Rio Algom Mining LLC

August 15, 2011

Certified Mail
Return Receipt (7010 0290 0003 3163 4674)

Mr. Tom McLaughlin, Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop T-8F5
Washington, DC 20555

Re: **Ambrosia Lake Facility**
License SUA-1473, Docket No. 40-8905
License Condition #34, Semiannual Groundwater Report

Dear Mr. McLaughlin,

Pursuant to license condition #34 of the above referenced license, please find attached the semiannual groundwater monitoring report for the above referenced facility for the first half of 2011. A request for an extension to the August 1 submittal date to an August 15 submittal date was approved by email on July 20, 2011.

This report describes the groundwater stability monitoring plan, as approved by Amendment #56.

A digital copy of the semiannual groundwater monitoring report is also included in the package.

If you have any questions concerning this submittal, please contact me at (505) 287-8851, extension 15.

Regards,

Chuck R Wentz

Chuck Wentz
Environmental Department Supervisor
Radiation Safety Officer

Attachment

cc: Document Control (NRC-MD)
J. Shoeppner (NMED-NM)
File

FSME20

RIO ALGOM LLC
AMBROSIA LAKE FACILITY

License SUA-1473 Docket 40-8905

Groundwater Stability Monitoring Report

1st Half 2011

August 15, 2011

RIO ALGOM MINING LLC
AMBROSIA LAKE FACILITY
GROUNDWATER STABILITY MONITORING REPORT – 1st HALF 2011

Nuclear Regulatory Commission (NRC) source material license SUA-1473, condition #34(D), requires Rio Algom Mining LLC (RAM) to submit semi-annual groundwater monitoring reports associated with the facility's groundwater stability monitoring plan established by Amendment 56. Condition 34.D states:

> *Submit, by February 1 and August 1 of each year groundwater monitoring reports to include a minimum of the following: potentiometric surface maps for each aquifer; time vs. concentration plots for all parameters for which ACLs have been issued, hydrographs for the downgradient most trend well or POE well in each aquifer, hydraulic gradient calculations, and tabulated analytical data for each ACL parameter for each well.*

Due to sampling problems, data was not available until August 5, 2011. Therefore, this report, which presents the groundwater monitoring data for monitoring wells completed in the Alluvium, Tres Hermanos A (TRA), Tres Hermanos B (TRB), and Dakota Sandstone (KD) for the period covering January through June 2011 was delayed.

Background

RAM's Ambrosia Lake facility is located in McKinley County approximately 24 miles due north of Grants, New Mexico, in the Ambrosia Lake valley. Uranium milling activities started at the site in 1957. The waste management structures were Tailings Impoundments 1 and 2, Decantation Pond 3, and Evaporation Ponds 4 through 10. Tailings Impoundments 1 and 2 were built in late 1958, along with Pond 3 at the eastern toe of Tailings Impoundment 1, to accept decanted tailings liquids. Tailings were first produced at the site in November 1958. In 1976, RAM diverted the natural course of the Arroyo del Puerto east of Ponds 4, 5, and 6, and lined Ponds 9 and 10. The solids fraction was disposed through a slurry transfer system to the tailings impoundments, while the liquids fraction was transferred to the evaporation ponds. Evaporation pond residues from Ponds 3, 4, 5, 6, 7, and 8 were placed in Tailings Impoundments 1 and 2 prior to final reclamation. All the aforementioned tailings impoundments and ponds were unlined. Seepage from the tailings impoundments and Evaporation Ponds 3 through 6, along with seepage from unrelated mining and milling operations, has saturated and impacted the Alluvium of the Arroyo del Puerto (Alluvium). Seepage from the tailings impoundments and evaporation Ponds 7 and 8 has recharged and impacted the Tres Hermanos B sandstones within the Mancos Formation shale, and the Dakota Sandstone, which underlies the Mancos Formation.

Consequently, in 1983, RAM entered into an Assurance of Discontinuance (AOD) with the State of New Mexico to minimize the future impact of mill tailings solutions seepage on groundwater. The approved AOD remedial action required the construction and maintenance of an interceptor trench (IT-1) and the cessation of discharges to unlined Ponds 4 through 8. These ponds were taken out of service in 1983. In the late 1990s, RAM added interceptor trenches IT-2, -3, and -4 south of Pond 10 to collect seepage potentially missed by IT-1.

In 1986, after the State of New Mexico relinquished its licensing authority over uranium mill activities, NRC reasserted jurisdiction at the site and required that the site begin a groundwater detection monitoring program. Data from this program were the basis for the groundwater protection standards (GWPSs) established for the site by NRC, and a corrective action program (CAP) for the groundwater was developed based on this information. The CAP required pumping and treating groundwater to remove certain constituents. RAM implemented the CAP beginning in the mid-1980s. This requirement was removed when the alternate concentration limit (ACL) petition was granted in 2005.

Mining and milling operations in the area have had two notable hydrologic effects: creation and maintenance of a saturated zone at the base of the Alluvium, and creation of a cone of groundwater depression in bedrock aquifers due to dewatering of underground mines. Water quality in the Alluvium and the units into which the Alluvium drains has also been affected by area mining operations not directly related to the licensee.

1st Half 2011 Activities

Activities associated with the groundwater monitoring program at the mill facility during the first half of 2011 consisted of performing sampling pursuant to the approved groundwater stability monitoring plan. The well network was designed to track and assess groundwater contamination between the tailings impoundment and the long-term care boundary and point of exposure (POE). NRC required more frequent monitoring during the beginning of the compliance monitoring program because of uncertainties in the hydrogeologic and transport models. Contaminated groundwater will not express itself as surface water; therefore any exposure must occur through actual groundwater use. The approved ACLs for the site are presented in Table 1 below.

Table 1. Rio Algom Mining – Ambrosia Lake Operation
Approved Alternate Concentration Limits

Parameter	Dakota	Tres Hermanos A	Tres Hermanos B	Alluvium
U-nat (mg/L)	1.6	No ACL	1.6	23
Th-230 (pCi/L)	945	945	945	13,627
Ra-226 and -228 (pCi/L)	218	218	218	3,167
Pb-210 (pCi/L)	88	88	88	1,274
Gross Alpha (pCi/L)	No ACL	No ACL	No ACL	8,402
Molybdenum (mg/L)	No ACL	No ACL	No ACL	176
Nickel (mg/L)	6.8	No ACL	6.8	98
Selenium (mg/L)	No ACL	No ACL	No ACL	49
Chloride (mg/L)	3,200	1,070	2,810	7,110
Nitrate (mg/L)	22.8	9.2	7.7	351
Sulfate (mg/L)	6,480	2,584	4,760	12,000
Total Dissolved Solids (mg/L)	14,100	6,400	11,700	26,100

mg/L = milligrams per liter
pCi/L = Pico Curies/liter

Appendix 1 contains the analytical data for the Dakota, Tres Hermanos A, Tres Hermanos B, and Alluvial units, respectively. Appendix 2 contains the time versus concentration plots for the ACL parameters for the Dakota, Tres Hermanos A, Tres Hermanos B, and Alluvial units.

Appendix 3 contains the hydrographs for the most downgradient monitoring well for the Dakota, Tres Hermanos A, Tres Hermanos B, and Alluvial units. The most notable observation in the data is that the potentiometric surface in the Alluvium continues to decline. For example, RAM has observed a decline of over 25 feet at monitoring well 32-69 since February of 2005. This drop is attributable to the discontinuance of the Alluvial CAP, which was maintaining the artificial water mound in the vicinity of the site. RAM's groundwater flow model projected a 65- to 100-year period for the Alluvium to dewater following cessation of the CAP. This water table drop acts to slow the lateral migration rate of milling-related seepage. The area with the greatest drop in potentiometric surface was the southeast region near the POE for the Alluvium.

RAM determined the hydraulic gradients by calculating the difference in groundwater elevation between the most upgradient point of compliance (POC) well in each unit and the farthest downgradient trend or POE well in the same unit. That value was then divided by the distance along a flow path between the two wells. Results of these calculations are summarized below:

- Dakota Sandstone – 0.033 feet per foot
- Tres Hermanos A Sandstone – 0.009 feet per foot
- Tres Hermanos B Sandstone – 0.017 feet per foot
- Alluvium – 0.007 feet per foot

Appendix 4 contains the potentiometric surface maps for the Dakota, Tres Hermanos A, Tres Hermanos B, and Alluvial units, respectively.

Data Evaluation

As a component of the ACL approval process, NRC not only established ACLs for specific parameters, but NRC also maintained the GWPSs for those constituents for which ACLs were not proposed. During the time from initial ACL submission for the bedrock units (February 2000) to ACL approval (2006), the site maintained the CAP. Review of the data has resulted in RAM informing NRC on November 9, 2006, of elevated beryllium concentrations within Dakota POC monitoring well 36-06KD. As a result of this condition, RAM submitted a proposed CAP on January 15, 2007, to address the beryllium concentrations present within monitoring well 36-06KD, which was approved by NRC on April 30, 2007.

RAM has discussed the changes in concentration in samples of groundwater from monitoring well 36-06KD during past meetings with NRC, and both parties concurred that fluctuations in well water quality appear to be linked to surface reclamation work. The previously increasing trend in beryllium concentration correlated with surface field work in the vicinity of the well. During the last reporting period, that trend had leveled, and RAM anticipated that the concentration trend would begin to decline over time. RAM proposed to continue monthly monitoring of well 36-06KD for beryllium so that additional data will be available for evaluating the beryllium concentrations. The beryllium concentration in the samples of groundwater from monitoring well 36-06KD continues to exceed the GWPS of 0.01 mg/L. However, the current value of 0.0184 mg/L continues a steady downward trend from a ten-year high of near 0.04 mg/L in April of 2007 (Figure 1 and Table 2).

Figure 1. Beryllium Concentrations in Dakota Monitor Well 36-06KD

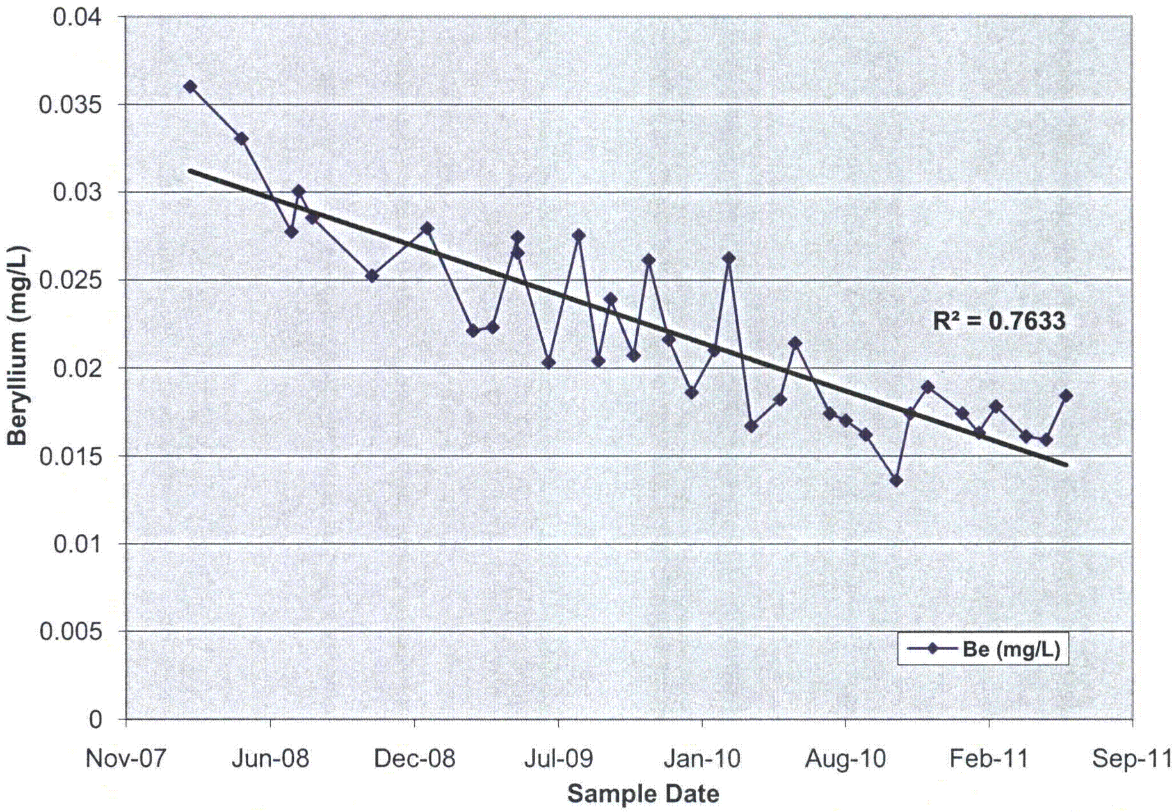
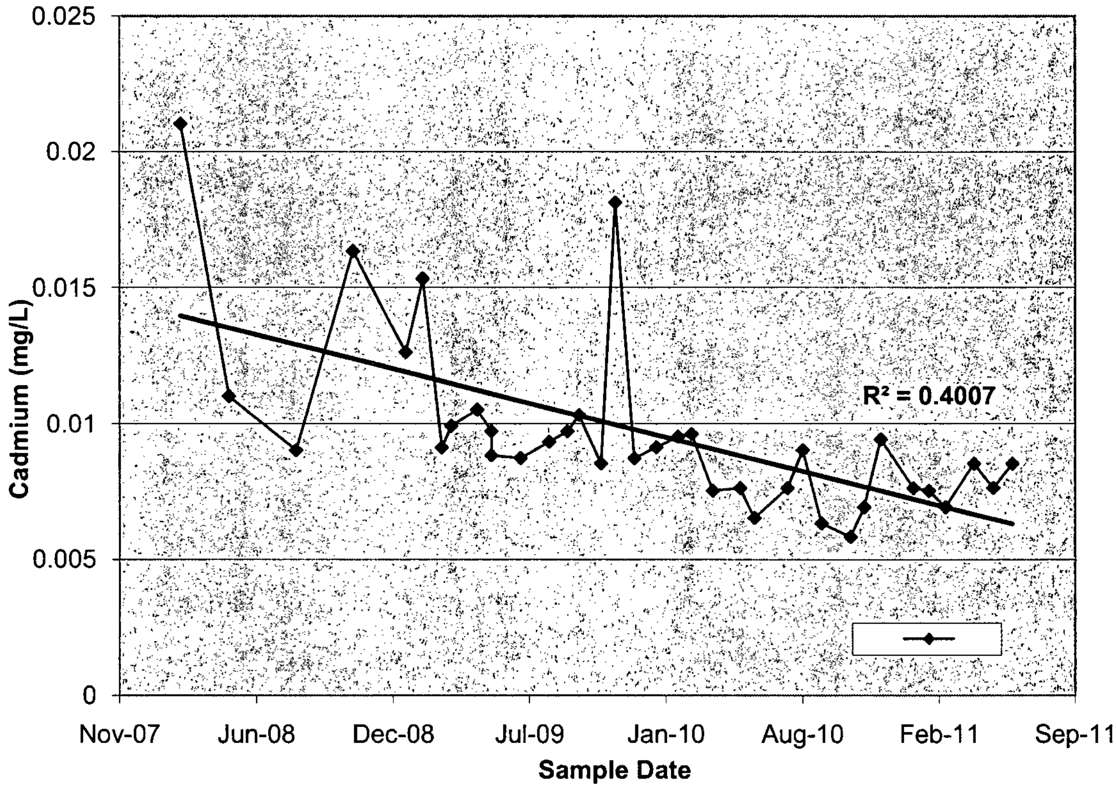


Table 2. 1st Half 2011 Analytical Summary for Uranium in Monitoring Well 31-02 and Beryllium and Cadmium in Monitoring Well 36-06KD

Date	Well 31-02	Well 36-06KD	
	U-nat mg/L	Be mg/L	Cd mg/L
1/19- 1/20/2011	0.969	0.0174	0.0076
2/11/2011		0.0163	0.0075
3/7/2011	0.4885	0.0178	0.0069
4/18/2011		0.0161	0.0085
5/16/11	1.84	0.0159	0.0076
6/13/2011	4.54	0.0184	0.0085

Because of previous inadvertent omissions in reporting values that exceed a GWPS, in 2009 RAM instituted a policy of third-party review of laboratory data within five working days of receiving it. As a result of this policy, RAM was made aware that cadmium concentrations in the samples of groundwater from monitoring well 36-06KD had exceeded the GWPS of 0.01 mg/L during several sampling rounds beginning in November 2007 (Figure 2). Cadmium concentrations in monitoring well 36-06KD follow a pattern that is very similar to both uranium and beryllium concentrations in the same well. These constituents increase when pH decreases and decrease when pH increases. As with uranium and beryllium, cadmium concentrations are currently declining in monitoring well 36-06KD; the most recent sample was measured at 0.0085 mg/L (Figure 2 and Table 2), which is below the GWPS.

Figure 2. Cadmium Concentrations in Dakota Monitor Well 36-06KD



As stated in the *Groundwater Stability Monitoring Report – 1st Half 2010,* RAM planned to discontinue monthly sampling and return to quarterly sampling of Tres Hermanos B monitoring well 31-02 in 2011. However, there has been a recent drop in water level and an increase in the concentrations for well 31-02. A uranium concentration of 1.84 mg/L in a sample collected on May 16, 2011, exceeded the ACL of 1.6 mg/L. Confirmation sampling verified that concentrations were increasing in that well. The June 13, 2011, sample contained a uranium concentration of 4.54 mg/L. To better understand these changes, additional evaluation may be required. It should be noted that concerns over the well's integrity have been raised as part of a review of the integrity of the entire monitoring network. The well is scheduled for replacement pending New Mexico Environment Department and NRC approval of the recently submitted well replacement work plan. RAM will continue to monitor monthly, and if it is determined the recent results are indicative of a trend, the site conditions will be evaluated to identify the cause of the recent changes.

The calculated gross alpha concentration of 178 pCi/L in data from sampling of monitor well 31-67TRB, and the calculated gross alpha concentration of 50 pCi/L in data from sampling of monitor well 36-02TRB, exceeded the GWPS for gross alpha of 21 pCi/L. The calculated gross alpha concentration of 38 pCi/L in data from sampling of background monitor well 33-01TRA exceeded the GWPS for gross alpha of 18 pCi/L. Because calculated gross alpha concentrations exceeded the GWPS in background, and because of the unusual number of concentrations exceeding a GWPS, these concentrations are suspected to result from laboratory error. Confirmation sampling will be completed to verify these results. Based on the results of pending re-analysis of 31-67TRB, 36-02TRB, and 33-01TRA for gross alpha, RAM may institute monthly sampling for this constituent in these wells.

Conclusions

Based on the developments with monitoring well 36-06KD, RAM proposes to continue to conduct monthly sampling of the well for beryllium and cadmium for another six (6) months or until the beryllium and cadmium concentrations clearly decrease to below 0.01 mg/L. Water levels will also be monitored to determine whether the water available within the Dakota formation is continuing to decline. Results of this test phase will be presented within the 2nd half 2011 groundwater report. Based on the results of pending re-analysis of this well for gross alpha, RAM may institute monthly sampling for this constituent.

Because of water level decrease and increased uranium concentration levels in samples from Tres Hermanos B monitoring well 31-02, RAM will return to monthly sampling for uranium concentrations in this well.

APPENDIX 1

Stability Monitoring Plan
Analytical Results

RIO ALGOM MINING LLC
1ST HALF 2011
DAKOTA WELL RESULTS - ACL PARAMETERS

Well	Date	Depth To Water	Total Depth	Spec. (Cond.)	Temp C	pH	Chloride (mg/L)	Sulfate (mg/L)	T.D.S. (mg/L)	Nitrate (mg/L)
17-01KD	01-Mar-11	683.47	807.71	1231	19.2	9.86	38	640	1100	0.04
17-01KD	20-Jun-11	683.67	807.71	1593	18.6	9.52	39	680	1090	0.04
30-02KD	08-Mar-11	310.08	313.43	5720	14	6.98	2220	1600	6220	0.17
30-02KD	20-Jun-11	309.77	313.43	8740	16.2	7.53	2250	1510	5920	0.11
30-48KD	08-Mar-11	Dry	332.81							
30-48KD	21-Jun-11	Dry	332.61							
32-45KD	08-Mar-11	245.7	269.91	1407	12.5	7.07	180	700	1560	0.66
32-45KD	14-Jun-11	245.83	269.91	2120	16.9	7.38	180	730	1590	<0.02
36-06KD	07-Mar-11	181.55	198.03	6790	12.6	3.71	1000	3700	7440	0.06
36-06KD	13-Jun-11	180.82	198.03	8080	16.3	4.35	1150	3800	7900	0.08
5-02KD	01-Mar-11	189.26	190.77	Insufficient Water						
5-02KD	21-Jun-11	188.59	190.7	Insufficient Water						
ACL							**3200**	**6480**	**14100**	**22.8**

Well	Date	Ni (mg/L)	U-nat (mg/L)	Th-230 (pCi/L)	Pb-210 (pCi/L)	Ra-226+Ra-228 (pCi/L)
17-01KD	01-Mar-11	0.0039	0.0003	-0.45	0	1.15
17-01KD	20-Jun-11	<0.02	<0.003	-0.24	1.2	0.7
30-02KD	08-Mar-11	0.108	0.0018	-0.41	2.1	1.12
30-02KD	20-Jun-11	0.025	0.0015	2.1	0	1.94
30-48KD	08-Mar-11					
30-48KD	21-Jun-11					
32-45KD	08-Mar-11	0.0031	0.0094	-0.01	3.2	3.2
32-45KD	14-Jun-11	0.005	0.0177	-1.8	0	1.76
36-06KD	07-Mar-11	0.213	0.6745	28	3.5	17.4
36-06KD	13-Jun-11	0.229	0.6955	29	0	21.5
5-02KD	01-Mar-11					
5-02KD	21-Jun-11					
ACL		**6.8**	**1.6**	**945**	**88**	**218**

Well 30-48KD is dry.
Well 5-02KD did not have sufficient water to collect a sampl
< = constituent was not detected above the method detection lir

RIO ALGOM MINING LLC
1ST HALF 2011
TRA WELL RESULTS - ACL PARAMETERS

Well	Date	Depth To Water	Total Depth	Spec. (Cond.)	Temp C	pH	Chloride (mg/L)	Sulfate (mg/L)	T.D.S. (mg/L)	Nitrate (mg/L)
30-01	08-Mar-11	205.75	207.37	Insufficient Water						
30-01	20-Jun-11	205.63	207.73	Insufficient Water						
31-01	08-Mar-11	202.46	250.23	1376	12.5	7.63	40	710	1470	<0.02
31-01	14-Jun-11	202.67	250.23	1931	16.5	7.24	32	620	1450	<0.02
33-01TRA	07-Mar-11	118.85	181.05	3190	12.6	7.26	34	1670	2720	0.06
33-01TRA	14-Jun-11	118.9	181.05	3460	14.8	7.45	34	1780	2760	0.04
ACL							1070	2584	6400	9.2

Well	Date	Th-230 (pCi/L)	Pb-210 (pCi/L)	Ra-226+Ra-228 (pCi/L)
30-01	08-Mar-11			
30-01	20-Jun-11			
31-01	08-Mar-11	-0.2	0	1.81
31-01	14-Jun-11	0.02	0.9	2.3
33-01TRA	07-Mar-11	0.23	0	2.08
33-01TRA	14-Jun-11	0.05	0	2.8
ACL		945	88	218

< = constituent was not detected above the method detection lim
Well 30-01 contained insufficient water for sample collectio

RIO ALGOM MINING LLC
1ST HALF 2011
TRB WELL RESULTS - ACL PARAMETERS

Well	Date	Depth To Water	Total Depth	Spec. (Cond.)	Temp C	pH	Chloride (mg/L)	Sulfate (mg/L)	T.D.S. (mg/L)	Nitrate (mg/L)
19-77	08-Mar-11	272.04	287.95	3490	13.4	7.06	19	1870	3440	0.21
19-77	14-Jun-11	272.1	287.95	4500	16.6	7.45	18	1900	3500	0.19
31-02	09-Mar-11	63.49	124.48	3430	12.3	7.16	600	2100	4800	0.09
31-02	13-Jun-11	75.95	124.44	5730	14.4	7.02	640	2200	4990	0.09
31-67	07-Mar-11	28.54	96.26	5190	11.9	6.52	960	2900	6600	0.05
31-67	13-Jun-11	29.55	97.26	7410	14.1	6.69	960	2500	6680	<0.02
36-01	08-Mar-11	Dry	58.44							
36-01	21-Jun-11	Dry	58.44							
36-02	07-Mar-11	41.68	57.41	7430	12.4	7.02	2500	1730	10700	0.2
36-02	13-Jun-11	42.52	57.37	11770	14.3	6.51	2450	3700	10300	0.38
ACL							**2810**	**4760**	**11700**	**7.7**

Well	Date	Ni (mg/L)	U-nat (mg/L)	Th-230 (pCi/L)	Pb-210 (pCi/L)	Ra-226+Ra-228 (pCi/L)
19-77	08-Mar-11	0.004	0.0114	0.08	1.6	1.5
19-77	14-Jun-11	0.005	0.0284	0.01	0	1.06
31-02	09-Mar-11	0.011	0.4885	1.84	0.32	1.5
31-02	13-Jun-11	0.017	**4.54**	-0.08	3.2	3.9
31-67	07-Mar-11	0.014	0.0144	0.22	6.5	8.9
31-67	13-Jun-11	0.021	0.0177	0.5	0	7.3
36-01	08-Mar-11					
36-01	21-Jun-11					
36-02	07-Mar-11	0.018	0.009	0.14	9.9	2.43
36-02	13-Jun-11	0.019	0.006	-0.18	7.9	2.9
ACL		**6.8**	**1.6**	**945**	**88**	**218**

< = constituent was not detected above the method detection lir
Monitor Well 36-01 was dry or contained insufficient water for sample collectic

RIO ALGOM MINING LLC
1ST HALF 2011
ALLUVIAL WELL RESULTS - ACL PARAMETERS

Well	Date	Depth To Water	Total Depth	Spec. (Cond.)	Temp C	pH	Chloride (mg/L)	Sulfate (mg/L)	T.D.S. (mg/L)	Nitrate (mg/L)
5-73	28-Feb-11	15.82	31.4	5490	11.9	6.91	1330	1680	4760	0.45
5-73	06-Jun-11	16.03	31.4	4570	13.3	6.74	1560	1700	5090	0.72
5-03	28-Feb-11	23.56	41.4	3760	13.8	9.76	460	870	3680	0.03
5-03	06-Jun-11	23.79	41.34	3410	15.4	8.01	490	1800	3610	<0.02
5-04	28-Feb-11	20.43	63.95	4580	12.1	6.79	740	2600	5110	0.06
5-04	06-Jun-11	20.62	63.95	3710	14.6	6.63	800	2700	5130	<0.02
5-08	28-Feb-11	30.1	87.13	3340	13.3	6.06	440	1740	3410	0.05
5-08	06-Jun-11	30.3	87.13	1951	14.6	6.25	370	1700	3380	0.02
31-61	01-Mar-11	13.81	29.29	10660	13.3	6.13	2300	5700	13700	0.82
31-61	13-Jun-11	13.94	29.3	15350	13.4	6.42	2330	5900	14200	0.87
31-65	01-Mar-11	15.75	45.95	9260	12.8	6.2	1900	5100	12600	1.01
31-65	13-Jun-11	15.86	45.95	13860	13.9	6.59	2090	5200	13200	0.37
32-59	01-Mar-11	17.47	27.95	4330	13.1	6.92	590	2200	4610	0.25
32-59	06-Jun-11	17.65	27.95	3830	13.4	6.99	590	2300	4670	0.03
MW-24	28-Feb-11	Dry	50.13							
MW-24	06-Jun-11	Dry	50.15							
ACL							**7110**	**12000**	**26100**	**351**

< = constituent was not detected above the method detection limit.
Monitor Well MW-24 was dry.

RIO ALGOM MINING LLC
1ST HALF 2011
ALLUVIAL WELL RESULTS - ACL PARAMETERS

Well	Date	Mo (mg/L)	Ni (mg/L)	Se (mg/L)	U-nat (mg/L)	Th-230 (pCi/L)	Pb-210 (pCi/L)	Ra-226+Ra-228 (pCi/L)	Gross Alpha (pCi/L)
5-73	28-Feb-11	<0.003	0.016	<0.001	0.1554	-0.01	0.57	0.56	120
5-73	06-Jun-11	<0.003	0.012	<0.001	0.1951	-0.15	3.1	0.79	100
5-03	28-Feb-11	<0.001	0.003	<0.001	0.0052	0.24	1.7	2.72	0
5-03	06-Jun-11	<0.001	0.003	<0.001	0.0036	-0.06	1.2	1.88	7.5
5-04	28-Feb-11	<0.003	0.007	<0.001	0.0142	-0.26	2.4	6.6	46
5-04	06-Jun-11	<0.003	0.004	<0.001	0.0059	0.34	4.8	1.27	28
5-08	28-Feb-11	<0.001	0.006	<0.001	0.007	0.82	0.07	15.4	20
5-08	06-Jun-11	<0.001	0.004	0.001	0.0033	0.41	0	16	34
31-61	01-Mar-11	<0.005	0.064	0.004	0.515	0.18	1.7	2.1	190
31-61	13-Jun-11	<0.005	0.072	0.002	0.557	0.65	4.6	3.95	130
31-65	01-Mar-11	<0.005	0.035	0.001	0.102	0.9	4.5	1.44	35
31-65	13-Jun-11	<0.005	0.066	<0.001	0.101	0.45	8	2.25	48
32-59	01-Mar-11	0.005	0.011	0.012	0.157	0.07	5	2.64	94
32-59	06-Jun-11	0.006	0.007	0.015	0.1435	-0.45	0.74	0.1	110
MW-24	28-Feb-11								
MW-24	06-Jun-11								
ACL		**176**	**98**	**49**	**23**	**13627**	**1274**	**3167**	**8402**

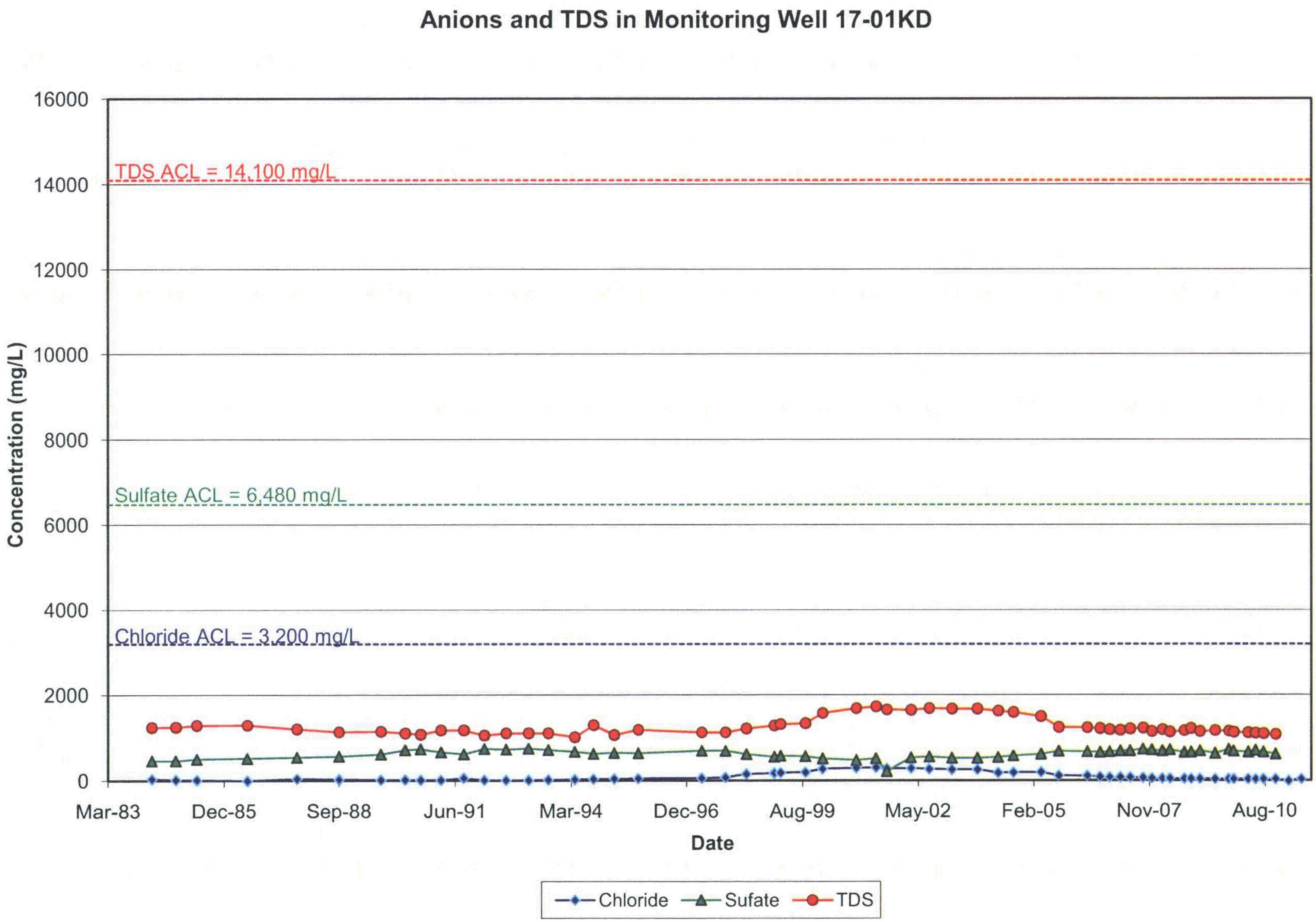
< = constituent was not detected above the method detection lim
Monitor Well MW-24 was dry.

