< 1	0.3	< 0.2	2.9	3
0801	N	7/17/1996	< 0.01	< 0.01	0.01	< 0.05	19.5	< 0.1	< 0.05	< 0.001	< 0.1	0.051	0.9	< 1	0.9	1.1	< 1	1.2
0801	N	10/8/1996	< 0.01	< 0.01	< 0.01	< 0.05	17.1	< 0.1	< 0.05	< 0.001	< 0.1	0.046	1.3	< 1	1.3	< 0.2	< 1	< 1
0801	N	1/28/1997	< 0.01	< 0.01	0.02	< 0.05	19.4	< 0.1	0.06	< 0.001	< 0.1	0.028	2.4	< 1	2.4	< 0.2	6.3	1.2
0801	N	4/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	20.2	< 0.1	< 0.05	< 0.001	< 0.1	0.04	0.9	< 1	0.9	< 0.2	< 1	< 1
0801	N	7/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	17	< 0.1	< 0.05	< 0.001	< 0.1	0.039	1.2	3.3	4.5	< 0.2	< 1	< 1
0801	N	10/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	21.8	< 0.1	< 0.05	< 0.001	< 0.1	0.039	1	< 1	1	< 0.2	< 1	< 1
0801	N	1/20/1998	< 0.01	< 0.005	< 0.01	< 0.05	19.7	< 0.1	< 0.05	< 0.001	< 0.1	0.043	1.3	< 1	1.3	< 0.2	< 1	< 1
0801	N	4/7/1998	0.01	< 0.005	< 0.01	< 0.05	16.5	< 0.1	0.75	< 0.001	< 0.1	0.0439	1.2	< 1	1.2	< 0.2	< 1	< 1
0801	N	7/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	20.8	< 0.1	< 0.05	< 0.001	< 0.1	0.0411	1.6	1.7	3.3	< 0.2	< 1	< 1
0801	N	10/6/1998	< 0.01	0.005	< 0.01	< 0.05	17.3	< 0.1	< 0.05	< 0.001	< 0.1	0.0262	1.2	< 1	1.2	< 0.2	< 1	1.3
0801	N	1/12/1999	< 0.01	< 0.005	< 0.01	< 0.05	16.2	< 0.1	< 0.05	< 0.001	< 0.1	0.0433	0.8	< 1	0.8	< 0.2	< 1	< 1
0801	N	4/13/1999	< 0.01	0.006	< 0.01	< 0.05	17	< 0.1	< 0.05	< 0.001	< 0.1	0.0389	< 0.2	2.5	2.5	< 0.2	< 1	< 1
0801	N	7/20/1999	< 0.01	< 0.006	0.02	< 0.05	12.6	< 0.1	< 0.05	< 0.001	< 0.1	0.0405	0.9	3.7	4.6	< 0.2	< 1	1



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Chl	NH4	NO3	TTHMs	Al	As	
			Elevation	pH	pH										as N	as N	(Chloroform)		
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05	
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05	
0801	N	10/5/1999	no data	6.37	7.53	7500	594	936	352	14.7	1450	4300	227	16.2	25.1	2.3	< 0.1	< 0.001	
0801	N	1/4/2000	no data	6.5	7.94	8450	539	1010	307	16.1	1400	4670	205	20.2	11.9	2.6	< 0.1	< 0.001	
0801	N	1/8/2001	6,852.90	6.67	7.7	7330	578	820	359	16.6	1570	3700	240	9.07	48.9	2.2	< 0.1	0.002	
0801	N	2/6/2001	6,853.85	6.9	7.42	7200	642	882	397	15.8	1570	3970	226	9.46	29.9	1.6	< 0.1	< 0.001	
0801	N	3/5/2001	6,854.30	6.92	7.19	6610	550	785	273	15.1	1580	3660	203	8.34	21.9	2.3	< 0.1	< 0.001	
0801	N	4/3/2001	6,854.80	6.59	7.37	6930	615	825	320	12.8	1570	3580	214	7.88	17.5	3.11	< 0.1	< 0.001	
0801	N	5/7/2001	6,855.20	6.47	7.53	7090	541	723	282	12.6	1560	3120	229	7.71	13.3	1.9	< 0.1	< 0.001	
0801	N	6/4/2001	6,855.20	6.47	7.33	6680	549	745	294	12.7	1560	3380	225	8.12	8.45	3.3	< 0.1	< 0.001	
0801	N	7/9/2001	6,855.38	7.02	7.11	6900	585	800	312	12.7	1610	3320	237	7.07	6.25	3.4	< 0.1	< 0.001	
0801	N	8/6/2001	6,855.43	6.76	7.4	6890	550	760	310	13	1580	3300	240	7.5	4.4	3	< 0.1	< 0.001	
0801	N	9/10/2001	6,855.80	6.38	7	6860	560	770	319	13.6	1600	3300	248	6.75	< 0.1	2.85	< 0.1	< 0.001	
0801	N	10/1/2001	6,855.75	6.45	7.5	7060	530	750	330	14.1	1600	3200	253	7.2	2.9	2.4	< 0.1	< 0.001	
0801	N	11/5/2001	6,855.90	6.46	7	7070	583	805	318	14.3	1590	3670	272	7	3.3	2.82	< 0.1	< 0.001	
0801	N	12/4/2001	6,856.10	6.56	7	7090	531	734	293	12.3	1590	3240	229	7.4	3	2.03	< 0.1	< 0.001	
0801	N	1/8/2002	6,856.10	6.58	7.2	7100	620	817	261	13.9	1570	3840	274	6.8	2.34	2.9	< 0.1	< 0.001	
0801	N	2/4/2002	6,856.20	6.45	7.1	7120	603	790	290	13.6	1600	3640	264	6.8	2.08	3.1	< 0.1	< 0.001	
0801	N	3/4/2002	6,856.15	6.41	7.2	7070	563	780	354	13.8	1590	3720	259	3.6	2.41	2.7	< 0.1	< 0.001	
0801	N	4/1/2002	6,856.32	6.36	7.33	7120	583	782	351	15.2	1600	3730	249	7.07	2.35	3.6	< 0.1	< 0.001	
0801	N	5/6/2002	6,856.41	6.35	7.38	7030	564	762	341	14.4	1570	3520	242	6.4	2.34	3	< 0.1	< 0.001	
0801	N	6/3/2002	6,856.43	6.33	7.43	7070	561	754	328	12.2	1570	3460	208	6.5	2.13	3.7	< 0.1	< 0.001	
