

**Abandoned Uranium Mines Project
Navajo Lands**

Monument Valley Area

Water Sample Information

Map ID	Sample ID	Field Type	Sample Name	Longitude DMS (W)	Latitude DMS (N)	Elevation (ft)	Sample Date	Sample Time	pH su	Cond uS/cm	Temp C	ORP millivolt	Metals	Radio	Filtration	Preserved	Bacterial Sampling	Ludlum 19 mR/hr	Notes
1	KY980910OLS003	Spring	Tse-li-chee-hateh Spring	109 50 40.45	37 1 12.0791	4531	10-Sep-1998	2:37 pm	8.73	930	27.4	206	Yes	Yes	No	Yes	No	8-12	
2	KY980910OLW004	Well	Stockpile Well	109 51 54.83	36 56 10.010	4802	10-Sep-1998	10:45 am	10.62	296	18.4	138	Yes	Yes	No	Yes	No	8	6 WELL-Near MM#2
3	KY980910OLS002	Spring	Kiishzhinii-be-toh Spring	109 51 58.60	36 55 36.359	4804	10-Sep-1998	12:01 pm	7.71	653	22.3	-250	Yes	Yes	No	Yes	No	10-13	
4	KY981012OLW012	Well	Artesian Well 613	109 51 50.49	36 55 32.643	4799	12-Oct-1998	10:40 am	8.03	479	18.3	244	Yes	Yes	No	Yes	No	10 - 12	Artesian Well @ MM#2
5	KY980901DEW002	Wind Mill	Tank 8T-519	109 46 23.95	36 55 24.856	5055	01-Sep-1998	11:32 am	8.09	187	24.0	249	Yes	Yes	No	Yes	No	12.5	Taken from Trough
6	KY980901DEW001	Wind Mill	Tank-East Of Chapter	109 48 29.80	36 53 54.586	5140	01-Sep-1998	10:13 am	8.17	182	23.1	265	Yes	Yes	No	Yes	No	8-12	
7	KY980910OLW005	Well	Shallow Well-Adakai	109 54 54.36	36 52 52.552	4985	10-Sep-1998	12:54 pm	8.09	983	20.0	115	Yes	Yes	No	Yes	No	8-10	Shallow Well
8	KY980922OLS007	Spring	Sand Spring	110 3 19.837	36 55 55.811	5010	22-Sep-1998	10:10 am	9.04	589	16.6	172	Yes	Yes	No	Yes	No	8-10	Taken from Wash
9	KY980922OLW008	Well	Monument Valley Park	110 6 48.323	36 58 53.504	5530	22-Sep-1998	8:34 am	7.69	287	21.2	230	Yes	Yes	No	Yes	No	8-10	Monument Valley Navajo Park Sample
10	KY980922OLS008	Spring	Tsiah Spring	110 8 2.1552	36 55 41.319	5422	22-Sep-1998	4:59 pm	8.62	358	21.7	255	Yes	Yes	No	Yes	No	12-15	Handpump
11	KY980922OLW009	Well	Monument Valley High School	110 10 42.51	37 0 20.1653	5120	22-Sep-1998	11:36 am	7.48	299	23.5	220	Yes	Yes	No	Yes	No	NA	From Tap; Monument Valley High School Sample
12	KY980921OLW007	Wind Mill	Tank 8AI-1	110 18 34.58	37 1 17.0472	4837	21-Sep-1998	3:05 pm	9.13	774	21.7	160	Yes	Yes	No	Yes	No	7	Taken from Trough
13	KY980923OLW010	Wind Mill	Tank 8AI-3	110 13 51.92	37 2 32.8368	4878	23-Sep-1998	7:58 am	7.98	267	21.6	212	Yes	Yes	No	Yes	No	8-10	Taken from Trough
14	KY980921OLS004	Spring	Moonlight Water	110 18 30.98	37 1 21.6576	4829	21-Sep-1998	1:55 pm	7.63	675	22.1	122	Yes	Yes	No	Yes	No	8-12	Handpump
15	KY980921OLS006	Spring	Truck Cab Spring	110 19 36.64	37 0 19.2780	4836	21-Sep-1998	4:01 pm	8.20	856	21.1	186	Yes	Yes	No	Yes	No	10-14	
