AREVA

August 15, 2011

Mr. Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
Mail Stop T8-F5
U. S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, Maryland 20852-2738

Ref: Docket No. 40-2259, Source Material License No. SUA-672

Dear Mr. McConnell:

Enclosed please find two copies of the semi-annual ground water monitoring report (covering the first and second quarters of 2011) as required by condition 60B of the referenced license. Please let me know if there are any questions regarding the report.

Sincerely,

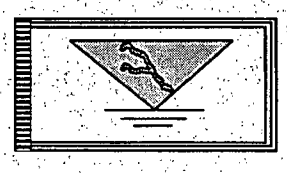
R. Mark Owens
General Manager

Enclosure

Cc: Blair Spitzberg, USNRC Region IV
Steve Hall, Stoller
Hydro-Engineering w/o encl.

PATHFINDER MINES CORPORATION

935 PENDELL BLVD., P.O. BOX 730 MILLS, WYOMING 82644, U.S.A.
TEL.: 307 234 5019 FAX: 307 473 7306 WWW.US.AREVA.COM



HYDRO - ENGINEERING, LLC

SEMI-ANNUAL
GROUND-WATER MONITORING
FOR LUCKY Mc MINE

PREPARED FOR:

PATHFINDER MINES CORPORATION
LUCKY Mc MINE

BY:

HYDRO-ENGINEERING, L.L.C.

AUGUST, 2011

RYAN STOKES, E.I.T

GEORGE L. HOFFMAN, P.E.
HYDROLOGIST
8/12/2011

TABLE OF CONTENTS

FIGURES

TABLE OF CONTENTS
(continued)

FIGURES

TABLES

1.0 Introduction and Summary of Results

This semi-annual report presents the results of ground-water monitoring for the first half of 2011 for the Lucky Mc tailings area. This report covers the requirement of NRC License SUA-672, License Condition 60B.

The following table lists the site standards that are in effect at Lucky Mc tailings POC well T1-12. The tabulation also lists the measured June 2011 concentrations for POC well T1-12. All of the present concentrations in POC well T1-12 are significantly below the site standards.

GROUND-WATER PROTECTION STANDARDS FOR POINT-OF-COMPLIANCE WELL T1-12 AND JUNE 2011 POC CONCENTRATION

POC STANDARD & CONCENTRATION	CONSTITUENT								
	Arsenic	Beryllium	Cadmium	Chromium	Nickel	RA-226+Ra-228	Selenium	Thorium-230	Uranium
SITE STANDARD	0.05	0.07	0.02	0.05	0.85	7.5	1.1	13.2	1.7
T1-12, JUNE 2011	<0.001	<0.01	<0.01	<0.05	0.27	3.2	0.239	0.3	0.387

NOTE: All concentrations in mg/l except for radium and thorium in pCi/l.

2.0 Piezometric Data

The water-level data collected during the first half of 2011 are presented in Table 1 along with the 2007 through mid 2011 water-level data. Figure 1 presents the piezometric surface of the Lucky Mc aquifer from the POC well through the Fraser Draw alluvium, while Figure 2 presents plots of the water-level elevations versus time for wells AL-6, T1-6, T1-12, AL-1 and AL-7. The corresponding water-level elevation or constituent concentration is posted adjacent to the well location on the plan view figures of the area (such as Figure 1). Water-level elevations in the first half of 2011 have been steady in these wells relative to their normal values except for a gradual increase in water level in wells AL-1 and AL-7. The cause of the rise in the water levels is unknown but is not a typical ground-water level change for this shallow aquifer.

3.0 Water-Quality Data

License Condition 60B requires monitoring of water from the POC and POE wells and other selected wells for the constituents presented in Table 1. An analysis of the selenium, uranium, combined radium-226 plus radium-228, sulfate, chloride and TDS concentrations is required.

Figure 3 presents the June 2011 chloride concentrations for the Lucky Mc aquifer. The chloride concentrations are highest in the Fraser Draw alluvial well AL-1 and Wind River Channel at POC well T1-12 and decrease significantly to levels similar to background levels at well AL-7. The chloride concentration in well AL-1 is higher showing the concentration gradient from the east to the west. Shift of the concentration gradient near AL-1 has caused the chloride concentration to increase in this well. Figure 4 presents the plots of

chloride concentration versus time for the five monitored wells. Chloride concentrations in POC well T1-12 overall have been fairly steady in 2010 and 2011 while a gradual increase was observed in POE well AL-6 and well AL-7. A larger increase was observed in the last half of 2010 in well AL-1.

Figure 5 presents the TDS concentrations for June 2011 water samples from the Lucky Mc aquifer. The TDS concentrations are greater than 5000 mg/l at POC well T1-12 and Fraser Draw alluvial well AL-1 and are less than 4000 mg/l in the western portion of the Fraser Draw alluvium at well AL-6. Figure 6 presents the plots of TDS concentrations versus time and illustrates that the 2011 TDS concentrations are less than the average value for the previous few years for well T1-12. Fairly steady concentrations have been observed in well AL-1 in the last half of 2011 after a larger increase was observed in the 2nd half of 2010. This change is due to the concentration gradient shifting from the west to east.

The measured sulfate concentrations for the Lucky Mc aquifer during June of 2011 are presented in Figure 7 and show that the sulfate concentrations in the western portion of the Fraser Draw alluvium are greater than 2000 mg/l near well AL-1 while concentrations are less than 2000 mg/l in the eastern half. The sulfate concentration versus time plots in Figure 8 show that sulfate concentrations in POC well T1-12 have overall been steady for the last four years but slightly larger than values observed prior to 2007. The increase in sulfate in the 2nd half of 2011 in well AL-1 and steady values since the increase shows the affect of the shift in concentrations to the east.

Uranium concentrations for the Lucky Mc aquifer during June of 2011 are presented in Figure 9, and this figure shows the highest observed uranium concentrations at well AL-1. Figure 10 shows that the uranium concentration in the POE well has overall gradually increased over the last year. The uranium concentrations have been relatively steady in POC well T1-12 for the last few years.

Figure 11 presents the selenium concentrations for June 2011 for the Lucky Mc aquifer. Selenium concentrations are greatest at POC well T1-12. Selenium concentrations in POC well T1-12 have gradually declined for the last few years (see Figure 12). The selenium concentration in well AL-1 increased in May of 2010 which could be due to alluvial water shifting to the east in this area. Selenium concentrations have been fairly steady in well Al-1 for the last year.

Figure 13 presents the radium-226 plus radium-228 activity for June 2011 in the Lucky Mc aquifer in pCi/l. The activity at POC well T1-12 is well below the radium-226 plus radium-228 site standard of 7.5 pCi/l. Measured radium activities generally exhibit more variability than other constituents, and little significance is given to occasional outliers. Figure 14 shows plots of the radium-226 plus radium-228 activity versus time for the monitored wells. These plots show significant variability in measured activity, which is thought to be due to variability in the laboratory analysis.

Concentrations of the remainder of the constituents at the site are gradually decreasing or are not significant at POC well T1-12.

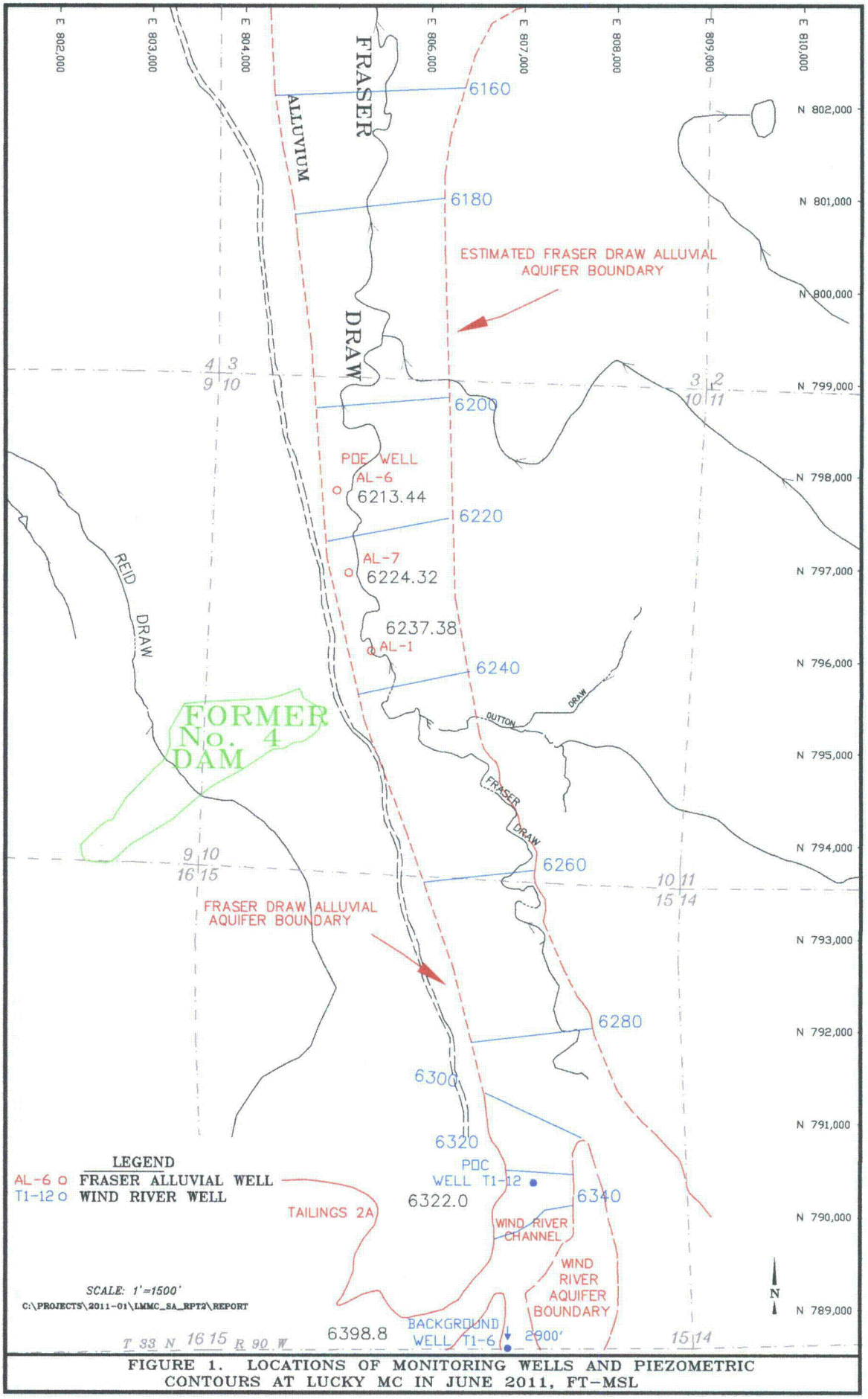
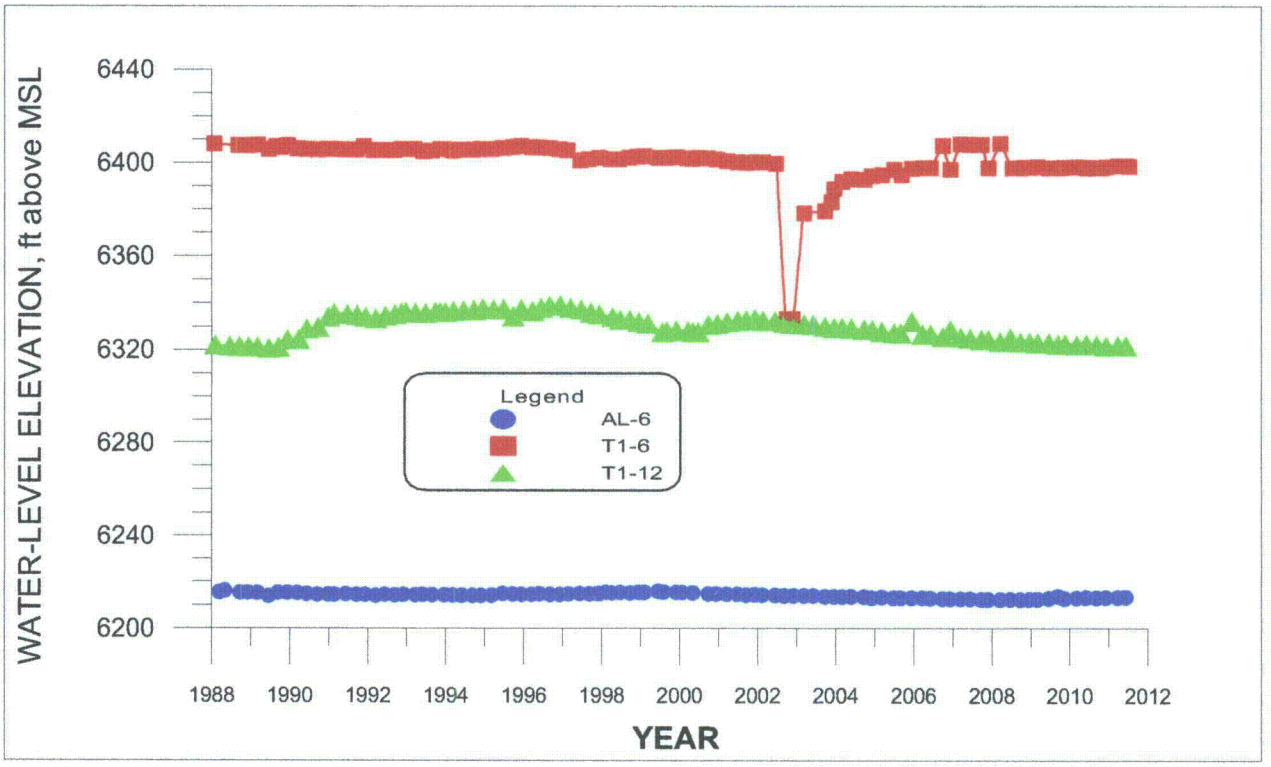