APPENDIX 2

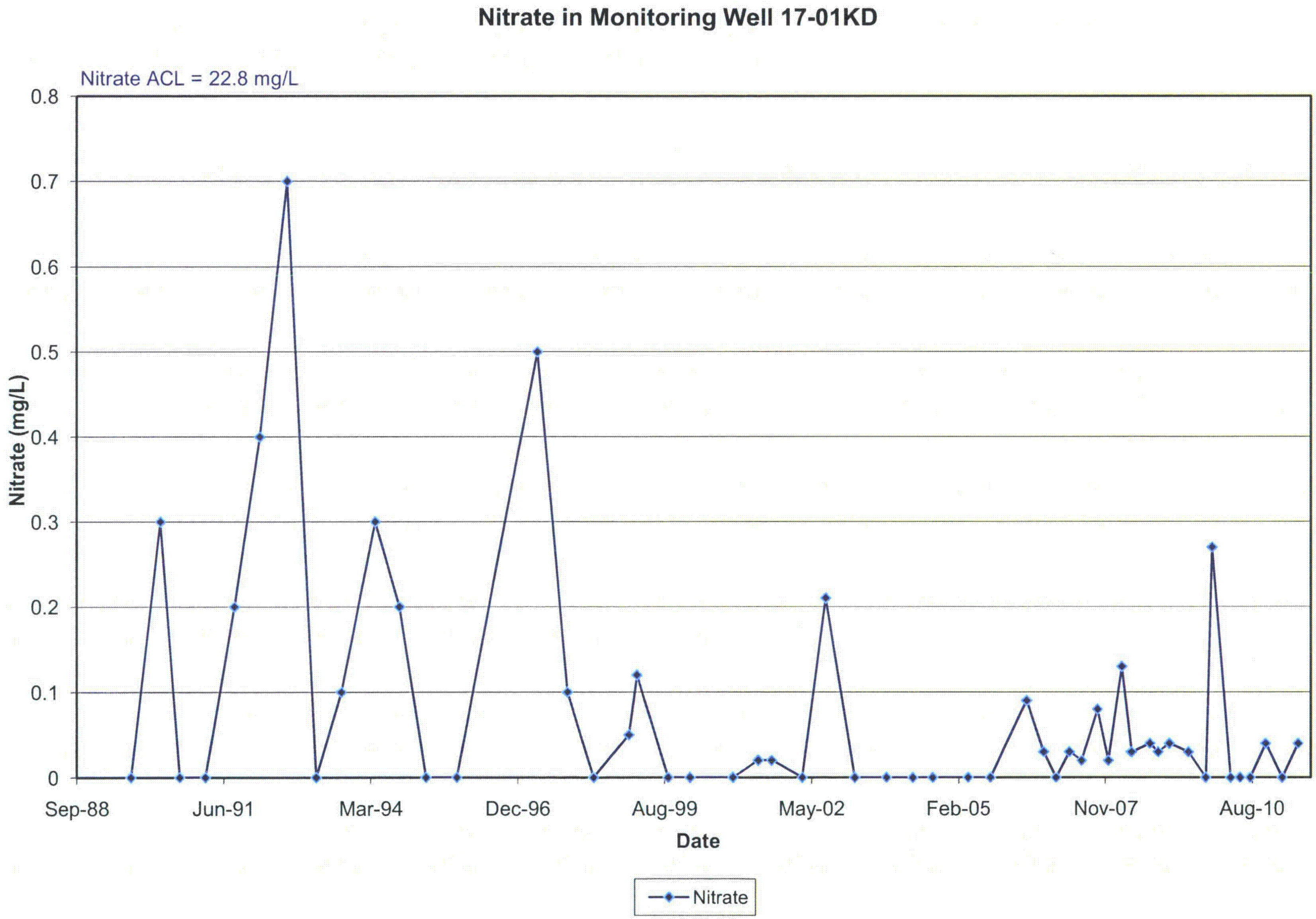
Stability Monitoring Plan
Time Versus Concentration Plots

Stability Monitoring Plan
Time Versus Concentration Plots

Dakota

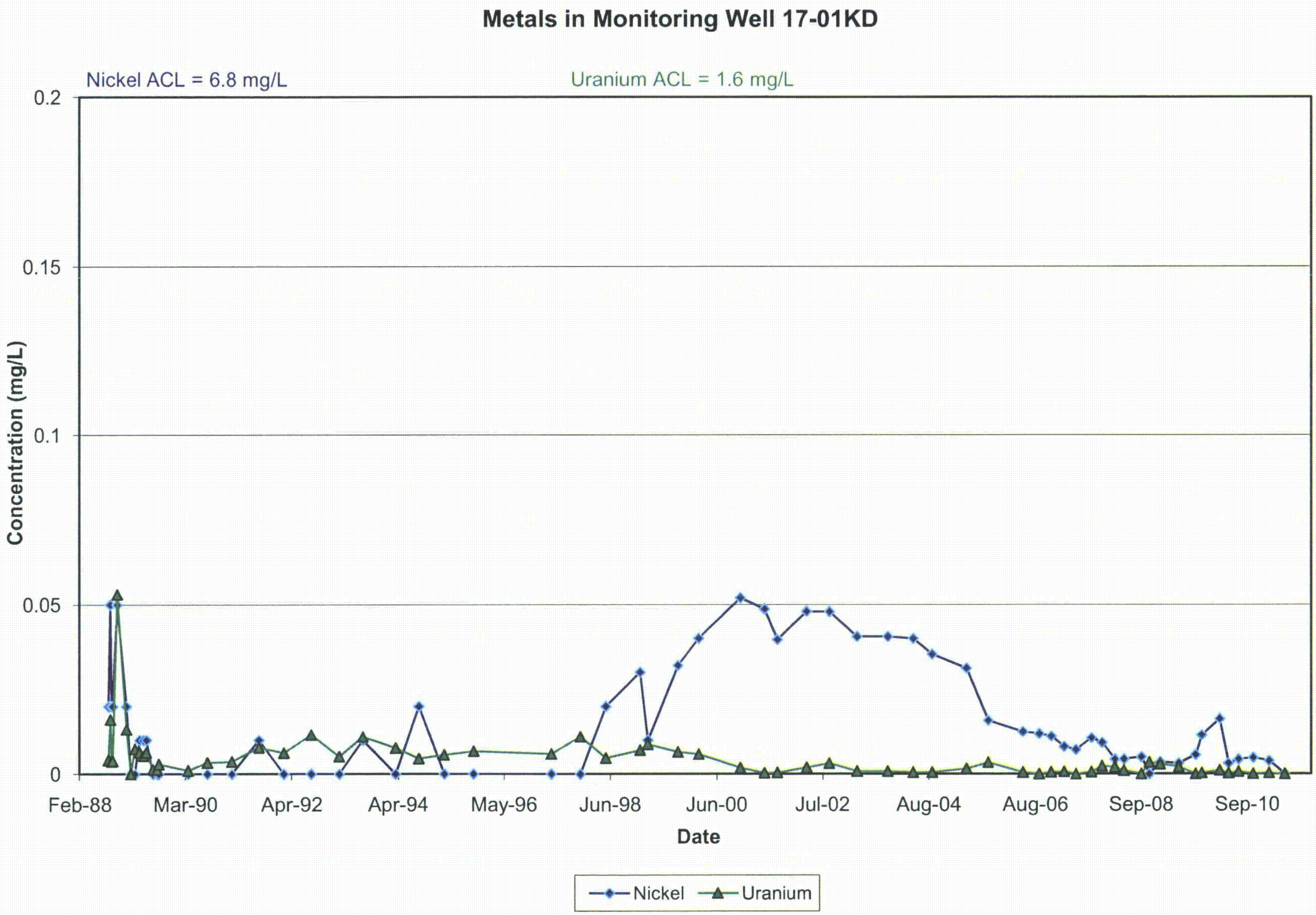

Anions and TDS in Monitoring Well 17-01KD
TDS ACL = 14,100 mg/L
Sulfate ACL = 6,480 mg/L
Chloride ACL = 3,200 mg/L
16000
14000
12000
10000
8000
6000
4000
2000
0
Concentration (mg/L)
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Chloride
Sufate
TDS

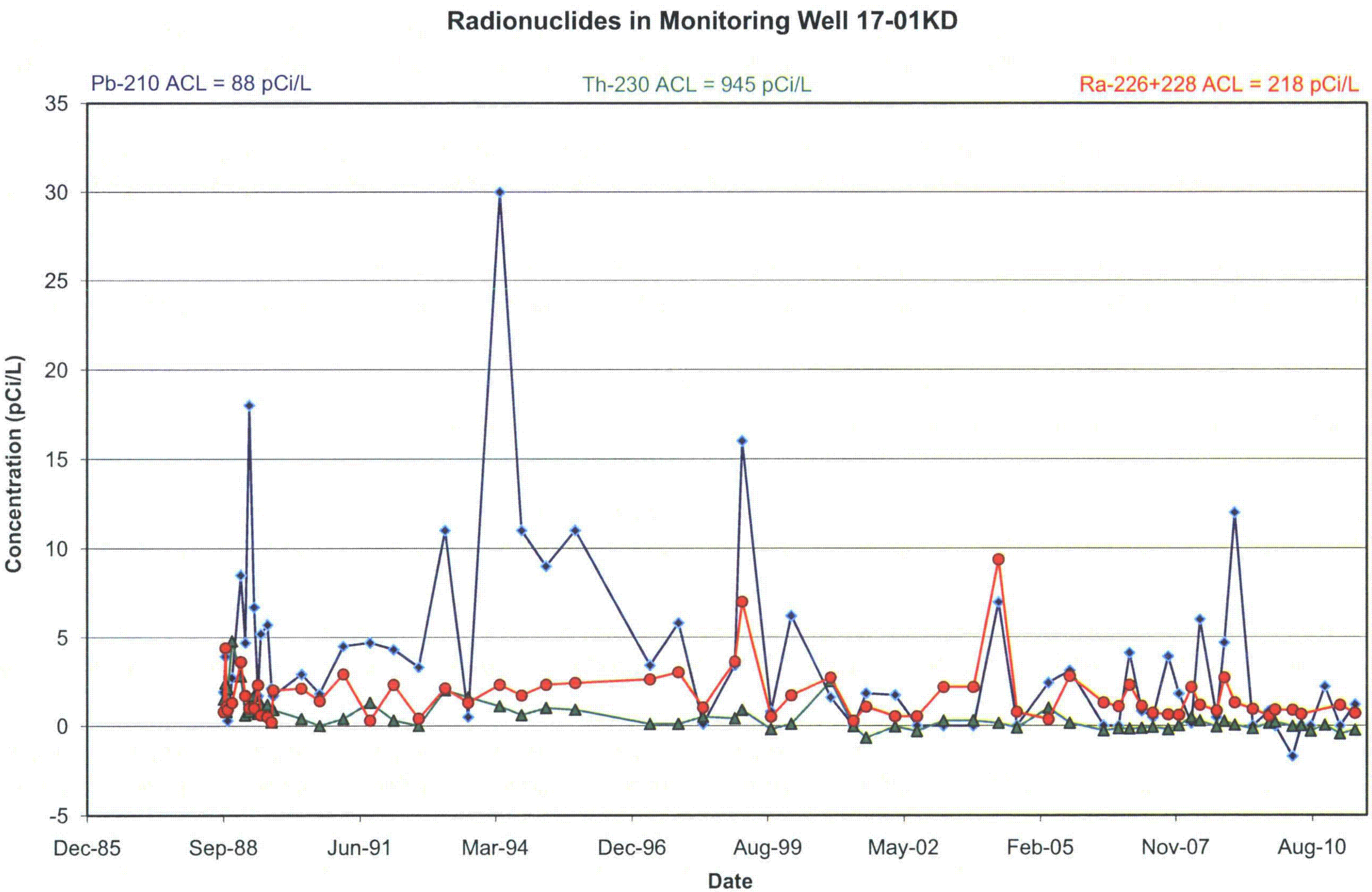
INTERA



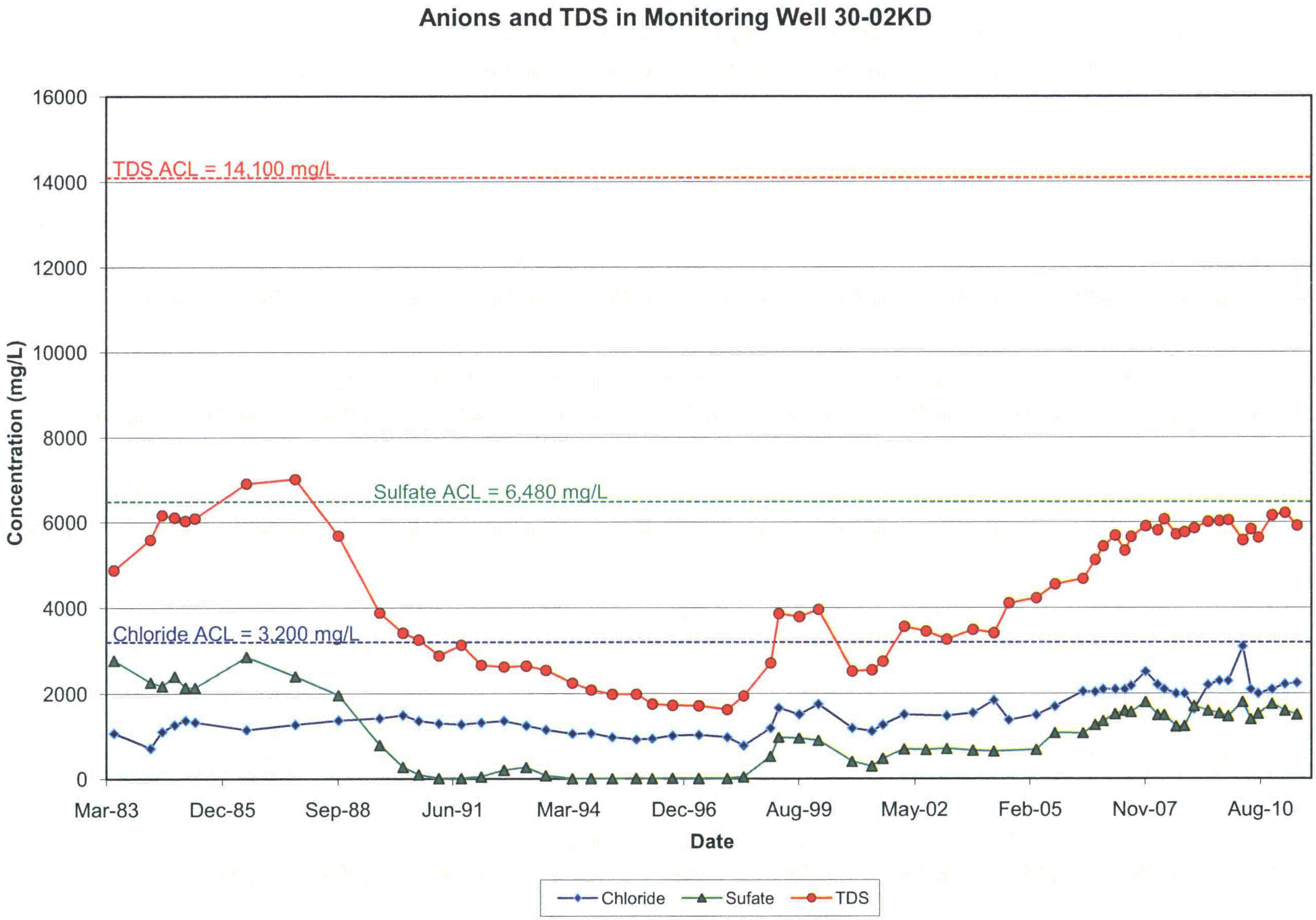
Nitrate in Monitoring Well 17-01KD
Nitrate ACL = 22.8 mg/L
Nitrate (mg/L)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Nitrate

INTERA

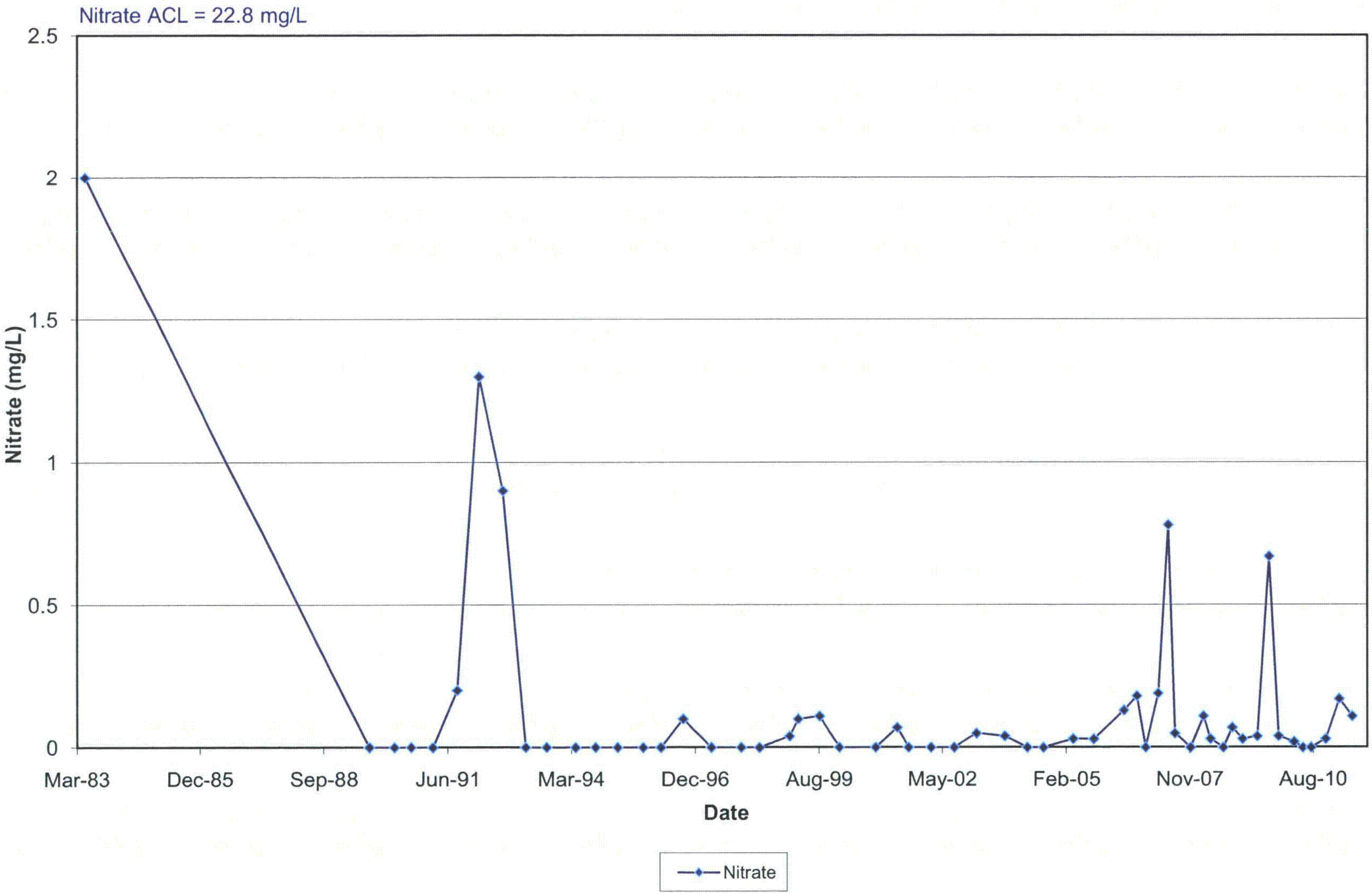

Metals in Monitoring Well 17-01KD
Nickel ACL = 6.8 mg/L
Uranium ACL = 1.6 mg/L
Concentration (mg/L)
0.2
0.15
0.1
0.05
0
Feb-88
Mar-90
Apr-92
Apr-94
May-96
Jun-98
Jun-00
Jul-02
Aug-04
Aug-06
Sep-08
Sep-10
Date
Nickel
Uranium



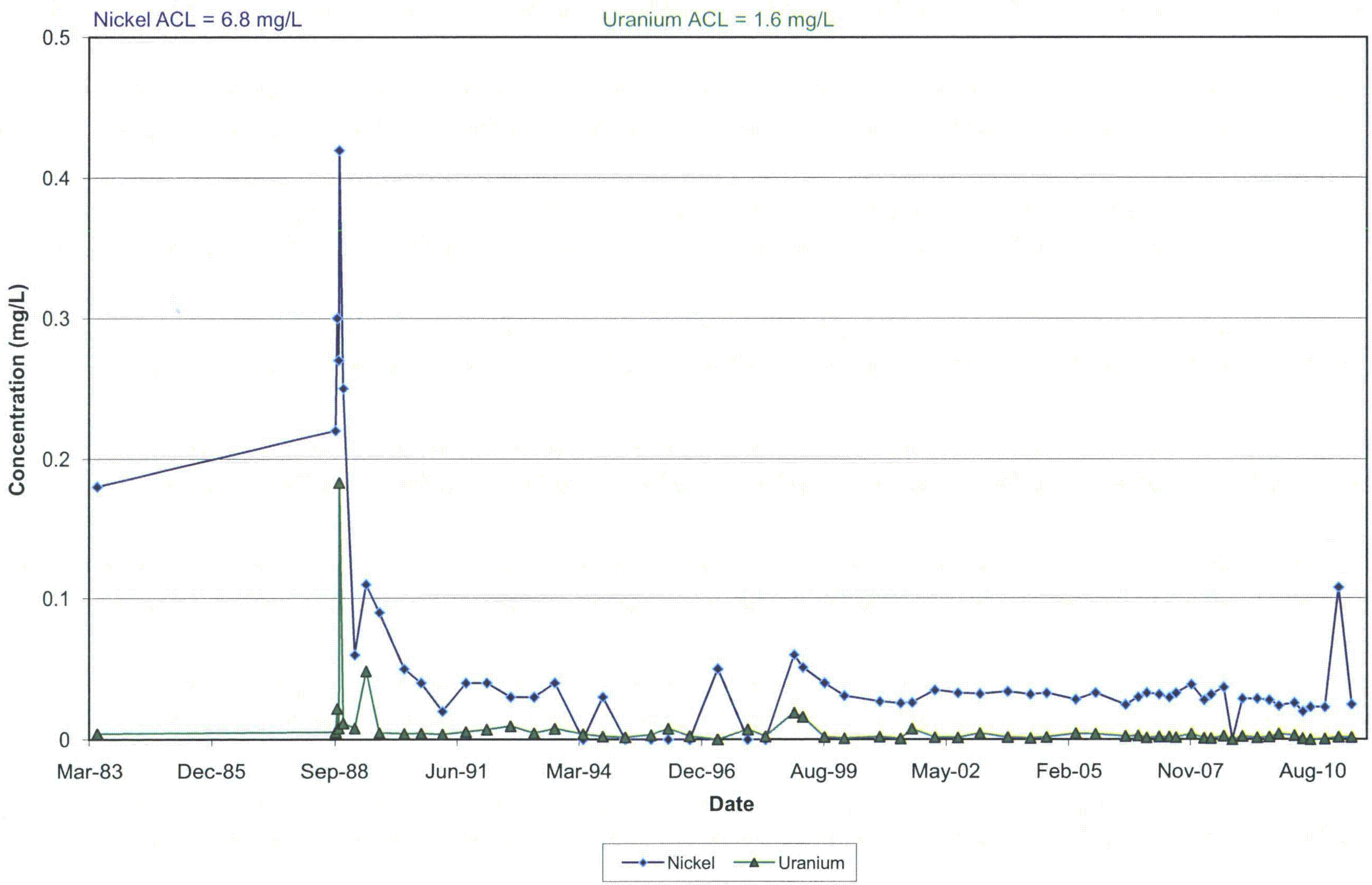
Radionuclides in Monitoring Well 17-01KD
Pb-210 ACL = 88 pCi/L
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Concentration (pCi/L)
35
30
25
20
15
10
5
0
-5
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date

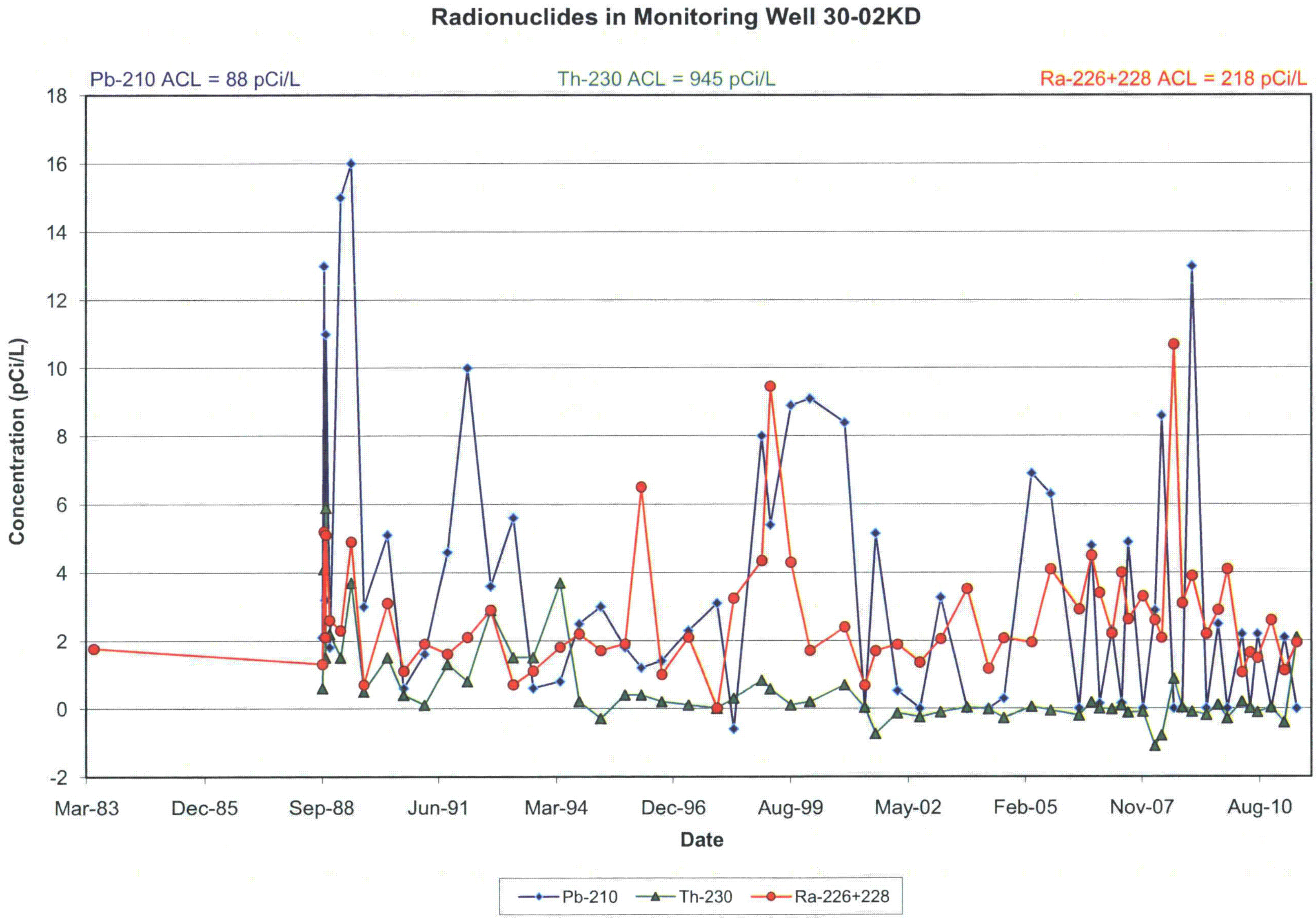

Anions and TDS in Monitoring Well 30-02KD
16000
14000
12000
10000
8000
6000
4000
2000
0
Concentration (mg/L)
TDS ACL = 14,100 mg/L
Sulfate ACL = 6,480 mg/L
Chloride ACL = 3,200 mg/L
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Chloride
Sufate
TDS

Nitrate in Monitoring Well 30-02KD



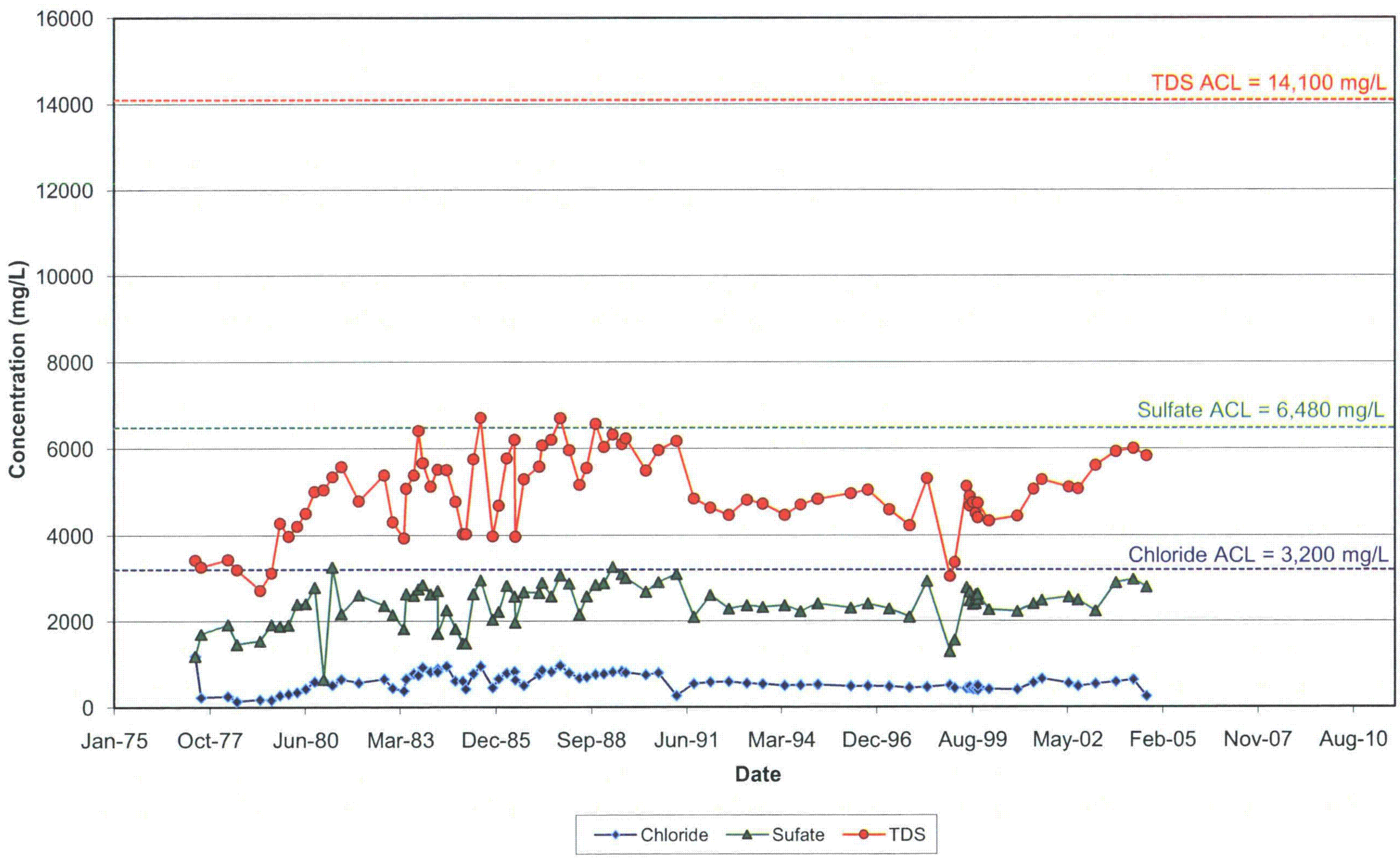
Metals in Monitoring Well 30-02KD



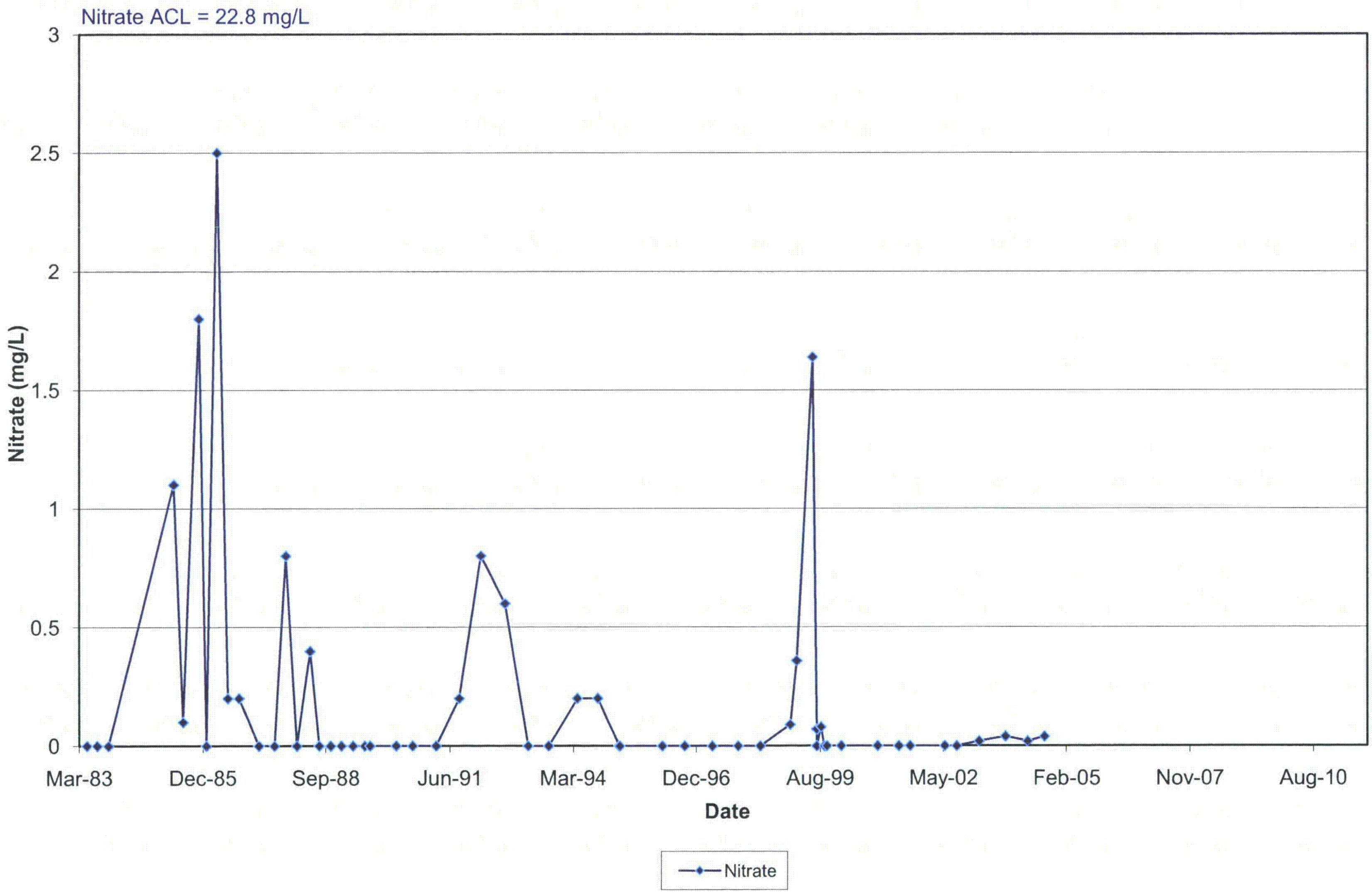

Radionuclides in Monitoring Well 30-02KD
Pb-210 ACL = 88 pCi/L
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Concentration (pCi/L)
18
16
14
12
10
8
6
4
2
0
-2
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Pb-210
Th-230
Ra-226+228