16	KY980909OLW003	Well	Shallow Well El Capitan	110 19 48.96	36 58 15.235	4920	09-Sep-1998	12:26 pm	7.85	597	23.1	181	Yes	Yes	No	Yes	No	NA	El Capitan Wash; QC: Field Blank
17	KY980902OLW002	Wind Mill	Tank 8K-402	110 12 29.13	36 57 16.067	5157	02-Sep-1998	4:20 pm	8.61	413	28.1	187	Yes	Yes	No	Yes	No	8-18	Taken from Trough
18	KY980902OLW001	Wind Mill	Tank 8A-299	110 17 29.53	36 56 50.647	5028	02-Sep-1998	12:10 pm	8.74	962	24.4	129	Yes	Yes	No	Yes	No	15	Taken from Trough
19	KY980923OLW011	Well	Well 8T-525	110 18 22.74	36 56 19.874	5011	23-Sep-1998	9:51 am	8.94	651	17.5	225	Yes	Yes	No	Yes	No	10-15	Artesian Well- Pond
20	KY980923OLS009	Spring	8A-P.H.S.-22 Spring	110 15 55.23	36 51 16.848	5257	23-Sep-1998	11:28 am	8.28	382	21.0	200	Yes	Yes	No	Yes	No	20	From Cistern; Sample ID changed from KY980923KYS001 to KY980923OLSC
21	KY980909OLS001	Spring	Ramp Spring	110 22 7.077	36 56 53.394	5241	09-Sep-1998	1:18 pm	7.68	332	23.6	231	Yes	Yes	No	Yes	No	12-16	Taken from Trough
22	KY980831SHS001	Spring	Aspen Spring	110 31 8.197	36 48 26.536	7383	31-Aug-1998	11:27 am	7.47	82	17.3	297	Yes	Yes	No	Yes	No	8	
23	KY980831SHW001	Wind Mill	Tank 2K-305	110 34 29.95	36 46 41.801	7270	31-Aug-1998	9:53 am	8.28	238	20.7	300	Yes	Yes	No	Yes	No	10	Tall Mountain Windmill
24	KY981009KYW002	Well	Kayenta Chapter House	110 15 17.05	36 43 27.933	5603	09-Oct-1998	9:31 am	7.67	376	17.1	221	Yes	Yes	No	Yes	No	10-12	From Kitchen; Kayenta Chapter House Sample
25	KY980901DES001	Spring	Baby Rock Spring 8-44	110 3 13.274	36 44 49.654	5229	01-Sep-1998	1:45 pm	9.06	546	21.5	224	Yes	Yes	No	Yes	No	10-14	
26	KY981009KYW003	Wind Mill	Tank 8A-138	110 9 7.8563	36 41 34.721	5427	09-Oct-1998	10:41 am	9.89	604	15.1	219	Yes	Yes	No	Yes	No	12-15	Taken from Trough
27	KY981009KYS001	Spring	Kee Mi Kay Spring	110 11 1.558	36 40 23.998	5565	09-Oct-1998	11:26 am	7.56	606	17.6	222	Yes	Yes	No	Yes	No	8-10	Taken from Trough
28	KY981009KYW004	Wind Mill	Tank 8T-549	110 12 49.67	36 39 41.614	5748	09-Oct-1998	11:53 am	9.63	253	21.2	216	Yes	Yes	No	Yes	No	8-12	Taken from Trough
29	KY980831SHS002	Spring	Shonto Chapter House	110 38 40.30	36 35 38.984	6178	31-Aug-1998	1:19 pm	7.37	287	16.8	339	Yes	Yes	No	Yes	No	8	Shonto Chapter Truck Filling Station
30	KY000112OLW013	Well	Goulding Well	110 13 4.816	37 0 17.6262	5368	12-Jan-2000	1:07 pm	8.18	361	9.4	214	Yes	Yes	No	Yes	Yes	4	
31	KY000112OLW014	Well	Monument Pass Well	110 6 59.900	37 2 7.36681	5441	12-Jan-2000	2:28 pm	8.54	1,464	11.3	206	Yes	Yes	No	Yes	Yes	6-10	