FIGURE 1. LOCATIONS OF MONITORING WELLS AND PIEZOMETRIC CONTOURS AT LUCKY MC IN JUNE 2011, FT-MSL



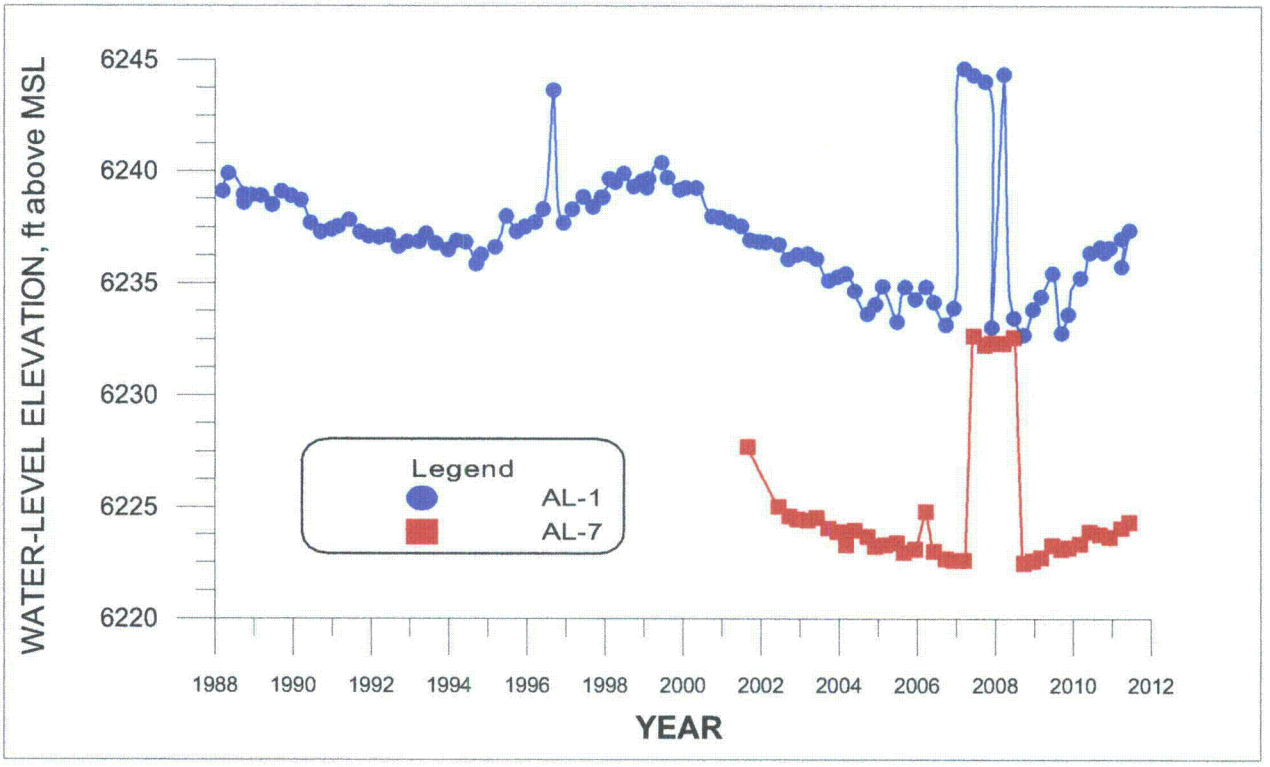


FIGURE 2. WATER-LEVEL ELEVATION VERSUS TIME FOR WELLS T1-6, T1-12, AL-1, AL-6 AND AL-7.

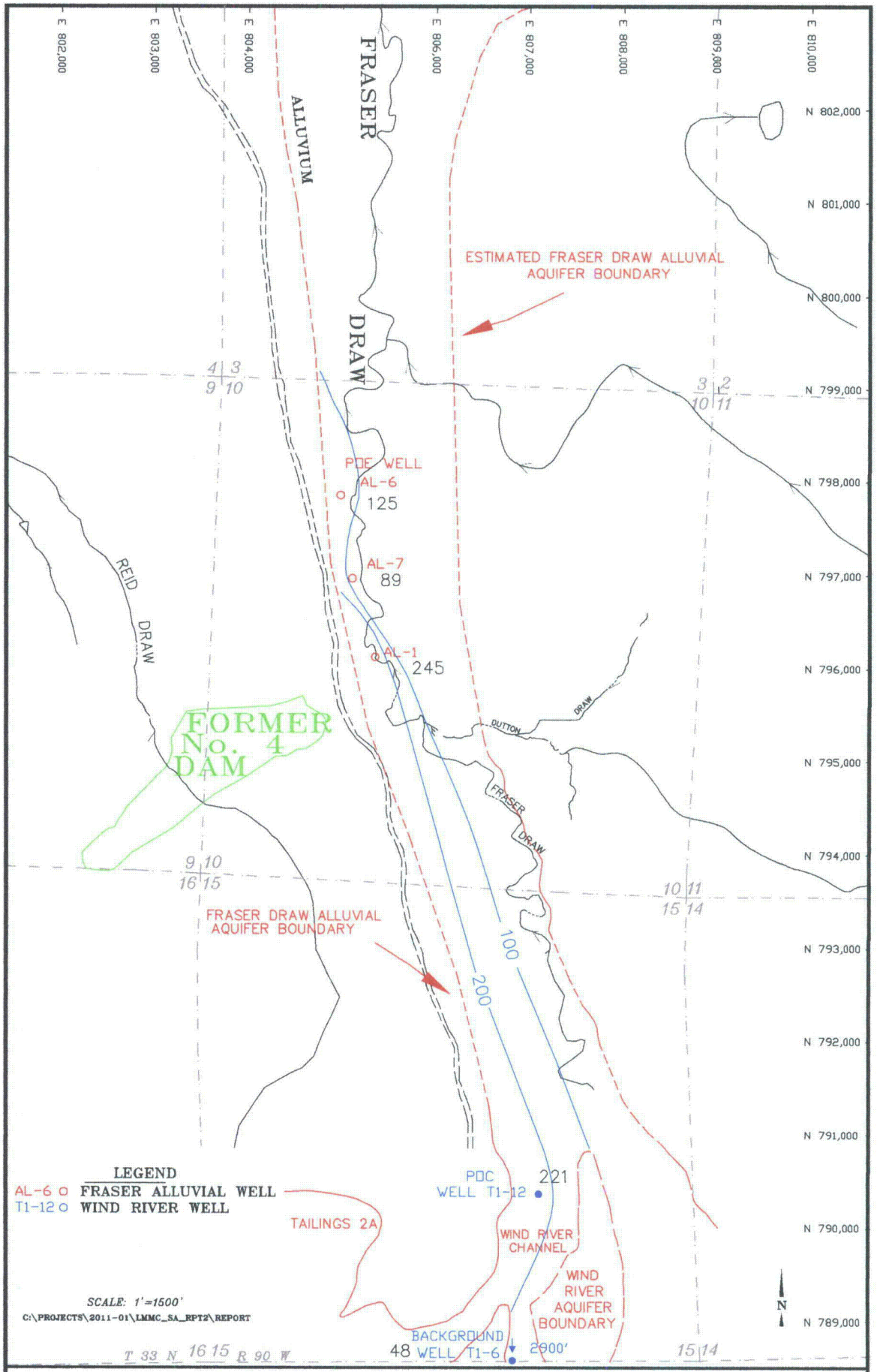
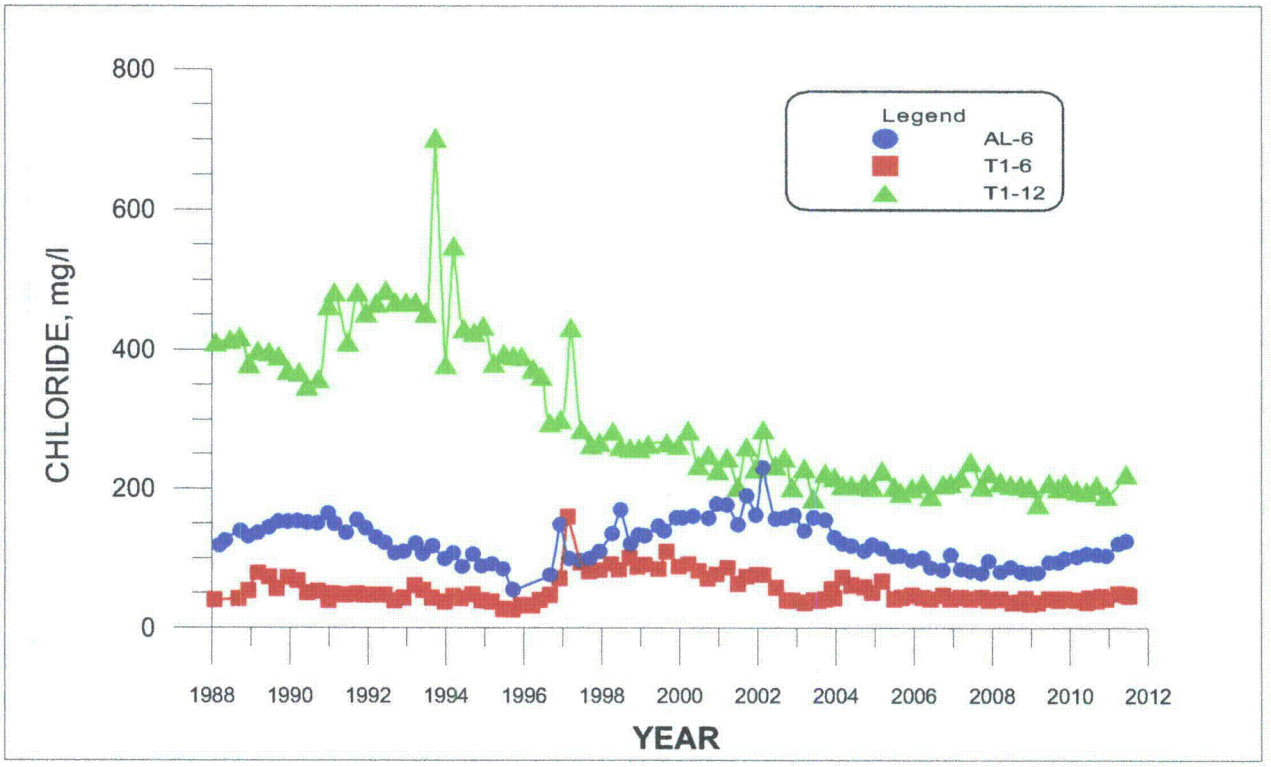


FIGURE 3. CHLORIDE CONCENTRATIONS IN JUNE 2011, AT LUCKY MC, IN mg/l



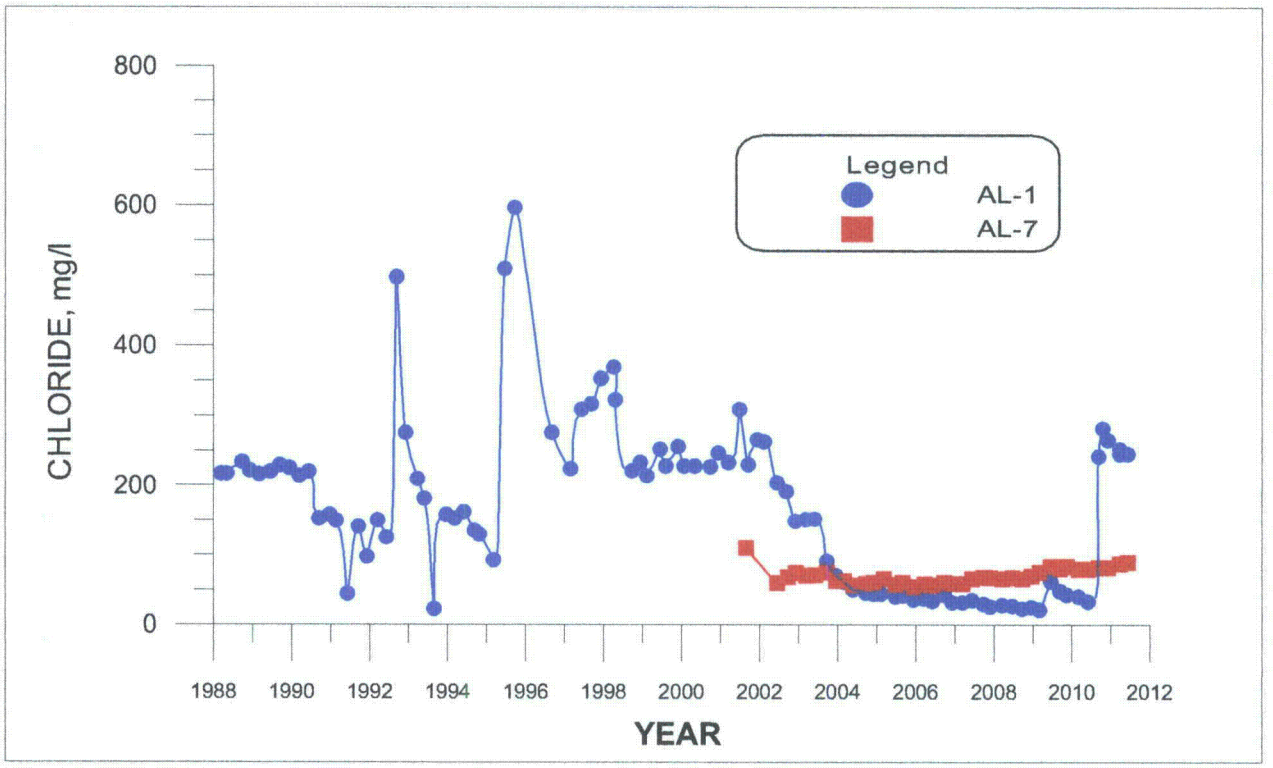


FIGURE 4. CHLORIDE CONCENTRATIONS VERSUS TIME FOR WELLS T1-6, T1-12, AL-1, AL-6 AND AL-7.