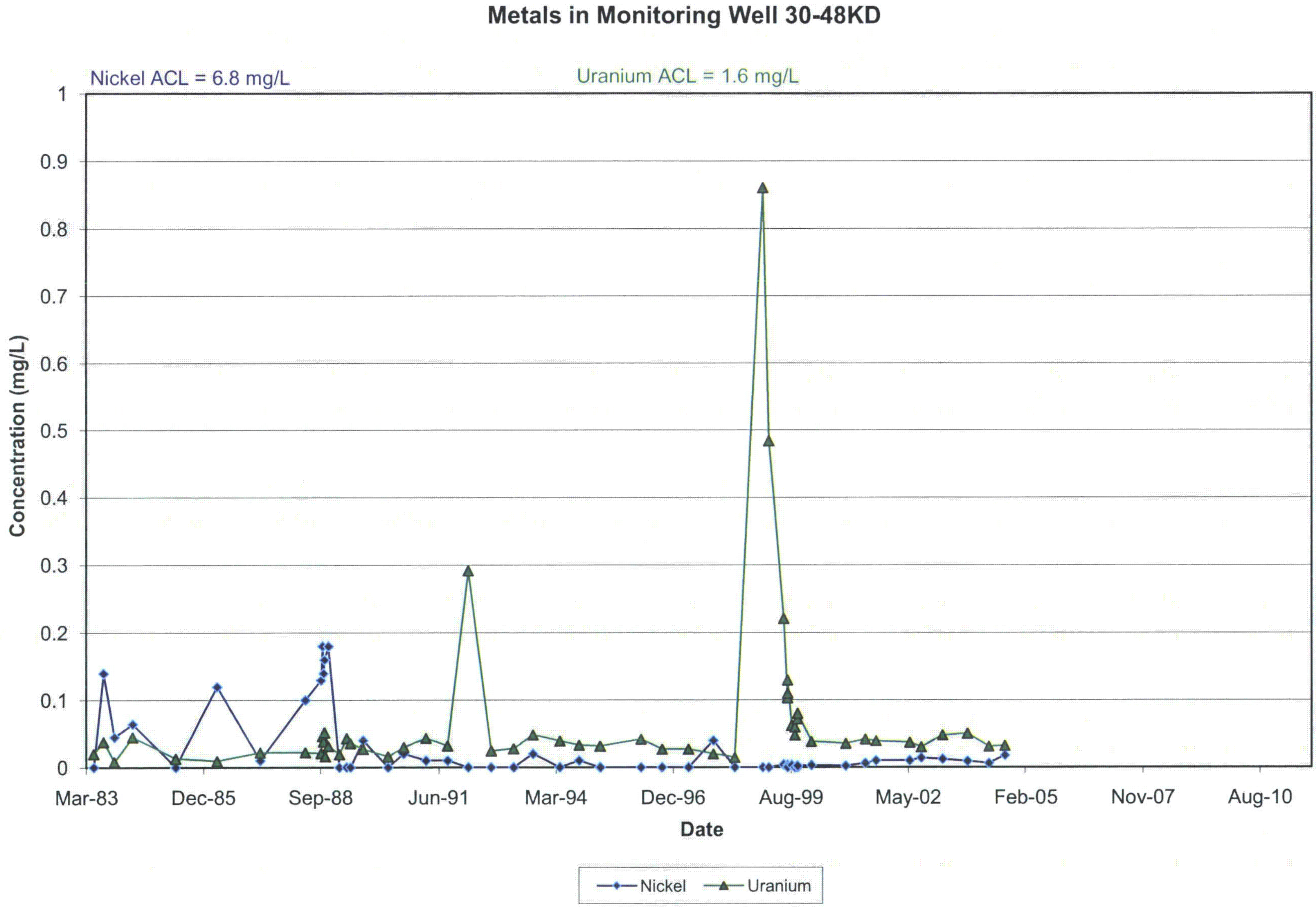
INTERA

Anions and TDS in Monitoring Well 30-48KD

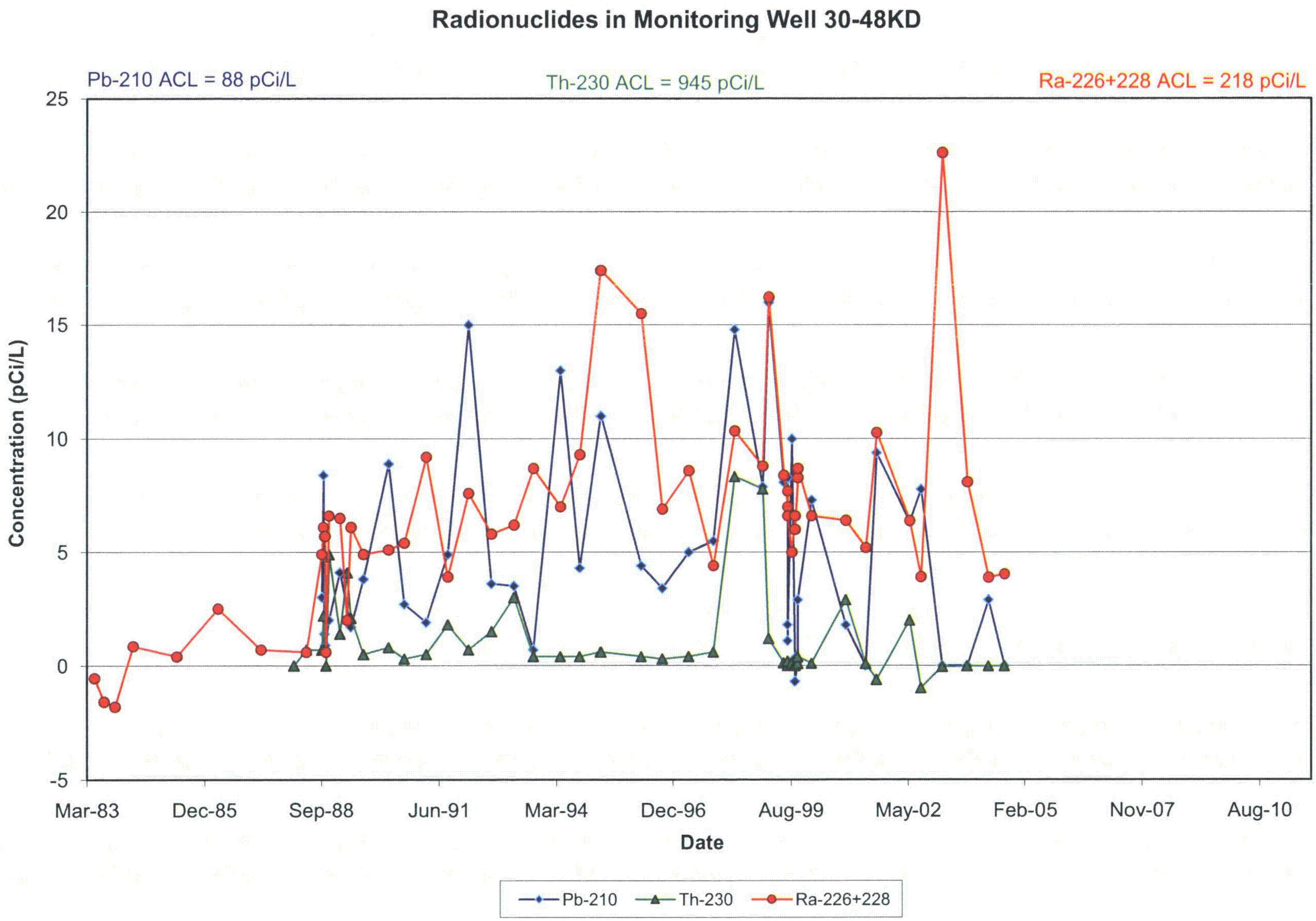


Nitrate in Monitoring Well 30-48KD



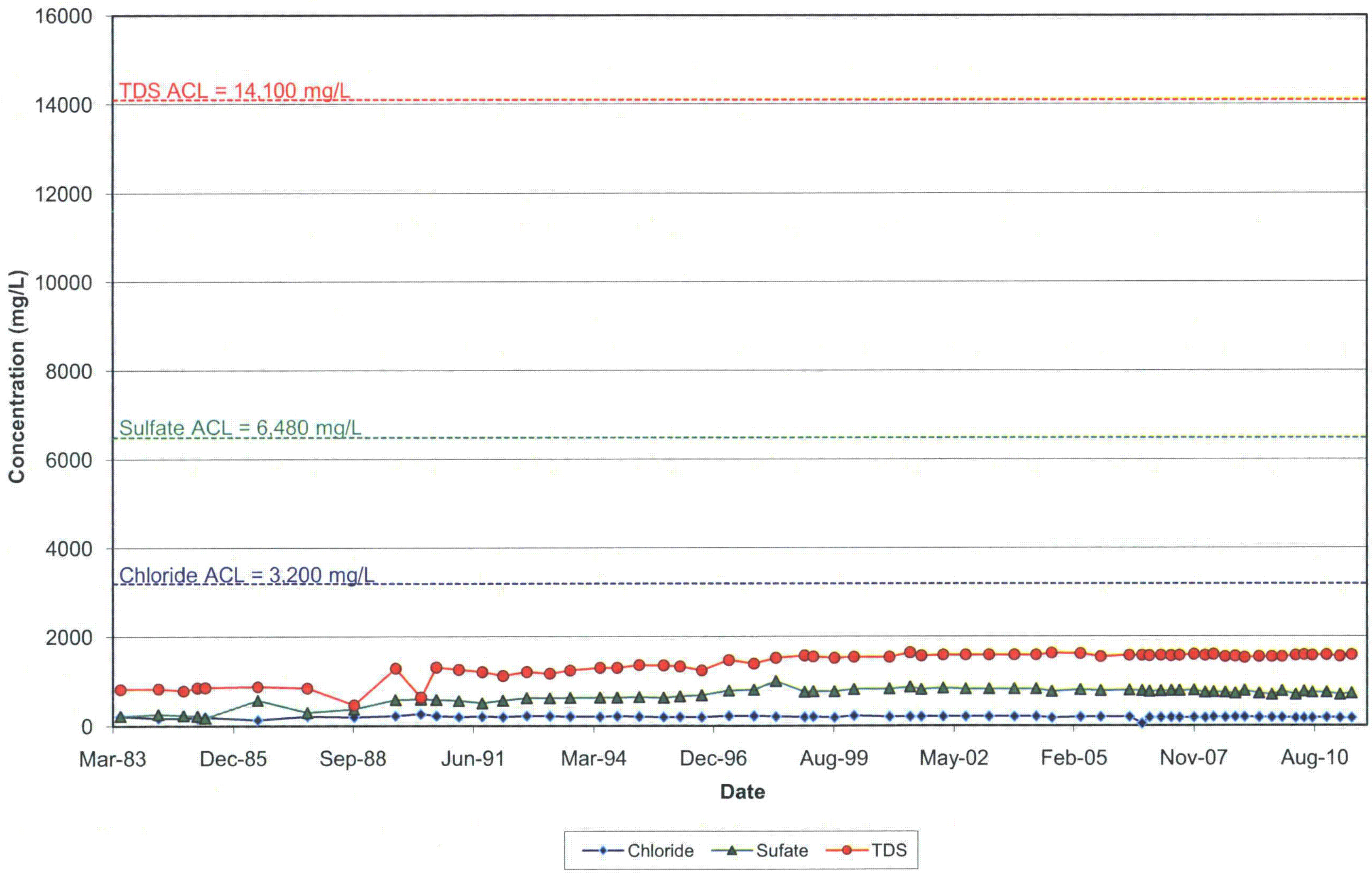

Metals in Monitoring Well 30-48KD
Nickel ACL = 6.8 mg/L
Uranium ACL = 1.6 mg/L
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Nickel
Uranium

INTERA



Radionuclides in Monitoring Well 30-48KD
Pb-210 ACL = 88 pCi/L
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Concentration (pCi/L)
25
20
15
10
5
0
-5
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Pb-210
Th-230
Ra-226+228

Anions and TDS in Monitoring Well 32-45KD



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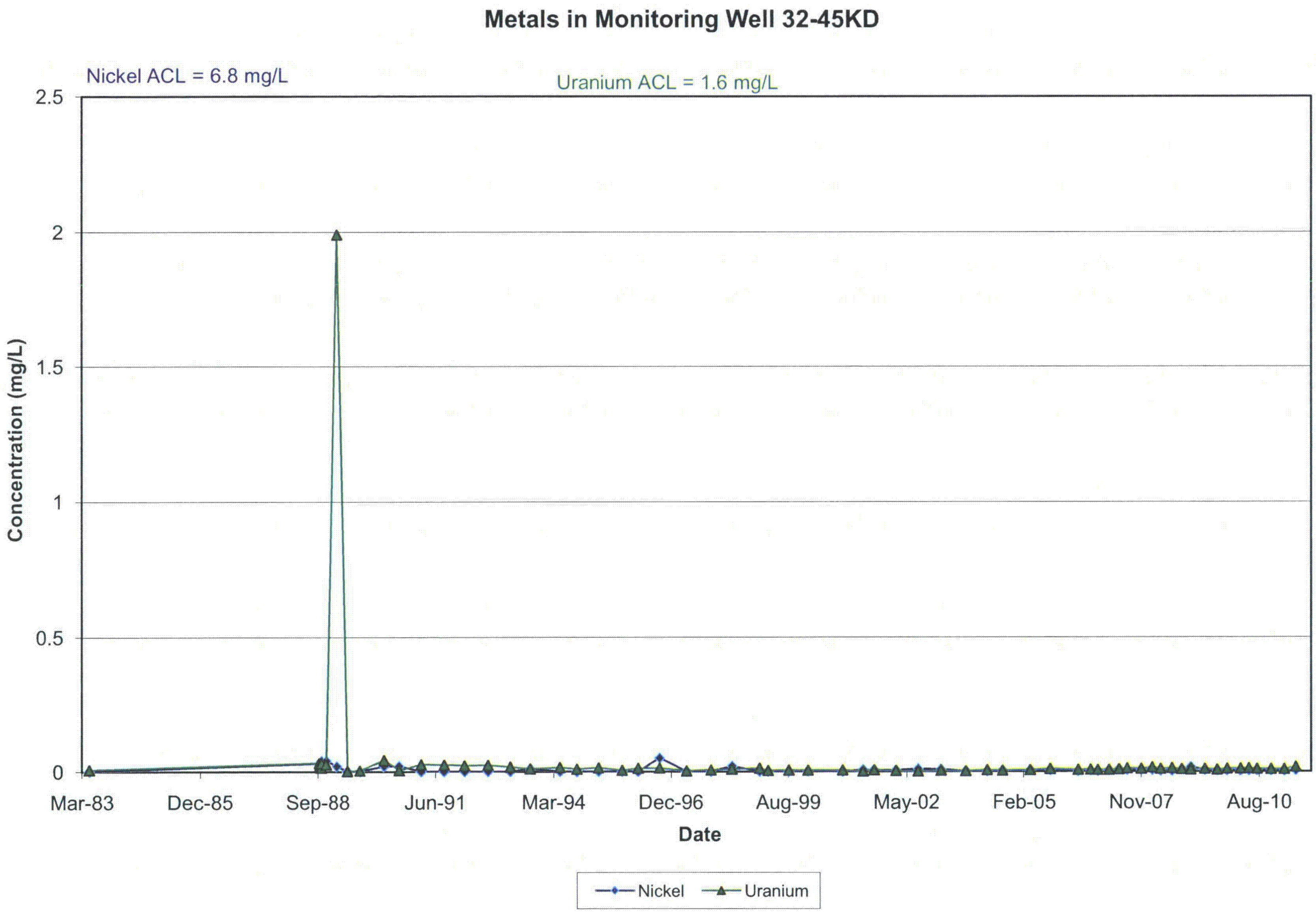
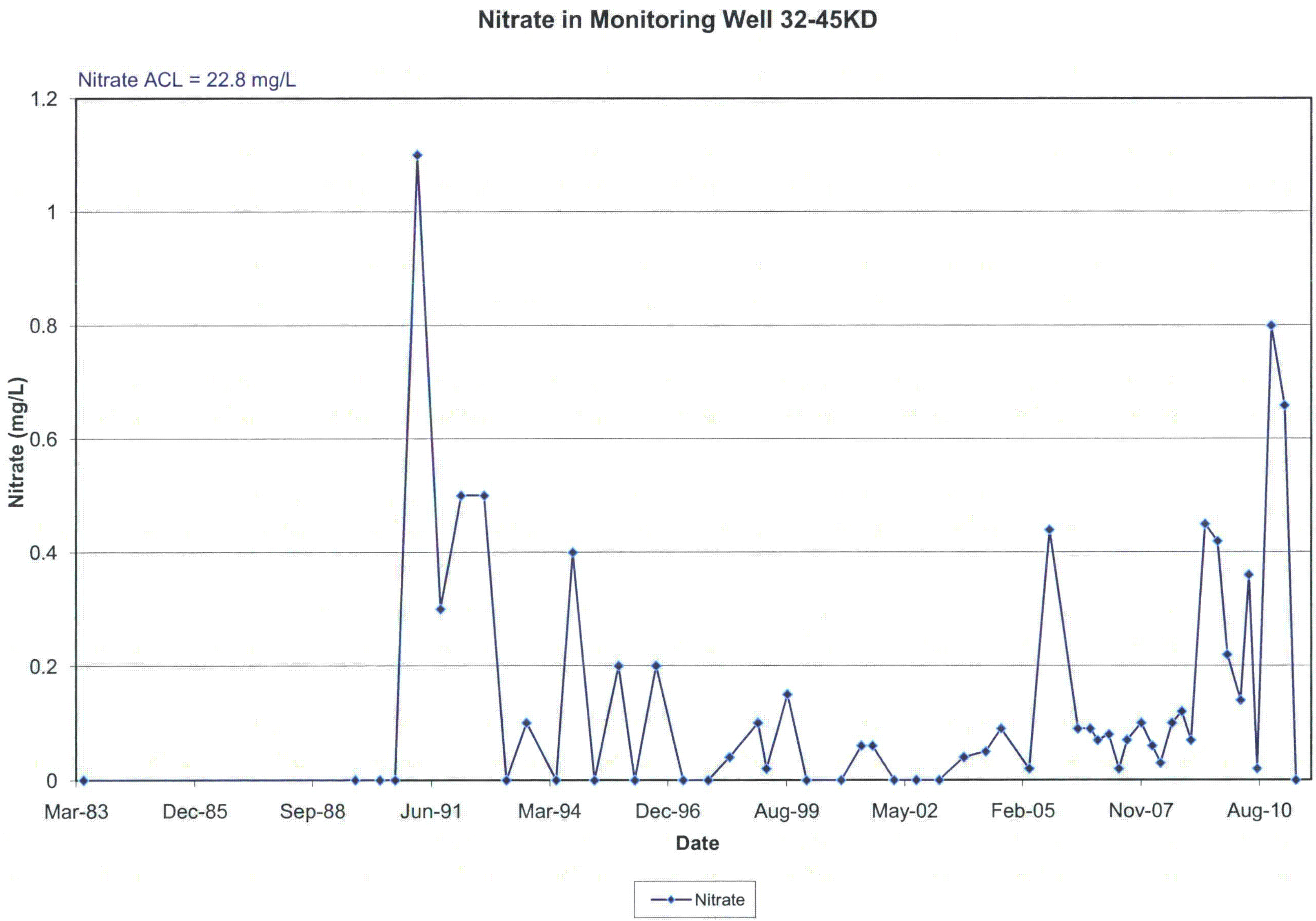
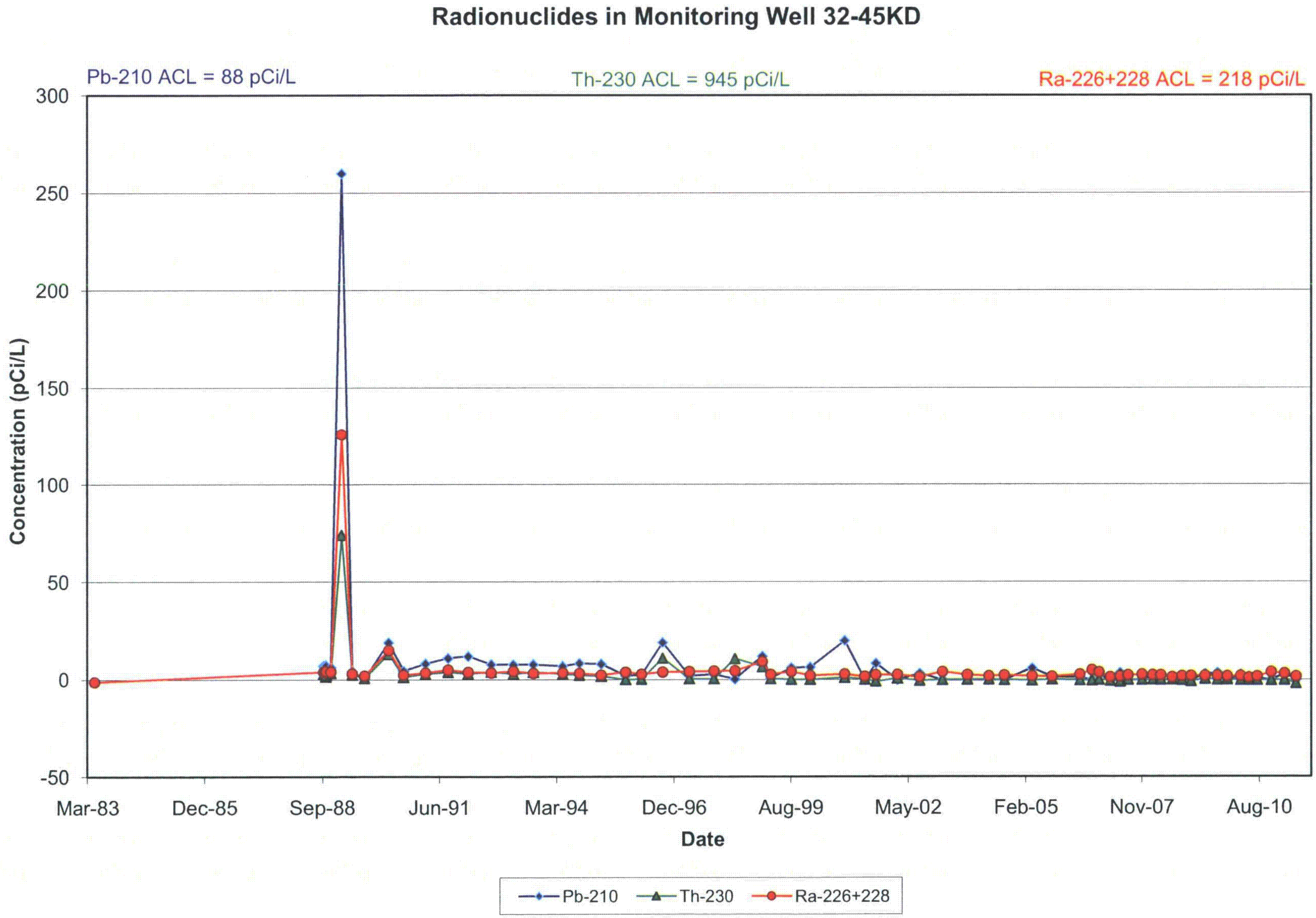
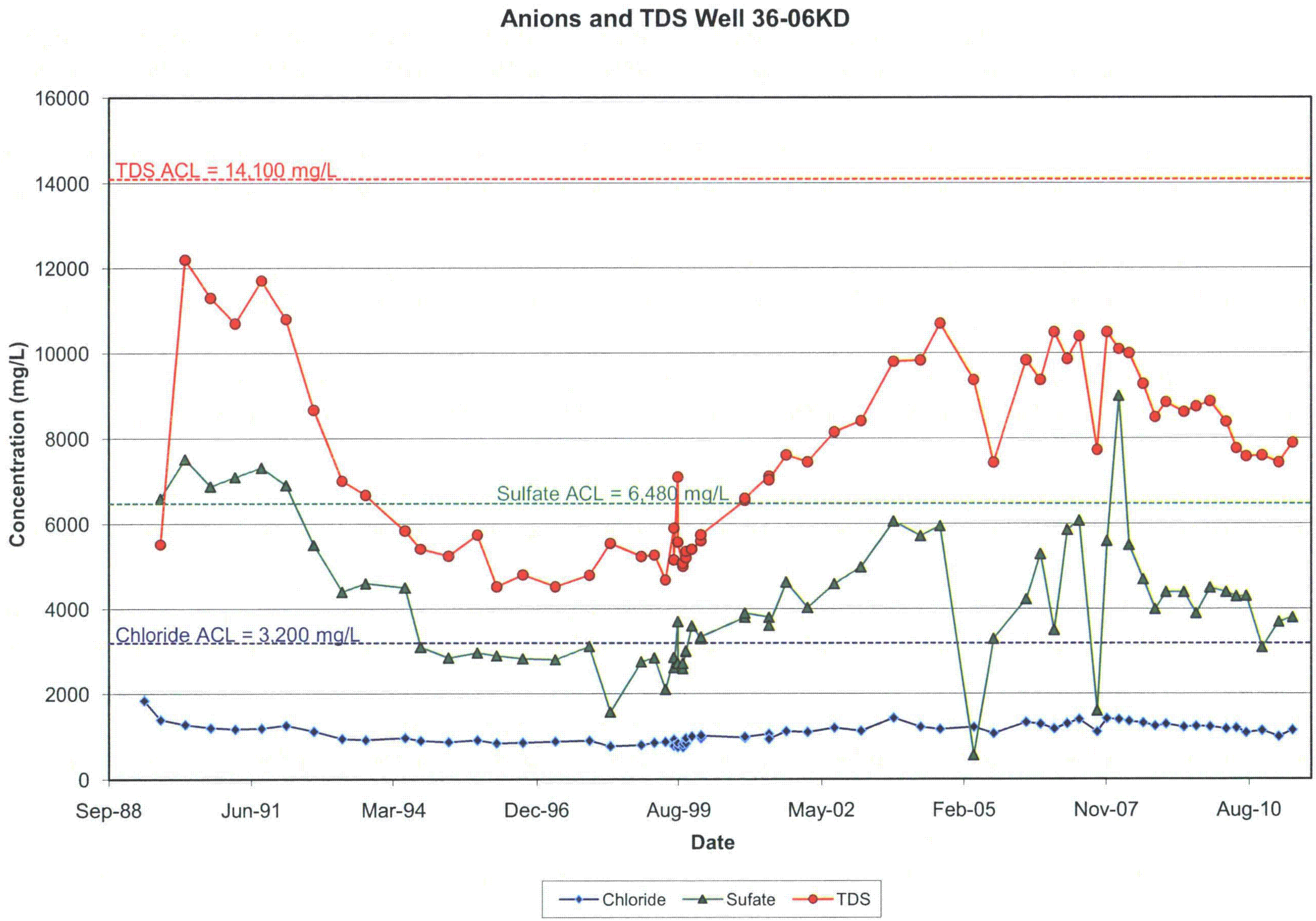

Metals in Monitoring Well 32-45KD
Nickel ACL = 6.8 mg/L
Uranium ACL = 1.6 mg/L
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Nickel
Uranium

INTERA


Nitrate in Monitoring Well 32-45KD
Nitrate ACL = 22.8 mg/L
1.2
1
0.8
0.6
0.4
0.2
0
Nitrate (mg/L)
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Nitrate



Radionuclides in Monitoring Well 32-45KD
Pb-210 ACL = 88 pCi/L
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
300
250
200
150
100
50
0
-50
Concentration (pCi/L)
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Pb-210
Th-230
Ra-226+228



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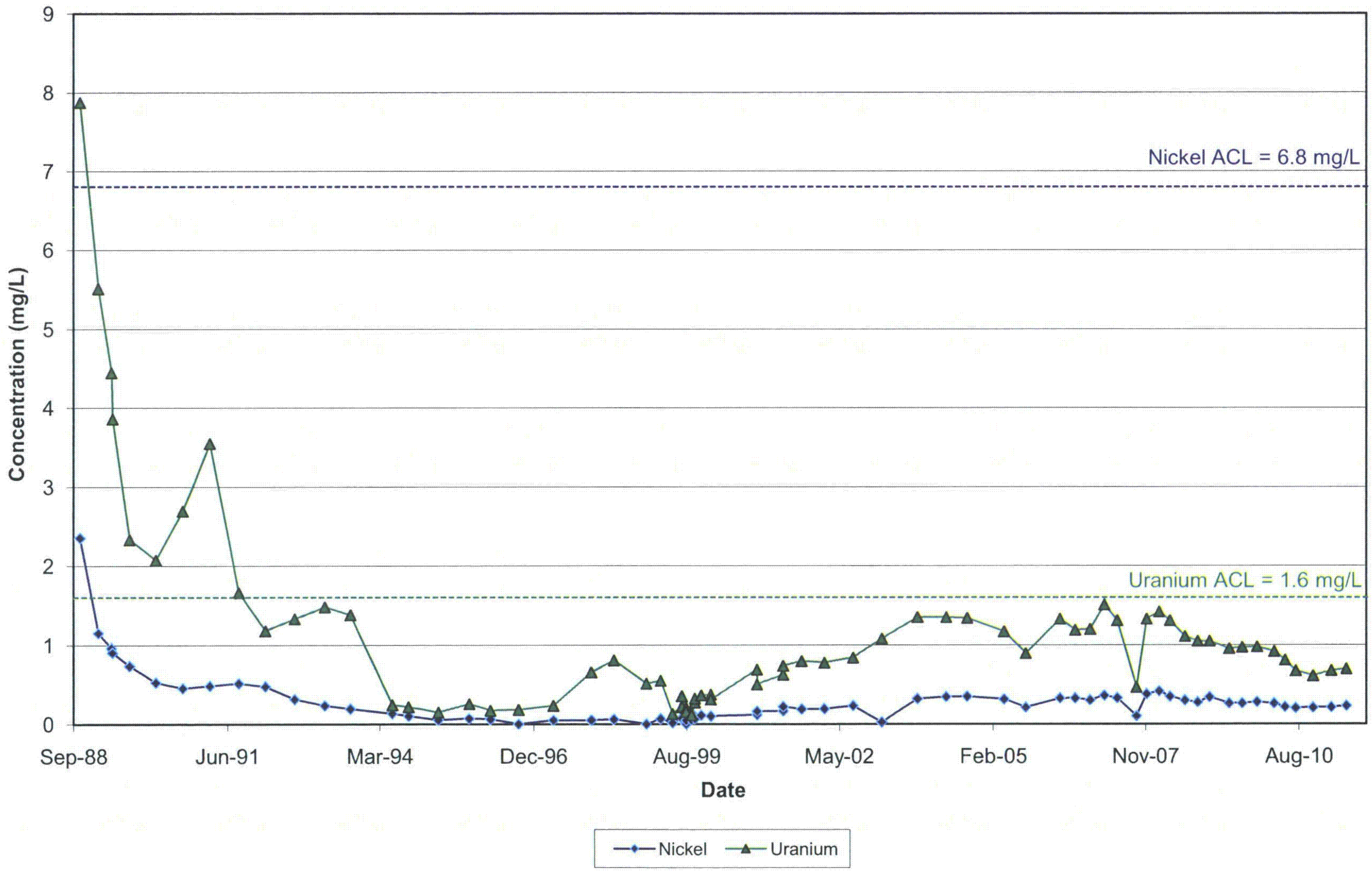
Metals in Monitoring Well 36-06KD