**Abandoned Uranium Mines Project
Navajo Lands**

Monument Valley Area

Water Sample Analysis for Stable Metals

Map ID	Sample ID	Sample Name	Field Type	Aluminum	Antimony ²	Arsenic ^{2,4}	Barium	Beryllium ^{2,4}	Cadmium ^{2,4}	Calcium	Chromium ^{2,5}	Cobalt ²	Copper ²	Iron ²	Lead ²	Magnesium	Manganese ²	Mercury ²	Nickel ²	Potassium ²	Selenium ²	Silver ²	Sodium	Thallium ^{2,5}	Vanadium ²	Zinc ²	ILCR ^{1,6}	HI ^{3,6}		
				Primary MCLs in Micrograms per Liter (ug/L) ⁷	6	50	1000	4	5	NONE	100	NONE	1300	300	15	NONE	50	2	NONE	NONE	50	100	NONE	2	NONE	5000				
				PRG Limits in Micrograms per Liter (ug/L)	15	0.045	2600	73	18	NONE	180	2200	1400	1100	4	NONE	1700	11	730	NONE	189	180	NONE	2.6	260	11000				
1	KY980910OLS003	Tse-li-chee-hateh Spring	Spring	58.8	0	7.6	64.4	0	0	6,760	0	0	0	0	0	7,230	0	0.071	0	1,280	4.0	0	259,000	0	10.6	5.2	1.69E-004	0.79		
2	KY980910OLW004	Stockpile Well	Well	222.0	0	8.2	9.5	0	0	4,020	0	0	2.5	4,050.0	1.5	945	43.3	0.190	0	4,890	0	0	59,600	0	1.0	30.8	1.82E-004	1.17		
3	KY980910OLS002	Kiishzhinii-be-toh Spring	Spring	68.6	0	4.0	125.0	0	0	43,500	0	0	6.8	1,270.0	16.8	31,300	96.4	0.071	0	2,910	0	0	80,300	0	1.0	3,720.0	8.89E-005	0.94		
4	KY981012OLW012	Artesian Well 613	Well	69.1	0	0	38.9	0.2	0	16,500	0	0	0	20.6	0	26,500	0	0.190	0	3,080	0	0	48,200	0	0.9	8.8	0.00E+00	0.04		
5	KY980901DEW002	Tank 8T-519	Wind Mill	48.0	0	2.8	20.2	0	0	35,200	0	0	0	56.7	2.3	3,540	0.6	0.071	0	1,530	0	0	6,520	0	8.4	479.0	6.22E-005	0.35		
6	KY980901DEW001	Tank-East Of Chapter	Wind Mill	45.7	0	0	13.0	0	0	28,400	0	0	16.0	329.0	0	4,910	1.6	0	0	1,320	0	0	7,920	3.6	3.2	142.0	0.00E+00	1.46		
7	KY980910OLW005	Shallow Well-Adakai	Well	90.8	0	6.6	34.5	0	0	46,800	0	0	2.2	95.3	3.0	62,000	29.4	0.072	0	1,910	0	0	129,000	0	6.9	283.0	1.47E-004	0.70		
8	KY980922OLS007	Sand Spring	Spring	480.0	0	0	114.0	0.3	1.1	50,400	0	0	0	197.0	10.3	32,600	20.1	0.084	0	4,380	14.8	0	43,100	0	6.4	6.6	0.00E+00	0.26		
9	KY980922OLW008	Monument Valley Park	Well	72.6	0	0	278.0	0.4	0	35,200	0	0	11.2	0	0	18,600	0	0.140	0	2,010	0	0	6,950	0	2.8	28.1	0.00E+00	0.15		
10	KY980922OLS008	Tsiah Spring	Spring	88.1	0	7.2	149.0	0.3	0	33,800	0	0	9.9	43.1	0	21,300	0.8	0.087	0	6,610	2.8	0	20,600	0	7.8	33.7	1.60E-004	0.79		
11	KY980922OLW009	Monument Valley High School	Well	82.0	0	0	282.0	0.3	0	35,300	0	0	119.0	0	4.2	18,500	0	0.130	2.7	2,350	0	0	7,170	0	2.6	30.5	0.00E+00	0.23		
12	KY980921OLW007	Tank 8AI-1	Wind Mill	98.1	0	0	27.7	0.1	0	28,900	0	0	29.2	325.0	1.6	58,700	14.8	0.130	0	4,880	18.4	0	76,600	0	2.2	105.0	0.00E+00	0.20		
13	KY980923OLW010	Tank 8AI-3	Wind Mill	246.0	0	3.3	6.8	0	0	529,000	5.0	0	0	139.0	0	111,000	7.7	0.120	0	8,040	13.2	0	122,000	4.0	7.5	346.0	7.33E-005	2.03		