0801	N	7/8/2002	6,855.81	6.62	7.69	7050	552	778	257	13.8	1570	3570	194	6.3	2.04	3	< 0.1	< 0.001	
0801	N	10/8/2002	6,856.12	6.51	7.58	6960	515	699	328	12.7	1560	3260	206	6.4	1.99	3.2	< 0.1	< 0.001	
0801	N	1/6/2003	6,856.07	6.89	7.41	6860	561	785	380	14.1	1520	3600	193	6	1.5	3.1	< 0.1	< 0.001	
0801	N	4/7/2003	6,856.27	6.37	7.31	6910	542	731	358	17.4	1520	3170	226	5.6	2.8	3.1	< 0.1	< 0.001	
0801	N	7/7/2003	6,856.35	6.2	7.18	6880	517	694	316	15.4	1550	3350	200	5.3	1.2	3.7	< 0.1	< 0.001	
0801	N	10/6/2003	6,855.82	6.21	7.54	6730	585	764	364	12.7	1520	3640	219	5.2	1.2	2.9	< 0.1	< 0.001	
0801	N	1/5/2004	6,856.04	6.45	7.48	6640	554	721	320	12.3	1500	3460	224	5.2 D	1.09	3	0.2	< 0.001	
0801	N	4/5/2004	6,856.07	6.8	6.75	6680	554	719	356	13	2220	3360 D	206	4.5 D	0.75	3.1	< 0.1	< 0.001	
0801	N	7/12/2004	6,855.86	6.17	6.87	6690	574	714	374	13.8	1450	3360 D	212	3.3 D	0.69	2.3	< 0.1	< 0.001	
0801	N	10/4/2004	6,855.47	6.27	6.97	6670	565 D	727 D	379	12.6	1470	3390 D	221	4.0 D	0.7	3.1	< 0.1	< 0.001	



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0801	N	10/5/1999	< 0.01	0.006	< 0.01	< 0.05	16.1	< 0.1	< 0.05	< 0.001	< 0.1	0.0527	1.1	< 1	1.1	< 0.2	< 1	1.4
0801	N	1/4/2000	< 0.01	< 0.005	0.01	< 0.05	23.6	< 0.1	< 0.05	0.001	< 0.1	0.0408	0.7	< 1	0.7	< 0.2	< 1	1.3
0801	N	1/8/2001	< 0.01	< 0.005	< 0.01	< 0.05	6.52	< 0.1	< 0.05	0.001	< 0.1	0.087	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	2/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	7.28	< 0.1	< 0.05	< 0.001	< 0.1	0.071	0.5	< 1	0.5	< 0.2	< 1	< 1
0801	N	3/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	7.98	< 0.1	< 0.05	< 0.001	< 0.1	0.0582	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	4/3/2001	< 0.01	< 0.005	< 0.01	< 0.05	7.02	< 0.1	< 0.05	< 0.001	< 0.1	0.053	0.4	< 1	0.4	< 0.2	< 1	< 1
0801	N	5/7/2001	< 0.01	< 0.005	< 0.01	< 0.05	8.7	< 0.1	< 0.05	< 0.001	< 0.1	0.049	0.4	< 1	0.4	< 0.2	< 1	< 1
0801	N	6/4/2001	< 0.01	< 0.005	< 0.01	< 0.05	8.24	< 0.1	< 0.05	< 0.001	< 0.1	0.046	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	7/9/2001	< 0.01	< 0.005	< 0.01	< 0.05	8.34	< 0.1	< 0.05	< 0.001	< 0.1	0.0486	0.8	< 1	0.8	< 0.2	< 1	< 1
0801	N	8/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	7.7	< 0.1	< 0.05	< 0.001	< 0.1	0.048	0.4	< 1	0.4	< 0.2	< 1	< 1
0801	N	9/10/2001	< 0.01	< 0.005	< 0.01	< 0.05	6.24	< 0.1	< 0.05	< 0.001	< 0.1	0.044	0.3	< 1	0.3	< 0.2	< 1	< 1
0801	N	10/1/2001	< 0.01	< 0.005	< 0.01	< 0.05	6.87	< 0.1	< 0.05	< 0.001	< 0.1	0.0373	0.7	< 1	0.7	< 0.2	< 1	< 1
0801	N	11/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	7.36	< 0.1	< 0.05	< 0.001	< 0.1	0.0374	0.4	< 1	0.4	< 0.2	< 1	< 1
0801	N	12/4/2001	< 0.01	< 0.005	< 0.01	< 0.05	6.57	< 0.1	< 0.05	< 0.001	< 0.1	0.0407	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	1/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	6.61	< 0.1	< 0.05	< 0.001	< 0.1	0.0422	0.3	< 1	0.3	< 0.2	< 1	< 1
0801	N	2/4/2002	< 0.01	< 0.005	< 0.01	< 0.05	6.69	< 0.1	< 0.05	< 0.001	< 0.1	0.0336	0.7	< 1	0.7	< 0.2	< 1	< 1
0801	N	3/4/2002	< 0.01	< 0.005	< 0.01	< 0.05	7.89	< 0.1	< 0.05	< 0.001	< 0.1	0.0525	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	4/1/2002	< 0.01	< 0.005	< 0.01	< 0.05	7.42	< 0.1	< 0.05	< 0.001	< 0.1	0.0423	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	5/6/2002	< 0.01	< 0.005	< 0.01	< 0.05	6.84	< 0.1	< 0.05	< 0.001	< 0.1	0.0472	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	6/3/2002	< 0.01	< 0.005	< 0.01	< 0.05	6.36	< 0.1	< 0.05	< 0.001	< 0.1	0.042	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	7/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	5.85	< 0.1	< 0.05	< 0.001	< 0.1	0.0488	0.3	< 1	0.3	< 0.2	< 1	< 1
0801	N	10/8/2002	< 0.01	< 0.005	< 0.01	< 0.05	5.66	< 0.1	< 0.05	< 0.001	< 0.1	0.0343	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	1/6/2003	< 0.01	< 0.005	< 0.01	< 0.05	5.61	< 0.1	< 0.05	< 0.001	< 0.1	0.0404	< 0.2	< 1	0	< 0.2	< 1	1.4