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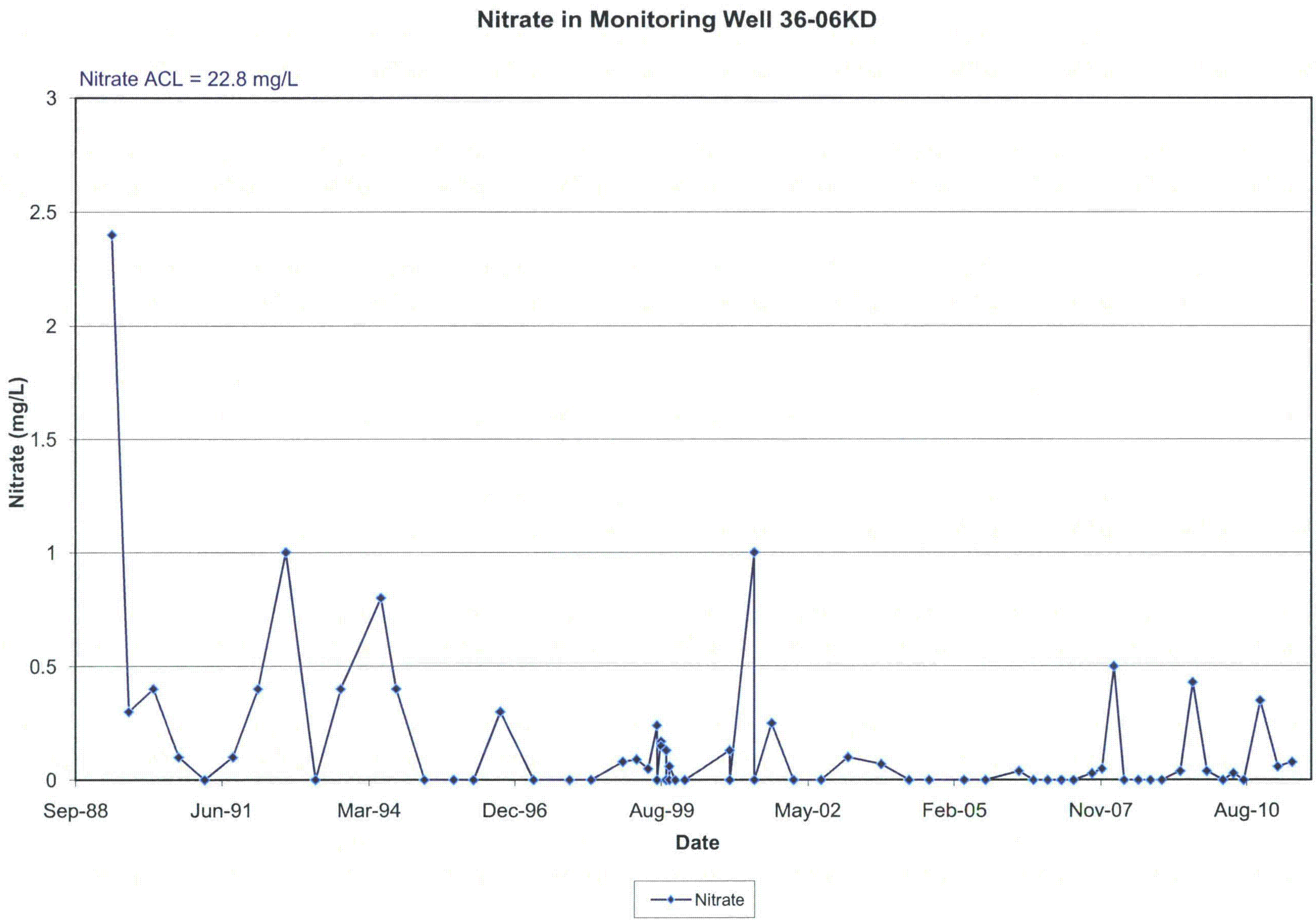
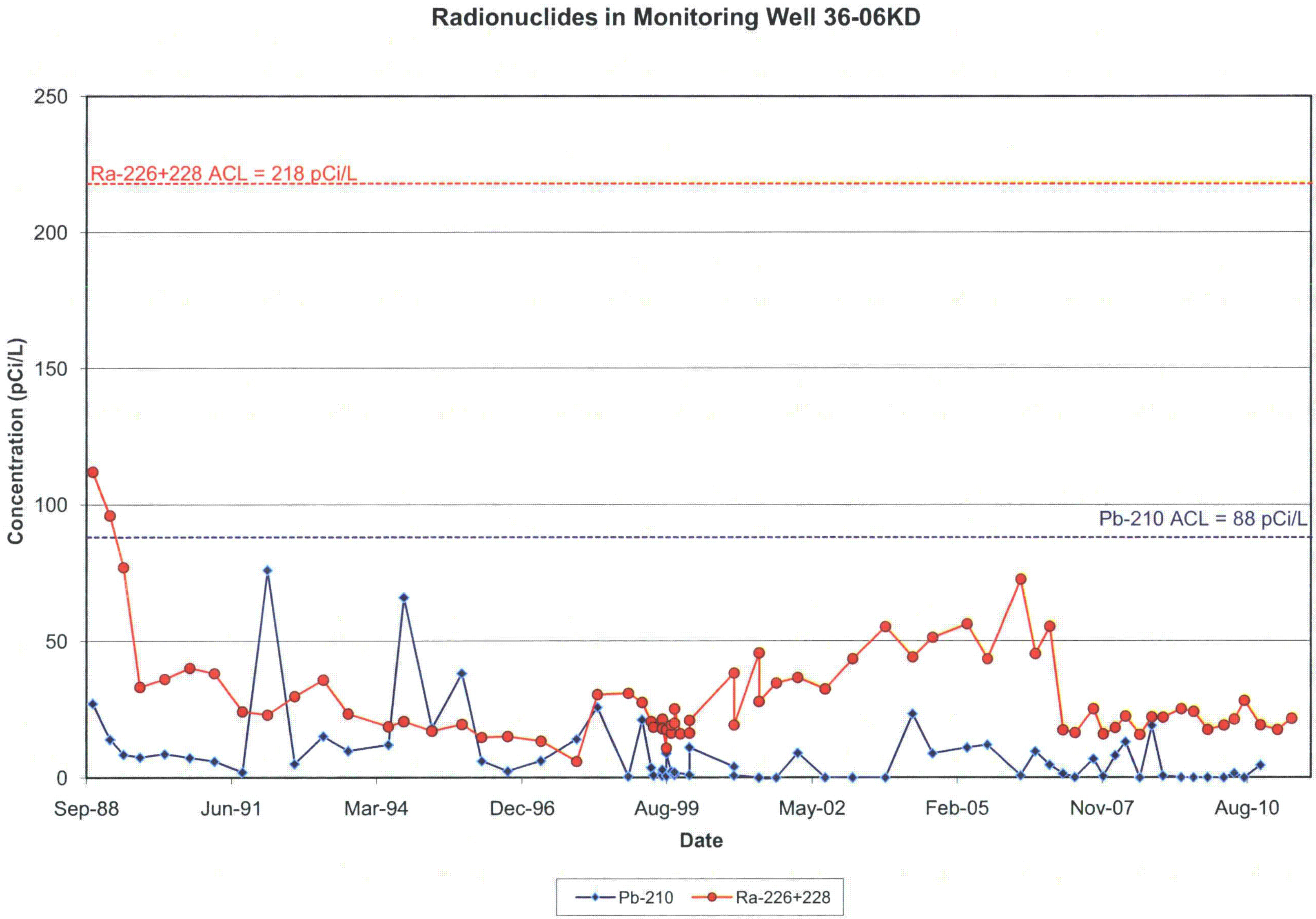
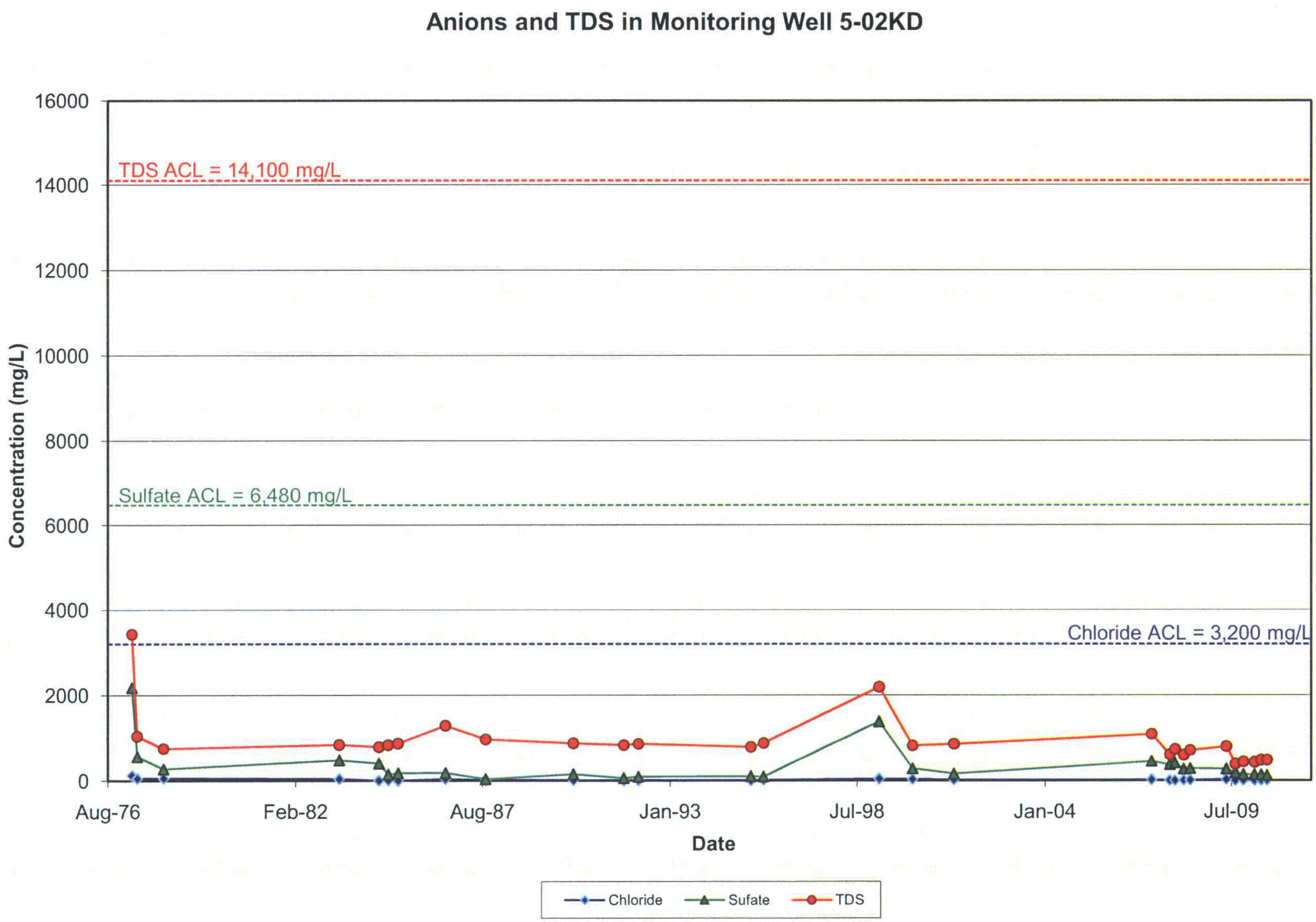
Nitrate in Monitoring Well 36-06KD

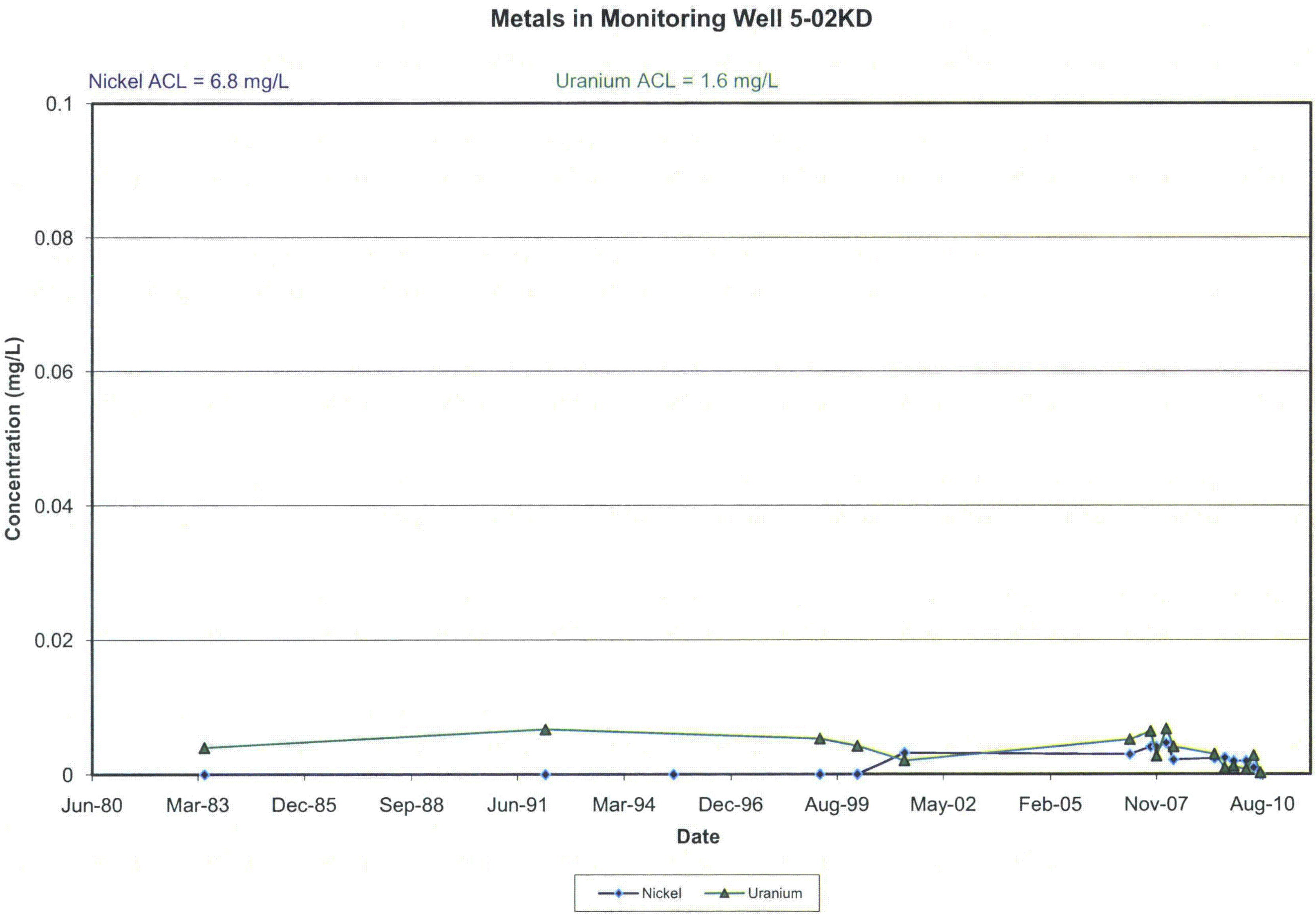



Radionuclides in Monitoring Well 36-06KD
Ra-226+228 ACL = 218 pCi/L
Pb-210 ACL = 88 pCi/L
Concentration (pCi/L)
250
200
150
100
50
0
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Pb-210
Ra-226+228

INTERA



Anions and TDS in Monitoring Well 5-02KD
TDS ACL = 14,100 mg/L
Sulfate ACL = 6,480 mg/L
Chloride ACL = 3,200 mg/L
Concentration (mg/L)
16000
14000
12000
10000
8000
6000
4000
2000
0
Aug-76
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Date
Chloride
Sufate
TDS



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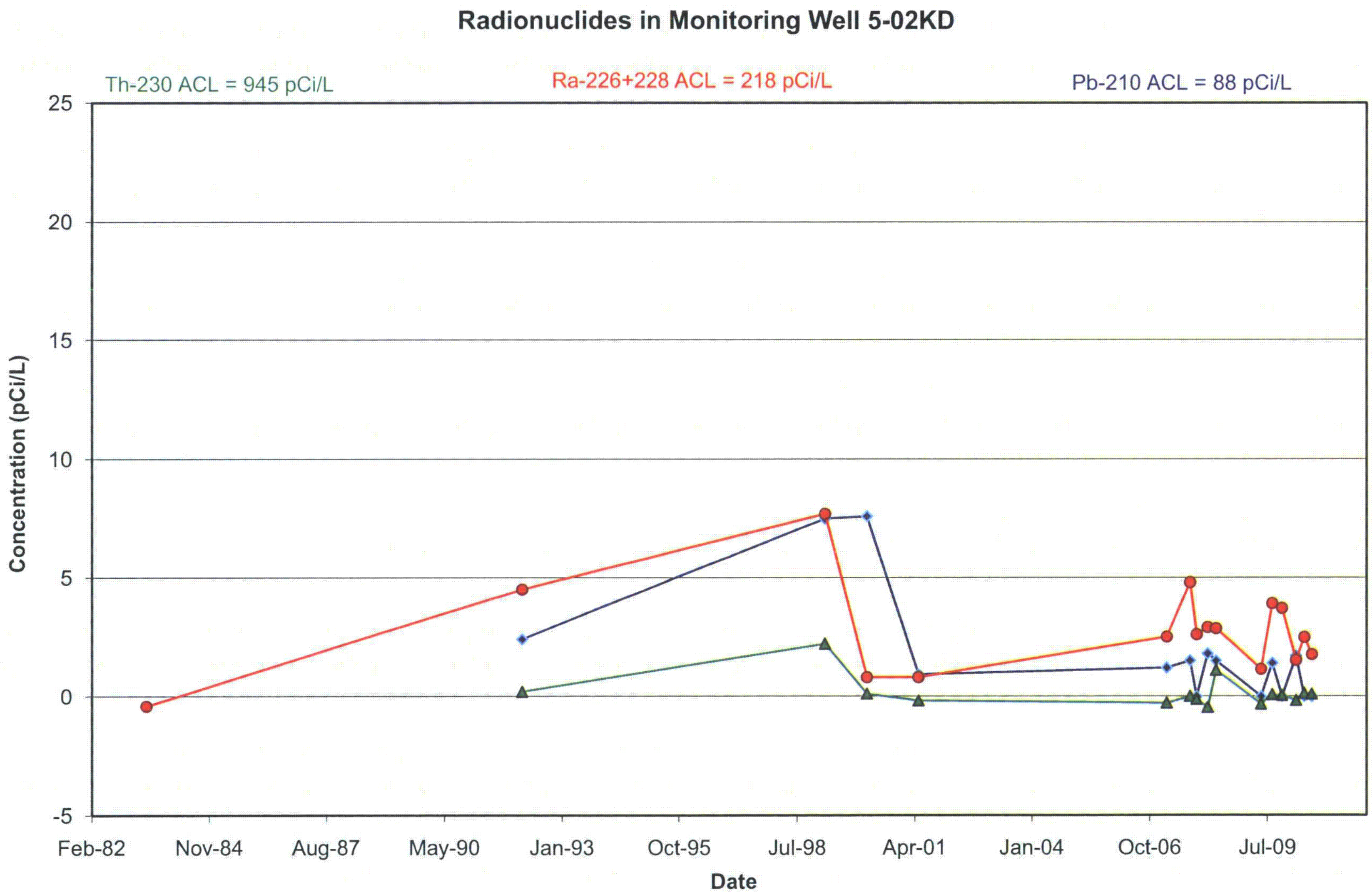
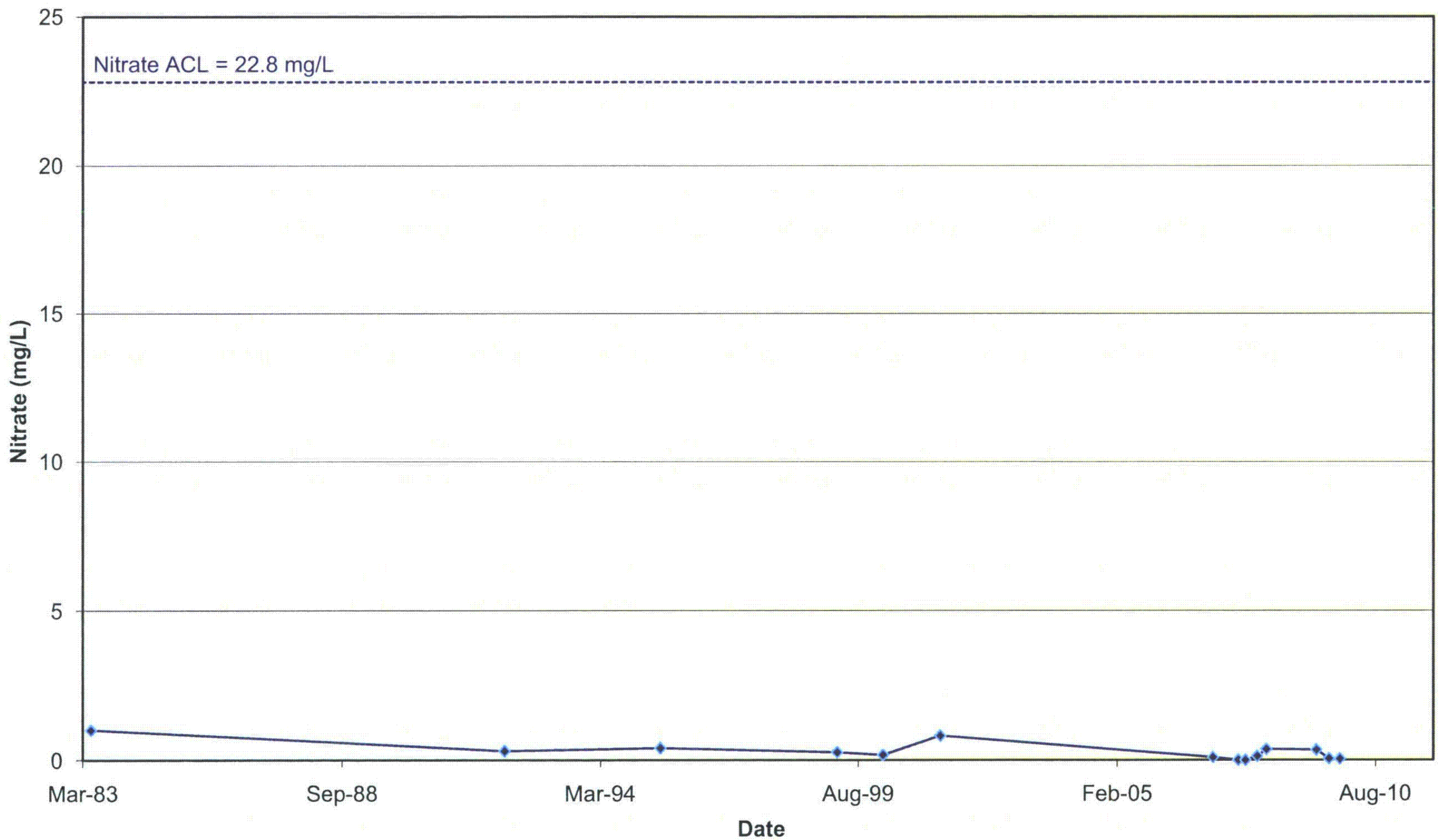


Radionuclides in Monitoring Well 5-02KD
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Pb-210 ACL = 88 pCi/L
Concentration (pCi/L)
25
20
15
10
5
0
-5
Feb-82
Nov-84
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Date

INTERA

Nitrate in Monitoring Well 5-02KD



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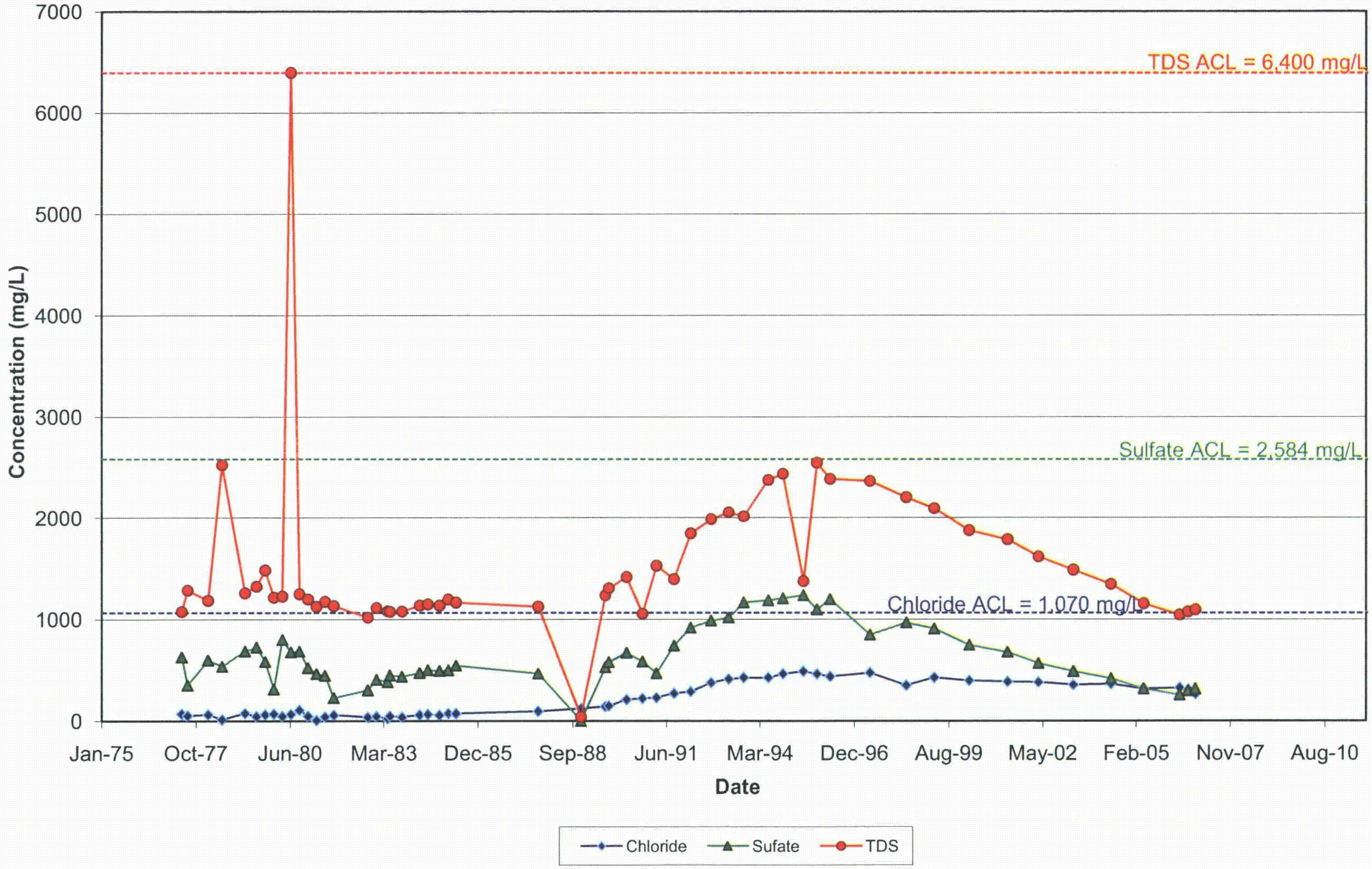
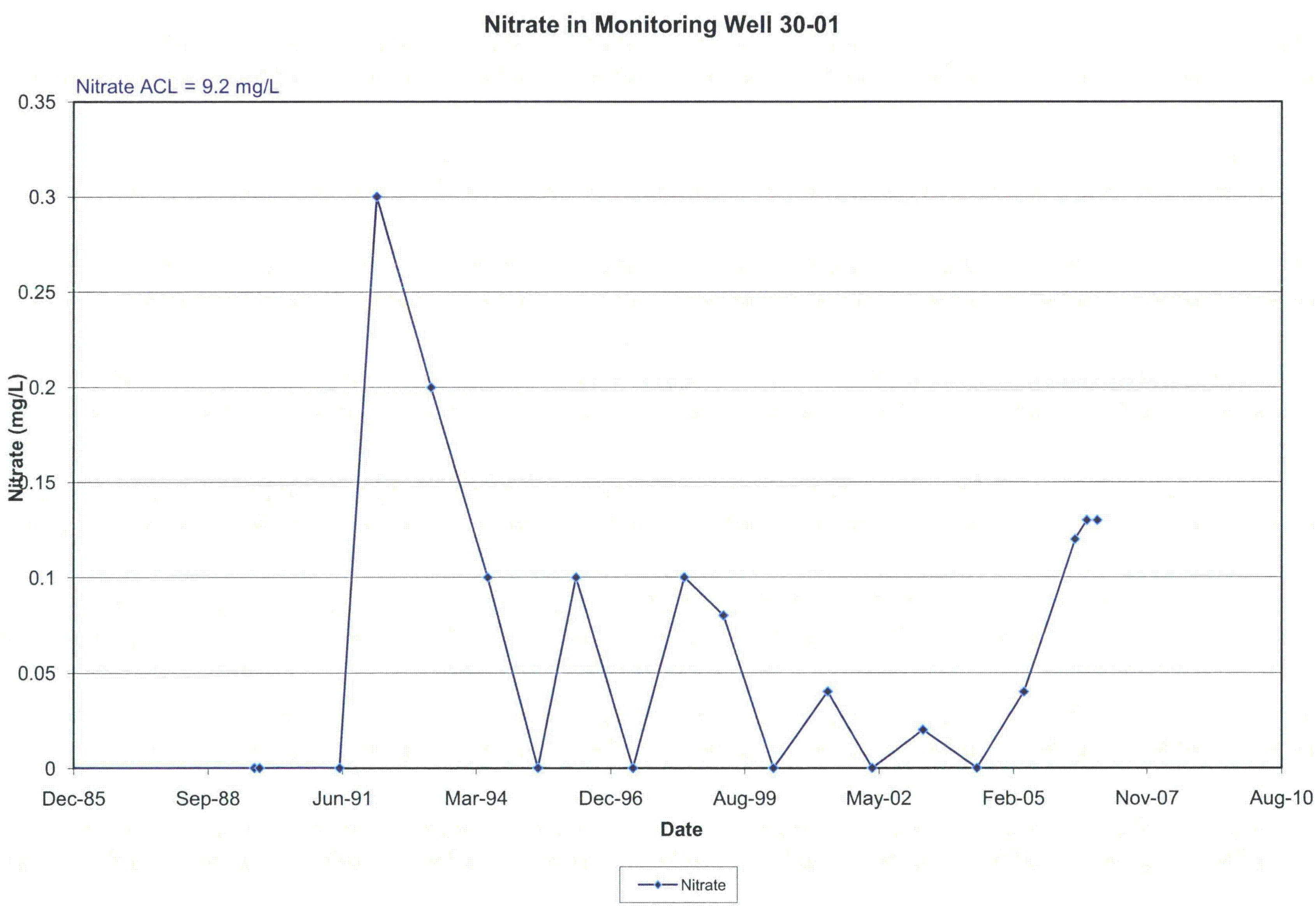
Stability Monitoring Plan
Time Versus Concentration Plots

Tres Hermanos A

Anions and TDS in Monitoring Well 30-01





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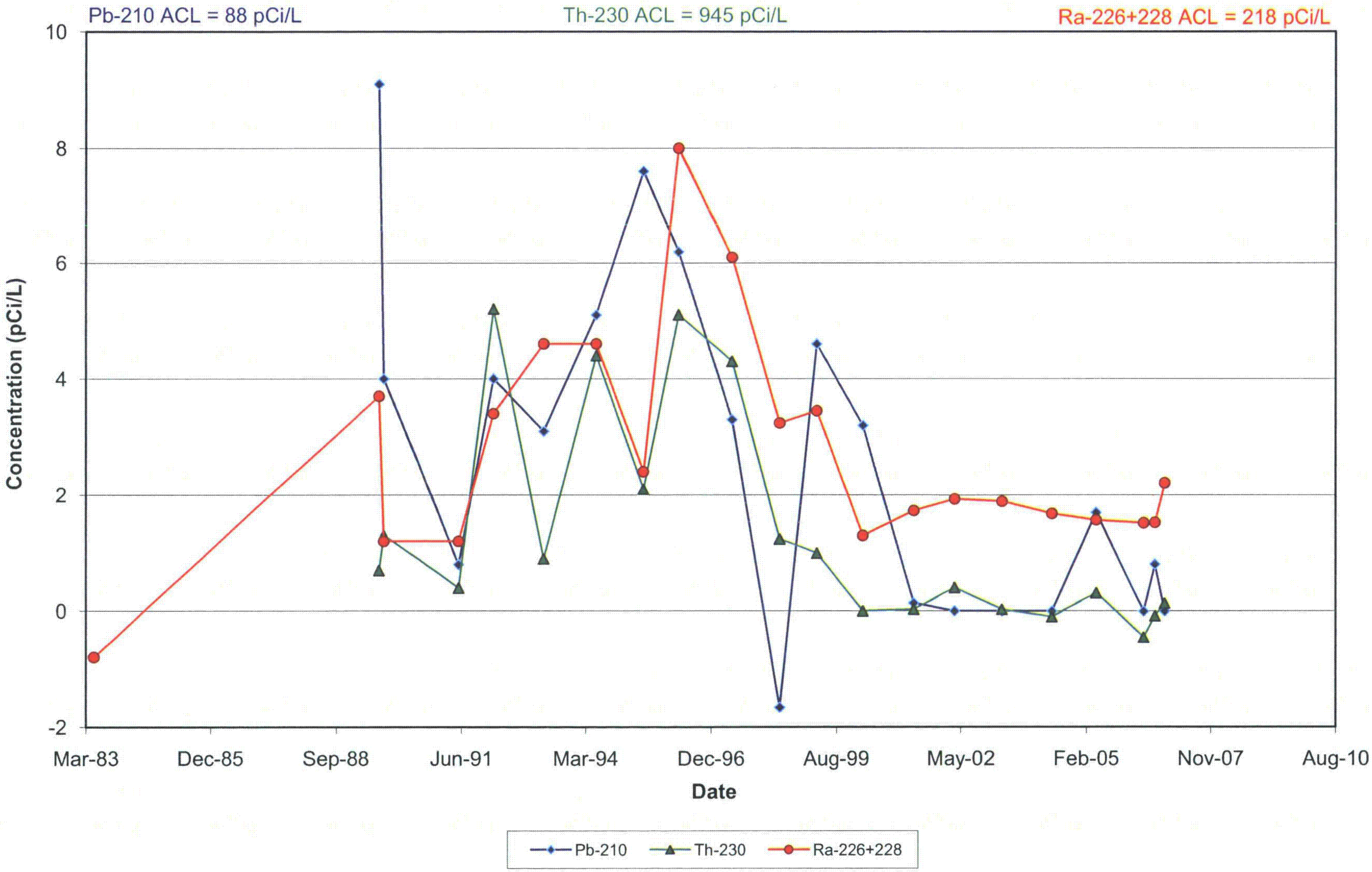
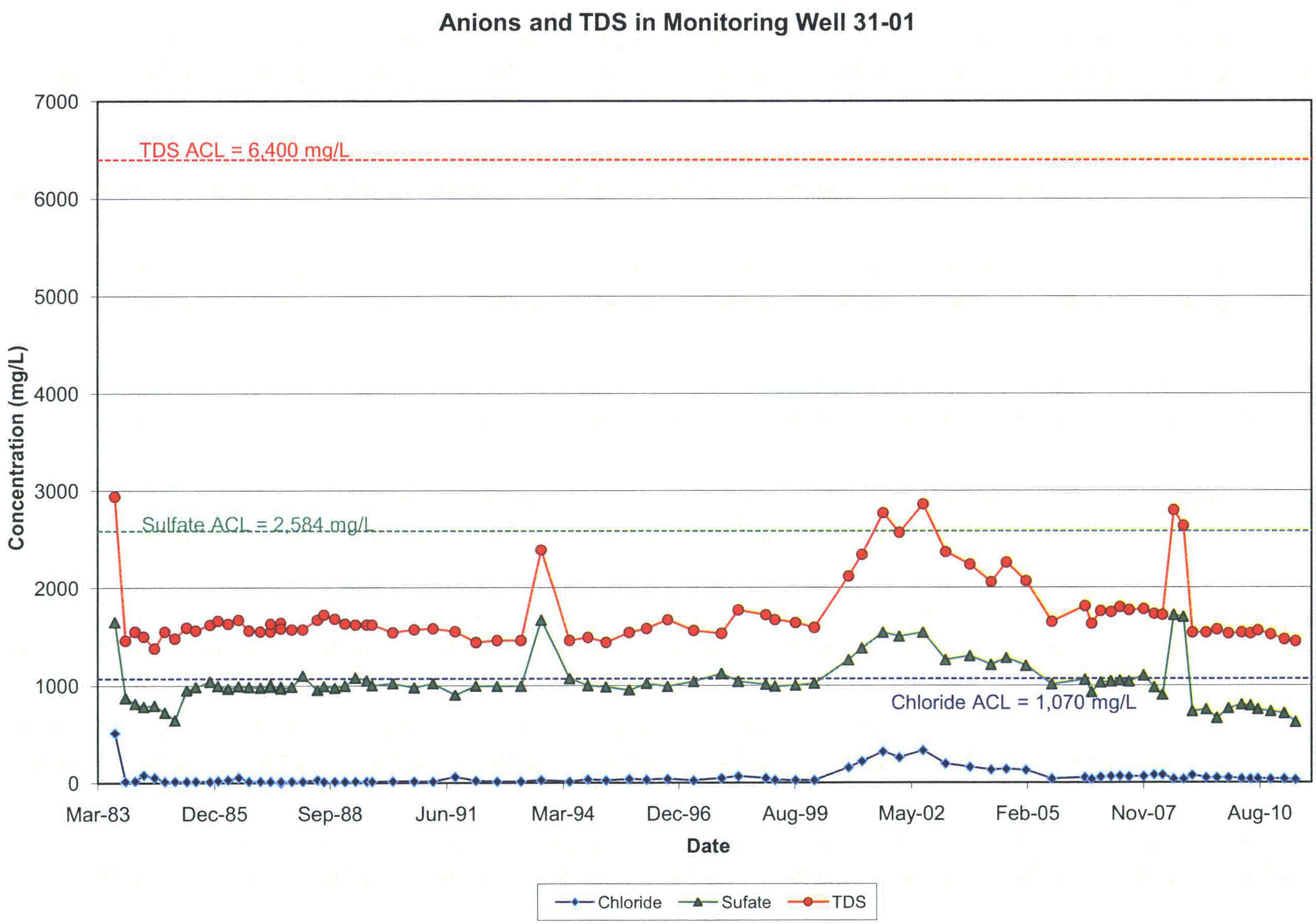
Radionuclides in Monitoring Well 30-01