14	KY980921OLS004	Moonlight Water	Spring	97.7	0	0	211.0	0	0	59,500	0	1.1	0	118.0	2.0	54,400	23.2	0.170	0	3,830	0	0	27,200	0	0	27.6	0.00E+00	0.13		
15	KY980921OLS006	Truck Cab Spring	Spring	683.0	0	0	32.3	0.1	0	31,100	0	1.1	0	651.0	0	23,800	39.8	0.130	0	4,420	0	0	163,000	3.1	3.6	23.9	0.00E+00	1.34		
16	KY980909OLW003	Shallow Well El Capitan	Well	73.3	0	0	45.1	0	0	32,400	0	0	2.8	0	0	30,000	0.6	0.072	0	5,060	0	0	73,500	0	2.4	49.2	0.00E+00	0.04		
17	KY980902OLW002	Tank 8K-402	Wind Mill	80.2	0	0	61.9	0	0	20,700	0	0	27.9	185.0	0	25,800	1.8	0.078	0	2,390	9.6	0	42,000	0	6.0	53.5	0.00E+00	0.15		
18	KY980902OLW001	Tank 8A-299	Wind Mill	89.9	0	13.7	13.1	0	0	27,700	0	4.0	0	182.0	0	69,900	16.4	0.072	5.3	13,100	0	0	118,000	0	0	86.2	3.04E-004	1.30		
19	KY980923OLW011	Well 8T-525	Well	2,250.0	0	5.0	151.0	0.3	0	27,600	0	1.0	0	949.0	0	24,300	39.1	0.068	1.8	7,130	0	0	88,900	0	18.7	9.9	1.11E-004	0.77		
20	KY980923OLS009	8A-P.H.S.-22 Spring	Spring	88.6	0	0	86.8	0.6	0	62,700	0	0	0	0	0	9,910	0	0.062	0	1,980	0	0	16,400	0	0	5.6	0.00E+00	0.05		
21	KY980909OLS001	Ramp Spring	Spring	53.3	0	0	154.0	0	0	22,400	0	0	0	0	0	24,400	0	0.076	0	6,790	9.0	0	18,200	0	10.2	9.9	0.00E+00	0.16		
22	KY980831SHS001	Aspen Spring	Spring	43.4	0	0	11.3	0	0	12,400	18.9	0	29.2	163.0	0	805	3.4	0.070	11.1	823	0	0	1,590	0	0.7	78.3	0.00E+00	0.18		
23	KY980831SHW001	Tank 2K-305	Wind Mill	57.5	0	0	98.2	0	0.4	47,100	0	0	0	0	0	3,190	2.7	0.067	1.6	863	0	0	6,710	0	1.1	1,240.0	0.00E+00	0.19		
24	KY981009KYW002	Kayenta Chapter House	Well	88.0	0	2.6	43.5	0.6	0.4	40,800	0	0	33.7	436.0	2.1	7,420	12.0	0.130	0	1,460	0	0	19,800	0	2.3	315.0	5.78E-005	0.41		
25	KY980901DES001	Baby Rock Spring 8-44	Spring	4,790.0	0	5.4	81.6	0.3	0	5,230	3.8	1.5	0	1,440.0	0	4,500	28.8	0.074	1.6	2,120	957.0	0	154,000	4.3	481.0	19.3	1.20E-004	9.40		
26	KY981009KYW003	Tank 8A-138	Wind Mill	318.0	0	5.7	10.4	0.6	0	2,030	4.3	0.8	0	1,280.0	7.5	287	18.7	0.120	2.0	1,450	0	0	126,000	2.9	66.4	38.0	1.27E-004	2.08		
27	KY981009KYS001	Kee Mi Kay Spring	Spring	100.0	0	0	39.0	0.5	0	60,400	0	0	0	0	0	12,800	0	0.099	0	3,660	13.9	0	43,900	0	11.2	59.3	0.00E+00	0.16		
28	KY981009KYW004	Tank 8T-549	Wind Mill	106.0	0	8.8	2.4	0.5	0	1,790	0	0	0	346.0	3.5	238	3.6	0.100	0	0	0	0	56,300	0	18.7	307.0	1.96E-004	0.95		
29	KY980831SHS002	Shonto Chapter House	Spring	74.7	0	0	152.0	0	0	54,200	0	0	3.0	0	0	6,120	0.4	0.072	0	1,720	0	0	7,990	0	4.4	91.0	0.00E+00	0.09		
30	KY000112OLW013	Goulding Well	Well	30.0	0	0.4	198.0	0	0	29,200	0	0	0	0	0	22,300	0	0	0	2,290	4.3	0	16,000	0	5.3	12.4	9.11E-006	0.16		
31	KY000112OLW014	Monument Pass Well	Well	38.0	0	3.9	46.6	0	0.3	17,400	0	0	238.0	351.0	25.4	17,600	14.1	0	0	2,960	7.4	0	298,000	0	35.4	134.0	8.56E-005	0.78		