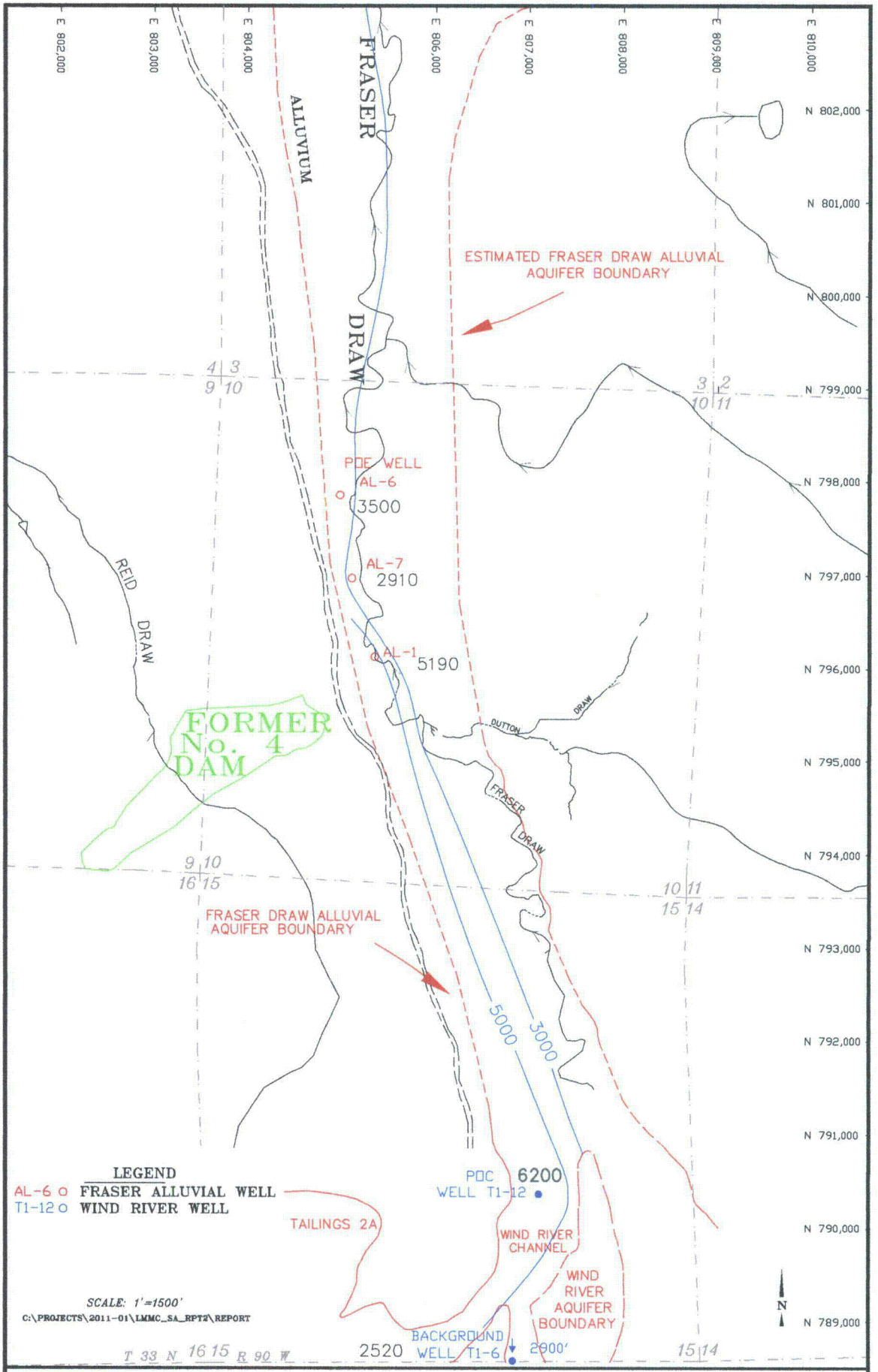
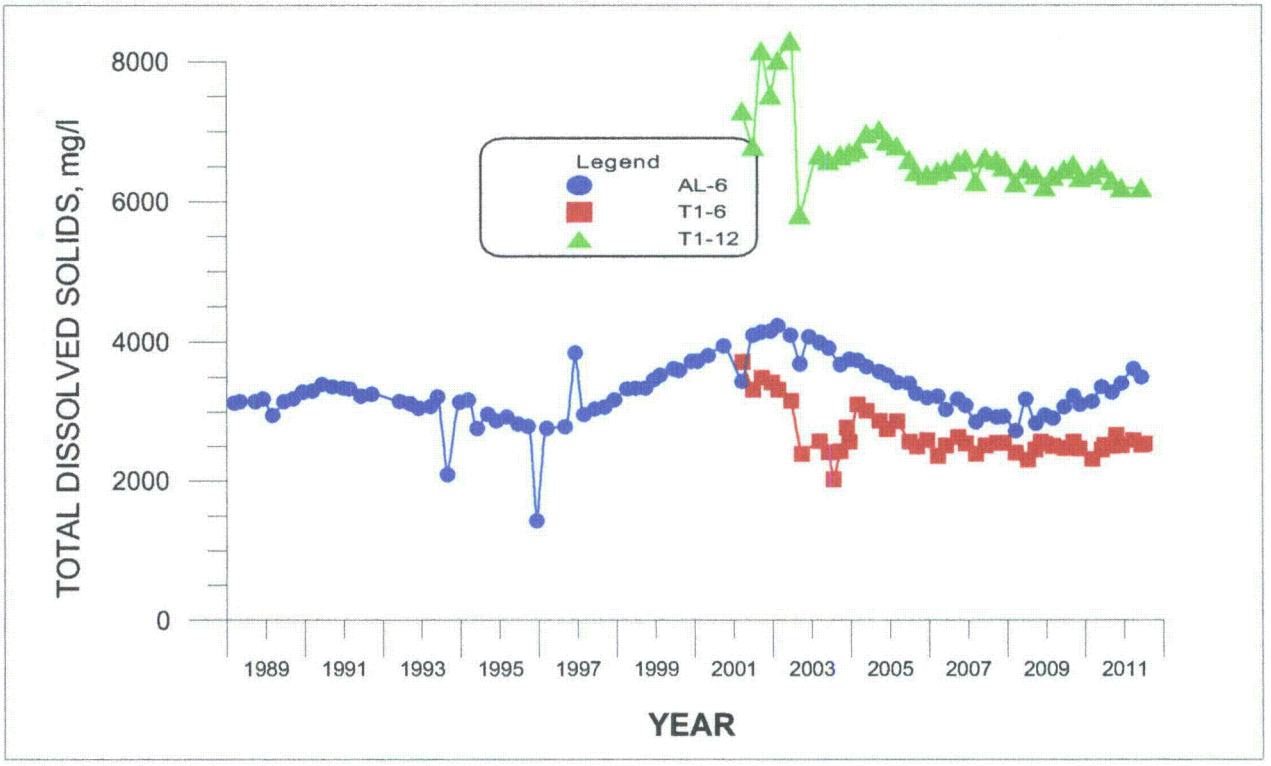


FIGURE 5. TDS CONCENTRATIONS IN JUNE 2011, AT LUCKY MC, IN mg/l



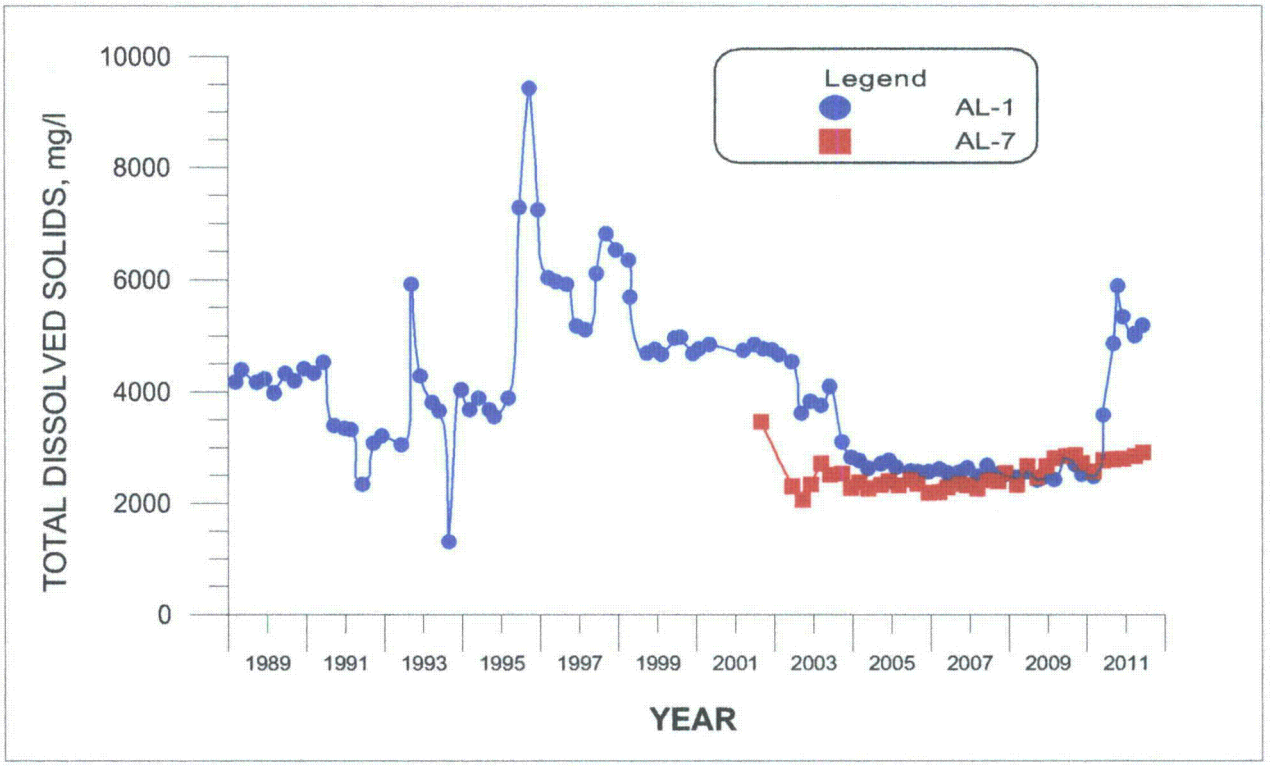


FIGURE 6. TDS CONCENTRATIONS VERSUS TIME FOR WELLS T1-6, T1-12, AL-1, AL-6 AND AL-7.