0801	N	4/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	5.08	< 0.1	< 0.05	< 0.001	< 0.1	0.0416	0.6	< 1	0.6	< 0.2	< 1	< 1.0
0801	N	7/7/2003	< 0.01	< 0.005	< 0.01	< 0.05	5.25	< 0.1	< 0.05	< 0.001	< 0.1	0.0385	0.4	< 1	0.4	< 0.2	< 1	< 1.0
0801	N	10/6/2003	< 0.01	< 0.005	< 0.01	< 0.05	4.65	< 0.1	< 0.05	< 0.001	< 0.1	0.0453	0.6	< 1	0.6	< 0.2	< 1	< 1.0
0801	N	1/5/2004	< 0.01	< 0.005	< 0.01	< 0.05	5.16	< 0.1	< 0.05	< 0.001	< 0.1	0.0381 D	0.4	< 1.0	0.4	< 0.2	< 1.0	< 1.0
0801	N	4/5/2004	< 0.01	< 0.005	< 0.01	< 0.05	4.26	< 0.1	< 0.05	< 0.001	< 0.1	0.0422 D	1.3	< 1	1.3	< 0.2	< 1	< 1
0801	N	7/12/2004	< 0.01	< 0.005	< 0.01	< 0.05	3.94	< 0.1	< 0.05	< 0.001	< 0.1	0.0400 D	0.4	< 1.0	0.4	< 0.2	< 1.0	< 1.0
0801	N	10/4/2004	< 0.01	< 0.005	< 0.01	< 0.05	4.15	< 0.1	< 0.05	< 0.001	< 0.1	0.0370 D	1.1	< 1.0	1.1	< 0.2	< 1.0	< 1.0



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water	Field	Lab	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Chl	NH4	NO3	TTHMs	Al	As		
			Elevation	pH	pH											as N	as N	(Chloroform)		
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l	mg/l	
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05		
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05		
0801	N	1/3/2005	6,855.82	6.54	6.93	6700	574 D	729 D	353	12.3	1450	3300 D	198	3.9 D	0.6	2.6	< 0.1	< 0.001		
0801	N	4/4/2005	6,855.77	6.45	7.07	6300	564	697	344	11.4	1480	3310	194	3.5	0.3	2.9	< 0.1	< 0.001		
0801	N	7/11/2005	6,855.42	6.37	7.28	6520	567 D	723 D	359	12.3	1350	3360 D	201	3.7 D	0.2	3.5	< 0.1	< 0.001		
0801	N	10/3/2005	6,855.15	6.49	7.05	6380	547 D	676 D	355	12.2	1450	3280 D	208	2.9 D	0.2	2.9	< 0.1	< 0.001		
0801	N	1/9/2006	6,855.08	6.58	7.57	6340	514	618 D	331	11.1	1490	2940 D	196	3.6 D	0.2	2.6	< 0.1	< 0.001		
0801	N	4/3/2006	6,855.22	6.36	7.05	6170	579 D	693 D	333	12.5	1430	3200 D	210	4.85	0.1	2.2	< 0.1	< 0.001		
0801	N	7/17/2006	6,854.87	6.31	6.68	6270	577 D	687 D	352	12.5	1420	3360 D	204	2.86	0.3	2.8	< 0.1	< 0.001		
0801	N	10/2/2006	6,855.19	6.43	6.96	6180	583 D	692 D	343	12.4	1810	3270 D	192	3.15	1	2.17	< 0.1	< 0.001		
0801	N	1/8/2007	6,854.77	6.49	6.81	6420	557 D	681 D	307	12.8	1430	3220 D	191	2.7 D	1.4	2.33	<0.1	<0.001		
0801	N	4/9/2007	6,854.82	6.52	6.7	5950	539 D	663 D	304	14	1430	3170 D	199	3.1	1	2.06	<0.1	<0.001		
0801	N	7/9/2007	6,854.52	6.33	6.75	6200	573 D	726 D	352	13.3	1510	3500 D	179	2.77	0.8	2.84	<0.1	0.01		
0801	N	10/1/2007	6,854.29	6.46	6.65	6470	514 D	661 D	338 D	13.5	1490	3200 D	223 D	3.37	0.8	2.96	<0.1	<0.001		
0801	N	1/14/2008	6,854.17	6.49	6.65	6580	528 D	669 D	334 D	13	1440	3100 D	209 D	3.55	0.9	2.68	< 0.1	< 0.001		
0801	N	4/7/2008	6,854.47	6.4	6.75	6190	578 D	763 D	375 D	14.4 D	1380	3610 D	197	3.3 D	0.9	2.78	< 0.1	< 0.001		
0801	N	7/7/2008	6,854.22	6.18	6.67 H	6300 H	530	693	314 D	11	1460	3610 D	206	3	1.1	3.49	< 0.1	< 0.003		
0801	N	10/6/2008	6,853.82	6.3	6.75	6490	549	729	336 D	12	1430	3790 D	191	3.7	1.1	2.84	< 0.1	< 0.001		
0801	N	1/12/2009	6,853.77	6.39	6.7	6760	537	730	351	11	1450	2970 D	183	1.19	1.5	2.82	<0.1	<0.001		
0801	N	4/6/2009	6,853.57	6.36	6.51	6700	524 D	714 D	359 D	12	1490	3530 D	198	2.25	1.8	3.45	<0.1	<0.001		
0801	N	7/6/2009	6,853.47	6.27	6.63	6550 H	567 D	738	343 D	13	1460	3420 D	208	3.91	1.8	2.49	<0.1	<0.001		
0801	N	10/5/2009	6,852.97	6.47	7.1	6530	540 D	701	329 D	12	1510	3420 D	215	4.0 D	2.2	2.21	<0.1	<0.001		
0801	N	1/4/2010	6,852.82	6.54	6.84	6580 D	552 D	682	338 D	12	1540	3540 D	203	2.98	2.2	2.51	<0.1	<0.001		
0801	N	4/5/2010	6,852.92	6.42	6.75	6550 DH	585 D	709	368 D	12	1590	3510 D	191	3.64	2.8	2.17	<0.1	<0.001		
0801	N	7/12/2010	6,852.67	6.43	7.05	6420 D	578 D	690	344 D	12	1570	3390 D	200 D	3.85	2.9 D	2.56	<0.1	<0.001		