1. ILCR = Incremental Lifetime Cancer Risk with Respect to Stable Metals.
2. The values of "0" represent a result of either "not detected" at the detection limit of the laboratory method or a negative count. In both cases, the result can be considered "0".
3. The evaluation of Beta is in two steps. The initial screening level is 50 pCi/L. If the measured level of Beta exceeds the 50 pCi/L, a further evaluation is merited. Beta-emitting radionuclides would be screened.
4. The values of "0" in the Pb210 column represent analytical results that measured less than the Minimum Detectable Activity (MDA).
5. Definition of final calculations and ranking will be fully described and published in a final report.
6. When comparing these PRG's with the U.S. EPA's PRG list, the calculated PRG used for U238 is less than the EPA's PRG for U238D (D meaning that its decay daughters are included in the risk calculations).
7. MCL- Maximum Contaminant Levels are the maximum permissible level of a contaminant in water delivered to users of a public water system. This level is not always based on health or risk criteria.
8. PRG- Preliminary Remediation Goals are tools for evaluating and cleaning up contaminated sites. They are risk-based concentrations derived from standardized equations, combining exposure information assumptions and EPA toxicity data.

**Abandoned Uranium Mines Project
Navajo Lands**

Monument Valley Area

Water Sample Analysis for Radioactive Metals

Map ID	Sample ID	Sample Name	Field Type ⁷	Alpha ²	Beta ³	Lead210 ⁴	Radium226 ²	Radium228 ²	Thorium228 ²	Thorium230 ²	Thorium232 ²	Uranium234 ²	Uranium235 ²	Uranium238 ^{2,6}	ILCRrad ^{1,5}		
				15	50	NONE	5	5	NONE	NONE	NONE	20	20	20	20	20	20
				PRG Limits in pico Curies per Liter (pCi/L) ⁸	NONE	NONE	0.047	0.16	0.19	0.21	1.3	1.5	1.1	1.1	0.71		
1	KY980910OLS003	Tse-li-chee-hateh Spring	Spring	4.39	2.51	1.32	0.056	0.416	0	0	0	3.34	0.039	2.03	3.66E-005		
2	KY980910OLW004	Stockpile Well	Well	0.25	4.53	0.80	0.053	0.301	0	0.012	0	0.35	0.055	0.06	1.94E-005		
3	KY980910OLS002	Kiishzhinii-be-toh Spring	Spring	3.87	4.38	0.55	0.221	0.191	0	0.013	0	1.71	0	1.53	1.77E-005		
4	KY981012OLW012	Artesian Well 613	Well	4.60	2.87	0.46	0.043	0.368	0	0.010	0.005	2.37	0.041	1.31	6.25E-006		
5	KY980901DEW002	Tank 8T-519	Wind Mill	1.14	1.04	0.08	0.091	0.212	0.043	0.002	0.009	0.67	0.068	0.14	2.76E-006		
6	KY980901DEW001	Tank-East Of Chapter	Wind Mill	2.00	2.35	0.19	0.068	0.144	0.043	0.008	0	2.14	0.031	0.33	3.84E-006		
7	KY980910OLW005	Shallow Well-Adakai	Well	3.77	2.98	0.36	0.019	0.275	0	0.009	0	1.86	0.046	1.17	4.95E-006		