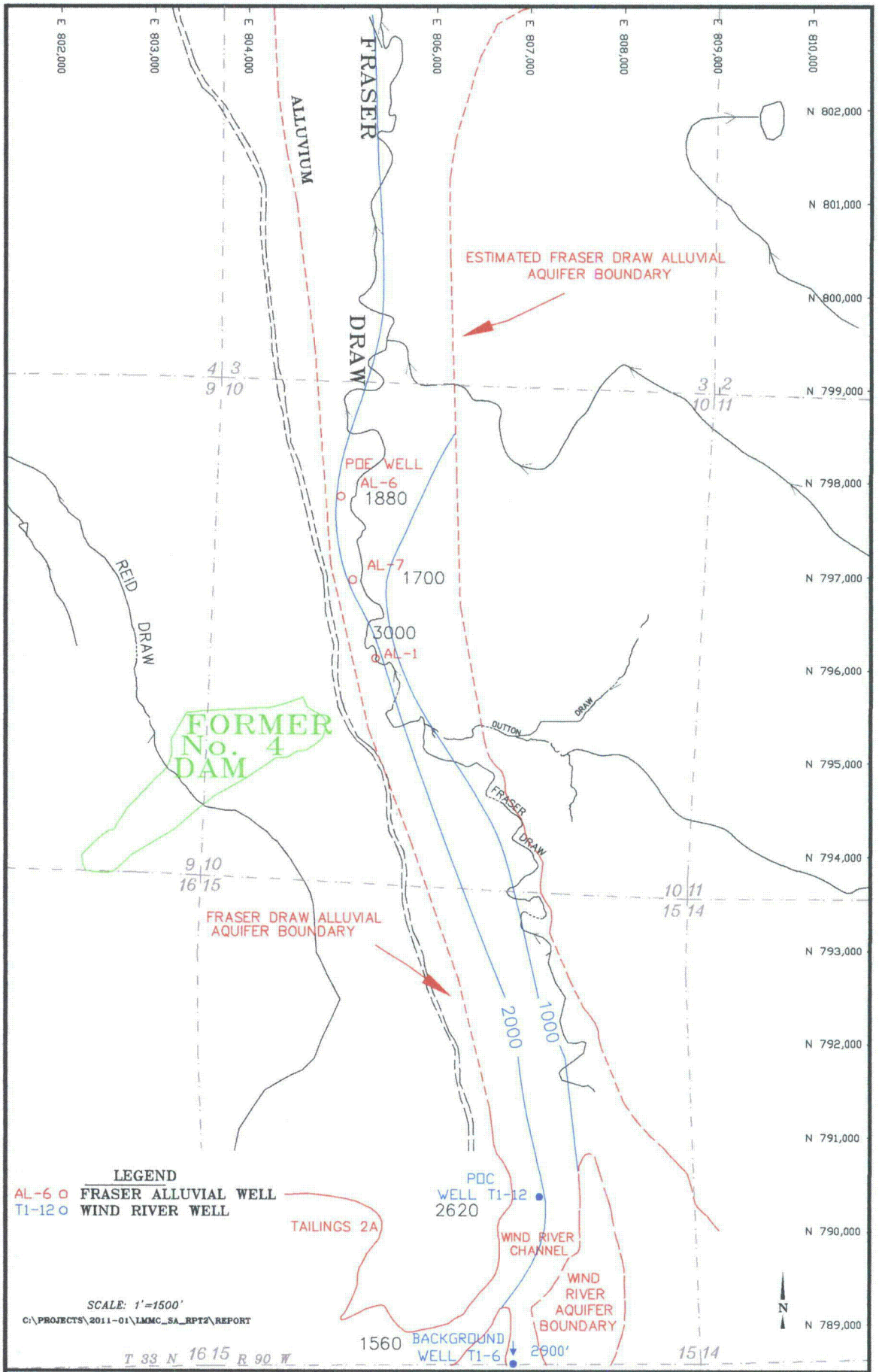
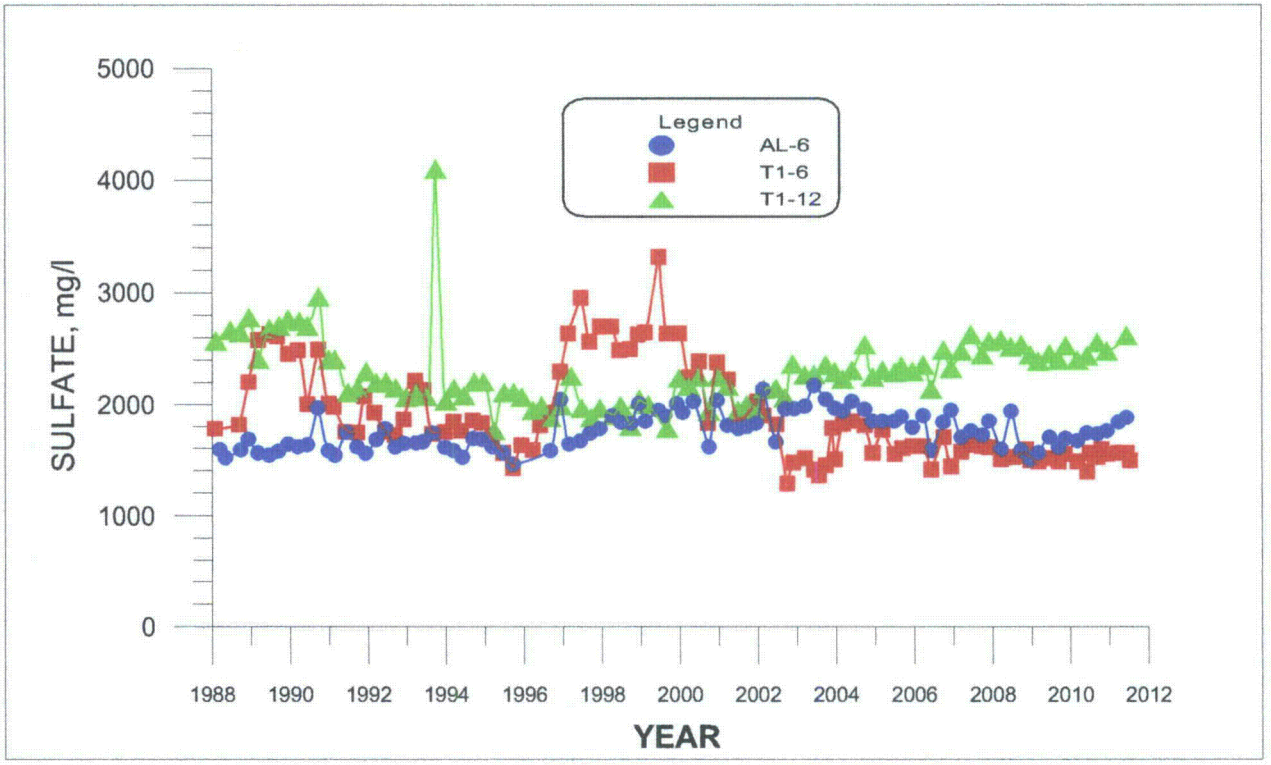


FIGURE 7. SULFATE CONCENTRATIONS IN JUNE 2011, AT LUCKY MC, IN mg/l



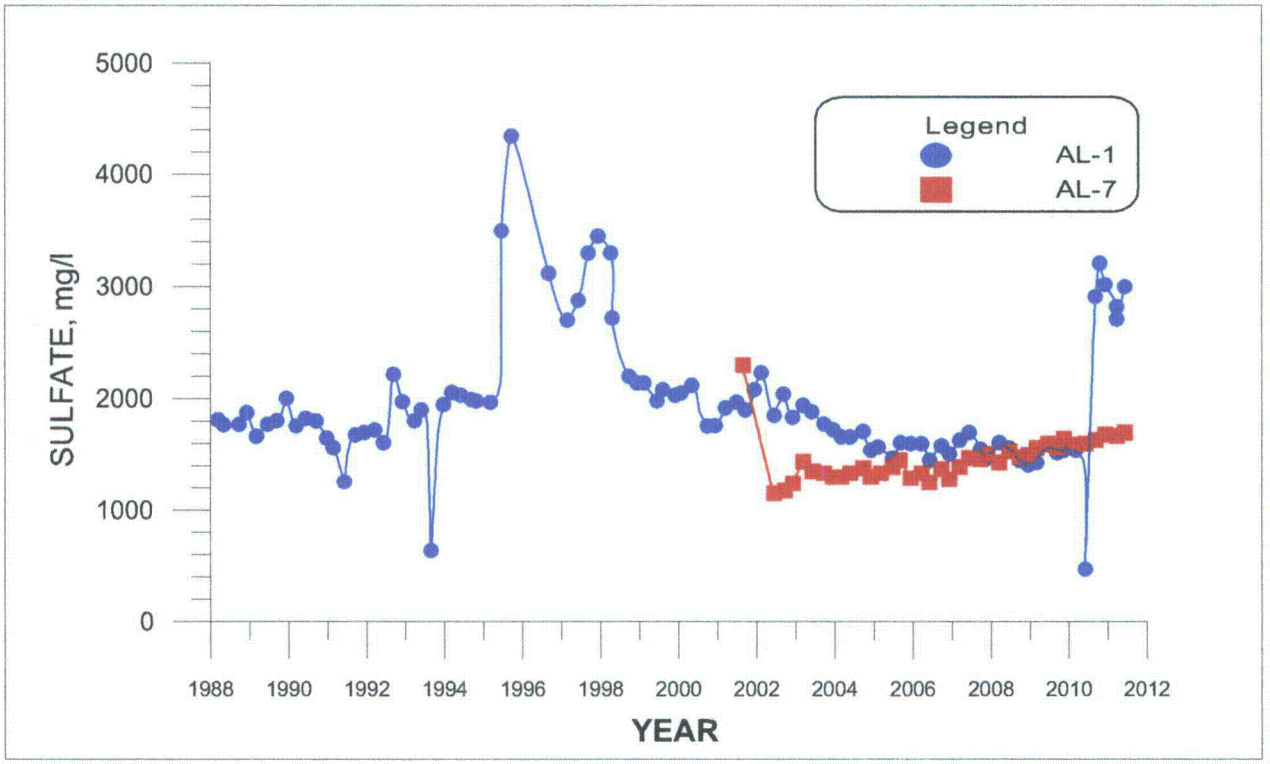


FIGURE 8. SULFATE CONCENTRATIONS VERSUS TIME FOR WELLS T1-6, T1-12, AL-1, AL-6 AND AL-7.

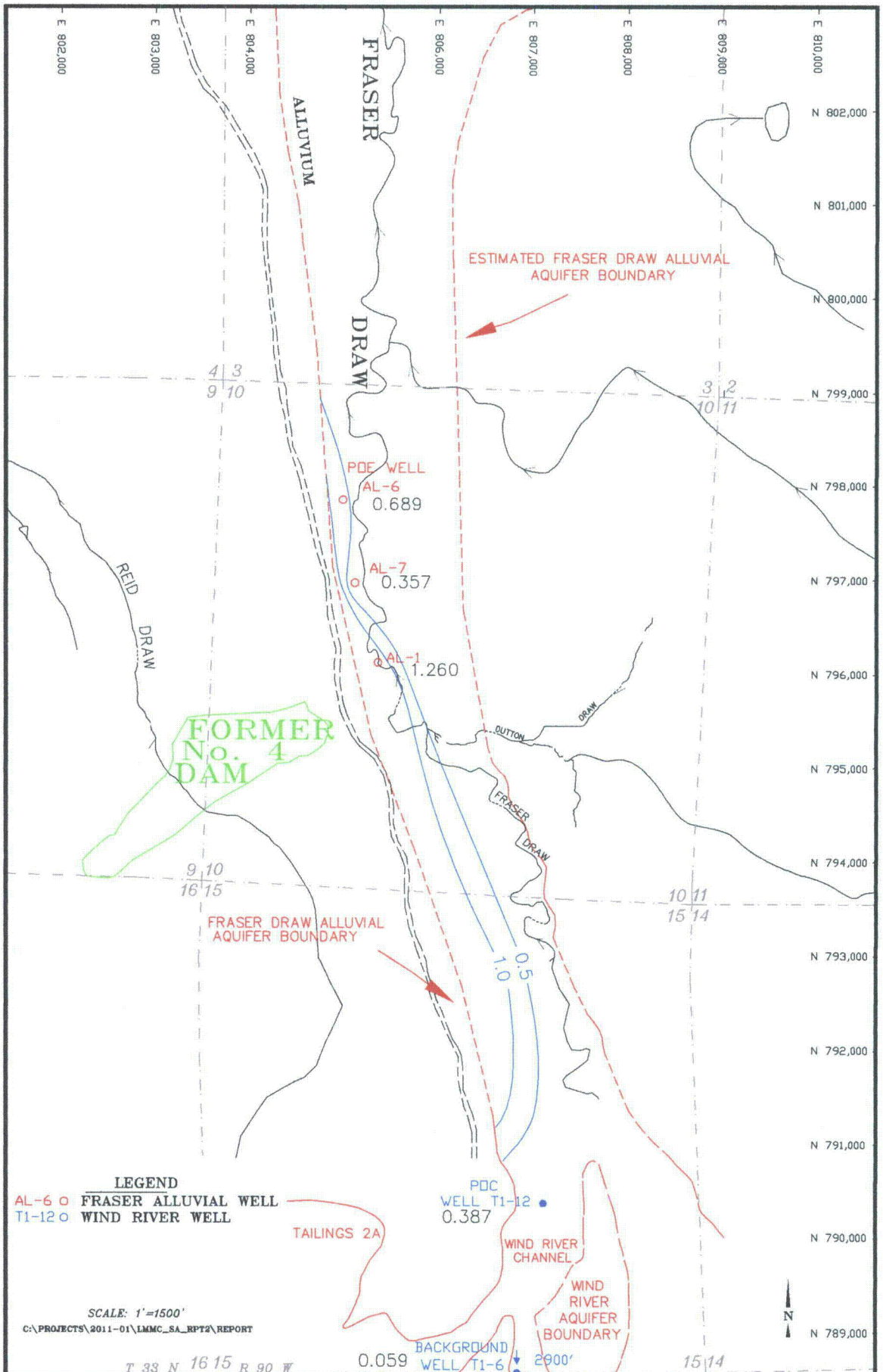
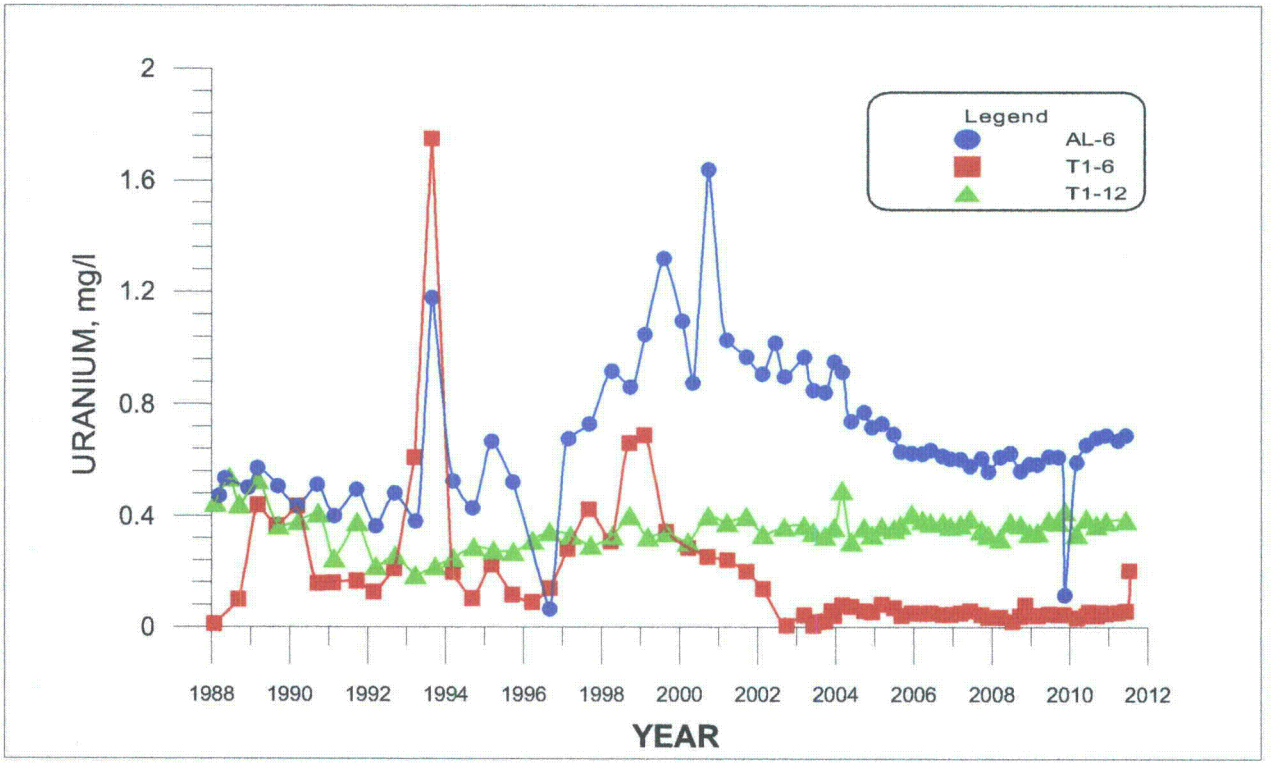