INTERA



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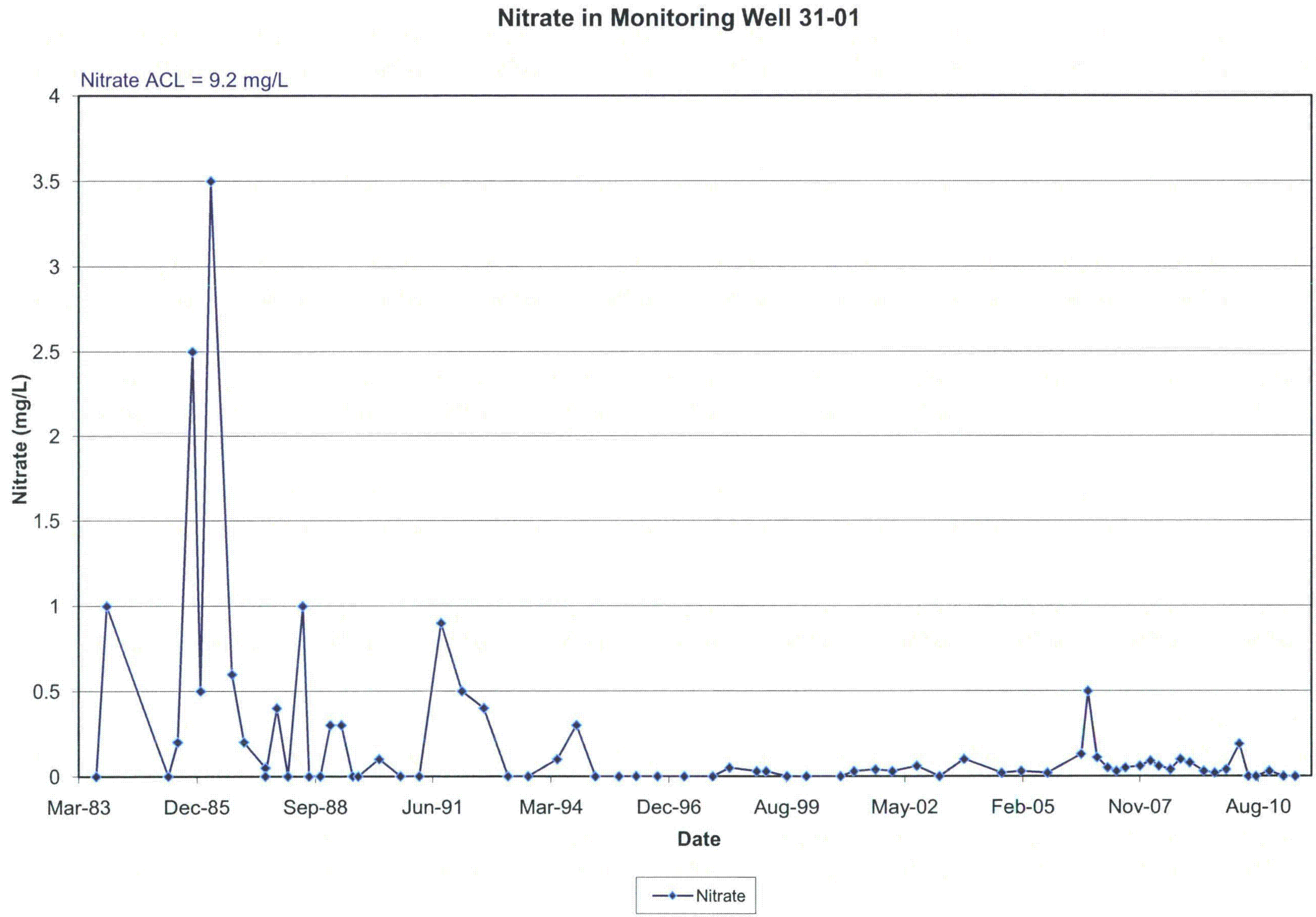

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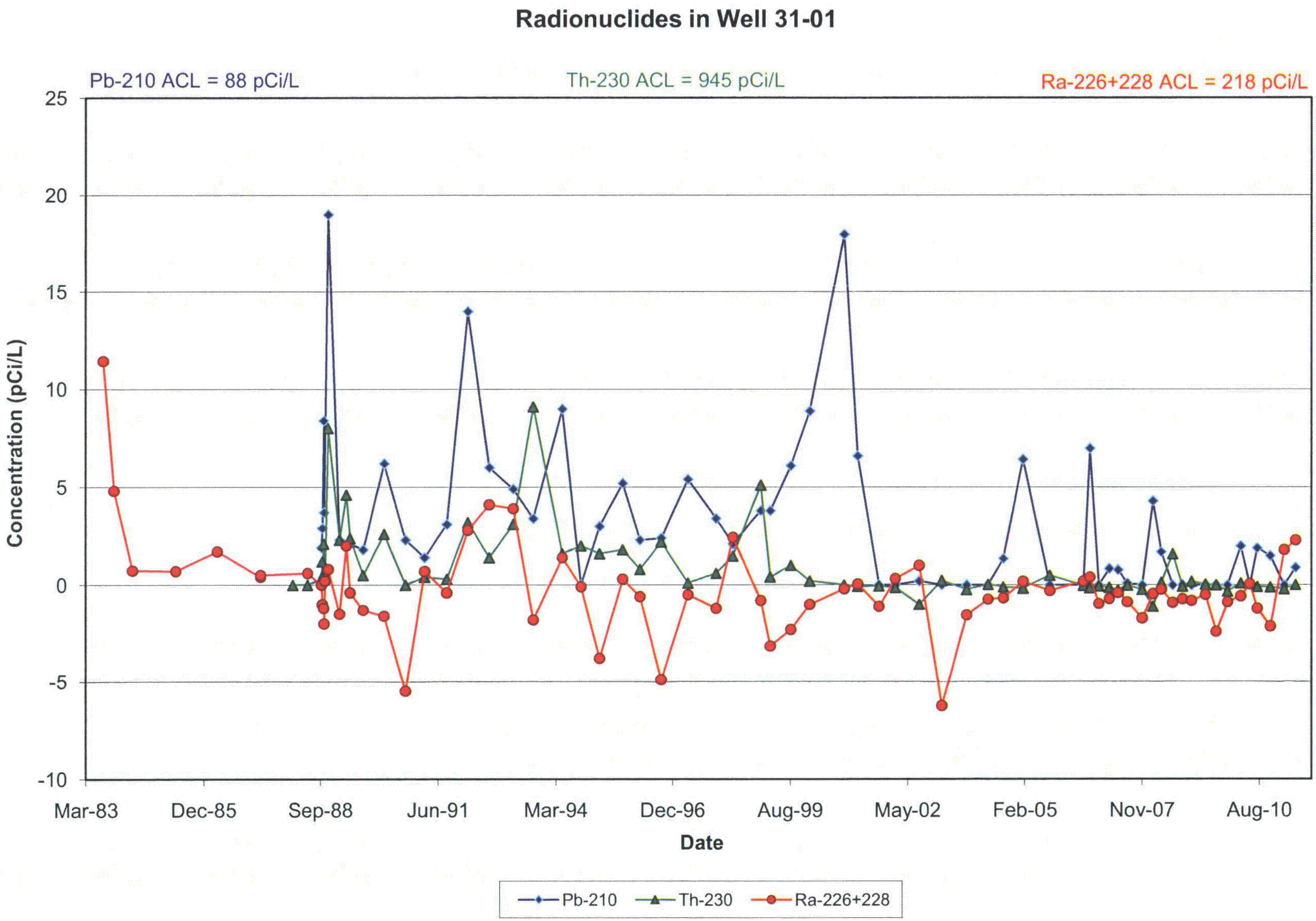
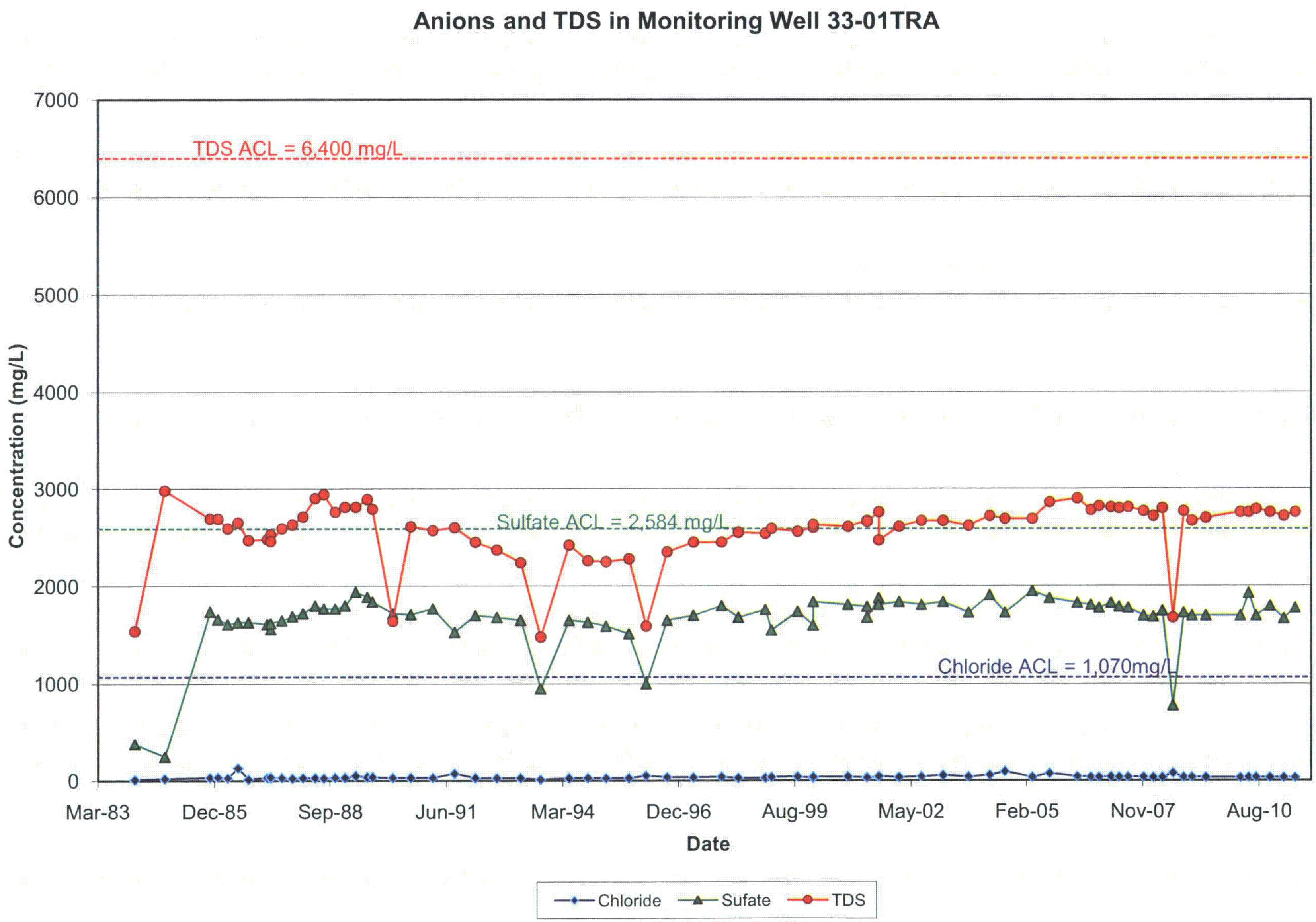
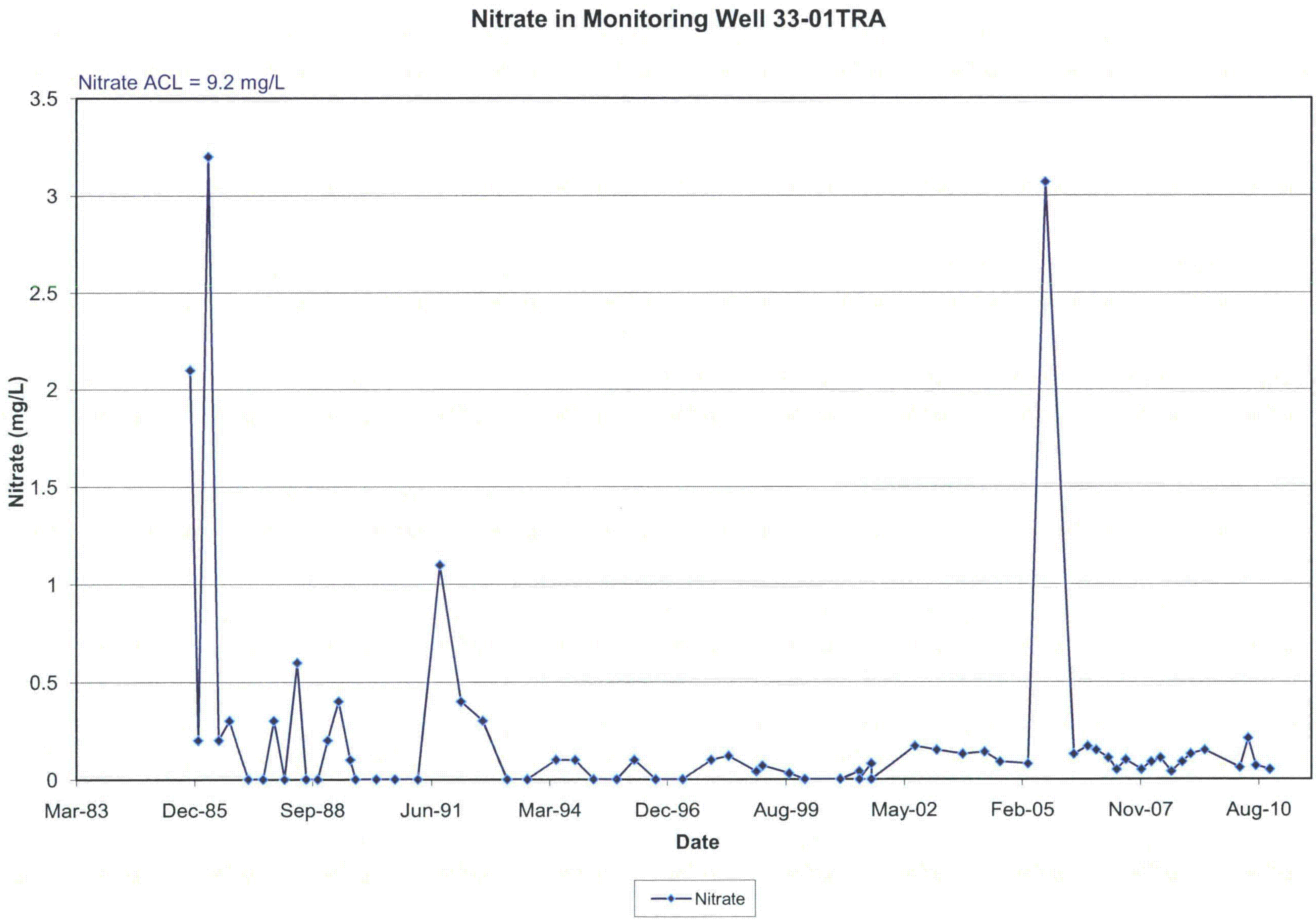


Radionuclides in Well 31-01
Pb-210 ACL = 88 pCi/L
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Concentration (pCi/L)
25
20
15
10
5
0
-5
-10
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Pb-210
Th-230
Ra-226+228


Anions and TDS in Monitoring Well 33-01TRA
TDS ACL = 6,400 mg/L
Sulfate ACL = 2,584 mg/L
Chloride ACL = 1,070mg/L
Concentration (mg/L)
7000
6000
5000
4000
3000
2000
1000
0
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Chloride
Sufate
TDS



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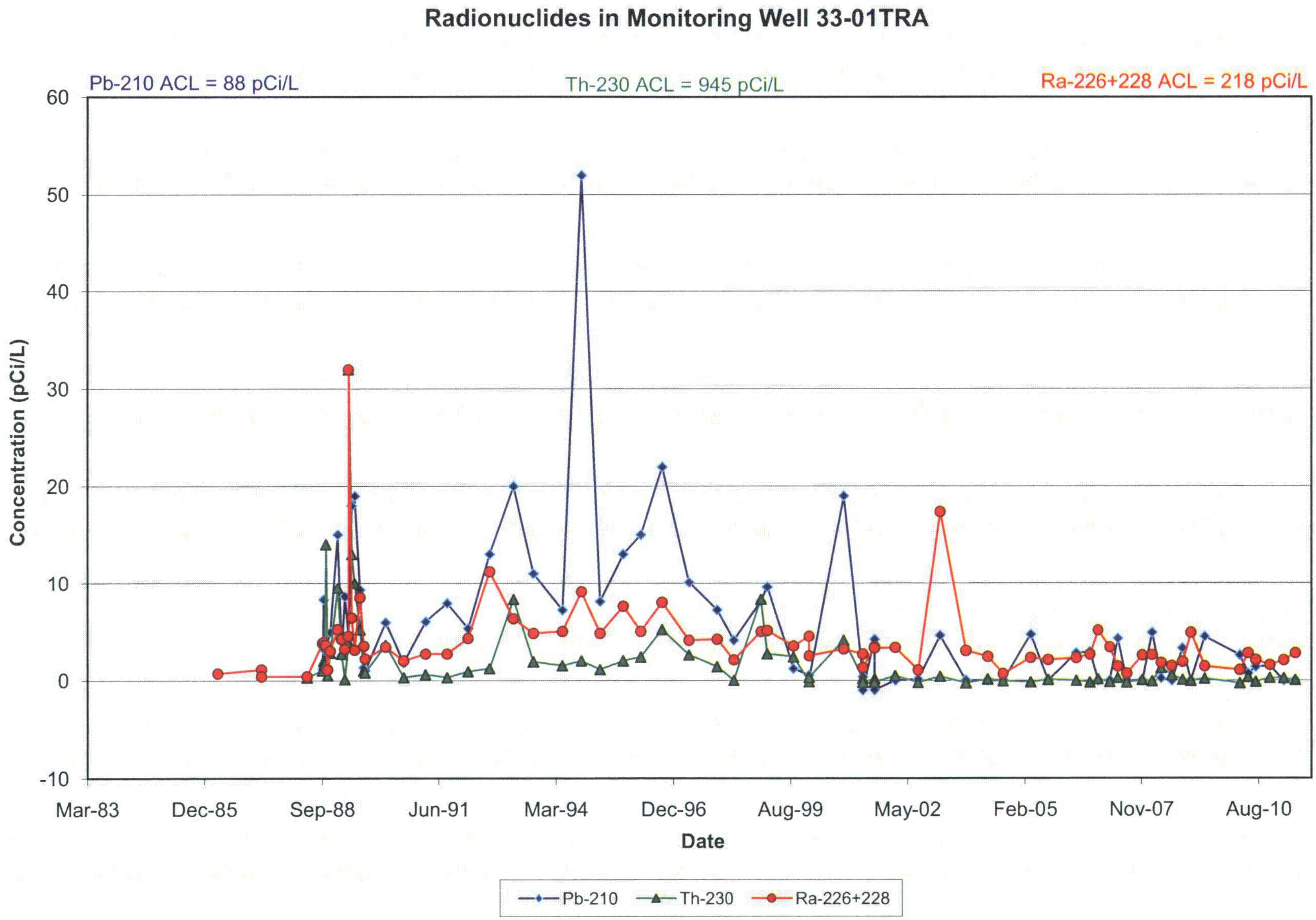

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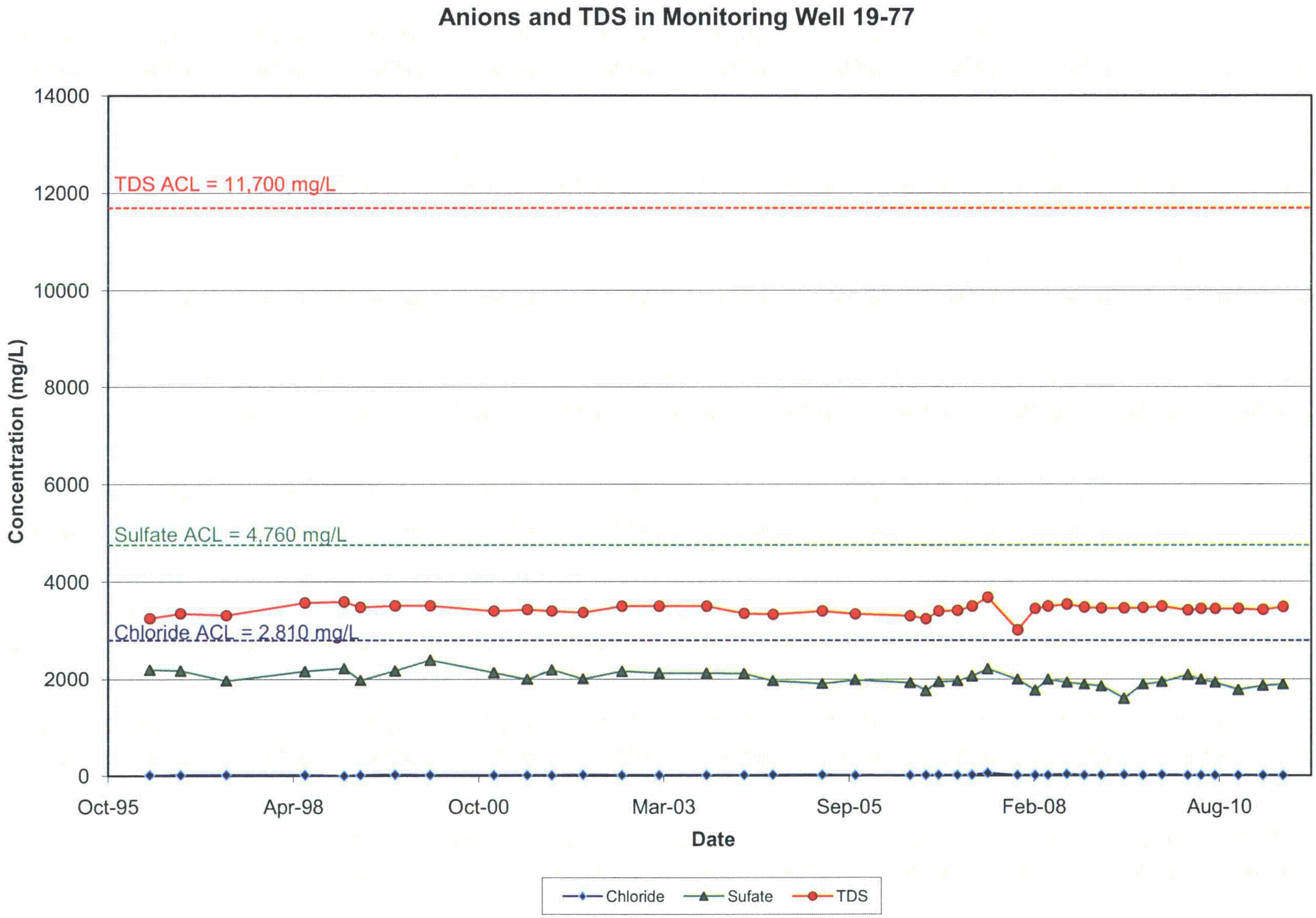
Stability Monitoring Plan
Time Versus Concentration Plots

Tres Hermanos B



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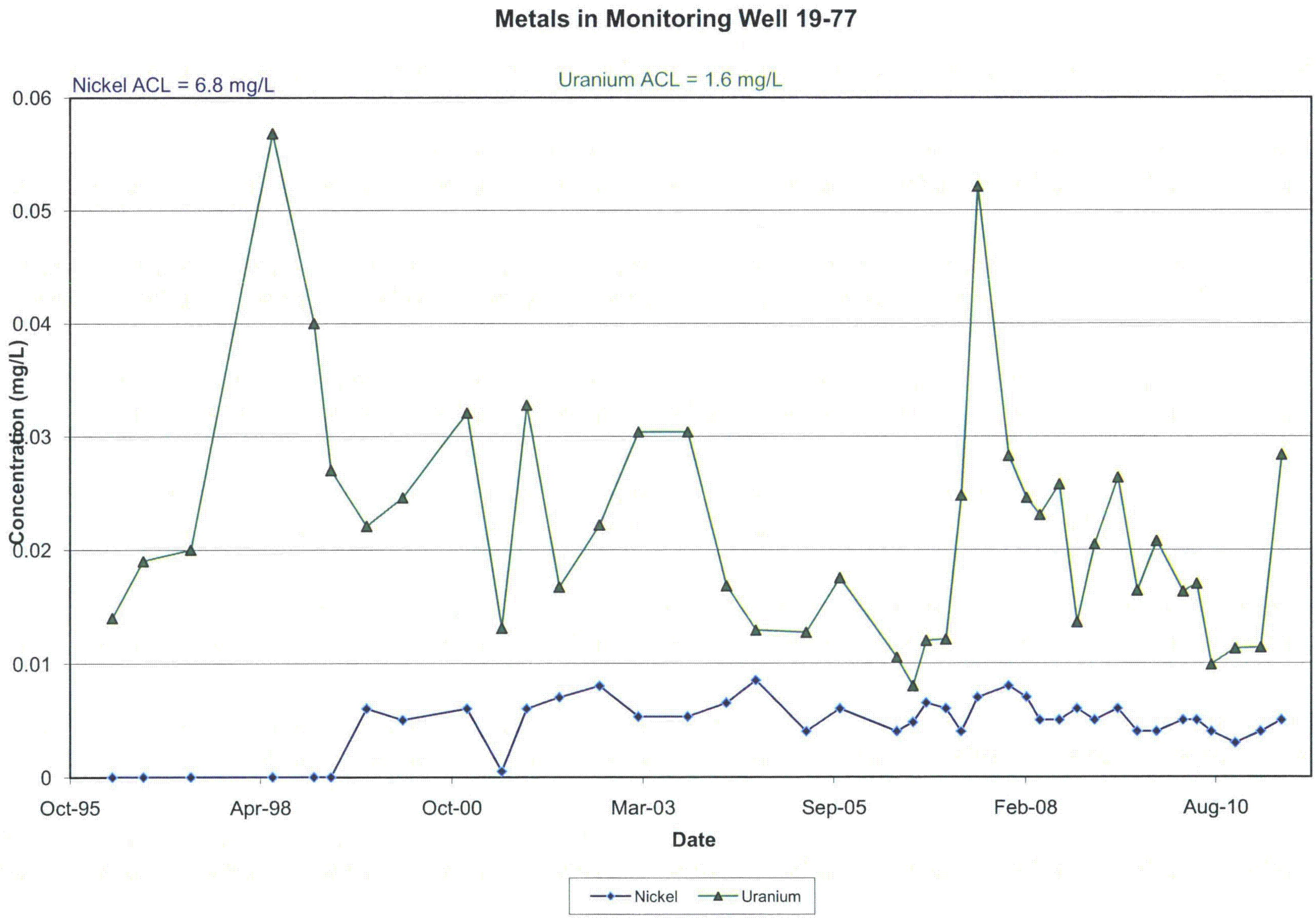

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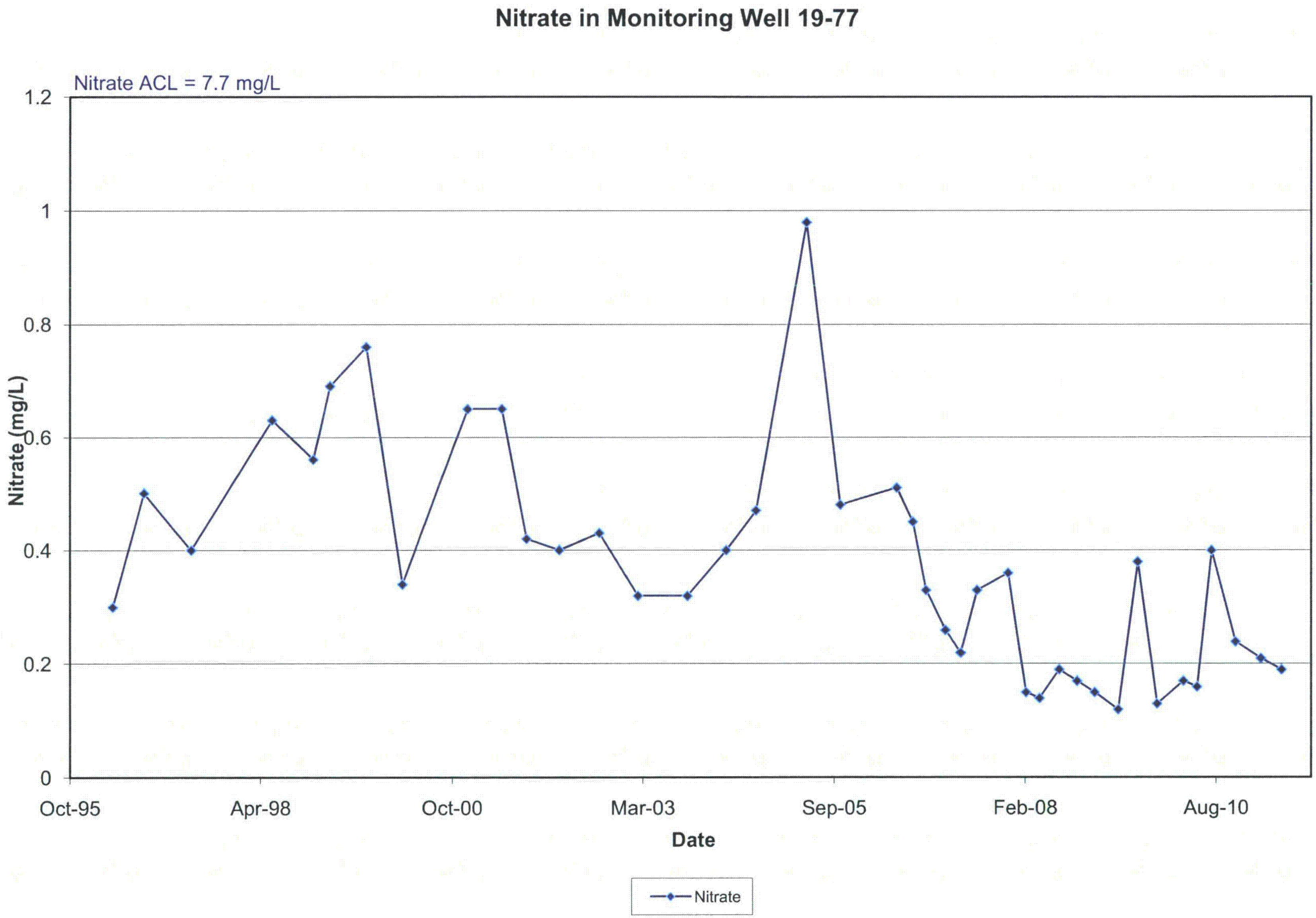