8	KY980922OLS007	Sand Spring	Spring	2.93	9.62	0.47	0.098	0.824	0.178	0.079	0.074	2.37	0	1.41	1.00E-005		
9	KY980922OLW008	Monument Valley Park	Well	1.95	1.92	0.60	0.102	0.650	0.026	0.003	0	1.29	0.046	0.49	1.88E-005		
10	KY980922OLS008	Tsiah Spring	Spring	3.23	8.50	0.71	0.217	0.681	0.036	0.010	0.006	2.67	0.047	1.07	2.42E-005		
11	KY980922OLW009	Monument Valley High School	Well	1.14	2.25	0.33	0.099	0.864	0.027	0.005	0	0.97	0.037	0.58	7.02E-006		
12	KY980921OLW007	Tank 8AI-1	Wind Mill	6.09	7.23	0.51	0.061	0.892	0.007	0.007	0	2.75	0.111	2.22	1.08E-005		
13	KY980923OLW010	Tank 8AI-3	Wind Mill	10.30	17.90	0.32	0.379	0.946	0.023	0	0	10.30	0.347	4.56	2.36E-005		
14	KY980921OLS004	Moonlight Water	Spring	4.15	6.59	0.28	0.172	0.604	0.004	0	0	2.24	0.146	1.85	9.05E-006		
15	KY980921OLS006	Truck Cab Spring	Spring	19.80	10.80	0.57	0.052	0.333	0.031	0.021	0.017	11.30	0.244	7.13	2.28E-005		
16	KY980909OLW003	Shallow Well EI Capitan	Well	8.41	7.47	1.12	0.127	0.208	0.008	0.005	0	6.29	0.125	4.19	3.75E-005		
17	KY980902OLW002	Tank 8K-402	Wind Mill	1.59	5.13	0.61	0.080	0.217	0.015	0	0	0.92	0	0.48	1.61E-005		
18	KY980902OLW001	Tank 8A-299	Wind Mill	155.00	92.10	0.39	7.840	0.422	0.099	0.007	0	91.30	3.830	76.80	2.46E-004		
19	KY980923OLW011	Well 8T-525	Well	1.59	10.10	0.42	0.092	0.511	0.075	0.024	0.024	1.16	0	0.52	5.44E-006		
20	KY980923OLS009	8A-P.H.S.-22 Spring	Spring	1.95	4.87	0.62	0.272	0.533	0.017	0.011	0	2.13	0	1.57	8.74E-006		
21	KY980909OLS001	Ramp Spring	Spring	4.53	9.20	0.62	0.124	0.016	0	0.010	0	2.94	0.078	2.09	1.98E-005		
22	KY980831SHS001	Aspen Spring	Spring	0.27	1.36	0.74	0.074	0.212	0.009	0.006	0	0	0.037	0	1.73E-005		
23	KY980831SHW001	Tank 2K-305	Wind Mill	1.77	2.35	2.68	0.070	0.353	0	0	0	0.50	0	0	5.98E-005		
24	KY981009KYW002	Kayenta Chapter House	Well	3.88	4.14	0.69	0.058	0.272	0	0.005	0	2.98	0.081	1.17	6.23E-006		
25	KY980901DES001	Baby Rock Spring 8-44	Spring	27.10	14.50	0.83	0.093	0.075	0	0	0	18.40	0.687	17.20	6.01E-005		
26	KY981009KYW003	Tank 8A-138	Wind Mill	1.40	3.01	0.19	0.044	0	0	0.009	0	2.91	0.047	1.05	4.45E-006		
27	KY981009KYS001	Kee Mi Kay Spring	Spring	12.00	7.70	2.33	0.400	0.183	0.015	0.004	0	5.83	0.302	3.98	6.43E-005		
28	KY981009KYW004	Tank 8T-549	Wind Mill	1.43	0.99	0.50	0.022	0.183	0.015	0	0	1.27	0.040	0.60	3.21E-006		
29	KY980831SHS002	Shonto Chapter House	Spring	2.34	3.58	0.14	0.118	0.556	0.019	0	0	2.09	0.141	0.35	6.28E-006		
30	KY000112OLW013	Goulding Well	Well	1.20	3.10	1.60	0	2.300	0.300	0.300	0.300	1.50	0.400	1.30	1.75E-005		
31	KY000112OLW014	Monument Pass Well	Well	19.50	21.10	4.60	0	1.800	0.200	0.200	0.200	24.40	0.900	14.70	5.44E-005		