FIGURE 9. URANIUM CONCENTRATIONS IN JUNE 2011, AT LUCKY MC, IN mg/l



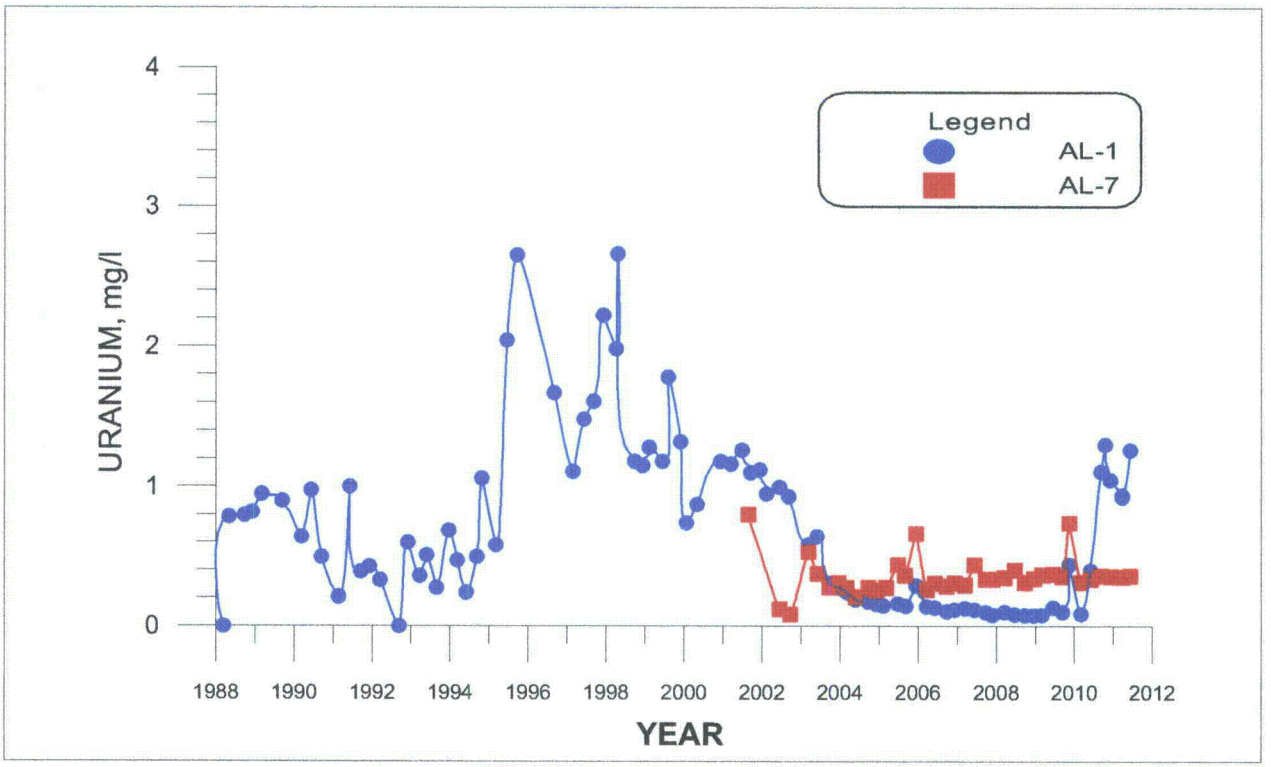


FIGURE 10. URANIUM CONCENTRATIONS VERSUS TIME FOR WELLS T1-6, T1-12, AL-1, AL-6 AND AL-7.

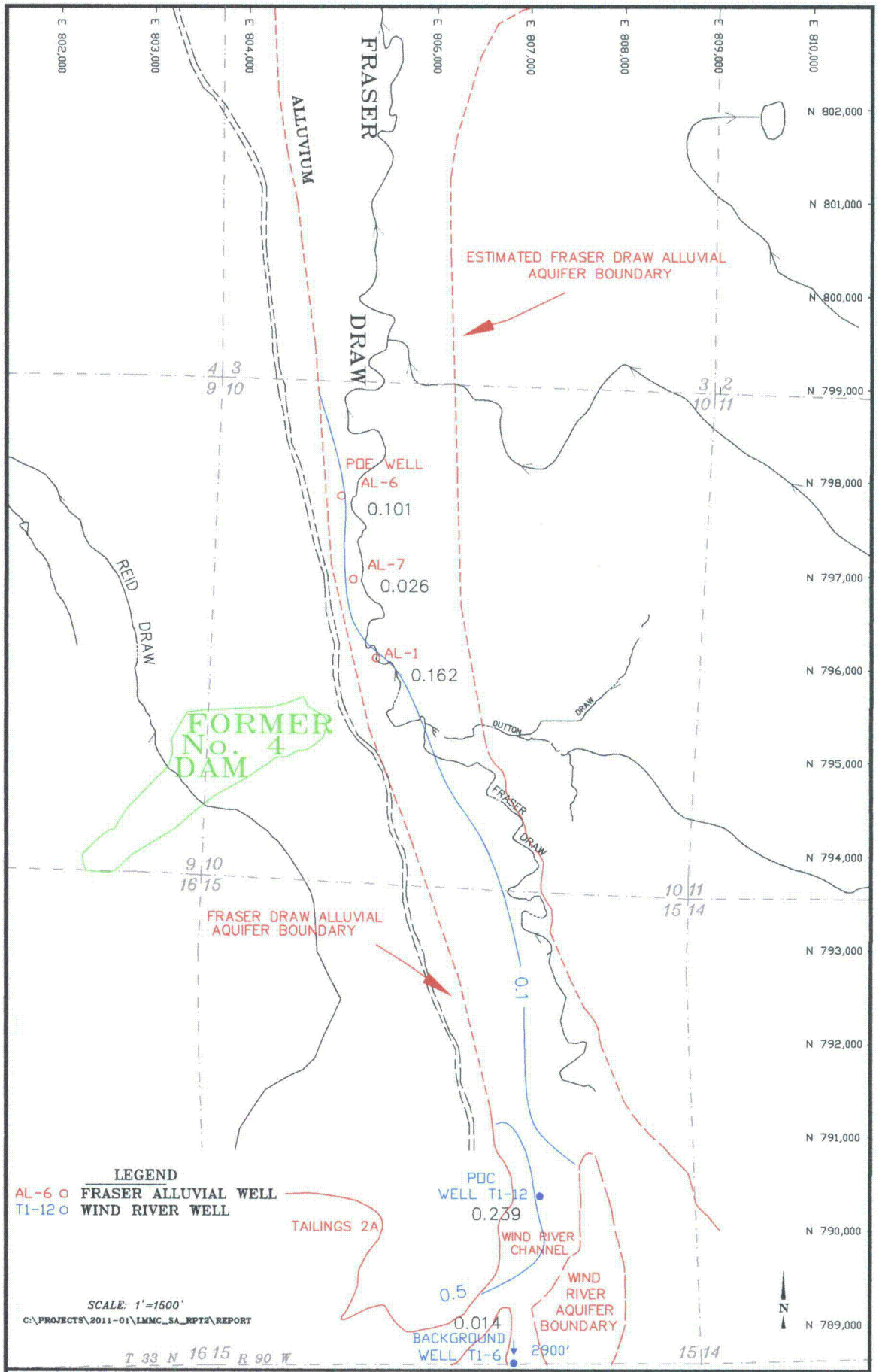
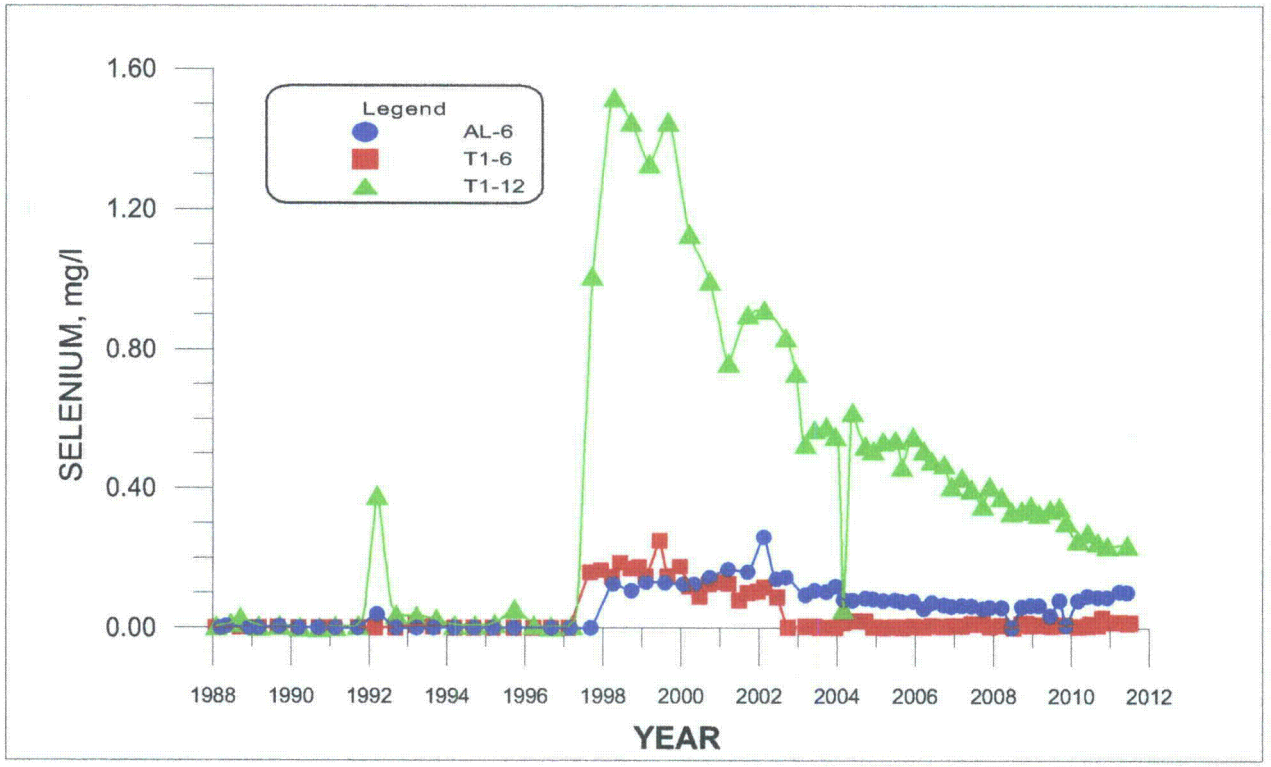