0801	N	10/4/2010	6,852.32	6.45	7.48	6510 D	540	638	344	12	1570	3410 D	197 D	3.54	5.0 D	2.65	<0.1	<0.001		
0801	N	1/3/2011	6,852.17	6.41	7.45	5940 D	572 D	676	348 D	12	1500	3290 D	207 D	1.93	5.3 D	2.14	<0.1	<0.001		
0801	N	4/5/2011	6,852.04	6.51	6.69	6370 D	566	645	371 D	13	1500	3290 D	206 D	3.36 D	7.9 D	2.76	<0.1	<0.001		
0801	N	7/11/2011	6,851.87	6.43	7.23	6040 D	576	660	364	12	1490	3170 D	198 D	3.4 D	9.7 D	2.22	<0.1	<0.001		
0801	N	10/3/2011	6,851.52	6.51	7.19	6000 D	552	644	354	12	1400	3290 D	204 D	2.8 D	11.2 D	2.39	<0.1	<0.001		
0801	N	1/2/2012	6,851.41	6.59	6.80 H	6040 D	567	610	331	13	1360	3150 D	200 D	3.2 D	11.9 D	2.68	<0.1	<0.001		
0801	N	4/2/2012	6,851.39	6.72	6.57 H	6220 D	576	622	332	13	1470	3180 D	200 D	3.2 D	14.5 D	2.76	<0.1	<0.01		



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Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0801	N	1/3/2005	< 0.01	< 0.005	< 0.01	< 0.05	3.82	< 0.1	< 0.05	< 0.001	< 0.1	0.0442	0.8	< 1.0	0.8	< 0.2	< 1.0	1.8
0801	N	4/4/2005	< 0.01	< 0.005	< 0.01	< 0.05	3.93	< 0.1	< 0.05	< 0.001	< 0.1	0.041	0.7	< 1.0	0.7	< 0.2	< 1.0	< 1.0
0801	N	7/11/2005	< 0.01	< 0.005	< 0.01	< 0.05	3.92	< 0.1	< 0.05	< 0.001	< 0.1	0.0416	0.4	< 1.0	0.4	< 0.2	< 1.0	< 1.0
0801	N	10/3/2005	< 0.01	< 0.005	< 0.01	< 0.05	3.62	< 0.1	< 0.05	< 0.001	< 0.1	0.0419	< 0.2	2.4	2.4	< 0.2	< 1.0	1
0801	N	1/9/2006	< 0.01	< 0.005	< 0.01	< 0.05	3.97	< 0.1	< 0.05	< 0.001	< 0.1	0.0382	< 0.2	< 1.0	0	< 0.2	< 1.0	< 1.0
0801	N	4/3/2006	< 0.01	< 0.005	< 0.01	< 0.05	3.68	< 0.1	< 0.05	< 0.001	< 0.1	0.0374 D	0.4	1.5	1.9	< 0.2	< 1.0	< 1.0
0801	N	7/17/2006	< 0.01	< 0.005	< 0.01	< 0.05	3.64	< 0.1	< 0.05	< 0.001	< 0.1	0.042	0.6	< 1.0	0.6	< 0.2	< 1.0	1.1
0801	N	10/2/2006	< 0.01	< 0.005	< 0.01	< 0.05	3.65	< 0.1	< 0.05	< 0.001	< 0.1	0.0407	0.5	2.5	3	< 0.2	< 1	< 1
0801	N	1/8/2007	< 0.01	< 0.005	< 0.01	< 0.05	3.69	< 0.1	< 0.05	< 0.001	< 0.1	0.0395	0.5	1.6	2.1	< 0.2	< 1	< 1
0801	N	4/9/2007	< 0.01	< 0.005	< 0.01	< 0.05	3.63	< 0.1	< 0.05	< 0.001	< 0.1	0.0404	< 0.2	< 1	0	< 0.2	< 1	1.2
0801	N	7/9/2007	< 0.01	< 0.005	< 0.01	< 0.05	3.43	< 0.1	< 0.05	< 0.001	< 0.1	0.0423	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	10/1/2007	< 0.01	< 0.005	< 0.01	< 0.05	4.25	< 0.1	< 0.05	< 0.001	< 0.1	0.0431	0.5	< 1	0.5	1.5	< 1	1.3
0801	N	1/14/2008	< 0.01	< 0.005	< 0.01	< 0.05	3.81	< 0.1	< 0.05	< 0.001	< 0.1	0.0366	< 0.2	< 1	0	< 0.2	< 1	< 1
0801	N	4/7/2008	< 0.01	< 0.005	< 0.01	< 0.05	4.01	< 0.1	< 0.05	< 0.001	< 0.1	0.0395	0.5	1.2	1.7	0.2	-4.5 U	1.5
0801	N	7/7/2008	< 0.01	< 0.005	< 0.01	< 0.05	4.81	< 0.1	< 0.05	< 0.001	< 0.1	0.0387	0.34	2.5	2.84	0.3	-0.3 U	1.2
0801	N	10/6/2008	< 0.01	< 0.005	< 0.01	< 0.05	3.86	< 0.1	< 0.05	< 0.001	< 0.1	0.0382	0.52	0.14 U	0.66	0.4	-2 U	1.6
0801	N	1/12/2009	< 0.01	< 0.005	< 0.01	< 0.05	2.64	< 0.1	< 0.05	< 0.001	< 0.1	0.0198	0.07 U	0.68 U	0.75	0.4 U	-2 U	1.4
0801	N	4/6/2009	< 0.01	< 0.005	< 0.01	< 0.05	4.32	< 0.1	< 0.05	< 0.001	< 0.1	0.0347	0.43	0.60 U	1.03	0.07 U	-0.1 U	0.8
0801	N	7/6/2009	< 0.01	< 0.005	< 0.01	< 0.05	5.12	< 0.1	< 0.05	< 0.001	< 0.1	0.0367	0.99	1.9	2.89	0.2 U	-0.5 U	1.5
0801	N	10/5/2009	< 0.01	< 0.005	< 0.01	< 0.05	4.67	< 0.1	< 0.05	< 0.001	< 0.1	0.0393	0.91	1.2 U	2.11	0.002 U	1.4 U	0.6 U
0801	N	1/4/2010	< 0.01	< 0.005	< 0.01	< 0.05	4.2	< 0.1	< 0.05	< 0.001	< 0.1	0.035	0.44	1.1 U	1.54	-0.03 U	0.3 U	1
0801	N	4/5/2010	< 0.01	< 0.005	< 0.01	< 0.05	3.98	< 0.1	< 0.05	< 0.001	< 0.1	0.0396	0.41	0.80 U	1.21	0.08 U	1.9 U	0.7
0801	N	7/12/2010	< 0.01	< 0.005	< 0.01	< 0.05	4.41	< 0.1	< 0.05	< 0.001	< 0.1	0.0423	0.67	0.78 U	1.45	0.01 U	0.7 U	0.5 U
0801	N	10/4/2010	< 0.01	< 0.005	< 0.01	< 0.05	4.17	< 0.1	< 0.05	< 0.001	< 0.1	0.0396	0.38	0.59 U	0.97	0.02 U	1.9	0.4 U
0801	N	1/3/2011	< 0.01	< 0.005	< 0.01	< 0.05	3.98	< 0.1	< 0.05	< 0.001	< 0.1	0.0407	0.25	0.73 U	0.98	0.01 U	0.6 U	0.8 U