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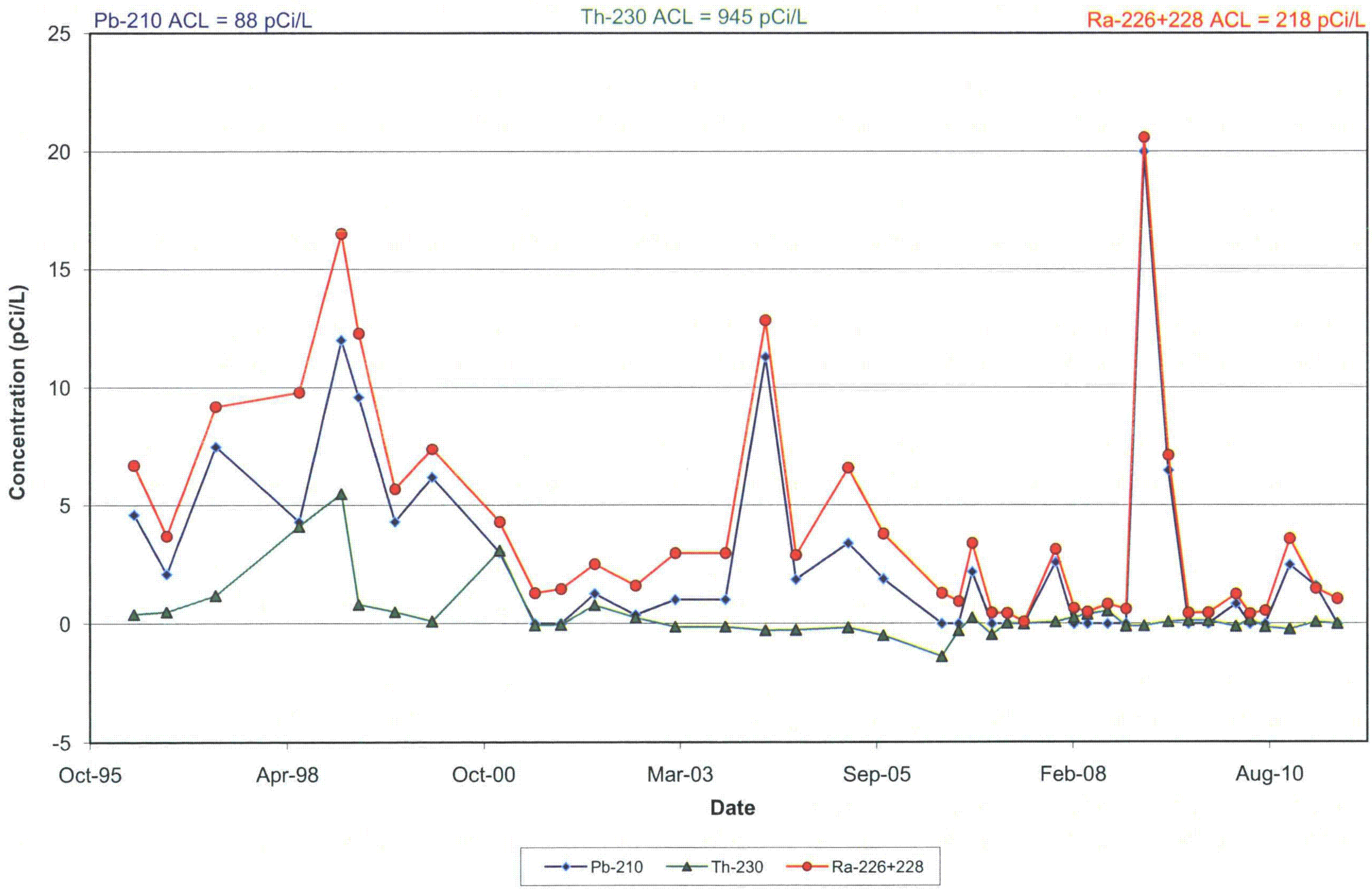
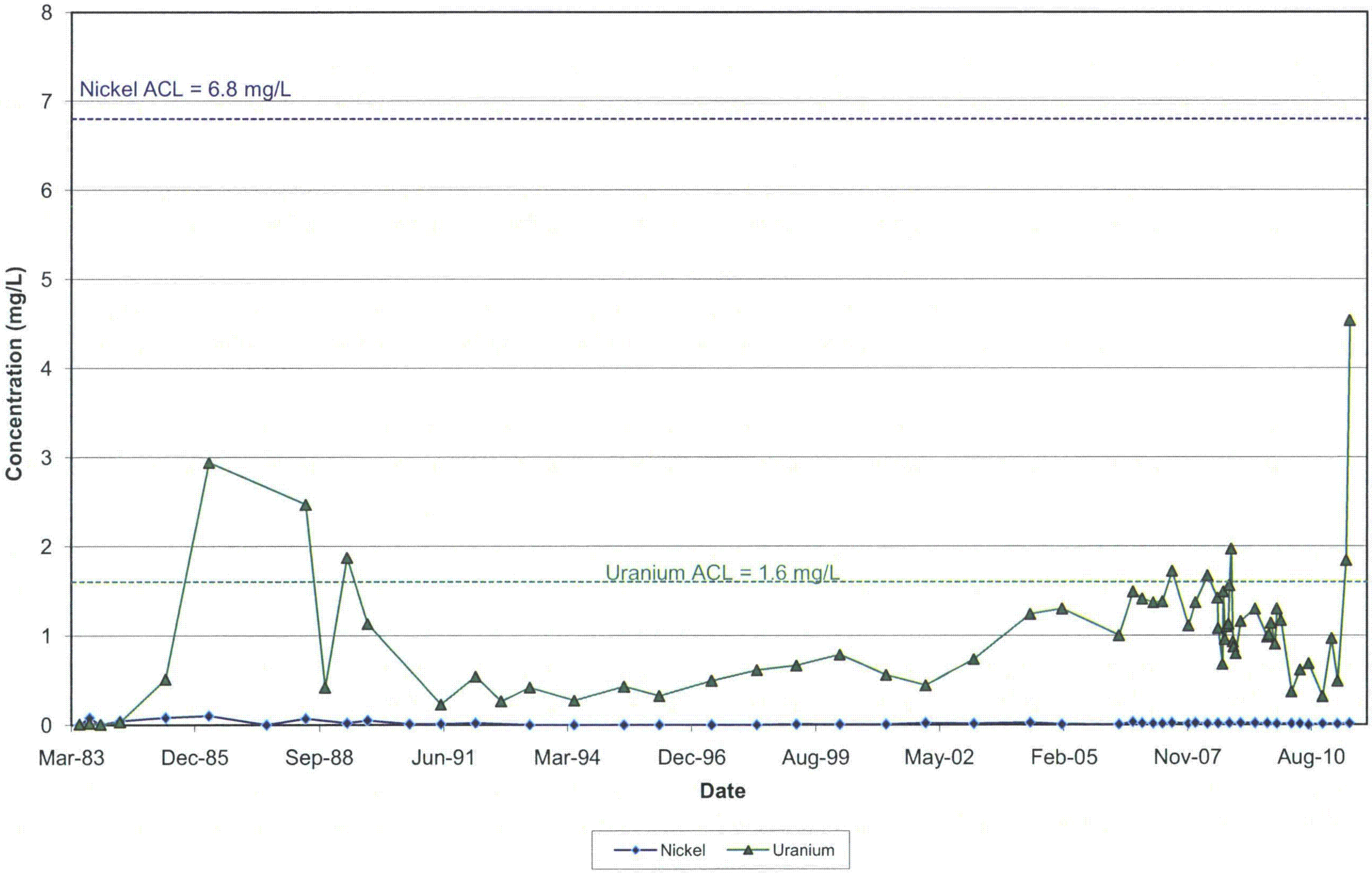
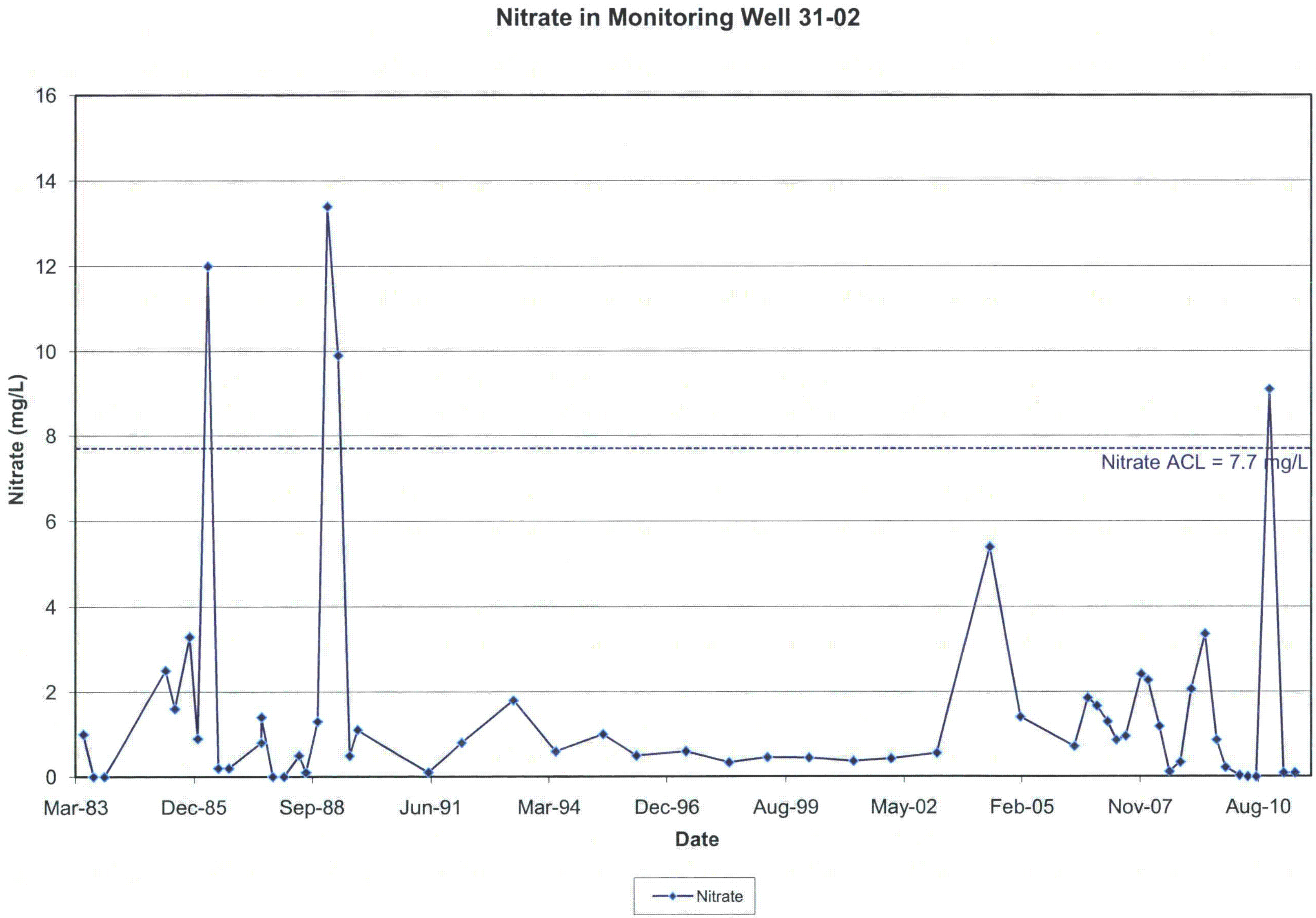
Radionuclides in Monitoring Well 19-77



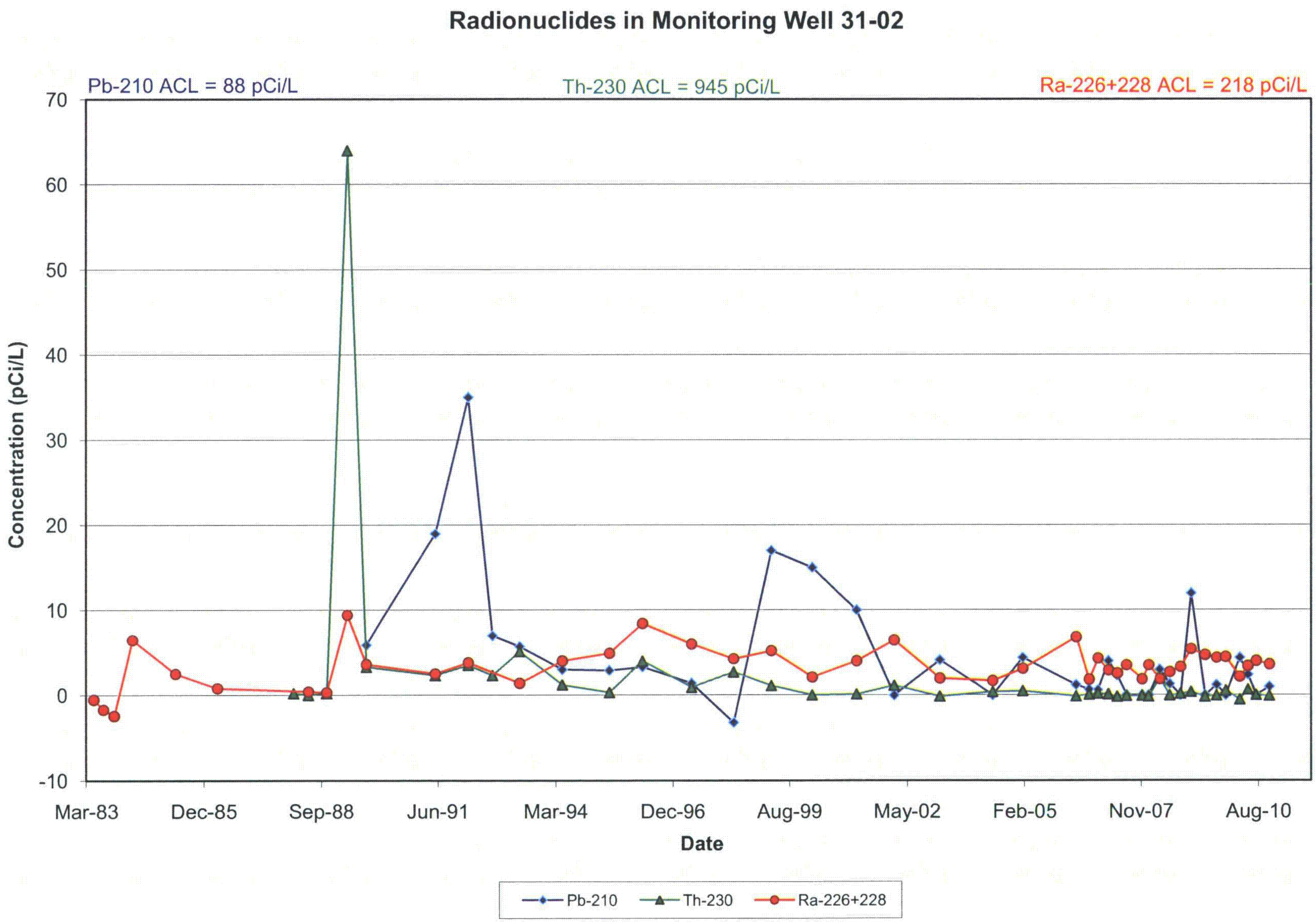
Metals in Monitoring Well 31-02



INTERA

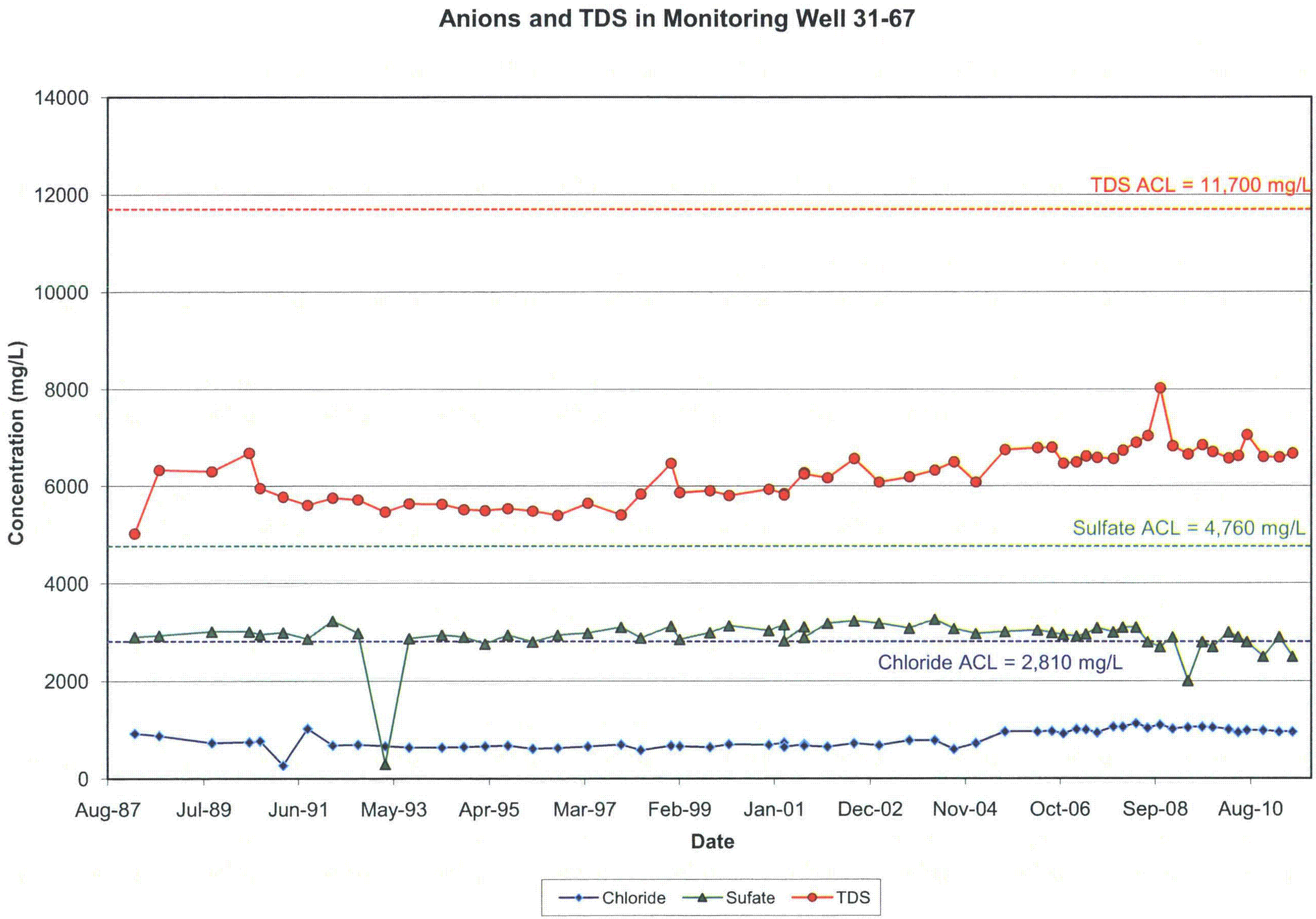


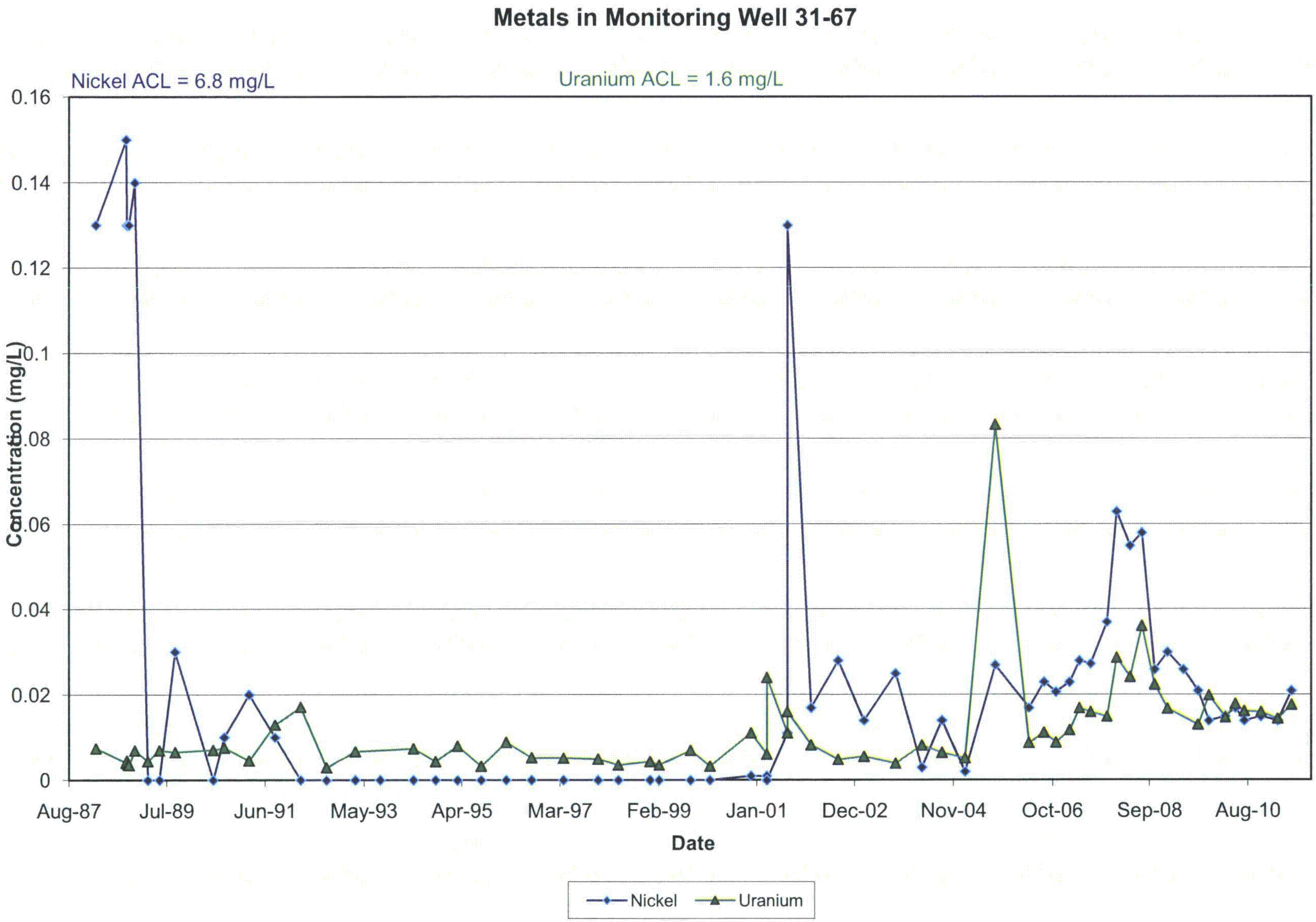
Nitrate in Monitoring Well 31-02
16
14
12
10
8
6
4
2
0
Nitrate (mg/L)
Nitrate ACL = 7.7 mg/L
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Nitrate



Radionuclides in Monitoring Well 31-02
Pb-210 ACL = 88 pCi/L
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Concentration (pCi/L)
70
60
50
40
30
20
10
0
-10
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Pb-210
Th-230
Ra-226+228

INTERA


Anions and TDS in Monitoring Well 31-67
14000
12000
10000
8000
6000
4000
2000
0
Concentration (mg/L)
TDS ACL = 11,700 mg/L
Sulfate ACL = 4,760 mg/L
Chloride ACL = 2,810 mg/L
Aug-87
Jul-89
Jun-91
May-93
Apr-95
Mar-97
Feb-99
Jan-01
Dec-02
Nov-04
Oct-06
Sep-08
Aug-10
Date
Chloride
Sufate
TDS



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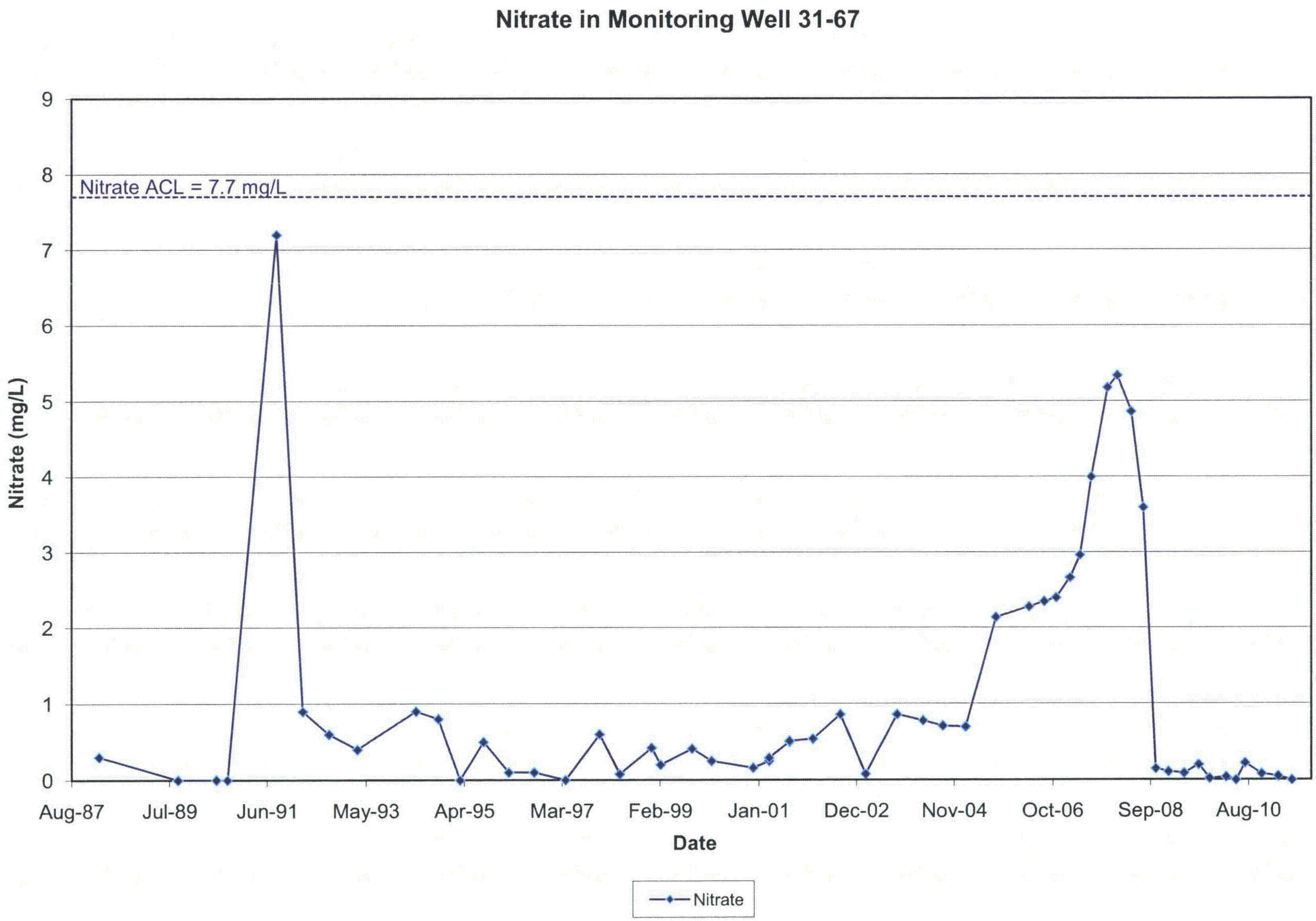
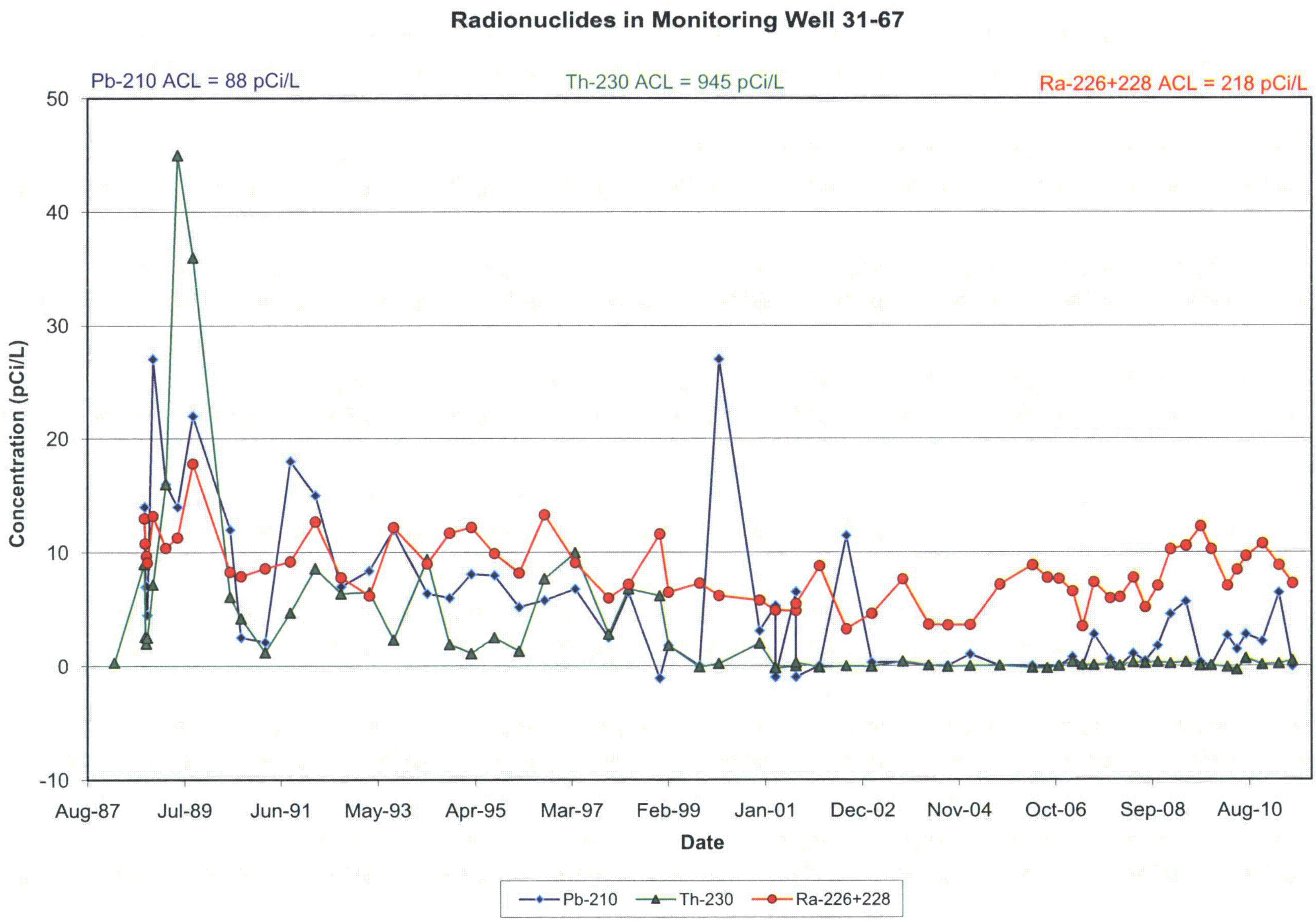

Nitrate in Monitoring Well 31-67
Nitrate ACL = 7.7 mg/L
Nitrate (mg/L)
0
1
2
3
4
5
6
7
8
9
Aug-87
Jul-89
Jun-91
May-93
Apr-95
Mar-97
Feb-99
Jan-01
Dec-02
Nov-04
Oct-06
Sep-08
Aug-10
Date
Nitrate

INTERA



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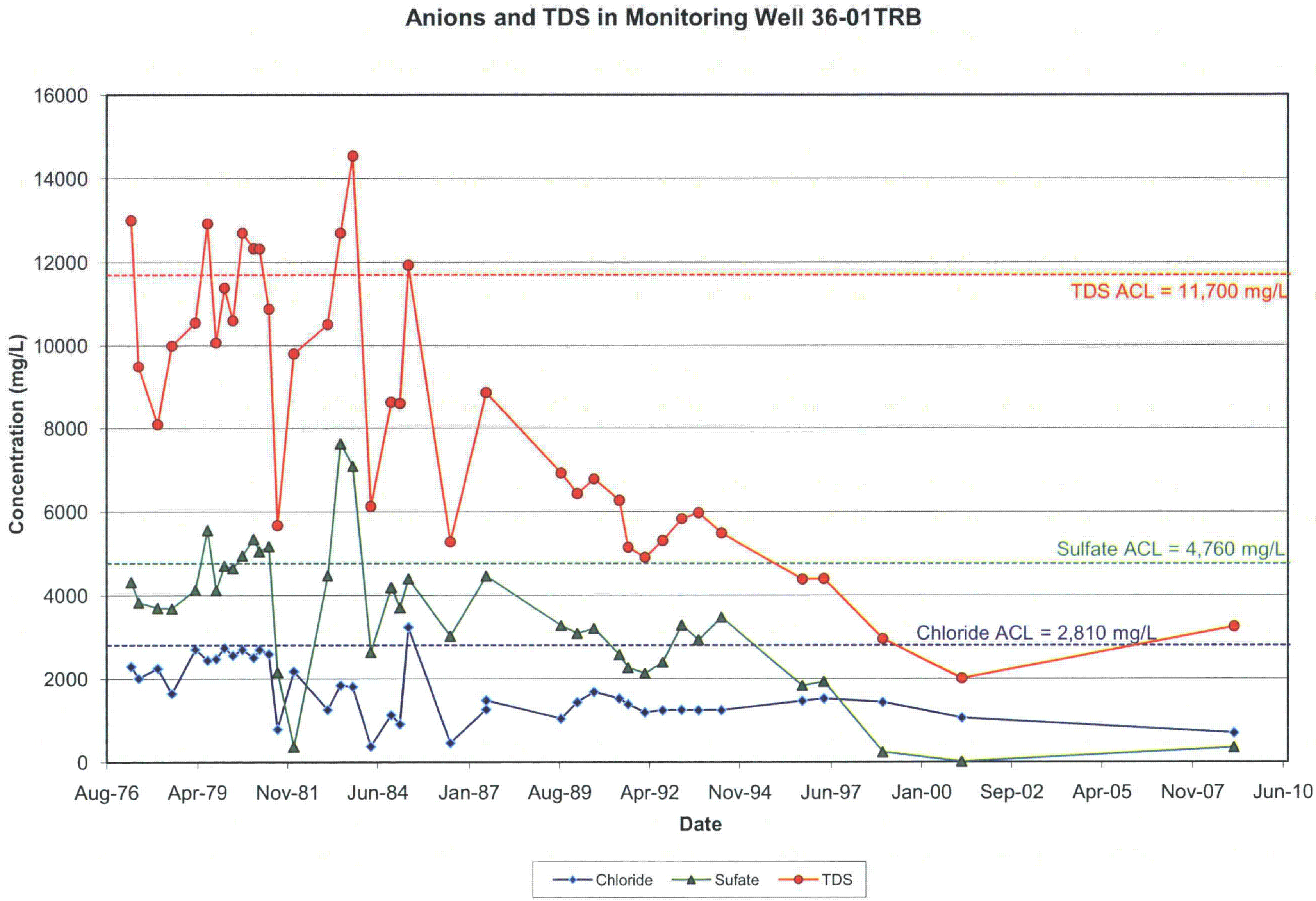
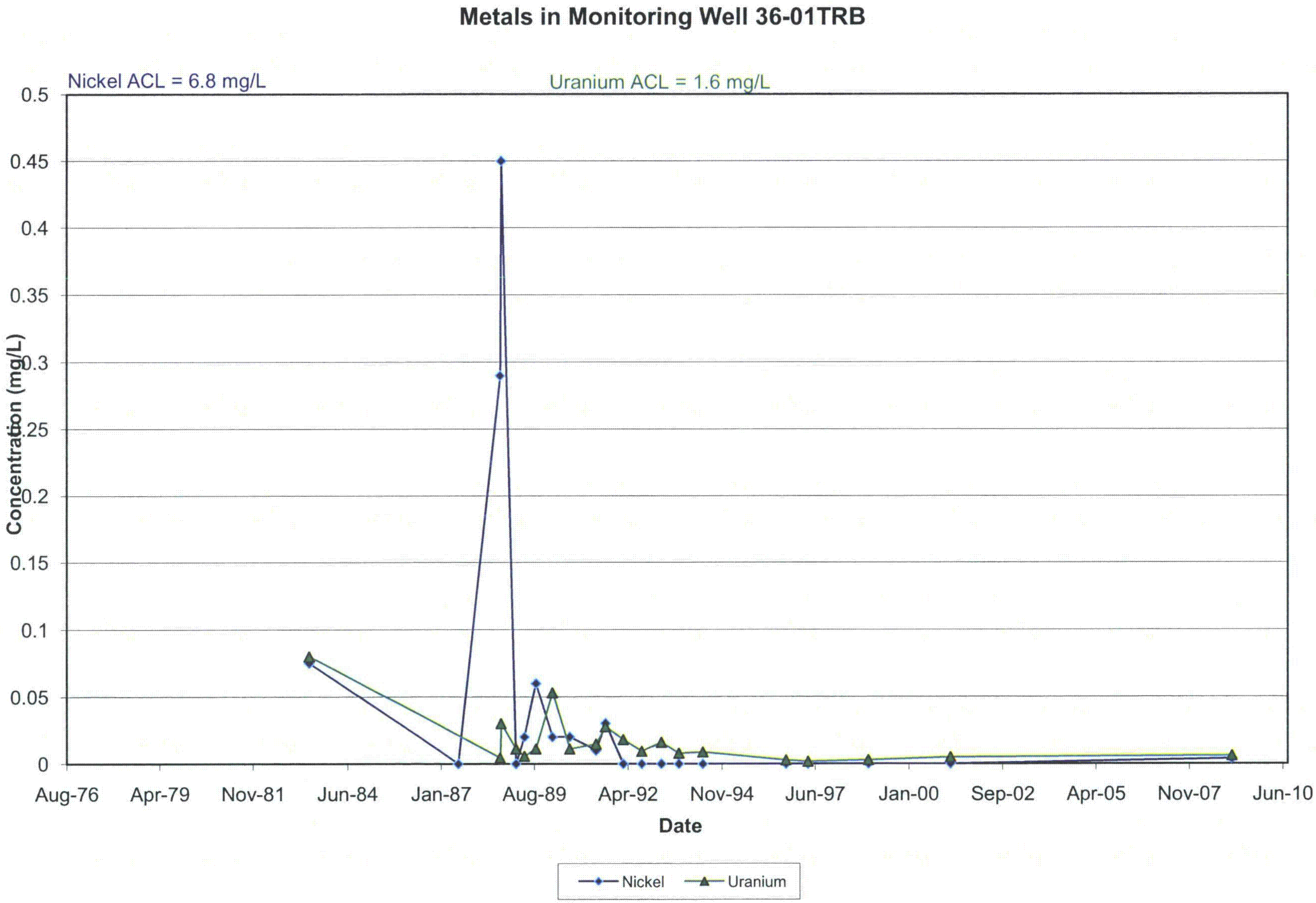
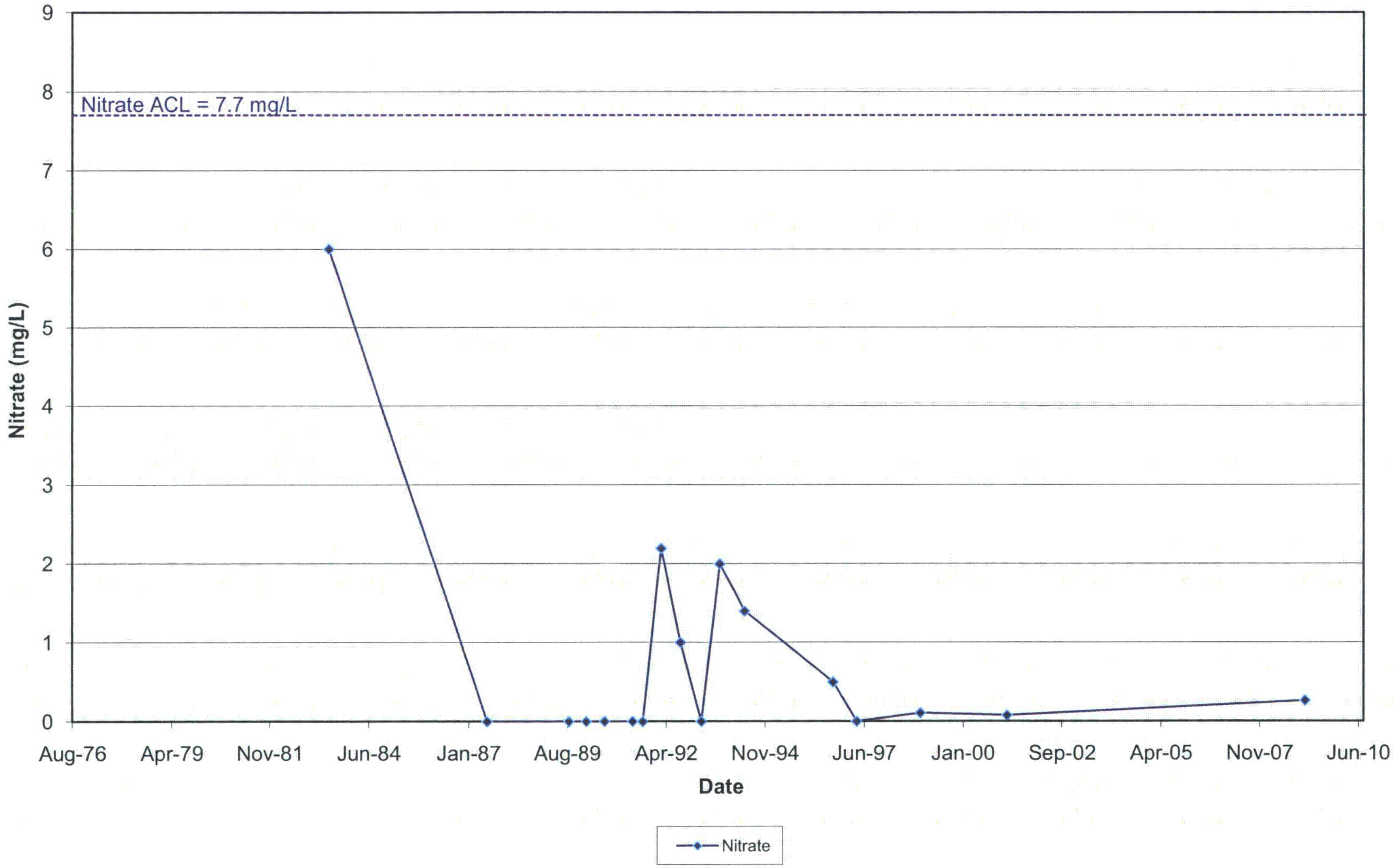
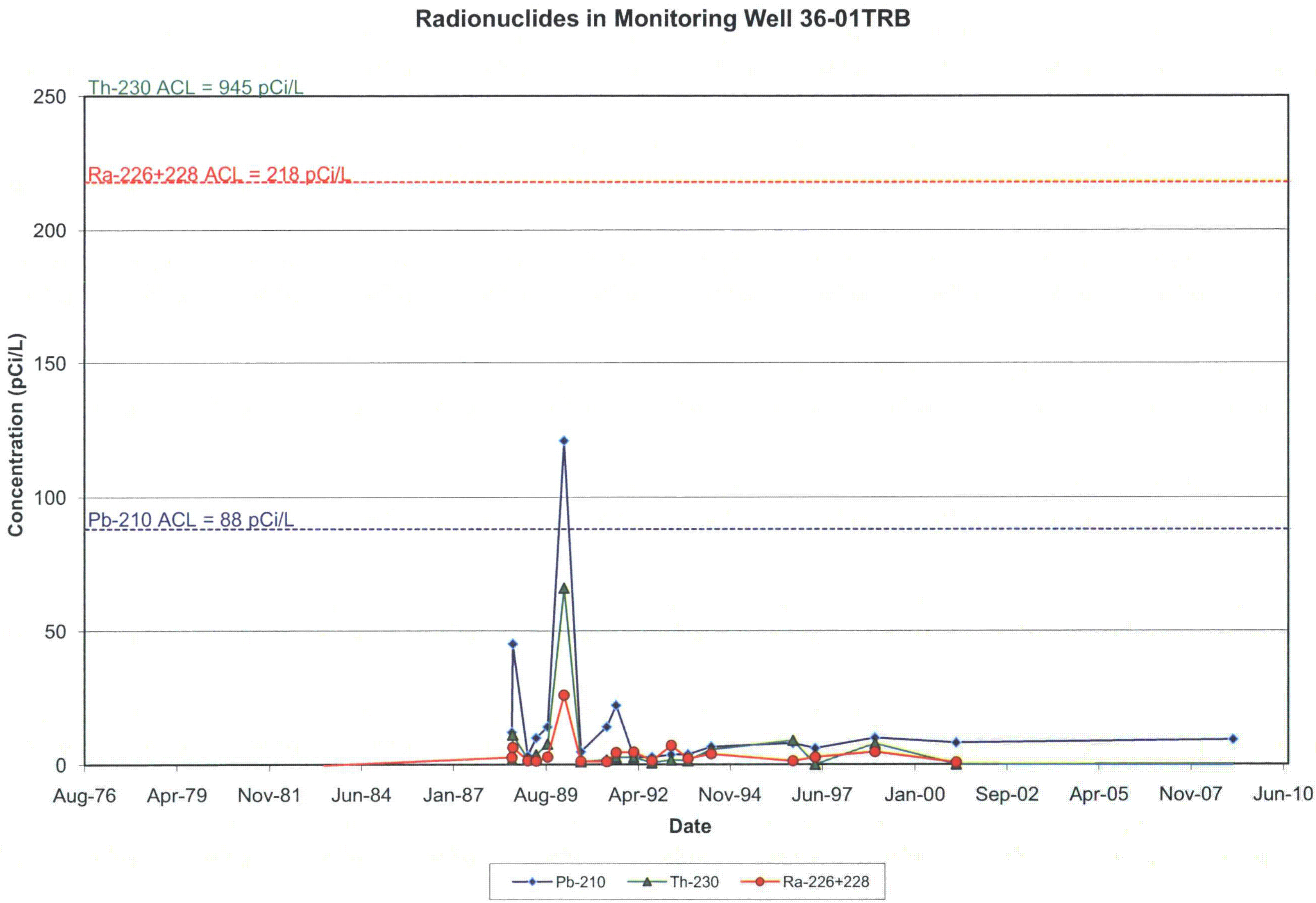