1. ILCR = Incremental Lifetime Cancer Risk with Respect to Radioactive Metals.
2. The values of "0" represent a result of either "not detected" at the detection limit of the laboratory method or a negative count. In both cases, the result can be considered "0".
3. The evaluation of Beta is in two steps. The initial screening level is 50 pCi/L. If the measured level of Beta exceeds the 50 pCi/L, a further evaluation is merited. Beta-emitting radionuclides would be screened.
4. The values of "0" in the Pb210 column represent analytical results that measured less than the Minium Detectable Activity (MDA).
5. Definition of final calculations and ranking will be fully described and published in a final report.
6. When comparing these PRG's with the U.S. EPA's PRG list, the calculated PRG used for U238 is less than the EPA's PRG for U238D (D meaning that its decay daughters are included in the risk calculations).
7. MCL- Maximum Contaminant Levels are the maximum permissible level of a contaminant in water delivered to users of a public water system. This level is not always based on health or risk criteria.
8. PRG- Preliminary Remediation Goals are tools for evaluating and cleaning up contaminated sites. They are risk-based concentrations derived from standardized equations, combining exposure information assumptions and EPA toxicity data.

**Abandoned Uranium Mines Project
Navajo Lands**

Monument Valley Area

**Water Quality Analysis: Stable and Radioactive Metals
In Order of Risk Ranking**

Map ID	Sample ID	Field Type	Alpha ² MCL: ⁹ PRG: ¹⁰	Beta ²	ILCR for Stable Metals ¹	ILCR for Rad Metals ¹	Total Cancer Risk	Hazard Index (HI)	Arsenic ³	Lead ³	Total U ²	Water Quality with Respect to Stable and Radioactive Metals ⁴			Risk Category	Risk Ranking ⁶	Map ID	Bacteria Present ⁷	Total Coliform Detected/ Fecal Coliform Not Detected ⁷	Total Coliform & Fecal Coliform Detected ⁸
												Less Risk	Some Risk	More Risk						
29	KY980831SHS002	Spring	2.34	3.58	0.00E+000	6.28E-006	6.28E-006	0.09	0	0	2.44	X			LESS	1	29			
4	KY981012OLW012	Well	4.60	2.87	0.00E+000	6.25E-006	6.25E-006	0.04	0	0	3.68	X			LESS	2	4			
20	KY980923OLS009	Spring	1.95	4.87	0.00E+000	8.74E-006	8.74E-006	0.05	0	0	3.70	X			LESS	3	20			
14	KY980921OLS004	Spring	4.15	6.59	0.00E+000	9.05E-006	9.05E-006	0.13	0	2.0	4.09	X			LESS	4	14			
22	KY980831SHS001	Spring	0.27	1.36	0.00E+000	1.73E-005	1.73E-005	0.18	0	0	0.00		ILCR		SOME	5	22			
17	KY980902OLW002	Wind Mill	1.59	5.13	0.00E+000	1.61E-005	1.61E-005	0.15	0	0	1.40		ILCR		SOME	6	17			
6	KY980901DEW001	Wind Mill	2.00	2.35	0.00E+000	3.84E-006	3.84E-006	1.46	0	0	2.47		HI		SOME	7	6			
9	KY980922OLW008	Well	1.95	1.92	0.00E+000	1.88E-005	1.88E-005	0.15	0	0	1.78		ILCR		SOME	8	9			
23	KY980831SHW001	Wind Mill	1.77	2.35	0.00E+000	5.98E-005	5.98E-005	0.19	0	0	0.50		ILCR		SOME	9	23			
30	KY000112OLW013	Well	1.20	3.10	9.11E-006	1.75E-005	2.66E-005	0.16	0.4	0	3.20		ILCR		SOME	10	30	No	No	
21	KY980909OLS001	Spring	4.53	9.20	0.00E+000	1.98E-005	1.98E-005	0.16	0	0	5.03		ILCR		SOME	11	21			
19	KY980923OLW011	Well	1.59	10.10	1.11E-004	5.44E-006	1.17E-004	0.77	5.0	0	1.68		ILCR		SOME	12	19			
5	KY980901DEW002	Wind Mill	1.14	1.04	6.22E-005	2.76E-006	6.50E-005	0.35	2.8	2.3	0.67		ILCR		SOME	13	5			
12	KY980921OLW007	Wind Mill	6.09	7.23	0.00E+000	1.08E-005	1.08E-005	0.20	0	1.6	4.97		ILCR		SOME	14	12			
11	KY980922OLW009	Well	1.14	2.25	0.00E+000	7.02E-006	7.02E-006	0.23	0	4.2	1.55		Lead		SOME	15	11			
24	KY981009KYW002	Well	3.88	4.14	5.78E-005	6.23E-006	6.40E-005	0.41	2.6	2.1	4.15		ILCR		SOME	16	24			
16	KY980909OLW003	Well	8.41	7.47	0.00E+000	3.75E-005	3.75E-005	0.04	0	0	10.48		ILCR		SOME	17	16			
10	KY980922OLS008	Spring	3.23	8.50	1.60E-004	2.42E-005	1.84E-004	0.79	7.2	0	3.74		ILCR		SOME	18	10			
27	KY981009KYS001	Spring	12.00	7.70	0.00E+000	6.43E-005	6.43E-005	0.16	0	0	10.11		ILCR		SOME	19	27			
2	KY980910OLW004	Well	0.25	4.53	1.82E-004	1.94E-005	2.02E-004	1.17	8.2	1.5	0.35		ILCR, HI		SOME	20	2			
1	KY980910OLS003	Spring	4.39	2.51	1.69E-004	3.66E-005	2.05E-004	0.79	7.6	0	5.37		ILCR		SOME	21	1			
7	KY980910OLW005	Well	3.77	2.98	1.47E-004	4.95E-006	1.52E-004	0.70	6.6	3.0	3.03		ILCR		SOME	22	7			
28	KY981009KYW004	Wind Mill	1.43	0.99	1.96E-004	3.21E-006	1.99E-004	0.95	8.8	3.5	1.87		ILCR		SOME	23	28			
15	KY980921OLS006	Spring	19.80	10.80	0.00E+000	2.28E-005	2.28E-005	1.34	0	0	18.43		ILCR, HI		SOME	24	15			
13	KY980923OLW010	Wind Mill	10.30	17.90	7.33E-005	2.36E-005	9.69E-005	2.03	3.3	0	15.21		ILCR, HI		SOME	25	13			
8	KY980922OLS007	Spring	2.93	9.62	0.00E+000	1.00E-005	1.00E-005	0.26	0	10.3	3.78		ILCR, Lead		SOME	26	8			
26	KY981009KYW003	Wind Mill	1.40	3.01	1.27E-004	4.45E-006	1.31E-004	2.08	5.7	7.5	3.96		ILCR, Lead, HI		SOME	27	26			
3	KY980910OLS002	Spring	3.87	4.38	8.89E-005	1.77E-005	1.07E-004	0.94	4.0	16.8	3.24			Lead	MORE	28	3			
25	KY980901DES001	Spring	27.10	14.50	1.20E-004	6.01E-005	1.80E-004	9.40	5.4	0	36.29			Total U	MORE	29	25			
31	KY000112OLW014	Well	19.50	21.10	8.56E-005	5.44E-005	1.40E-004	0.78	3.9	25.4	40.00			Lead, Total U	MORE	30	31	No	No	
18	KY980902OLW001	Wind Mill	155.00	92.10	3.04E-004	2.46E-004	5.51E-004	1.30	13.7	0	171.93			Total U	MORE	31	18			