0801	N	4/5/2011	< 0.01	< 0.005	< 0.01	< 0.05	4.05	< 0.1	< 0.05	< 0.001	< 0.1	0.0357	0.29	0.96 U	1.25	0.02 U	-0.2 U	0.4
0801	N	7/11/2011	< 0.01	< 0.005	< 0.01	< 0.05	3.98	< 0.1	< 0.05	< 0.001	< 0.1	0.04	0.37	1.2	1.57	0.02 U	-0.8 U	1
0801	N	10/3/2011	< 0.01	< 0.005	< 0.01	< 0.05	4.13	< 0.1	< 0.05	< 0.001	< 0.1	0.037	0.47	0.66 U	1.13	0.01 U	0.4 U	0.8
0801	N	1/2/2012	< 0.01	< 0.005	< 0.01	< 0.05	3.62	< 0.1	< 0.05	< 0.001	< 0.1	0.0375	0.59	0.44 U	1.47	0.02 U	0.9 U	0.7
0801	N	4/2/2012	< 0.01	< 0.005	< 0.01	< 0.05	3.76	< 0.1	< 0.05	< 0.001	< 0.1	0.0407	0.4	0.65 U	1.7	-0.04 U	-0.1 U	0.1 U



TABLE A.1

Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Water Elevation ft amsl	Field pH SU	Lab pH SU	Lab TDS mg/l	Ca mg/l	Mg mg/l	Na mg/l	K mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NH4 as N mg/l	NO3 as N mg/l	TTHMs (Chloroform) ug/l	Al mg/l	As mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0801	N	7/9/2012	6,851.12	6.52	6.58 H	6390	584	708	362 D	13	1470	3090 D	193 D	3.3	18 D	1.89	<0.1	<0.001
0801	N	10/8/2012	6,850.82	6.57	6.62 H	6120	592	652	352 D	14	1520	3270 D	211 D	3.8 D	20 D	1.81	<0.1	<0.001
0802	N	10/17/1989	6,874.80	6.5	6.89	6744	944	519	374	6.7	2288	2371	221	0.22	113	< 1	< 0.1	< 0.001
0802	N	1/11/1990	no data	6.5	6.98	6978	849	530	350	5.08	2547	2663	229	0.17	124	1.9	< 0.1	< 0.001
0802	N	4/5/1990	no data	6.5	6.8	6854	877	570	380	5.2	2416	2528	230	0.12	128	< 1	< 0.1	< 0.001
0802	N	7/9/1990	no data	6.6	7.02	6937	866	605	378	5.6	2347	2625	213	< 0.05	133	< 1	< 0.1	< 0.001
0802	N	10/3/1990	no data	6.6	7.18	6698	944	586	383	5.6	1940	2606	224	< 0.05	89.7	< 1	< 0.1	0.001
0802	N	1/3/1991	no data	6.5	7.22	6727	898	649	397	8.6	2318	2691	230	0.08	152	< 1	< 0.1	< 0.001
0802	N	4/11/1991	no data	6.3	7.65	6711	893	615	382	6.1	2171	2561	240	< 0.05	165	< 1	< 0.1	< 0.001
0802	N	7/11/1991	no data	6.4	7.21	7065	829	624	335	4.6	1940	2857	218	< 0.08	127	< 1	< 0.1	< 0.001
0802	N	10/23/1991	no data	6.4	7.41	6795	800	543	362	4.6	2250	2775	237	0.36	99	< 1	< 0.1	< 0.001
0802	N	1/16/1992	no data	6.3	7.1	6541	765	657	363	4.4	1662	2916	235	0.57	117	< 1	< 0.1	< 0.001
0802	N	4/13/1992	no data	6.2	6.84	7383	852	592	393	5.5	2404	2730	234	0.09	81.3	< 1	< 0.1	< 0.001
0802	N	7/8/1992	no data	6.2	7.32	5929	841	608	445	6.2	1777	2615	235	0.16	100	< 1	< 0.1	< 0.001
0802	N	10/8/1992	no data	6.8	7.21	7274	809	648	456	8.2	2245	3057	228	< 0.05	136	< 1	< 0.1	< 0.001
0802	N	1/7/1993	no data	6.8	7.46	6306	782	660	397	6	2150	2980	236	0.14	105	< 1	< 0.1	< 0.001
0802	N	4/7/1993	no data	6.5	7.15	6486	732	644	421	4.1	2223	3023	237	0.5	93.9	< 1	< 0.1	< 0.001
0802	N	7/14/1993	no data	6.4	7	7413	861	720	393	4.6	2208	3183	241	0.32	78.3	< 1	< 0.1	< 0.001
0802	N	10/7/1993	no data	6.4	6.98	6416	659	700	354	4.2	1972	2935	218	0.39	110	< 1	< 0.1	< 0.001
0802	N	1/6/1994	no data	6.4	6.75	6614	749	641	389	4	2125	3228	224	1	80.3	< 1	< 0.1	< 0.001
0802	N	4/12/1994	no data	6.3	6.99	7568	731	706	367	4.7	2047	3596	184	1.24	96.2	< 1	< 0.1	< 0.001
0802	N	7/27/1994	no data	6.4	7.35	7680	866	715	355	5.3	2237	3484	217	1.03	106	< 1	< 0.1	< 0.001
0802	N	10/5/1994	no data	6.3	7.45	7578	790	826	389	5.8	2288	3277	225	1.47	97.3	< 1	< 0.1	< 0.001
0802	N	1/4/1995	no data	6.6	7.29	7845	853	756	376	6.5	2323	3436	240	1.66	86.1	< 1	< 0.1	< 0.001
0802	N	4/6/1995	no data	6.5	6.75	7761	786	714	380	5.2	2269	3551	268	1.82	93	< 1	< 0.1	< 0.001
0802	N	7/6/1995	no data	6.4	7.43	7216	750	735	375	5.8	2257	3310	236	1.83	84.6	< 1	< 0.1	< 0.001
0802	N	10/4/1995	no data	6.5	7.56	7003	738	754	369	5.3	2208	3301	190	2.23	88.4	< 1	< 0.1	< 0.001
0802	N	1/3/1996	no data	6.4	7.92	7477	817	805	361	5.5	2166	3530	222	1.84	85.8	< 1	< 0.1	< 0.001
0802	N	4/2/1996	no data	6.4	7.37	7595	796	845	380	11.4	2250	3560	227	1.88	88.4	< 1	< 0.1	< 0.001