Anions and TDS in Monitoring Well 36-01TRB
Concentration (mg/L)
16000
14000
12000
10000
8000
6000
4000
2000
0
TDS ACL = 11,700 mg/L
Sulfate ACL = 4,760 mg/L
Chloride ACL = 2,810 mg/L
Aug-76
Apr-79
Nov-81
Jun-84
Jan-87
Aug-89
Apr-92
Nov-94
Jun-97
Jan-00
Sep-02
Apr-05
Nov-07
Jun-10
Date
Chloride
Sufate
TDS

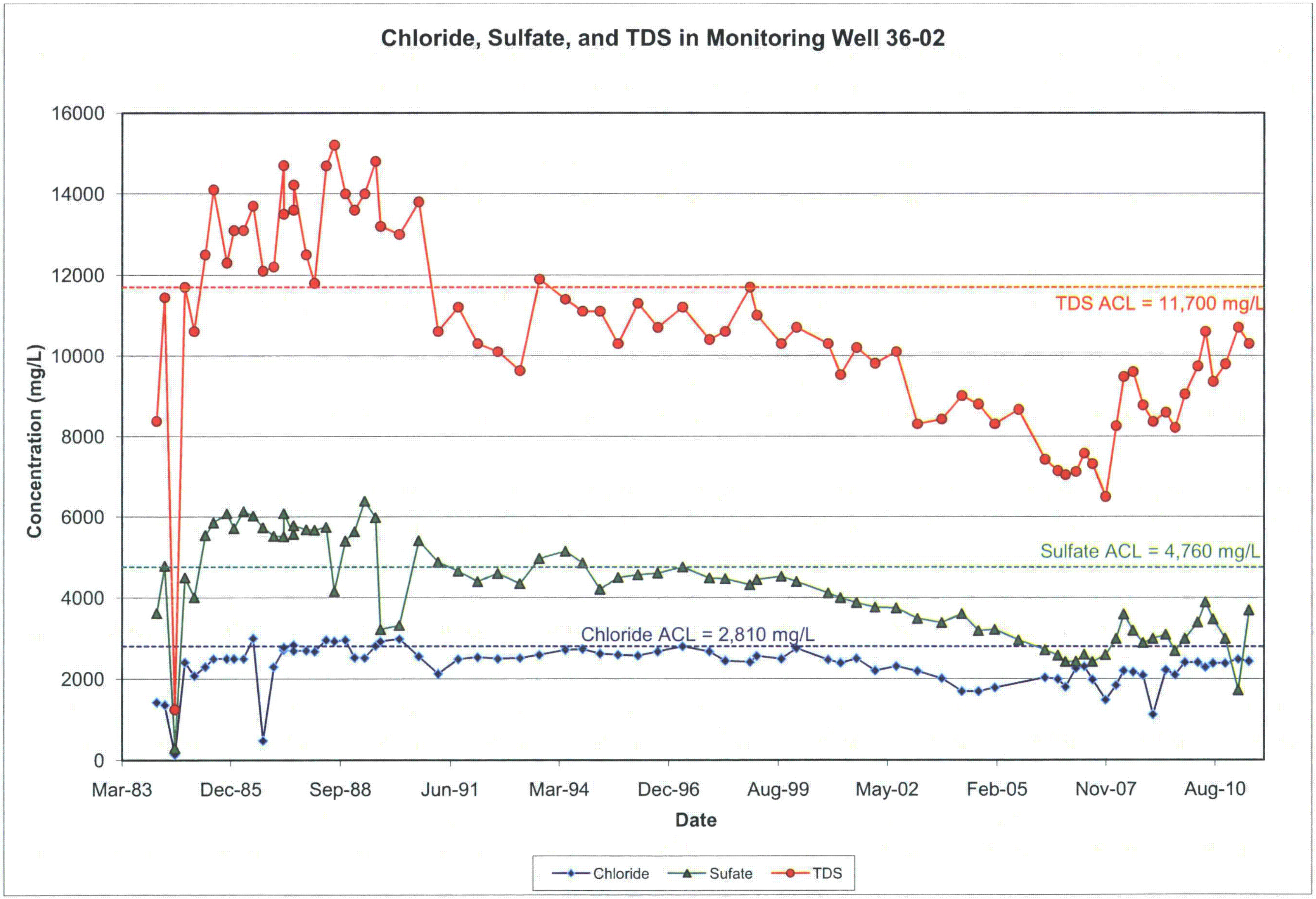

Metals in Monitoring Well 36-01TRB
Nickel ACL = 6.8 mg/L
Uranium ACL = 1.6 mg/L
Concentration (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-76
Apr-79
Nov-81
Jun-84
Jan-87
Aug-89
Apr-92
Nov-94
Jun-97
Jan-00
Sep-02
Apr-05
Nov-07
Jun-10
Date
Nickel
Uranium

Nitrate in Monitoring Well 36-01TRB

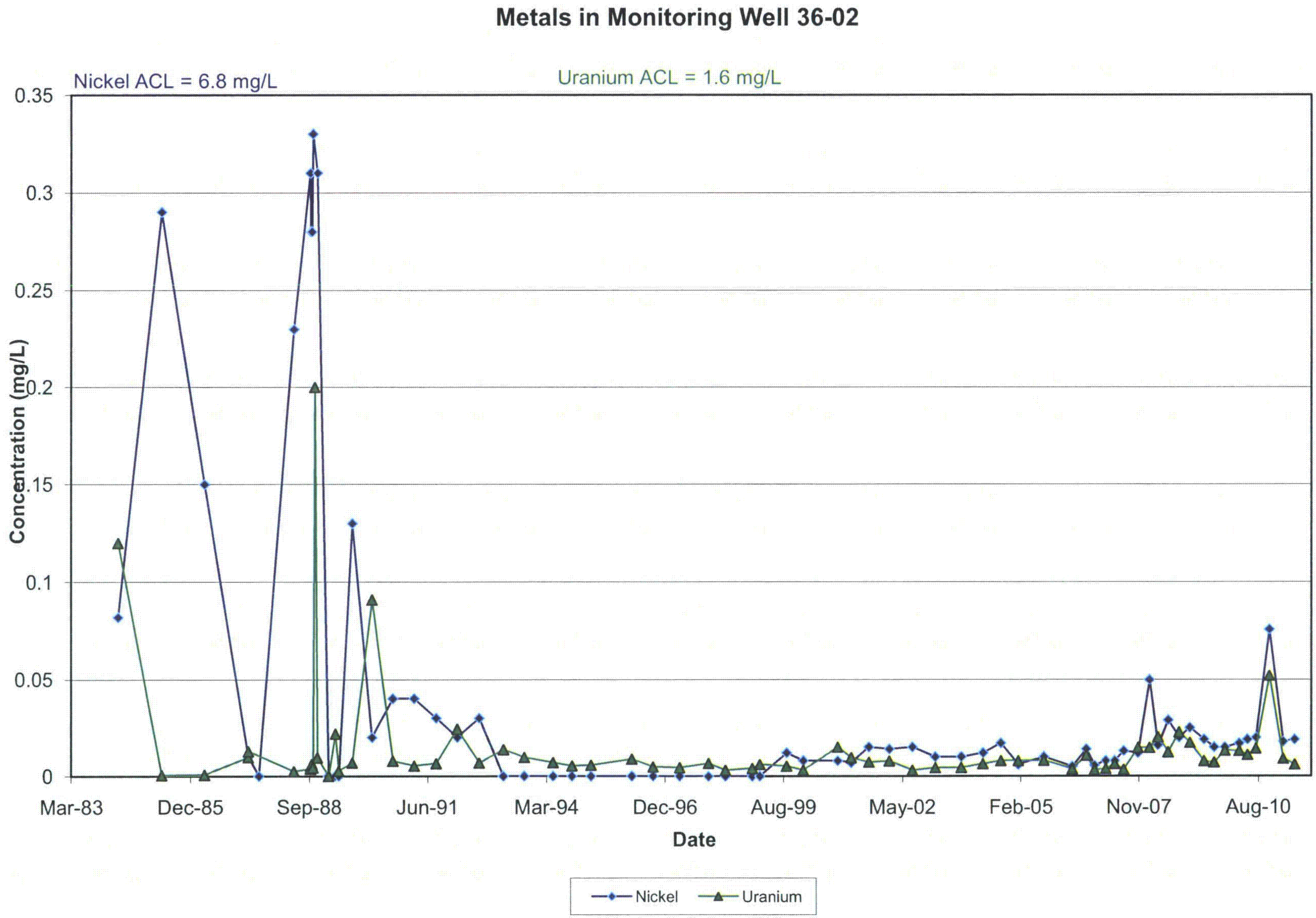


INTERA


Radionuclides in Monitoring Well 36-01TRB
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Pb-210 ACL = 88 pCi/L
Concentration (pCi/L)
250
200
150
100
50
0
Aug-76
Apr-79
Nov-81
Jun-84
Jan-87
Aug-89
Apr-92
Nov-94
Jun-97
Jan-00
Sep-02
Apr-05
Nov-07
Jun-10
Date
Pb-210
Th-230
Ra-226+228


Chloride, Sulfate, and TDS in Monitoring Well 36-02
16000
14000
12000
10000
8000
6000
4000
2000
0
Concentration (mg/L)
TDS ACL = 11,700 mg/L
Sulfate ACL = 4,760 mg/L
Chloride ACL = 2,810 mg/L
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Chloride
Sufate
TDS

INTERA



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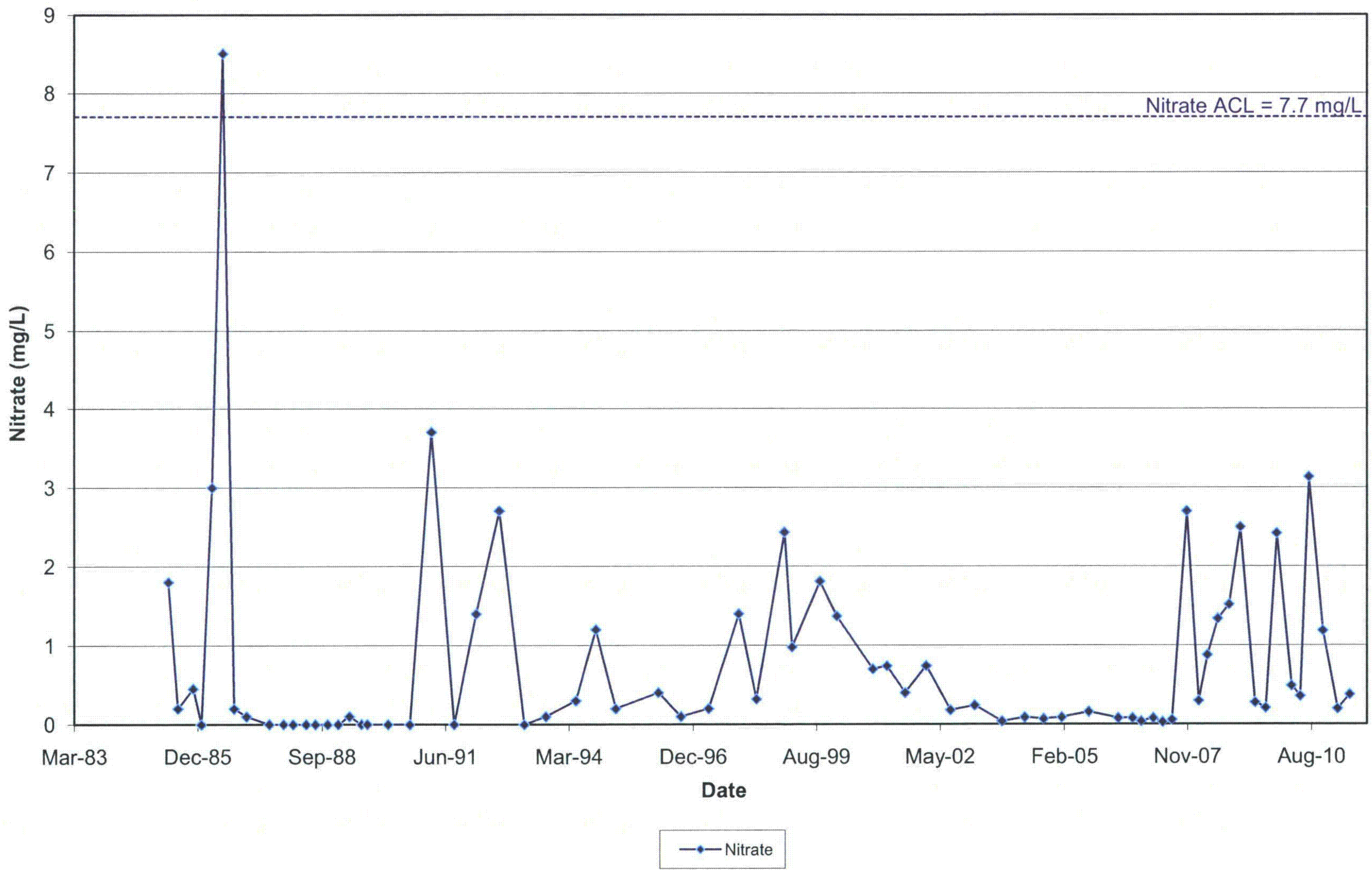
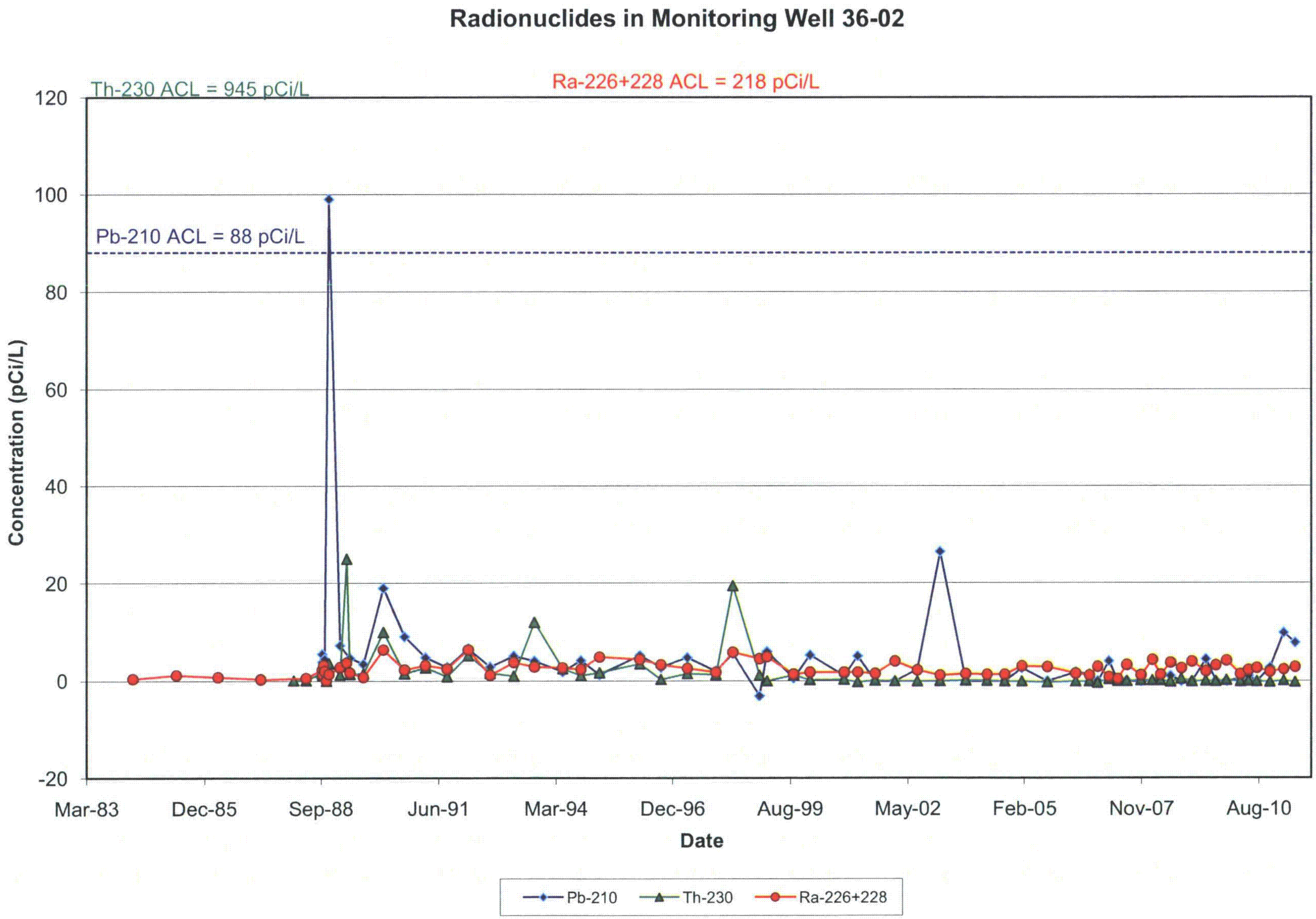
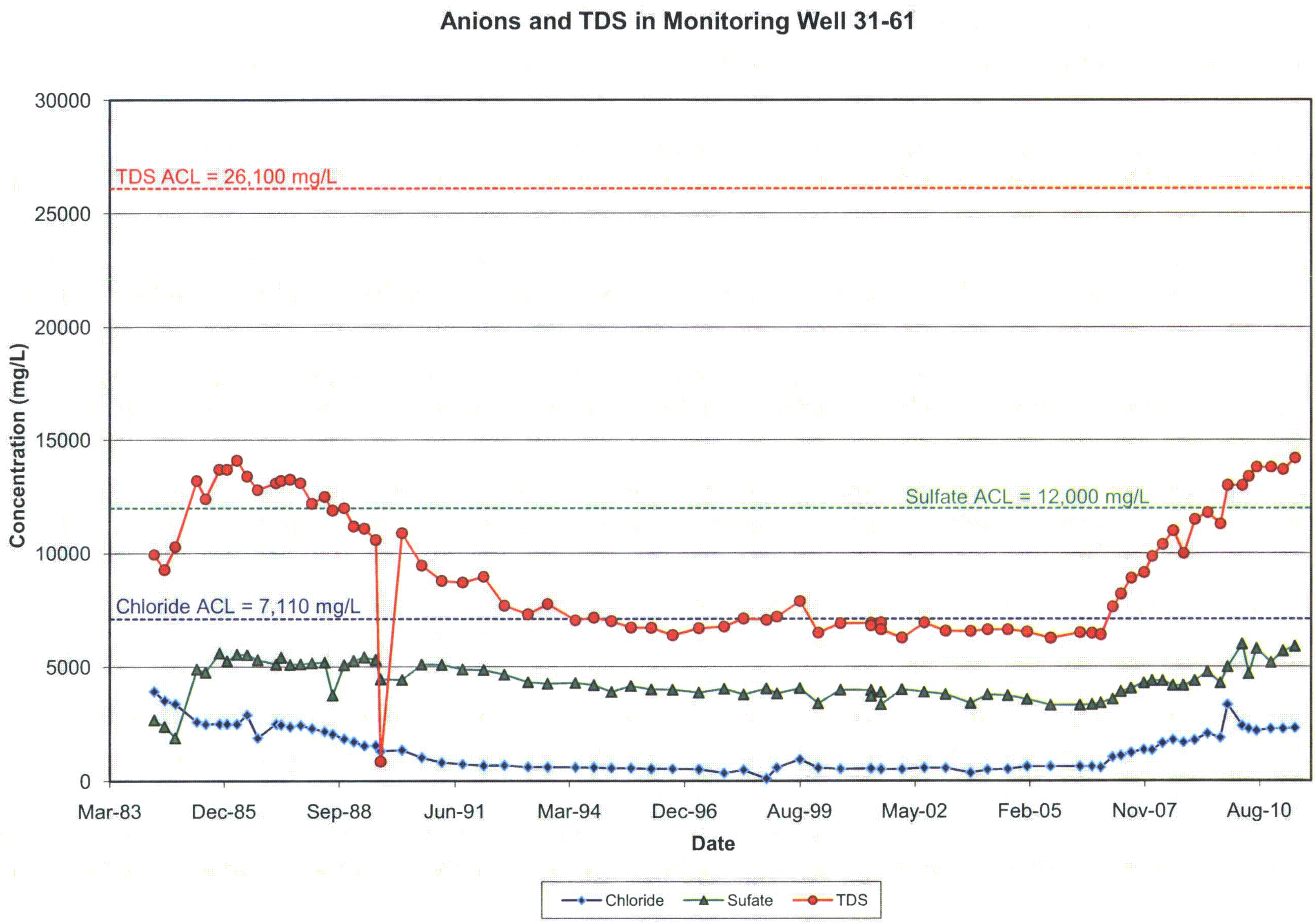
Nitrate in Monitoring Well 36-02




Radionuclides in Monitoring Well 36-02
Th-230 ACL = 945 pCi/L
Ra-226+228 ACL = 218 pCi/L
Pb-210 ACL = 88 pCi/L
Concentration (pCi/L)
120
100
80
60
40
20
0
-20
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Pb-210
Th-230
Ra-226+228

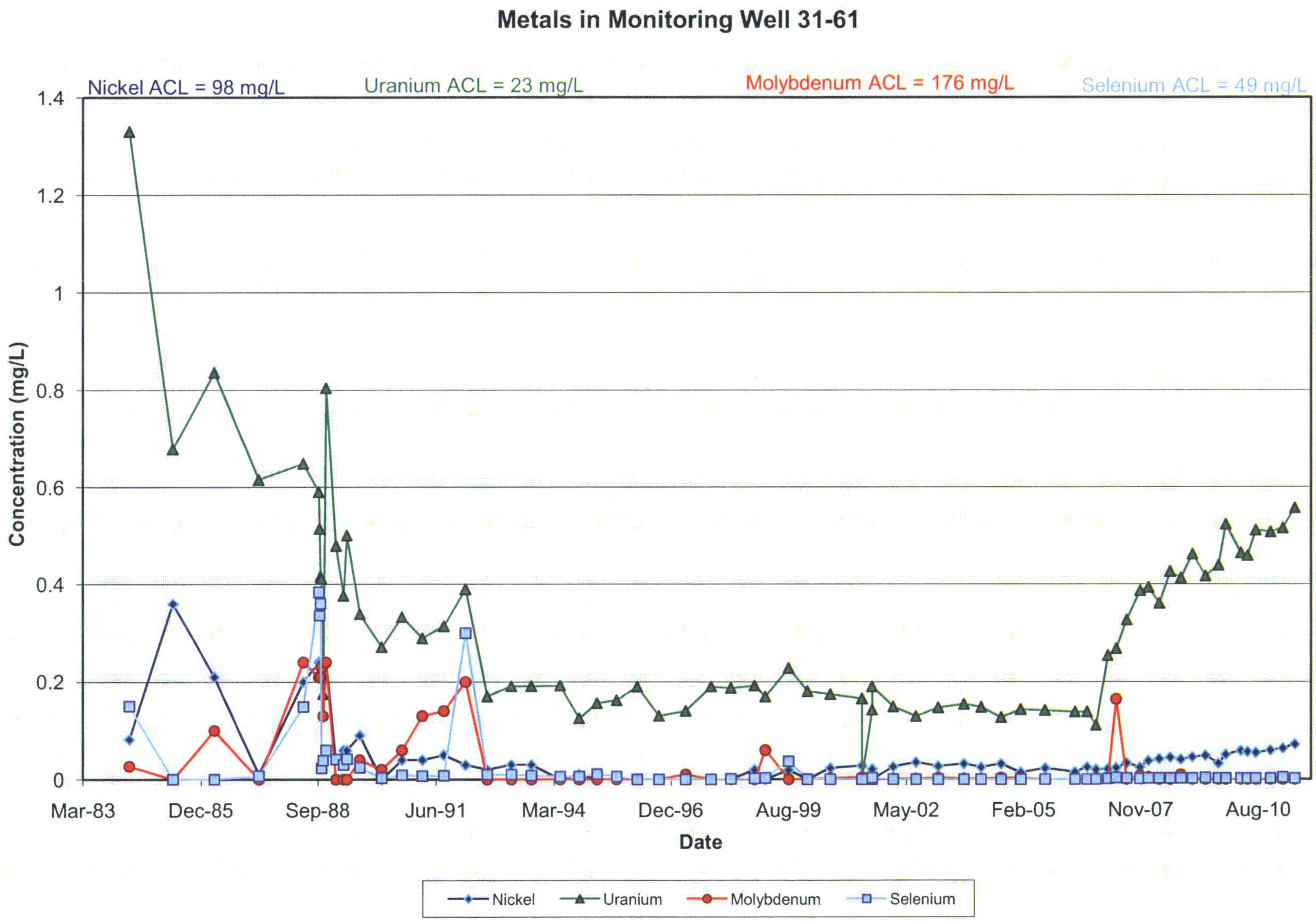
Stability Monitoring Plan
Time Versus Concentration Plots

Alluvium



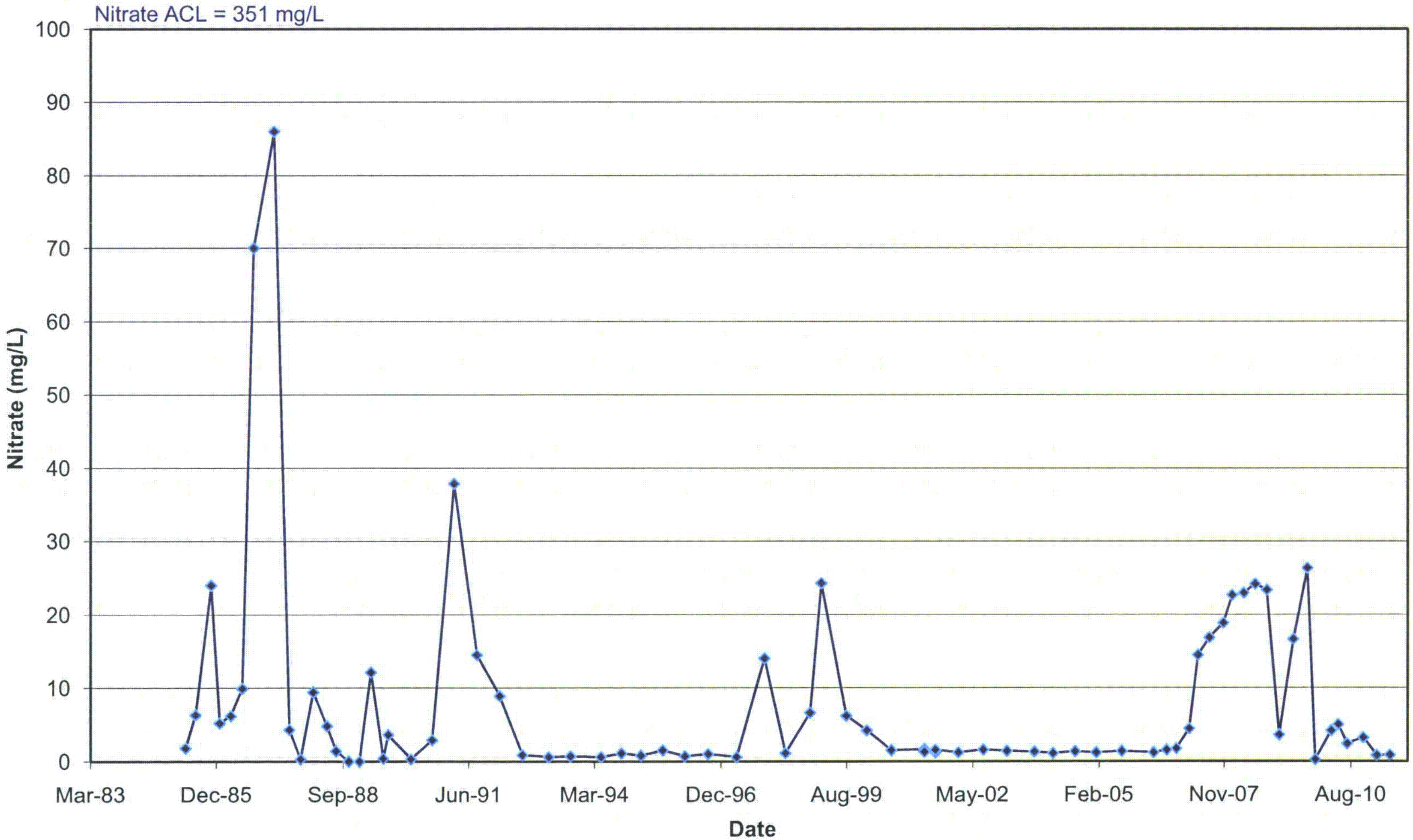
Anions and TDS in Monitoring Well 31-61
30000
25000
20000
15000
10000
5000
0
Concentration (mg/L)
TDS ACL = 26,100 mg/L
Sulfate ACL = 12,000 mg/L
Chloride ACL = 7,110 mg/L
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Chloride
Sufate
TDS