FIGURE 11. SELENIUM CONCENTRATIONS IN JUNE 2011, AT LUCKY MC, IN mg/l



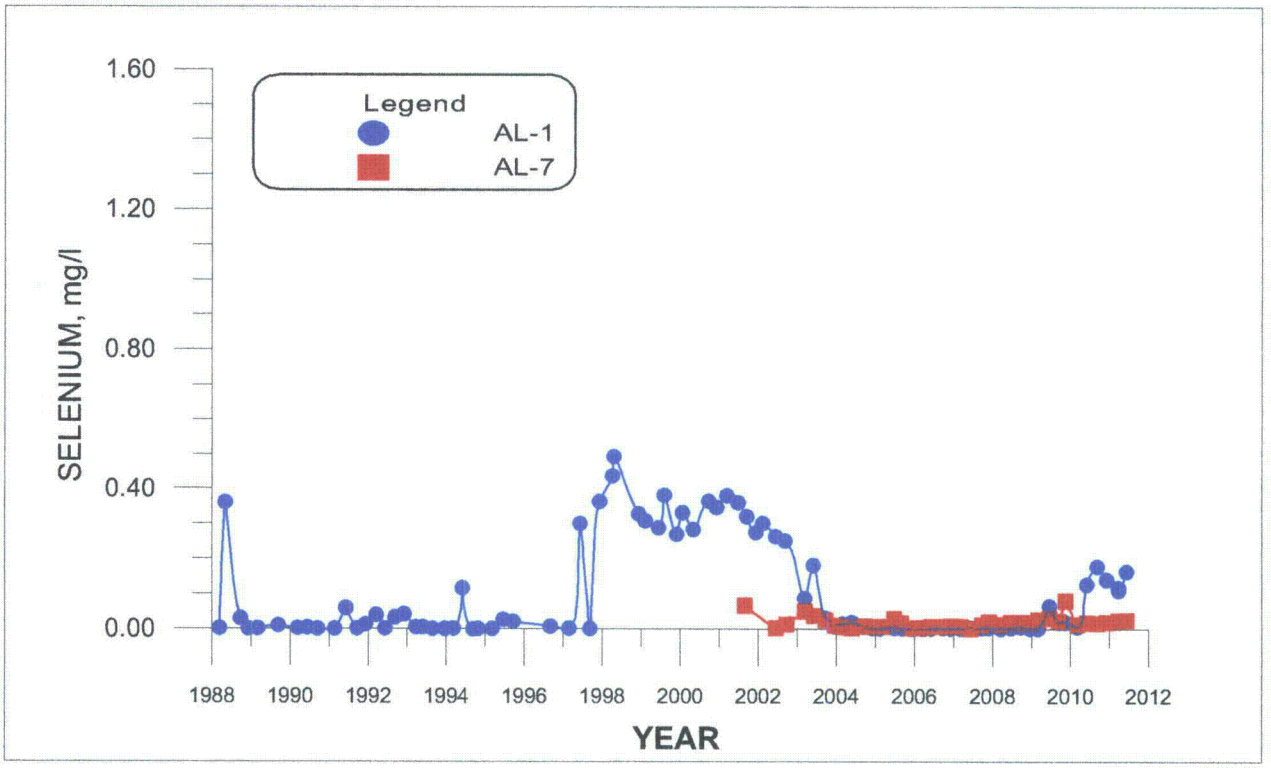


FIGURE 12. SELENIUM CONCENTRATIONS VERSUS TIME FOR WELLS T1-6, T1-12, AL-1, AL-6 AND AL-7.

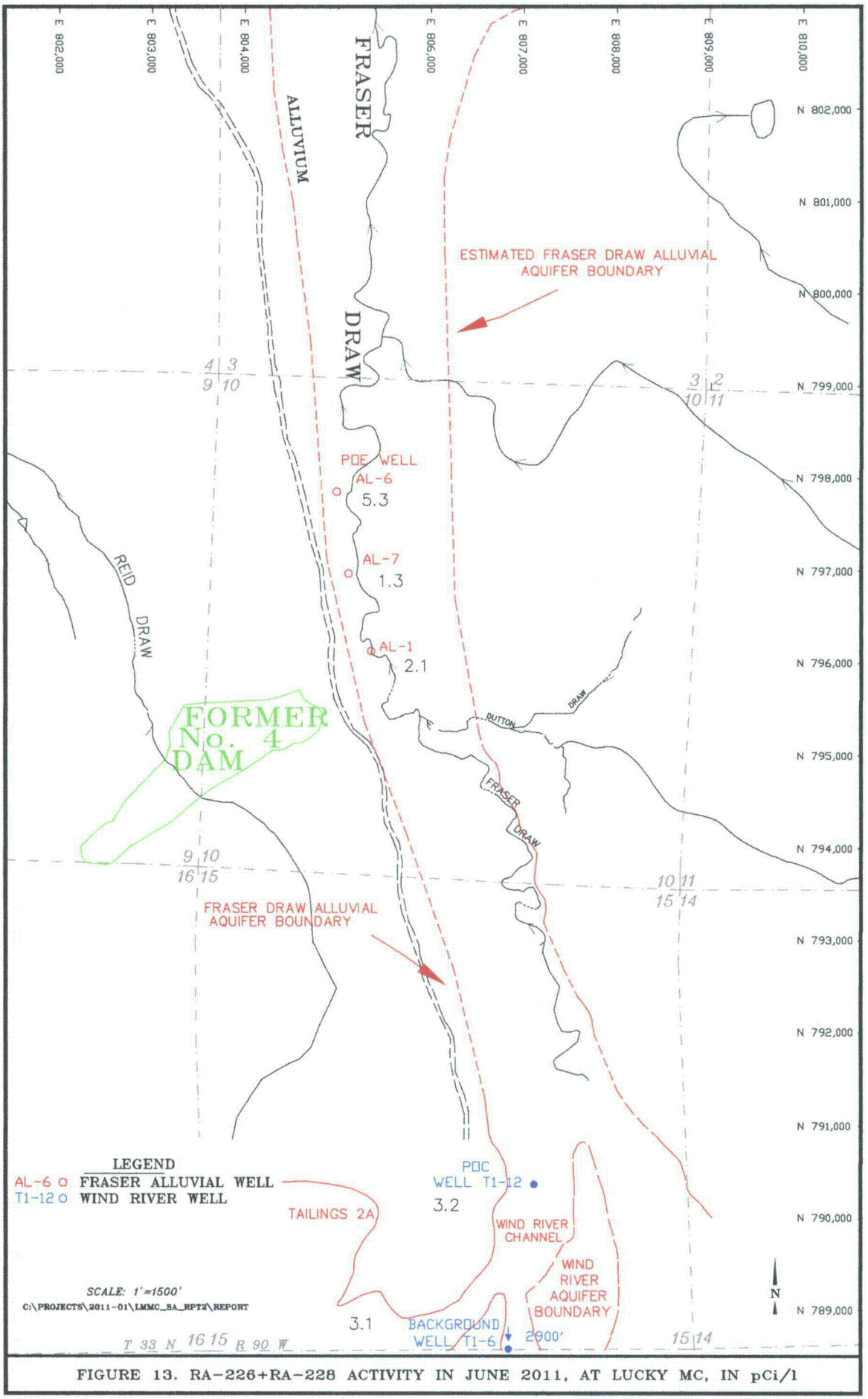
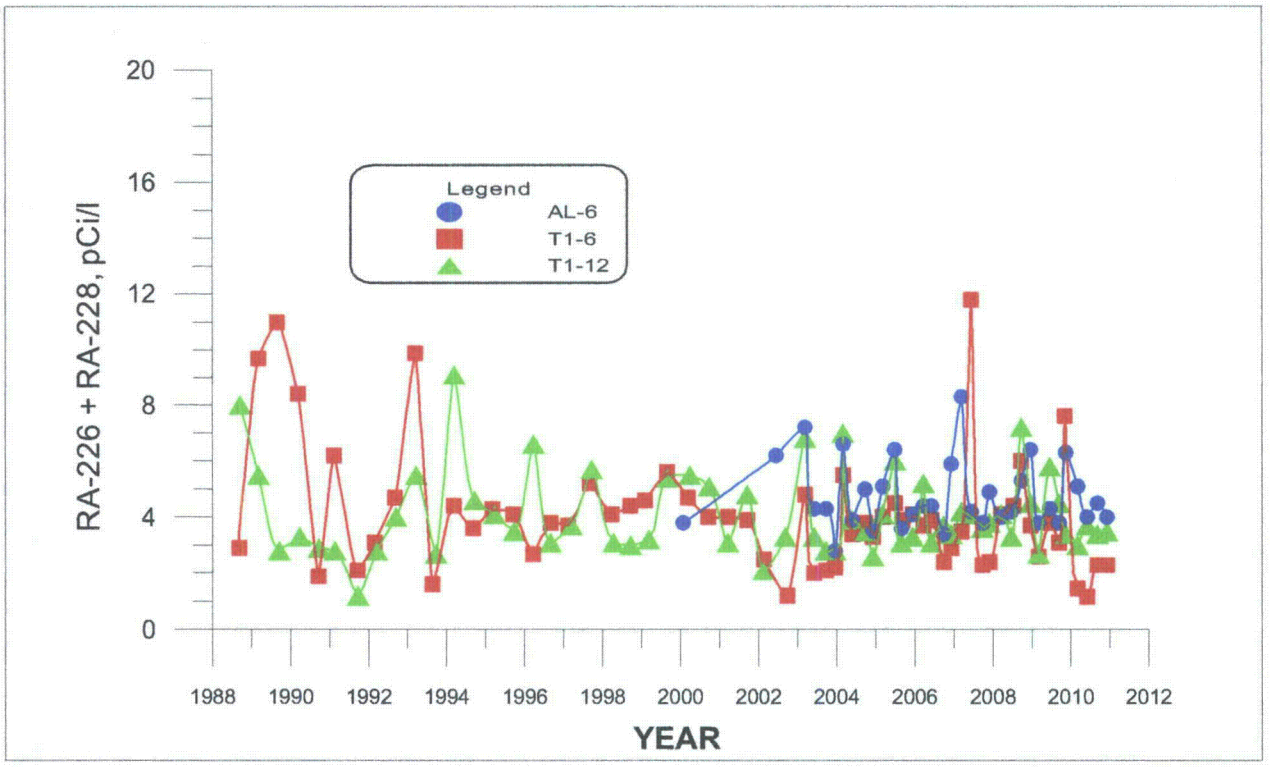


FIGURE 13. RA-226+RA-228 ACTIVITY IN JUNE 2011, AT LUCKY MC, IN pCi/l



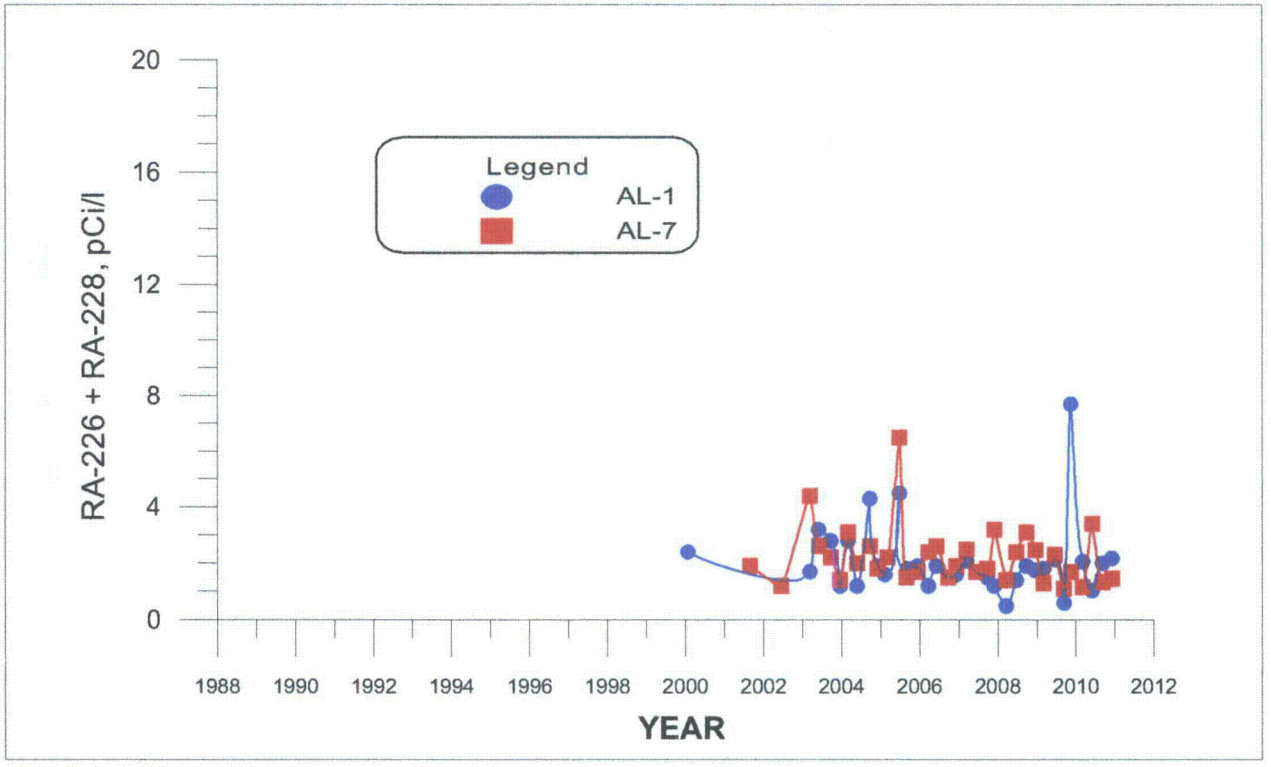


FIGURE 14. RADIUM-226 + RADIUM-228 ACTIVITY VERSUS TIME FOR WELLS T1-6, T1-12, AL-1, AL-6 AND AL-7.