0802	N	7/17/1996	no data	6.3	6.96	7488	701	723	366	6	2196	3164	236	1.6	91.2	1.21	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0801	N	7/9/2012	<0.001	<0.005	<0.01	<0.001	4.21	<0.1	<0.05	<0.001	<0.1	0.037	0.55	0.59 U	1.73	-0.01 U	0.5 U	0.5
0801	N	10/8/2012	<0.001	<0.005	<0.01	<0.001	5.01	<0.1	<0.05	<0.001	<0.1	0.0387	0.42	2.5	2.92	0.02 U	0.5 U	0.7
0802	N	10/17/1989	< 0.05	< 0.01	0.01	< 0.05	0.2	< 0.01	< 0.05	< 0.001	< 0.1	0.154	0.6	< 1	0.6	< 0.2	< 1	1.5
0802	N	1/11/1990	< 0.05	< 0.01	0.04	< 0.05	0.21	< 0.1	< 0.05	< 0.001	< 0.1	0.164	0.3	< 1	0.3	1.3	< 1	1.8
0802	N	4/5/1990	< 0.05	< 0.01	0.02	< 0.05	0.21	< 0.1	< 0.05	< 0.001	< 0.1	0.128	0.7	< 1	0.7	< 0.2	1.2	1.1
0802	N	7/9/1990	< 0.05	< 0.01	< 0.01	< 0.05	0.23	< 0.1	< 0.05	0.001	< 0.1	0.123	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	10/3/1990	< 0.05	< 0.01	0.02	< 0.05	0.2	< 0.1	< 0.05	< 0.001	< 0.1	0.1812	0.4	1	1.4	< 0.2	1.4	< 1
0802	N	1/3/1991	< 0.01	0.01	0.01	< 0.05	0.23	< 0.1	0.05	0.001	< 0.1	0.0218	0.7	1.3	2	< 0.2	< 1	< 1
0802	N	4/11/1991	< 0.01	0.03	0.01	< 0.05	0.18	< 0.1	< 0.05	< 0.001	< 0.1	0.1568	< 0.2	< 1	0	< 0.2	2.1	< 1
0802	N	7/11/1991	< 0.01	< 0.01	0.01	< 0.05	0.24	< 0.1	< 0.05	0.001	< 0.1	0.1983	< 0.2	< 1	0	< 0.2	2.1	< 1
0802	N	10/23/1991	< 0.01	< 0.01	0.02	no data	0.28	< 0.1	< 0.05	< 0.001	< 0.1	0.22	< 0.2	2.1	2.1	< 0.2	< 1	< 1
0802	N	1/16/1992	< 0.01	< 0.01	0.02	< 0.05	0.35	< 0.1	< 0.05	< 0.001	< 0.1	0.144	0.5	< 1	0.5	< 0.2	< 1	< 1
0802	N	4/13/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.44	< 0.1	< 0.05	0.004	< 0.1	0.045	0.2	< 1	0.2	< 0.2	2.7	< 1
0802	N	7/8/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.4	< 0.1	< 0.05	0.001	< 0.1	0.14	1.2	4.4	5.6	< 0.2	< 1	1.5
0802	N	10/8/1992	< 0.01	< 0.01	< 0.01	< 0.05	0.4	< 0.1	< 0.05	0.002	< 0.1	0.124	0.8	< 1	0.8	< 0.2	< 1	< 1
0802	N	1/7/1993	< 0.01	< 0.01	0.01	< 0.05	0.44	< 0.1	< 0.05	0.006	< 0.1	0.127	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	4/7/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.57	< 0.1	< 0.05	0.001	< 0.1	0.249	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	7/14/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.53	< 0.1	< 0.05	0.003	< 0.1	0.154	0.5	< 1	0.5	< 0.2	< 1	< 1
0802	N	10/7/1993	< 0.01	< 0.01	< 0.01	< 0.05	0.52	< 0.1	< 0.05	0.004	< 0.1	0.143	0.7	4.1	4.8	< 0.2	1.6	< 1
0802	N	1/6/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.55	< 0.1	< 0.05	< 0.001	< 0.1	0.148	0.5	1.6	2.1	< 0.2	< 1	3.9
0802	N	4/12/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.72	< 0.1	< 0.05	0.001	< 0.1	0.176	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	7/27/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.57	< 0.1	< 0.05	0.003	< 0.1	0.165	0.8	< 1	0.8	< 0.2	< 1	< 1
0802	N	10/5/1994	< 0.01	< 0.01	< 0.01	< 0.05	0.57	< 0.1	< 0.05	< 0.001	< 0.1	0.153	0.8	< 1	0.8	< 0.2	< 1	< 1
0802	N	1/4/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.78	< 0.1	< 0.05	< 0.001	< 0.1	0.142	0.4	2.2	2.6	< 0.2	< 1	3.9
0802	N	4/6/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.76	< 0.1	< 0.05	< 0.001	< 0.1	0.159	< 0.2	< 1	0	< 0.2	2.6	< 1
0802	N	7/6/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.69	< 0.1	< 0.05	0.002	< 0.1	0.1883	0.3	< 1	0.3	< 0.2	< 1	1.5
0802	N	10/4/1995	< 0.01	< 0.01	< 0.01	< 0.05	0.73	< 0.1	< 0.05	0.024	< 0.1	0.157	0.3	< 1	0.3	< 0.2	< 1	1.4
0802	N	1/3/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.09	< 0.1	< 0.05	0.022	< 0.1	0.168	0.4	< 1	0.4	< 0.2	3.6	< 1
0802	N	4/2/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.8	< 0.1	< 0.05	< 0.001	< 0.1	0.167	< 0.2	< 1	0	< 0.2	< 1	1.2
0802	N	7/17/1996	< 0.01	< 0.01	< 0.01	< 0.05	0.81	< 0.1	< 0.05	< 0.001	< 0.1	0.086	< 0.2	< 1	0	< 0.2	< 1	< 1



**TABLE A.1**  
**Southwest Alluvium Data Summary, 1989-2012**  
**United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico**

Location ID	Desc	Sample Date	Water Elevation	Field pH	Lab pH	Lab TDS	Ca	Mg	Na	K	HCO3	SO4	Chl	NH4 as N	NO3 as N	TTHMs (Chloroform)	Al	As