1. ILCR = Incremental Lifetime Cancer Risk with Respect to Stable Metals and Radioactive Metals.

2. The PRG's and MCL's for Alpha, Beta, and Uranium are in Pico-Curies per Liter (pCi/L).

3. The PRG's and MCL's for Lead and Arsenic are in Micrograms per Liter (ug/L).

4. Water Quality Levels:

- Less Risk Total Cancer Risk is less than or equal to 1E-05 and Hazard Index is less than or equal to 1 and Lead is less than 4 and total U less than 30.
- Some Risk Total Cancer Risk is less than or equal to 6E-04 but greater than 1E-05 or Hazard Index is less than 10 but greater than 1 or Lead is less than 15 but greater than 4 and total U less than 30.
- More Risk Total Cancer Risk is greater than 6E-04 or Hazard Index is greater than 10 or Lead is greater than 15 or total U equal to or greater than 30.

The three categories will be color coded on the associated map to be published with the final document.

5. Proposed EPA MCL is 30 pCi/L for the sum of three U isotopes.

6. The definitions of the risk categories and the ranking will be fully described and published in the final report.

7. No change in water quality assessment with respect to stable and radioactive metals results.

8. In accordance with USEPA emergency response procedures for purifying bacteria - impacted water, please use the following methods of emergency disinfection. These methods will not remove stable metals or radionuclides from water.

Boiling: Vigorous boiling for one minute will kill any disease-causing microorganisms present in water. The flat taste of boiled water can be improved by pouring it back and forth from one container to another (called aeration), by allowing it to stand for a few hours, or by adding a small pinch of salt for each quart of water boiled.

Chemical Treatment: When boiling is not practical, chemical disinfection should be used. The two chemicals commonly used are chlorine and iodine. Chlorine and iodine are somewhat effective in protecting against exposure to Giardia, but may not be effective in controlling Cryptosporidium.

Therefore, use iodine or chlorine only to disinfect well water (as opposed to surface water sources such as rivers, lakes, and springs), because well water is unlikely to contain these disease causing organisms. Chlorine is generally more effective than iodine in controlling Giardia, and both disinfectants work much better in warmer water.

Chlorine Bleach: Common household bleach contains a chlorine compound that will disinfect water. The procedure to be followed is usually written on the label. When the necessary procedure is not given, find the percentage of available chlorine on the label and use the information in the following tabulation as a guide.

Available Chlorine	1%	4-6%	7-10%
Drops per Quart of Clear Water	10	2	1

(If strength is unknown, add ten drops per quart of water. Double amount of chlorine for cloudy or colored water.) The treated water should be mixed thoroughly and allowed to stand for 30 minutes. The water should have a slight chlorine odor, if not, repeat the dosage and allow the water to stand for an additional 15 minutes.

If the treated water has too strong a chlorine taste, it can be made more pleasing by allowing the water to stand exposed to the air for a few hours or by pouring it from one clean container to another several times.

9. MCL- Maximum Contaminant Levels are the maximum permissible level of a contaminant in water delivered to users of a public water system. This level is not always based on health or risk criteria.

10. PRG- Preliminary Remediation Goals are tools for evaluating and cleaning up contaminated sites. They are risk-based concentrations derived from standardized equations, combining exposure information assumptions and EPA toxicity data.