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA.

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	WL (feet)	WL_ELEV (ft-msl)	pH(f) (std. units)	Cond(f) (µmhos)	TDS (mg/l)	SO4 (mg/l)	Cl (mg/l)	NO3+NO2 (mg/l)	Unat (mg/l)
AL-1	6/12/2007	20.27	6244.33	7.5	3840	2680	1700	35.0	< 0.1	0.118
	9/26/2007	20.56	6244.04	7.8	3170	2530	1550	30.0	< 0.1	0.100
	11/27/2007	31.57	6233.03	6.9	2910	2520	1470	26.0	< 0.1	0.081
	3/21/2008	20.24	6244.36	6.8	2900	2470	1610	28.0	4.8	0.102
	6/22/2008	31.14	6233.46	7.1	2690	2570	1560	27.0	0.1	0.084
	9/25/2008	31.90	6232.70	6.8	2300	2420	1450	23.0	0.2	0.078
	12/18/2008	30.77	6233.83	7.1	2160	2490	1410	25.0	0.2	0.078
	3/3/2009	30.20	6234.40	6.6	3310	2430	1430	21.0	< 0.1	0.082
	6/16/2009	29.14	6235.46	6.9	3610	2850	1590	62.0	19.6	0.135
	9/11/2009	31.81	6232.79	6.9	3290	2700	1520	48.0	2.7	0.102
	11/12/2009	30.98	6233.62	6.7	3250	2520	1540	43.0	2.8	0.437
	3/4/2010	29.34	6235.26	6.6	3220	2480	1540	40.0	1.5	0.090
	5/30/2010	28.22	6236.38	6.9	3920	3590	470	33.0	41.0	0.396
	9/7/2010	27.98	6236.62	7.0	4990	4860	2910	242.0	62.0	1.110
	10/14/2010	28.21	6236.39	6.9	4370	5890	3210	282.0	66.0	1.300
	12/2/2010	28.00	6236.60	6.8	4740	5340	3020	265.0	48.0	1.050
	3/24/2011	27.58	6237.02	7.1	4210	5000	2820	252.0	45.0	0.939
	3/25/2011	28.85	6235.75	7.1	3520	5040	2710	245.0	53.0	0.924
	6/8/2011	27.22	6237.38	7.1	4030	5190	3000	245.0	58.0	1.260
AL-6	6/12/2007	24.17	6212.63	7.6	4080	2960	1760	81.0	34.7	0.579
	9/26/2007	24.40	6212.40	8.0	3660	2920	1720	78.0	27.5	0.607
	11/27/2007	24.45	6212.35	6.8	3450	2930	1850	96.0	26.6	0.560
	3/21/2008	24.48	6212.32	7.0	2940	2720	1590	80.0	7.4	0.612
	6/22/2008	24.29	6212.51	6.9	3360	3180	1940	87.0	0.2	0.626
	9/25/2008	24.45	6212.35	6.9	2500	2830	1580	80.0	58.6	0.562
	12/18/2008	24.33	6212.47	7.1	2460	2950	1500	78.0	58.3	0.588
	3/3/2009	24.24	6212.56	6.6	3660	2900	1560	79.0	45.8	0.586
	6/16/2009	23.89	6212.91	6.8	3870	3070	1700	94.0	29.0	0.613
	9/11/2009	23.05	6213.75	7.1	3700	3230	1610	94.0	55.0	0.612
	11/12/2009	23.98	6212.82	6.8	3680	3100	1690	100.0	62.0	0.116
	3/4/2010	23.79	6213.01	6.7	3690	3150	1670	102.0	67.0	0.594
	5/30/2010	23.51	6213.29	6.9	3420	3360	1740	107.0	69.0	0.656
	9/7/2010	23.62	6213.18	7.1	3390	3280	1730	105.0	68.0	0.681
	12/2/2010	23.50	6213.30	6.8	3120	3410	1760	104.0	69.0	0.690
	3/24/2011	23.41	6213.39	7.1	3040	3620	1840	121.0	76.0	0.671
	6/8/2011	23.36	6213.44	7.1	2940	3500	1880	125.0	80.0	0.689
AL-7	6/12/2007	19.33	6232.67	7.6	3520	2420	1470	65.0	23.3	0.438
	9/26/2007	19.73	6232.27	8.0	3040	2400	1460	68.0	5.4	0.334
	11/27/2007	19.68	6232.32	6.9	3440	2540	1510	67.0	13.2	0.334
	3/21/2008	19.67	6232.33	6.9	2750	2330	1430	65.0	7.1	0.347
	6/22/2008	19.40	6232.60	7.0	3010	2670	1530	67.0	13.9	0.399
	9/25/2008	29.52	6222.48	6.8	2280	2460	1480	65.0	12.9	0.311
	12/18/2008	29.43	6222.57	7.2	2260	2660	1500	69.0	13.5	0.338
	3/3/2009	29.28	6222.72	6.6	3540	2810	1560	75.0	24.1	0.365

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA. (cont'd)

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	WL (feet)	WL_ELEV (ft-msl)	pH(f) (std. units)	Cond(f) (µmhos)	TDS (mg/l)	SO4 (mg/l)	Cl (mg/l)	NO3+NO2 (mg/l)	Unat (mg/l)
AL-7	6/16/2009	28.74	6223.26	6.9	3530	2850	1600	83.0	30.5	0.371
	9/11/2009	28.92	6223.08	6.9	3410	2860	1560	80.0	17.9	0.354
	11/12/2009	28.84	6223.16	6.7	3410	2720	1640	83.0	14.2	0.738
	3/4/2010	28.66	6223.34	6.6	3170	2570	1590	79.0	10.0	0.313
	5/30/2010	28.12	6223.88	6.8	3110	2770	1600	79.0	10.0	0.336
	9/7/2010	28.25	6223.75	7.0	2920	2790	1630	81.0	5.9	0.358
	12/2/2010	28.35	6223.65	6.8	2810	2800	1680	81.0	9.0	0.353
	3/24/2011	27.95	6224.05	7.1	2680	2850	1670	87.0	13.0	0.350
	6/8/2011	27.68	6224.32	7.1	1916	2910	1700	89.0	14.0	0.357
T1-6	6/14/2007	20.14	6408.08	7.4	3510	2510	1630	41.0	0.6	0.060
	9/27/2007	20.29	6407.93	7.8	3500	2550	1620	44.0	1.4	0.046
	11/27/2007	30.31	6397.91	7.0	2970	2550	1610	40.0	0.3	0.037
	3/21/2008	19.75	6408.47	7.0	3080	2400	1500	41.0	< 0.1	0.037
	7/10/2008	30.15	6398.07	7.9	3150	2300	1520	36.0	0.2	0.022
	9/17/2008	30.20	6398.02	6.7	2400	2450	1530	37.0	0.4	0.042
	11/11/2008	30.08	6398.14	7.2	2450	2560	1590	42.0	0.7	0.080
	12/18/2008	29.94	6398.28	7.0	2270	2530	1490	35.0	0.5	0.046
	3/3/2009	29.81	6398.41	6.9	3410	2500	1480	36.0	0.4	0.042
	6/16/2009	30.10	6398.12	7.1	3240	2470	1510	41.0	0.4	0.048
	9/11/2009	30.35	6397.87	7.0	3150	2560	1480	40.0	0.8	0.047
	11/5/2009	30.05	6398.17	7.0	1628	2460	1550	41.0	0.7	0.047
	3/4/2010	29.71	6398.51	6.9	3100	2310	1480	40.0	0.7	0.035
	5/30/2010	30.12	6398.10	7.4	2750	2450	1390	37.0	0.8	0.043
	6/26/2010	30.00	6398.22	7.0	2660	2520	1560	43.0	0.5	0.056
	9/7/2010	30.15	6398.07	7.1	2720	2500	1520	39.0	0.7	0.043
	10/14/2010	30.17	6398.05	6.9	1695	2660	1590	45.0	1.3	0.055
	12/2/2010	29.80	6398.42	7.0	2640	2510	1550	41.0	0.8	0.051
	3/24/2011	29.23	6398.99	7.0	1873	2590	1560	49.0	0.8	0.054
	6/8/2011	29.45	6398.77	7.0	1647	2520	1560	48.0	0.6	0.059
T1-12	6/14/2007	15.68	6325.12	5.7	7910	6630	2630	239.0	278.0	0.391
	9/27/2007	16.22	6324.58	6.5	7540	6590	2450	204.0	280.0	0.352
	11/27/2007	16.15	6324.65	6.4	6450	6500	2570	223.0	246.0	0.334
	3/21/2008	17.05	6323.75	6.4	6970	6270	2580	210.0	249.0	0.321
	6/22/2008	15.60	6325.20	6.5	6140	6470	2520	206.0	295.0	0.379
	9/25/2008	17.30	6323.50	6.2	5510	6390	2540	205.0	394.0	0.372
	12/18/2008	17.32	6323.48	6.3	5370	6210	2450	202.0	273.0	0.342
	3/3/2009	17.71	6323.09	5.9	7520	6370	2390	179.0	253.0	0.343
	6/16/2009	17.43	6323.37	6.3	7490	6460	2460	208.0	309.0	0.385
	9/11/2009	18.14	6322.66	6.4	7210	6530	2400	201.0	261.0	0.381
	11/12/2009	17.91	6322.89	6.2	6980	6350	2530	208.0	260.0	0.419
	3/4/2010	18.47	6322.33	6.2	6710	6390	2400	198.0	257.0	0.338
	5/30/2010	18.10	6322.70	6.2	5820	6480	2440	196.0	256.0	0.393
	9/7/2010	18.37	6322.43	6.3	5410	6300	2560	205.0	216.0	0.371
	12/2/2010	18.86	6321.94	6.2	5260	6200	2480	191.0	206.0	0.383

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA. (cont'd)

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	WL (feet)	WL_ELEV (ft-msl)	pH(f) (std. units)	Cond(f) (µmhos)	TDS (mg/l)	SO4 (mg/l)	Cl (mg/l)	NO3+NO2 (mg/l)	Unat (mg/l)
T1-12	6/8/2011	18.79	6322.01	6.4	4130	6200	2620	221.0	217.0	0.387

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA. (cont'd)