			ft amsl	SU	SU	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	ug/l	mg/l
NRC Standard			NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80	NA	0.05
EPA Standard			NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA	5	0.05
0802	N	10/8/1996	no data	6.7	7.25	7600	756	778	357	6.4	2200	3291	220	1.7	76.5	< 1	< 0.1	< 0.00
0802	N	1/28/1997	no data	6.5	7.84	7350	745	720	301	6	2142	3215	317	1.23	79.1	< 1	< 0.1	< 0.001
0802	N	4/8/1997	no data	6.4	7.44	7270	756	740	336	6.6	2090	3190	240	1.53	80.1	< 1	< 0.1	< 0.001
0802	N	7/8/1997	no data	6.7	7.38	7430	786	759	335	6.7	2140	2930	236	1.37	82	< 1	< 0.1	< 0.001
0802	N	10/8/1997	no data	6.5	7.45	7330	789	750	336	6.35	2160	3050	252	1.38	82.8	< 1	< 0.1	< 0.001
0802	N	1/20/1998	no data	6.2	7.72	7320	766	721	356	7.6	2120	3350	242	1.49	83.3	< 1	< 0.1	< 0.001
0802	N	4/7/1998	no data	6.6	7.3	7310	776	723	340	6.7	2120	3010	212	1.2	90.8	1.2	< 0.1	< 0.001
0802	N	7/7/1998	no data	6.8	7.42	7350	758	726	348	6.6	2180	2900	224	1.26	86.6	1	< 0.1	< 0.001
0802	N	10/6/1998	no data	6.43	7.64	7340	796	757	361	7.2	2110	3230	210	1.13	85.4	1.5	< 0.1	< 0.001
0802	N	1/12/1999	no data	6.6	7.55	7190	734	686	298	7.4	2110	3260	207	1.28	88.1	< 1	< 0.1	< 0.001
0802	N	4/13/1999	no data	6.4	7.65	7320	783	732	323	6.8	2090	3060	205	1.23	86.2	1.5	< 0.1	< 0.001
0802	N	7/20/1999	no data	6.5	7.58	7350	760	743	370	9.8	2120	3160	207	1.18	76.2	1.4	< 0.1	< 0.001
0802	N	10/12/1999	no data	6.62	7.66	7360	703	695	311	6.4	2120	2920	194	1.09	76.9	1.4	< 0.1	< 0.001
0802	N	1/11/2000	no data	6.5	7.73	7350	732	734	298	9.5	2100	3120	195	1.06	119	1.6	0.12	< 0.001
0802	N	5/2/2000	no data	6.7	7.55	7170	651	643	290	9.1	2047	2920	174	1.24	81.2	1.5	0.1	< 0.001
0802	N	7/12/2000	6,841.60	6.55	7.33	7030	699	700	297	12.1	2020	2870	174	0.91	42	< 1	< 0.1	< 0.001
0802	N	10/4/2000	6,842.00	6.37	7.01	7250	732	758	327	9	2050	3170	201	1.06	79.7	2	< 0.1	0.001
0802	N	1/8/2001	6,857.50	6.43	7.69	7360	751	758	300	8.2	2180	3190	203	1.2	89.3	2.2	< 0.1	< 0.001
0802	N	2/5/2001	6,860.50	6.49	7.1	6910	739	834	348	8.2	2050	3160	200	1.02	93.8	2.6	< 0.1	< 0.001
0802	N	3/5/2001	6,861.00	6.64	7.17	6120	737	661	370	8	2000	2850	158	0.12	103	1.5	< 0.1	< 0.001
0802	N	4/9/2001	6,861.60	6.86	7.24	6400	847	671	263	6.6	2050	2840	180	0.06	111	< 1	< 0.1	< 0.001
0802	N	5/7/2001	6,861.65	6.42	7.23	6660	737	608	257	6	2020	2420	193	0.08	102	< 1	< 0.1	< 0.001
0802	N	6/4/2001	6,861.95	6.46	7.16	6200	729	591	231	6.3	1960	2520	190	0.1	101	1.3	< 0.1	0.001
0802	N	7/9/2001	6,862.10	7.07	7.06	6580	794	651	274	5.4	2060	2520	216	0.07	114	1	< 0.1	< 0.001
0802	N	8/6/2001	6,862.08	6.43	7.2	6630	740	620	260	8	2050	2500	240	< 0.05	97.5	< 1	< 0.1	< 0.001
0802	N	9/10/2001	6,862.30	6.37	6.9	6400	770	600	284	5.6	2100	2400	216	< 0.05	100	< 1	< 0.1	< 0.001
0802	N	10/1/2001	6,862.35	6.44	7.4	6620	730	590	290	6.4	2080	2400	225	0.06	97.5	< 1	< 0.1	< 0.001
0802	N	11/5/2001	6,862.55	6.44	7.5	6660	786	618	304	6.3	2050	2640	227	< 0.05	114	< 1	< 0.1	< 0.001
0802	N	12/3/2001	6,862.65	6.56	7.5	6710	750	587	256	5.9	2060	2450	214	0.09	121	< 1	< 0.1	< 0.001
0802	N	1/7/2002	6,862.70	6.56	7.1	6750	874	646	226	8.2	2030	2850	232	0.05	98	1.2	< 0.1	< 0.001



**TABLE A.1**  
Southwest Alluvium Data Summary, 1989-2012  
United Nuclear Corporation, Church Rock Site, Church Rock, New Mexico

Location ID	Desc	Sample Date	Be	Cd	Co	Pb	Mn	Mo	Ni	Se	V	U	Rad-226	Rad-228	Rad Total	Th-230	Pb-210	Gross Alpha
			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	pci/l	pci/l	pci/l	pci/l	pci/l
NRC Standard			0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	NA	NA	5.2	5	1	15
EPA Standard			0.017	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	NA	NA	5	NA	NA	15
0802	N	10/8/1996	< 0.01	< 0.01	< 0.01	< 0.05	1.06	< 0.1	< 0.05	< 0.001	< 0.1	0.171	0.5	< 1	0.5	< 0.2	< 1	< 1
0802	N	1/28/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.93	< 0.1	< 0.05	< 0.001	< 0.1	0.171	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	4/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.98	< 0.1	< 0.05	0.021	< 0.1	0.181	1.4	< 1	1.4	< 0.2	< 1	1.9
0802	N	7/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	0.97	< 0.1	< 0.05	< 0.001	< 0.1	0.018	0.6	< 1	0.6	< 0.2	< 1	< 1
0802	N	10/8/1997	< 0.01	< 0.01	< 0.01	< 0.05	1.26	< 0.1	< 0.05	< 0.001	< 0.1	0.176	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	1/20/1998	< 0.01	< 0.005	< 0.01	< 0.05	1.25	< 0.1	< 0.05	< 0.001	< 0.1	0.198	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	4/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	1.18	< 0.1	< 0.05	< 0.001	< 0.1	0.186	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	7/7/1998	< 0.01	< 0.005	< 0.01	< 0.05	1.19	< 0.1	< 0.05	< 0.001	< 0.1	0.208	0.6	< 1	0.6	< 0.2	< 1	< 1
0802	N	10/6/1998	< 0.01	< 0.005	< 0.01	< 0.05	1.2	< 0.1	< 0.05	0.001	< 0.1	0.207	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	1/12/1999	< 0.01	< 0.005	< 0.01	< 0.05	1.29	< 0.1	< 0.05	< 0.001	< 0.1	0.211	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	4/13/1999	< 0.01	< 0.005	< 0.01	< 0.05	1.48	< 0.1	< 0.05	< 0.001	< 0.1	0.19	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	7/20/1999	< 0.01	< 0.005	< 0.01	< 0.05	1.13	< 0.1	< 0.05	< 0.001	< 0.1	0.196	0.5	< 1	0.5	< 0.2	< 1	1
0802	N	10/12/1999	< 0.01	< 0.005	< 0.01	< 0.05	1.37	< 0.1	< 0.05	< 0.001	< 0.1	0.203	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	1/11/2000	< 0.01	< 0.005	< 0.01	< 0.05	1.83	< 0.1	0.05	0.001	< 0.1	0.18	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	5/2/2000	< 0.01	< 0.005	< 0.01	< 0.05	2.27	< 0.1	< 0.05	0.001	< 0.1	0.193	< 0.2	2.1	2.1	< 0.2	< 1	< 1
0802	N	7/12/2000	< 0.01	< 0.005	< 0.01	< 0.05	1.52	< 0.1	< 0.05	< 0.001	< 0.1	0.098	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	10/4/2000	< 0.01	< 0.005	< 0.01	< 0.05	1.97	< 0.1	< 0.05	< 0.001	< 0.1	0.168	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	1/8/2001	< 0.01	< 0.005	0.01	< 0.05	2.73	< 0.1	< 0.05	0.004	< 0.1	0.193	< 0.2	3.6	3.6	< 0.2	< 1	< 1
0802	N	2/5/2001	< 0.01	< 0.005	0.01	< 0.05	3.34	< 0.1	< 0.05	0.001	< 0.1	0.159	0.4	< 1	0.4	< 0.2	< 1	< 1
0802	N	3/5/2001	< 0.01	< 0.005	0.01	< 0.05	0.96	< 0.1	< 0.05	0.001	< 0.1	0.165	< 0.2	2.9	2.9	< 0.2	< 1	< 1
0802	N	4/9/2001	< 0.01	< 0.005	0.01	< 0.05	0.64	< 0.1	< 0.05	< 0.001	< 0.1	0.17	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	5/7/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.6	< 0.1	< 0.05	0.001	< 0.1	0.181	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	6/4/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.62	< 0.1	< 0.05	0.011	< 0.1	0.214	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	7/9/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.6	< 0.1	< 0.05	0.001	< 0.1	0.221	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	8/6/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.65	< 0.1	< 0.05	< 0.001	< 0.1	0.23	< 0.2	< 1	0	< 0.2	< 1	< 1
0802	N	9/10/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.68	< 0.1	< 0.05	< 0.001	< 0.1	0.25	0.3	2.7	3	< 0.2	< 1	< 1
0802	N	10/1/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.57	< 0.1	< 0.05	< 0.001	< 0.1	0.244	0.6	1.2	1.8	< 0.2	< 1	< 1
0802	N	11/5/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.62	< 0.1	< 0.05	< 0.001	< 0.1	0.219	0.3	< 1	0.3	< 0.2	< 1	< 1
0802	N	12/3/2001	< 0.01	< 0.005	< 0.01	< 0.05	0.55	< 0.1	< 0.05	< 0.001	< 0.1	0.222	< 0.2	1.6	1.6	< 0.2	< 1	< 1
0802	N	1/7/2002	< 0.01	< 0.005	< 0.01	< 0.05	0.58	< 0.1	< 0.05	< 0.001	< 0.1	0.225	0.4	< 1	0.4	< 0.2	< 1	< 1