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	Th230 (pCi/l)	Th230(e) (pCi/l)	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Ra226+Ra228 (pCi/l)
AL-1	6/12/2007	< 0.200	---	0.7	± 0.3	< 1.0	---	< 1.7
	9/26/2007	< 0.200	---	0.5	± 0.2	< 1.0	---	< 1.5
	11/27/2007	0.500	± 0.3	< 0.2	± 0.2	< 1.0	---	< 1.2
	3/21/2008	0.000	± 0.1	0.2	± 0.1	0.3	± 0.7	0.5
	6/22/2008	0.000	± 0.2	0.2	± 0.1	1.2	± 0.7	1.4
	9/25/2008	0.100	± 0.3	1.2	± 0.3	0.7	± 0.7	1.9
	12/18/2008	0.100	± 0.2	0.4	± 0.1	1.4	± 0.8	1.8
	3/3/2009	0.090	± 0.2	1.0	± 0.2	0.8	± 0.6	1.8
	6/16/2009	0.100	± 0.2	0.7	± 0.2	1.4	± 0.7	2.1
	9/11/2009	- 0.008	± 0.2	0.5	± 0.2	0.1	± 0.8	0.6
	11/12/2009	0.100	± 0.1	7.1	± 0.4	0.6	± 0.7	7.7
	3/4/2010	0.050	± 0.1	0.9	± 0.2	1.2	± 0.7	2.1
	5/30/2010	0.050	± 0.1	0.7	± 0.2	0.3	± 0.6	1.0
	9/7/2010	0.040	± 0.1	0.7	± 0.2	1.3	± 0.6	2.0
	12/2/2010	0.020	± 0.1	0.7	± 0.2	1.5	± 0.7	2.2
	3/24/2011	0.300	± 0.1	0.5	± 0.2	1.1	± 0.6	1.6
	3/25/2011	0.070	± 0.1	0.6	± 0.2	0.0	± 0.6	0.6
	6/8/2011	0.050	± 0.1	0.9	± 0.2	1.2	± 0.8	2.1
AL-6	6/12/2007	< 0.200	---	3.2	± 0.6	< 1.0	---	< 4.2
	9/26/2007	0.400	± 0.3	2.8	± 0.5	< 1.0	---	< 3.8
	11/27/2007	< 0.200	---	3.9	± 0.7	< 1.0	---	< 4.9
	3/21/2008	0.000	± 0.2	2.4	± 0.3	1.6	± 0.8	4.0
	6/22/2008	-0.100	± 0.2	2.1	± 0.3	2.1	± 0.7	4.2
	9/25/2008	-0.100	± 0.2	3.2	± 0.4	2.1	± 0.8	5.3
	12/18/2008	0.300	± 0.3	2.7	± 0.3	3.7	± 0.9	6.4
	3/3/2009	0.010	± 0.2	2.4	± 0.3	1.4	± 0.6	3.8
	6/16/2009	0.200	± 0.2	2.7	± 0.4	1.6	± 0.7	4.3
	9/11/2009	- 0.030	± 0.1	2.7	± 0.3	1.1	± 0.8	3.8
	11/12/2009	0.080	± 0.1	4.9	± 0.4	1.4	± 0.7	6.3
	3/4/2010	0.200	± 0.1	3.0	± 0.4	2.1	± 0.7	5.1
	5/30/2010	0.050	± 0.1	2.9	± 0.3	1.1	± 0.7	4.0
	9/7/2010	-0.020	± 0.1	2.8	± 0.3	1.7	± 0.7	4.5
	12/2/2010	0.050	± 0.1	2.5	± 0.3	1.5	± 0.6	4.0
	3/24/2011	0.050	± 0.1	2.9	± 0.4	0.5	± 0.6	3.4
	6/8/2011	0.080	± 0.1	2.8	± 0.4	2.5	± 0.8	5.3
AL-7	6/12/2007	< 0.200	---	0.7	± 0.3	< 1.0	---	< 1.7
	9/26/2007	< 0.200	---	0.8	± 0.3	< 1.0	---	< 1.8
	11/27/2007	< 0.200	---	2.2	± 0.6	< 1.0	---	< 3.2
	3/21/2008	0.100	± 0.1	0.5	± 0.2	0.9	± 0.8	1.4
	6/22/2008	0.200	± 0.2	0.8	± 0.2	1.6	± 0.7	2.4
	9/25/2008	0.200	± 0.2	1.6	± 0.3	1.5	± 0.8	3.1
	12/18/2008	0.200	± 0.2	0.5	± 0.2	2.0	± 0.8	2.5
	3/3/2009	0.020	± 0.1	0.4	± 0.1	0.9	± 0.6	1.3
	6/16/2009	< 0.050	± 0.4	0.3	± 0.2	2.0	± 1.0	2.3

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA. (cont'd)

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	Th230 (pCi/l)	Th230(e) (pCi/l)	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Ra226+Ra228 (pCi/l)
AL-7	9/11/2009	0.050	± 0.1	0.9	± 0.2	0.2	± 0.8	1.1
	11/12/2009	0.050	± 0.1	0.5	± 0.1	1.2	± 0.7	1.7
	3/4/2010	0.070	± 0.1	0.3	± 0.1	0.9	± 0.6	1.2
	5/30/2010	0.010	± 0.1	1.1	± 0.2	2.3	± 0.7	3.4
	9/7/2010	0.060	± 0.1	0.5	± 0.2	0.8	± 0.7	1.3
	12/2/2010	0.100	± 0.1	0.4	± 0.1	1.1	± 0.6	1.5
	3/24/2011	0.020	± 0.1	0.5	± 0.2	0.5	± 0.6	1.0
	6/8/2011	0.060	± 0.1	0.5	± 0.2	0.8	± 0.7	1.3
T1-6	6/14/2007	< 0.200	---	10.8	± 1.1	< 1.0	---	< 11.8
	9/27/2007	< 0.200	---	1.3	± 0.4	< 1.0	---	< 2.3
	11/27/2007	< 0.200	---	1.4	± 0.5	< 1.0	---	< 2.4
	3/21/2008	0.000	± 0.1	2.1	± 0.3	2.0	± 0.8	4.1
	7/10/2008	0.000	± 0.1	2.1	± 0.3	2.3	± 1.2	4.4
	9/17/2008	0.000	± 0.2	4.3	± 0.5	1.7	± 0.8	6.0
	11/11/2008	---	---	5.0	± 0.4	---	---	---
	12/18/2008	0.100	± 0.2	1.8	± 0.3	1.9	± 0.8	3.7
	3/3/2009	-0.020	± 0.1	1.8	± 0.3	0.8	± 0.6	2.6
	6/16/2009	-0.040	± 0.2	2.1	± 0.3	1.7	± 0.7	3.8
	9/11/2009	- 0.030	± 0.1	2.0	± 0.3	1.1	± 0.8	3.1
	11/5/2009	0.030	± 0.1	4.6	± 0.5	3.0	± 1.0	7.6
	3/4/2010	0.300	± 0.2	0.8	± 0.2	0.7	± 0.6	1.5
	5/30/2010	0.030	± 0.1	0.9	± 0.2	0.3	± 0.6	1.2
	6/26/2010	---	---	3.9	± 0.4	---	---	---
	9/7/2010	-0.010	± 0.1	1.3	± 0.2	1.0	± 0.7	2.3
	10/14/2010	---	---	3.3	± 0.3	---	---	---
	12/2/2010	0.070	± 0.1	1.5	± 0.3	0.8	± 0.6	2.3
	3/24/2011	0.030	± 0.1	1.2	± 0.3	1.5	± 0.8	2.7
	6/8/2011	0.060	± 0.1	1.8	± 0.3	1.3	± 0.8	3.1
T1-12	6/14/2007	< 0.200	---	3.1	± 0.6	< 1.0	---	< 4.1
	9/27/2007	< 0.200	---	2.6	± 0.5	< 1.0	---	< 3.6
	11/27/2007	< 0.200	---	2.8	± 0.6	< 1.0	---	< 3.8
	3/21/2008	0.200	± 0.4	1.8	± 0.3	2.3	± 0.8	4.1
	6/22/2008	0.300	± 0.3	1.5	± 0.2	1.8	± 0.7	3.3
	9/25/2008	0.400	± 1.3	5.5	± 0.4	1.7	± 0.7	7.2
	12/18/2008	0.100	± 0.3	2.3	± 0.3	2.2	± 0.8	4.5
	3/3/2009	0.300	± 0.3	1.8	± 0.3	0.9	± 0.6	2.7
	6/16/2009	1.100	± 0.6	3.5	± 0.4	2.3	± 0.6	5.8
	9/11/2009	0.300	± 0.4	2.1	± 0.3	2.4	± 0.8	4.5
	11/12/2009	0.500	± 0.2	2.1	± 0.3	1.3	± 1.1	3.4
	3/4/2010	0.080	± 0.1	1.7	± 0.2	1.3	± 0.6	3.0
	5/30/2010	0.200	± 0.4	2.7	± 0.3	1.0	± 0.6	3.7
	9/7/2010	0.300	± 0.3	1.9	± 0.3	1.5	± 0.6	3.4
	12/2/2010	0.050	± 0.1	1.9	± 0.3	1.6	± 0.6	3.5
	6/8/2011	0.300	± 0.2	1.7	± 0.3	1.5	± 0.7	3.2

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA. (cont'd)

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	As (mg/l)	Be (mg/l)	Cd (mg/l)	Cr (mg/l)	Ni (mg/l)	Se (mg/l)
AL-1	6/12/2007	0.002	< 0.01	< 0.010	< 0.05	< 0.05	0.004
	9/26/2007	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.003
	11/27/2007	0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.004
	3/21/2008	0.001	< 0.01	< 0.010	< 0.05	< 0.05	< 0.001
	6/22/2008	< 0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.003
	9/25/2008	0.003	< 0.01	< 0.005	< 0.05	< 0.05	0.006
	12/18/2008	< 0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.002
	3/3/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.001
	6/16/2009	0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.065
	9/11/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.019
	11/12/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.020
	3/4/2010	0.002	< 0.01	< 0.010	< 0.05	< 0.05	0.006
	5/30/2010	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.126
	9/7/2010	0.003	< 0.01	< 0.010	< 0.05	< 0.05	0.177
	12/2/2010	0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.140
	3/24/2011	0.002	< 0.01	< 0.010	< 0.05	< 0.05	0.117
	3/25/2011	0.002	< 0.01	< 0.010	< 0.05	< 0.05	0.109
	6/8/2011	0.003	< 0.01	< 0.010	< 0.05	< 0.05	0.162
AL-6	6/12/2007	0.007	< 0.01	< 0.010	< 0.05	< 0.05	0.063
	9/26/2007	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.055
	11/27/2007	0.007	< 0.01	< 0.010	< 0.05	< 0.05	0.059
	3/21/2008	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.058
	6/22/2008	0.003	< 0.01	< 0.005	< 0.05	< 0.05	0.002
	9/25/2008	0.012	< 0.01	< 0.005	< 0.05	< 0.05	0.060
	12/18/2008	0.005	< 0.01	< 0.005	< 0.05	< 0.05	0.065
	3/3/2009	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.064
	6/16/2009	0.003	< 0.01	< 0.005	< 0.05	< 0.05	0.035
	9/11/2009	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.079
	11/12/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.009
	3/4/2010	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.078
	5/30/2010	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.091
	9/7/2010	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.088
	12/2/2010	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.087
	3/24/2011	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.103
	6/8/2011	0.006	< 0.01	< 0.010	< 0.05	< 0.05	0.101
AL-7	6/12/2007	0.008	< 0.01	< 0.010	< 0.05	< 0.05	< 0.001
	9/26/2007	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.012
	11/27/2007	0.004	< 0.01	< 0.010	< 0.05	< 0.05	0.022
	3/21/2008	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.014

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA. (cont'd)

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	As (mg/l)	Be (mg/l)	Cd (mg/l)	Cr (mg/l)	Ni (mg/l)	Se (mg/l)
AL-7	6/22/2008	0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.020
	9/25/2008	0.002	< 0.01	< 0.005	< 0.05	< 0.05	0.019
	12/18/2008	< 0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.018
	3/3/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.028
	6/16/2009	< 0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.032
	9/11/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.023
	11/12/2009	0.009	< 0.01	< 0.010	< 0.05	< 0.05	0.080
	3/4/2010	0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.014
	5/30/2010	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.018
	9/7/2010	0.002	< 0.01	< 0.010	< 0.05	< 0.05	0.016
	12/2/2010	0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.020
	3/24/2011	0.002	< 0.01	< 0.010	< 0.05	< 0.05	0.025
	6/8/2011	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.026
T1-6	6/14/2007	0.002	< 0.01	< 0.005	< 0.05	< 0.05	0.012
	9/27/2007	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.012
	11/27/2007	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.006
	3/21/2008	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.008
	7/10/2008	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.002
	9/17/2008	0.010	< 0.01	< 0.005	< 0.05	< 0.05	0.012
	11/11/2008	< 0.001	---	< 0.005	< 0.05	< 0.05	0.014
	12/18/2008	< 0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.008
	3/3/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.010
	6/16/2009	< 0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.007
	9/11/2009	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.009
	11/5/2009	< 0.001	< 0.01	< 0.005	< 0.05	< 0.05	0.010
	3/4/2010	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.005
	5/30/2010	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.007
	6/26/2010	< 0.001	---	< 0.005	< 0.05	< 0.05	0.013
	9/7/2010	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.008
	10/14/2010	< 0.001	---	< 0.005	< 0.05	< 0.05	0.029
	12/2/2010	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.017
	3/24/2011	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.017
	6/8/2011	< 0.001	< 0.01	< 0.010	< 0.05	< 0.05	0.014
T1-12	6/14/2007	< 0.002	< 0.01	0.010	< 0.05	0.28	0.399
	9/27/2007	< 0.002	< 0.01	< 0.010	< 0.05	0.25	0.353
	11/27/2007	0.005	< 0.01	< 0.010	< 0.05	0.29	0.408
	3/21/2008	< 0.001	< 0.01	< 0.010	< 0.05	0.25	0.377
	6/22/2008	0.004	< 0.01	< 0.005	< 0.05	0.29	0.335
	9/25/2008	0.002	< 0.01	< 0.005	< 0.05	0.27	0.339

TABLE 1. WATER-LEVEL AND WATER-QUALITY DATA. (cont'd)

Lucky MC Mine - Pathfinder Mines Corp.

Sample Point Name	Date	As (mg/l)	Be (mg/l)	Cd (mg/l)	Cr (mg/l)	Ni (mg/l)	Se (mg/l)
T1-12	12/18/2008	< 0.001	< 0.01	< 0.005	< 0.05	0.28	0.352
	3/3/2009	< 0.001	< 0.01	< 0.010	< 0.05	0.28	0.330
	6/16/2009	0.001	< 0.01	< 0.005	< 0.05	0.27	0.342
	9/11/2009	< 0.001	< 0.01	< 0.010	< 0.05	0.27	0.348
	11/12/2009	< 0.001	< 0.01	< 0.010	< 0.05	0.25	0.305
	3/4/2010	0.003	< 0.01	< 0.010	< 0.05	0.24	0.254
	5/30/2010	< 0.001	< 0.01	< 0.010	< 0.05	0.27	0.274
	9/7/2010	< 0.001	< 0.01	< 0.010	< 0.05	0.27	0.248
	12/2/2010	0.003	< 0.01	< 0.010	< 0.05	0.28	0.237
	6/8/2011	< 0.001	< 0.01	< 0.010	< 0.05	0.27	0.239