INTERA

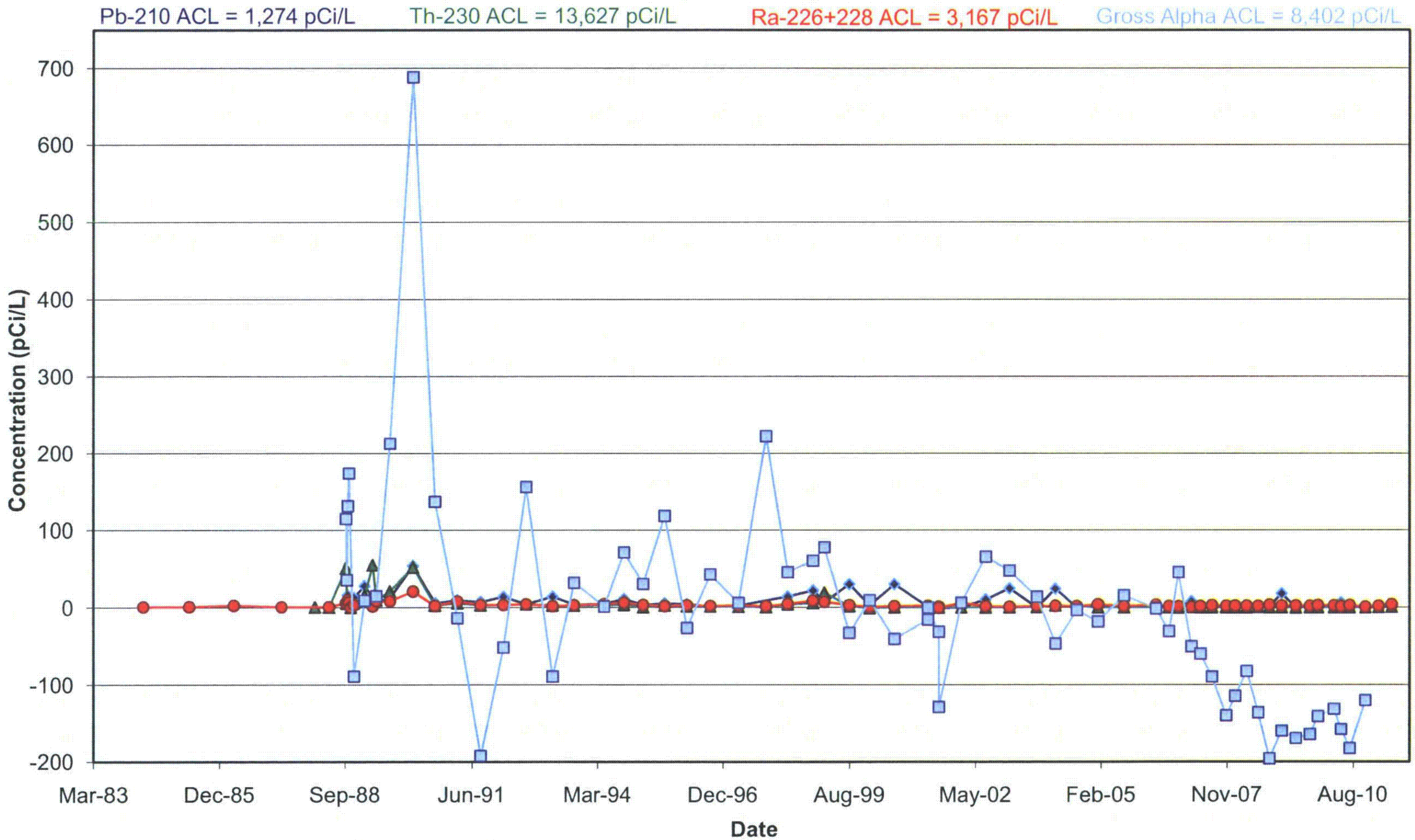


Metals in Monitoring Well 31-61
Nickel ACL = 98 mg/L
Uranium ACL = 23 mg/L
Molybdenum ACL = 176 mg/L
Selenium ACL = 49 mg/L
Concentration (mg/L)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Nickel
Uranium
Molybdenum
Selenium

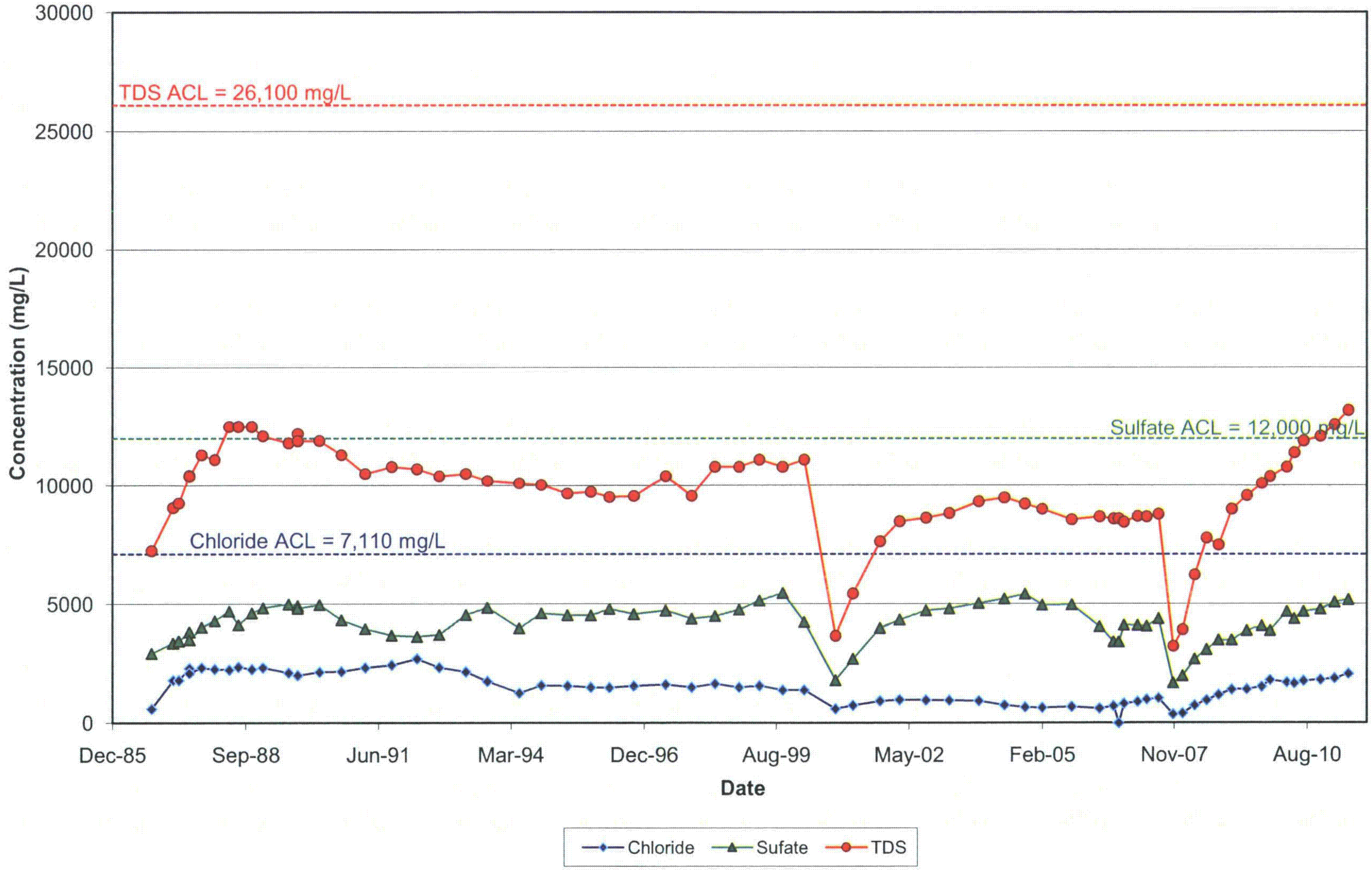
Nitrate in Monitoring Well 31-61



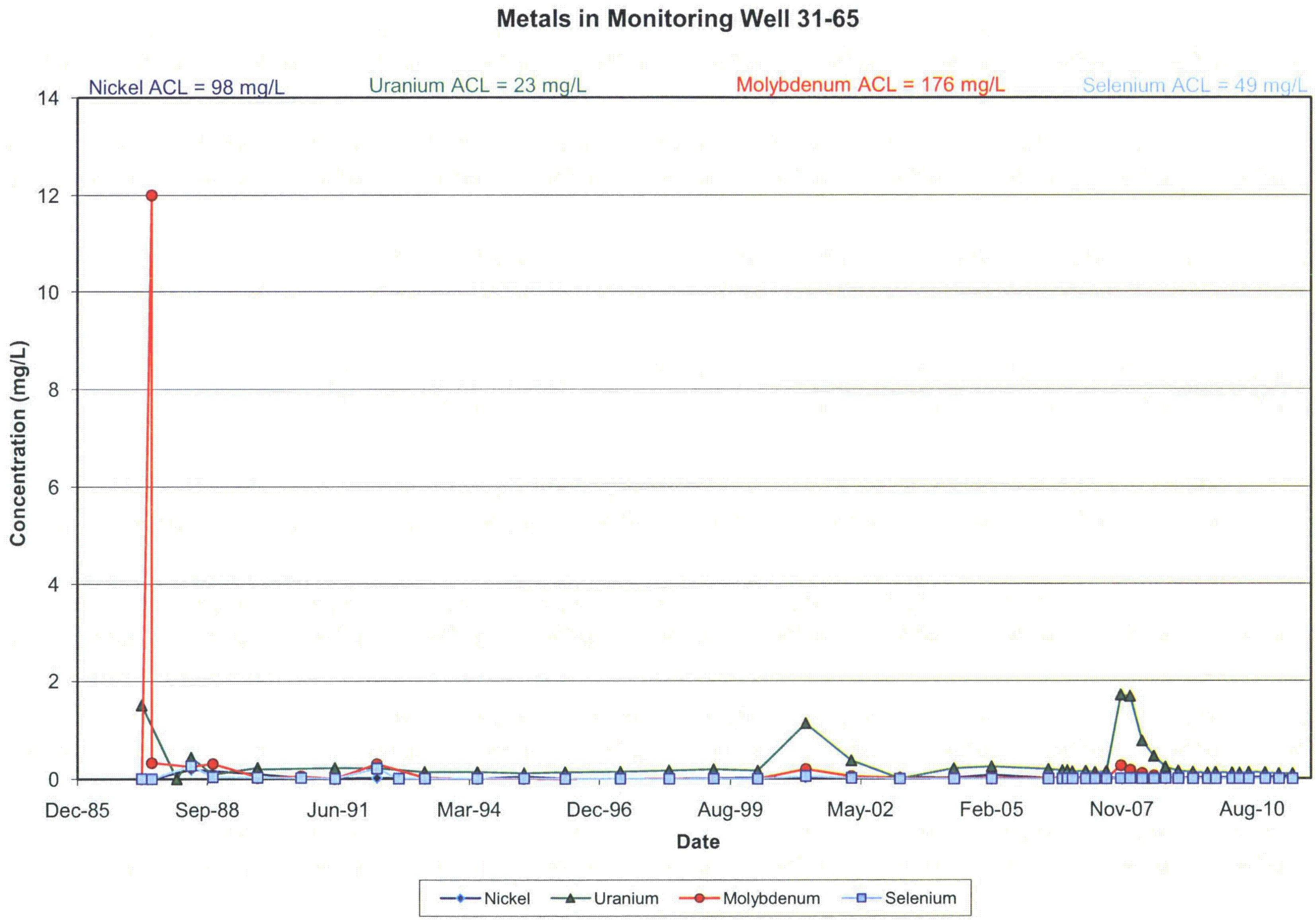
Radionuclides in Monitoring Well 31-61



Anions and TDS in Monitoring Well 31-65

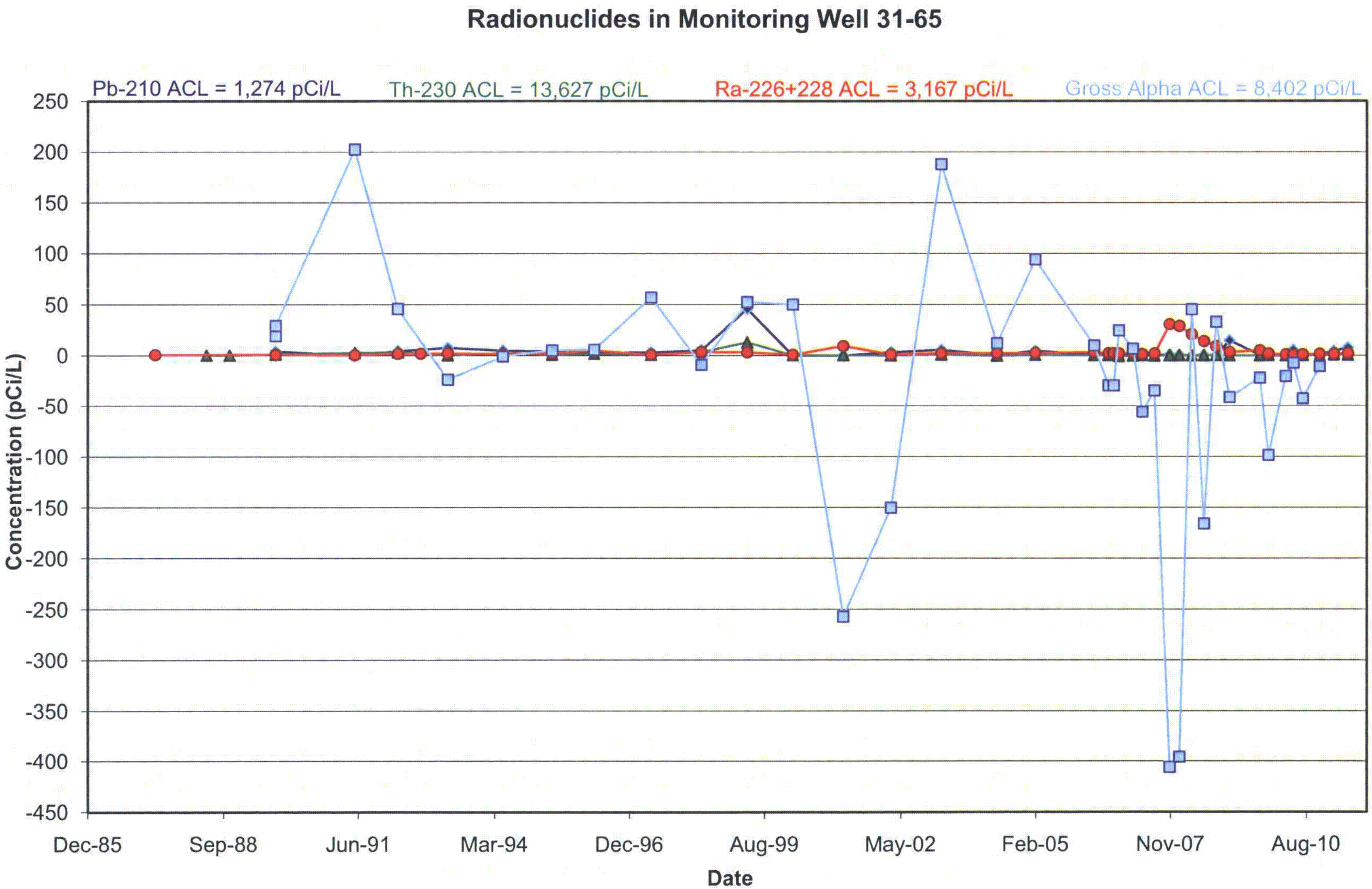


INTERA

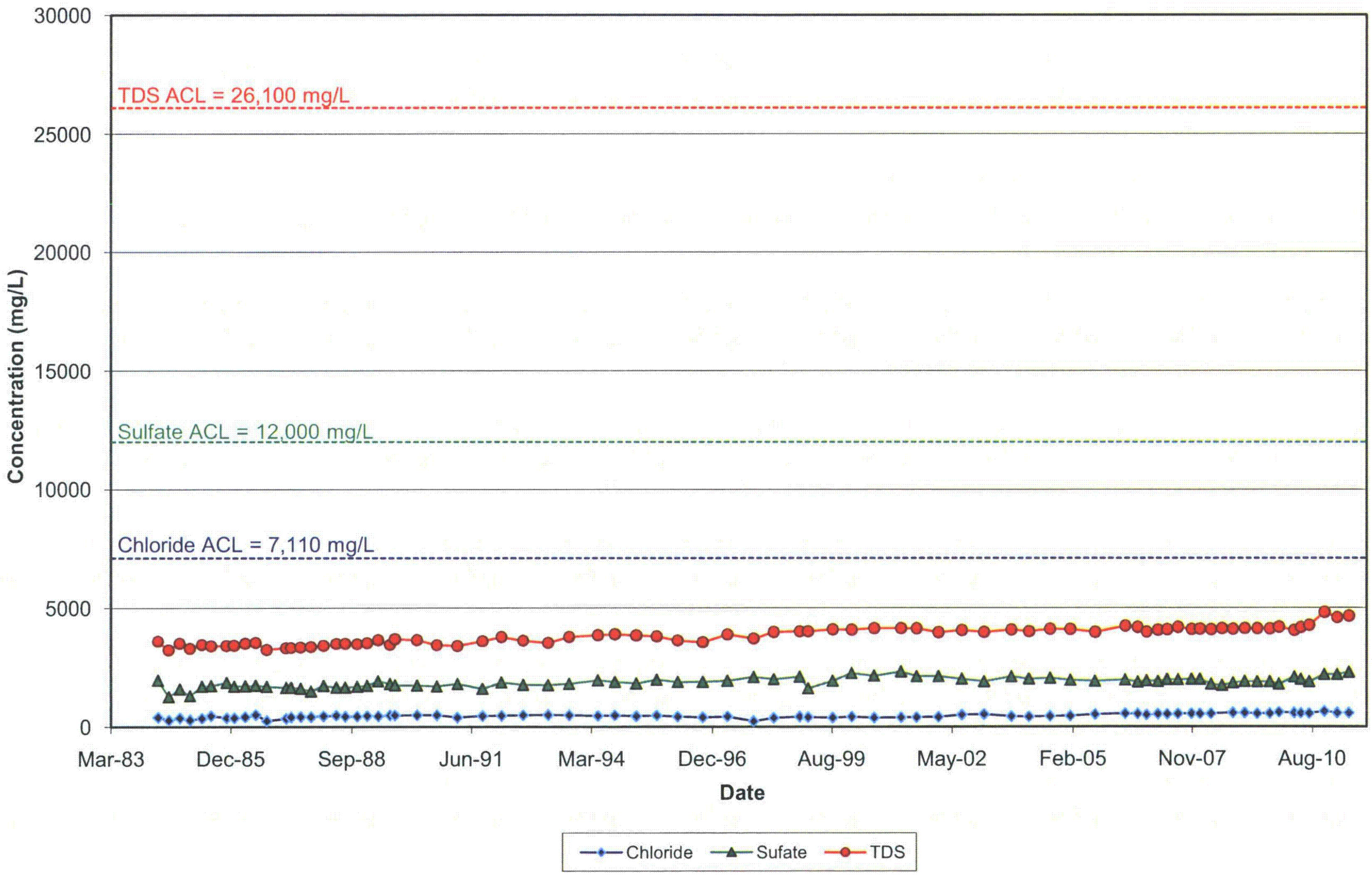


Metals in Monitoring Well 31-65
Nickel ACL = 98 mg/L
Uranium ACL = 23 mg/L
Molybdenum ACL = 176 mg/L
Selenium ACL = 49 mg/L
Concentration (mg/L)
0
2
4
6
8
10
12
14
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Nickel
Uranium
Molybdenum
Selenium

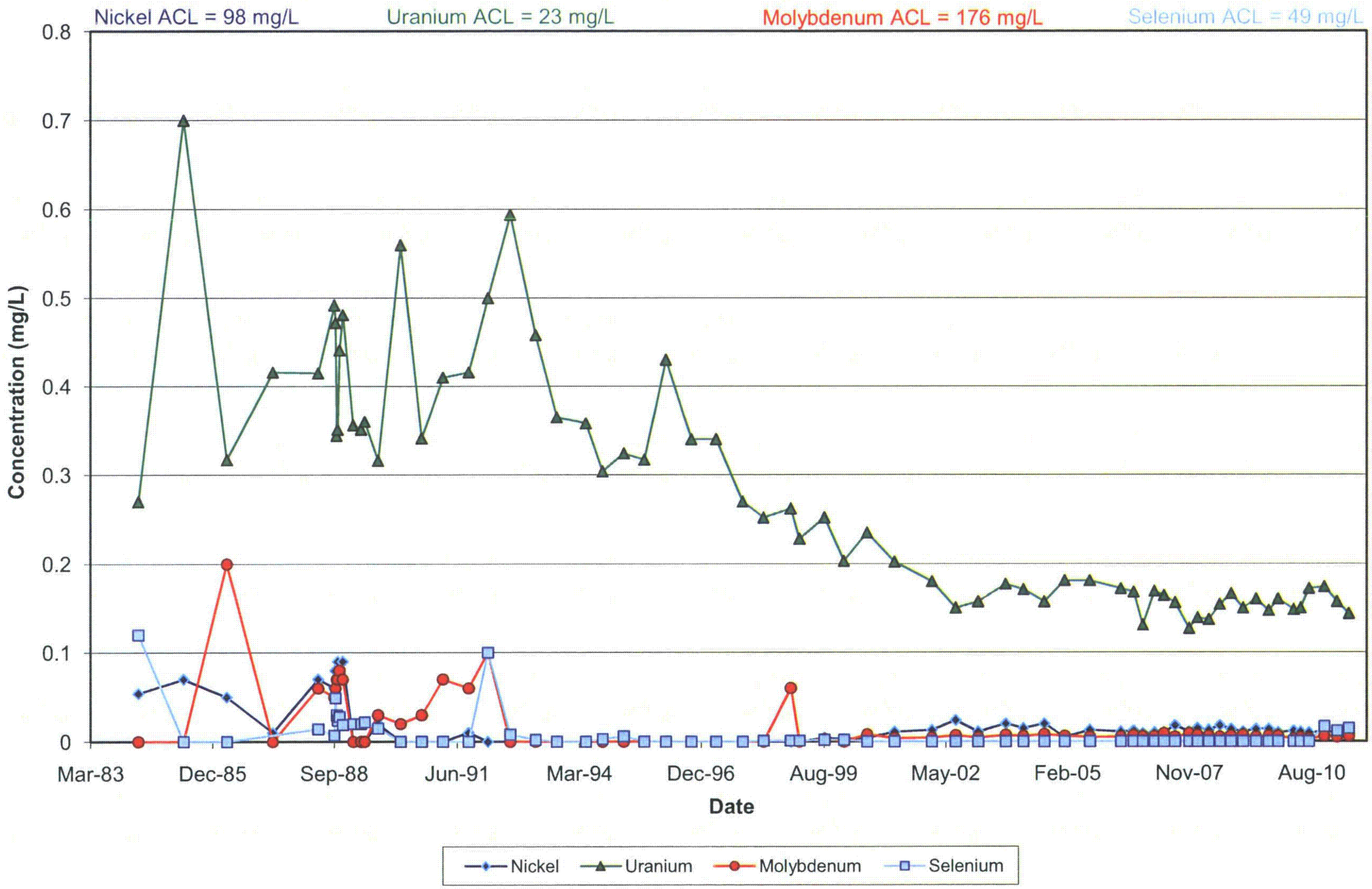

Nitrate in Monitoring Well 31-65
Nitrate ACL = 351 mg/L
Nitrate (mg/L)
0
2
4
6
8
10
12
14
16
18
20
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date


Radionuclides in Monitoring Well 31-65
Pb-210 ACL = 1,274 pCi/L
Th-230 ACL = 13,627 pCi/L
Ra-226+228 ACL = 3,167 pCi/L
Gross Alpha ACL = 8,402 pCi/L
250
200
150
100
50
0
-50
-100
-150
-200
-250
-300
-350
-400
-450
Concentration (pCi/L)
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date

Anions and TDS in Monitoring Well 32-59

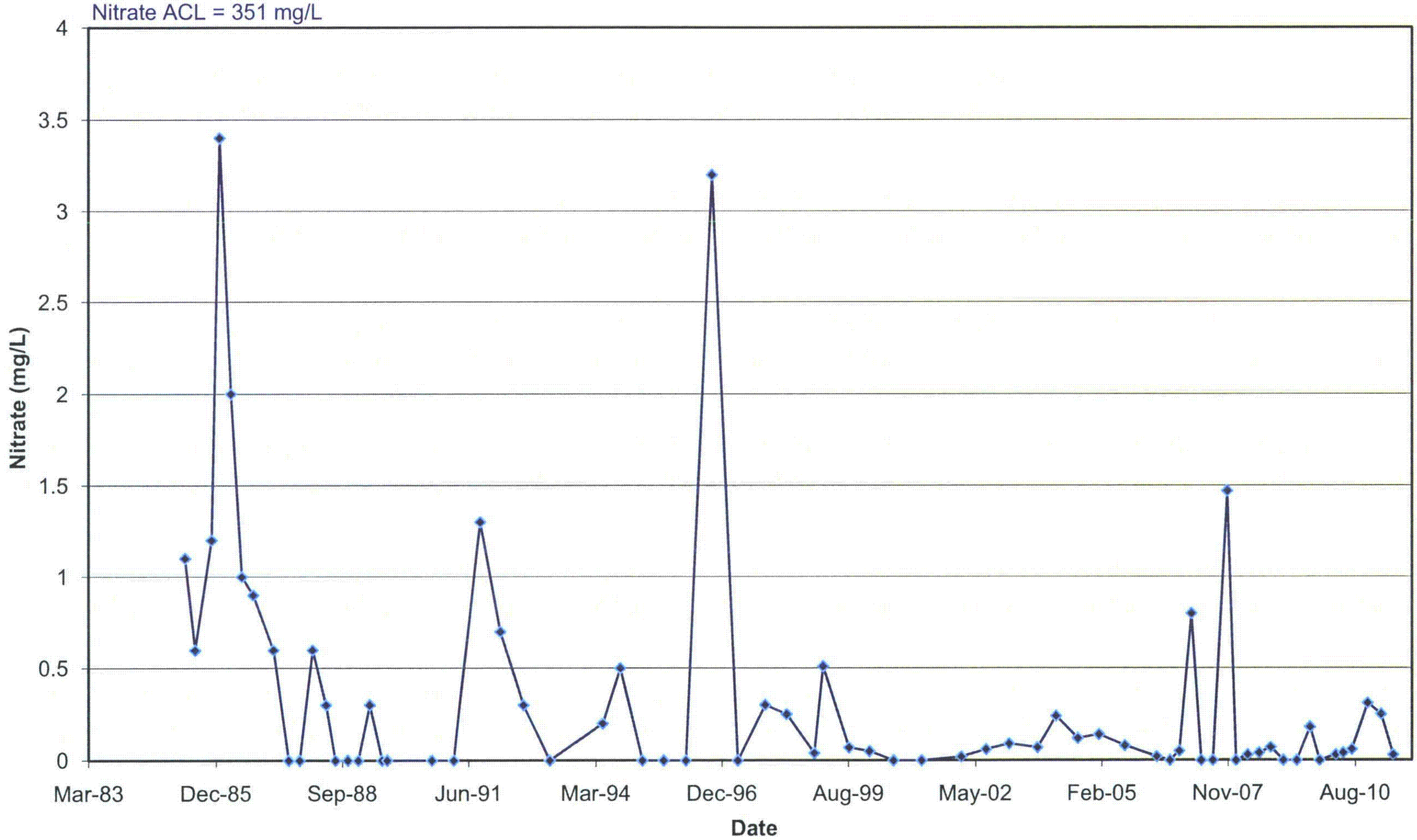


Metals in Monitoring Well 32-59



INTERA

Nitrate in Monitoring Well 32-59



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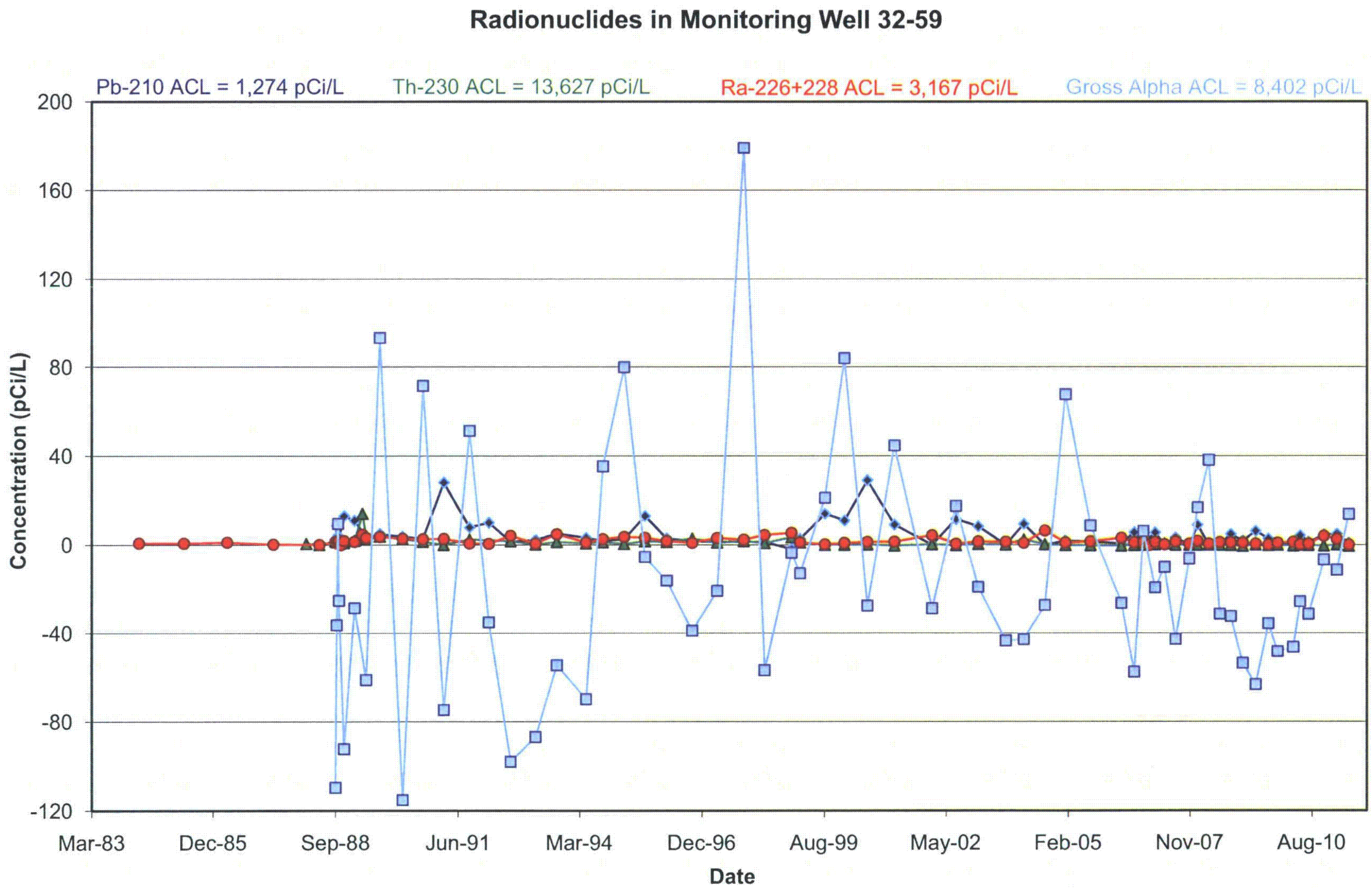
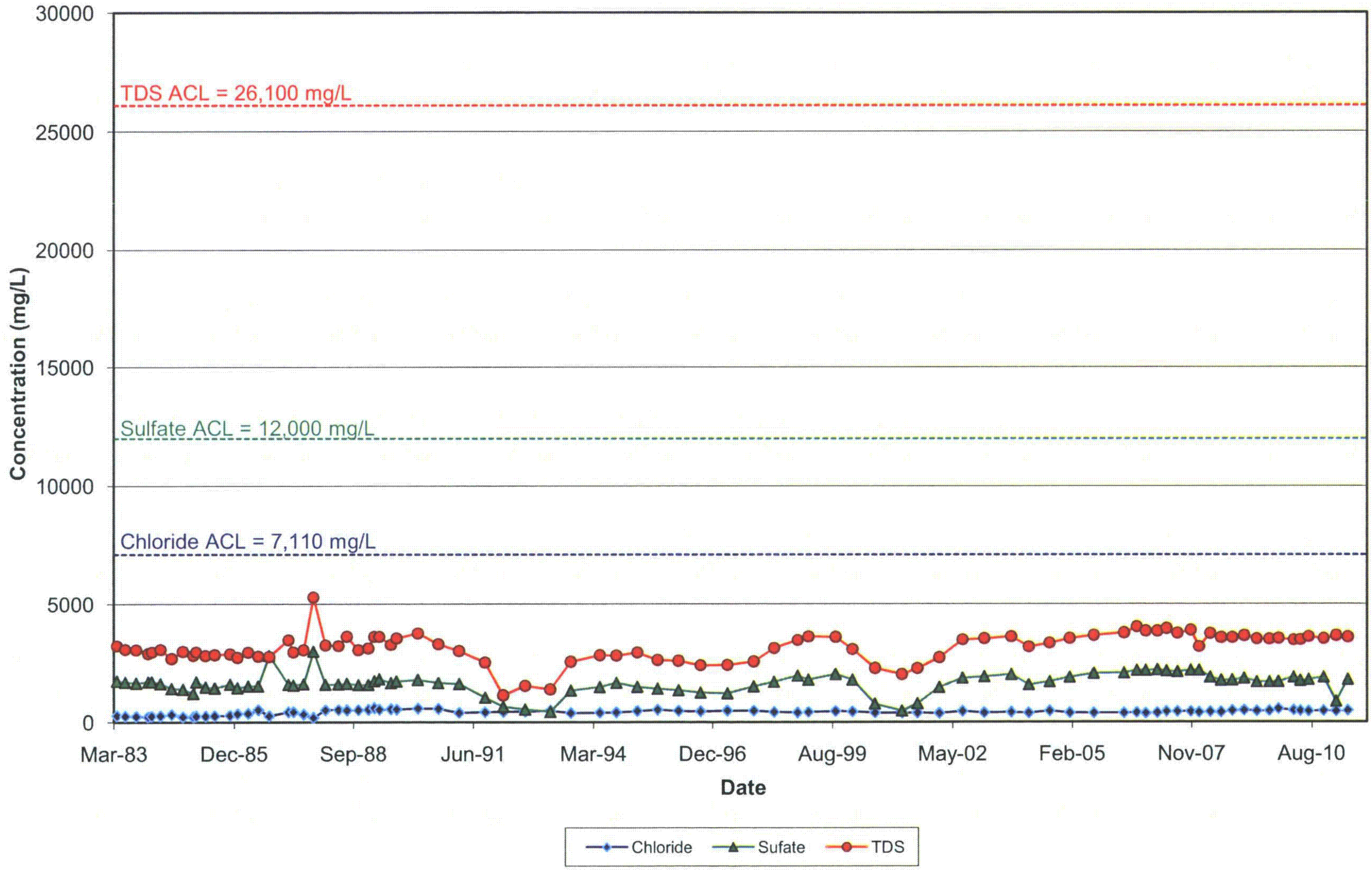
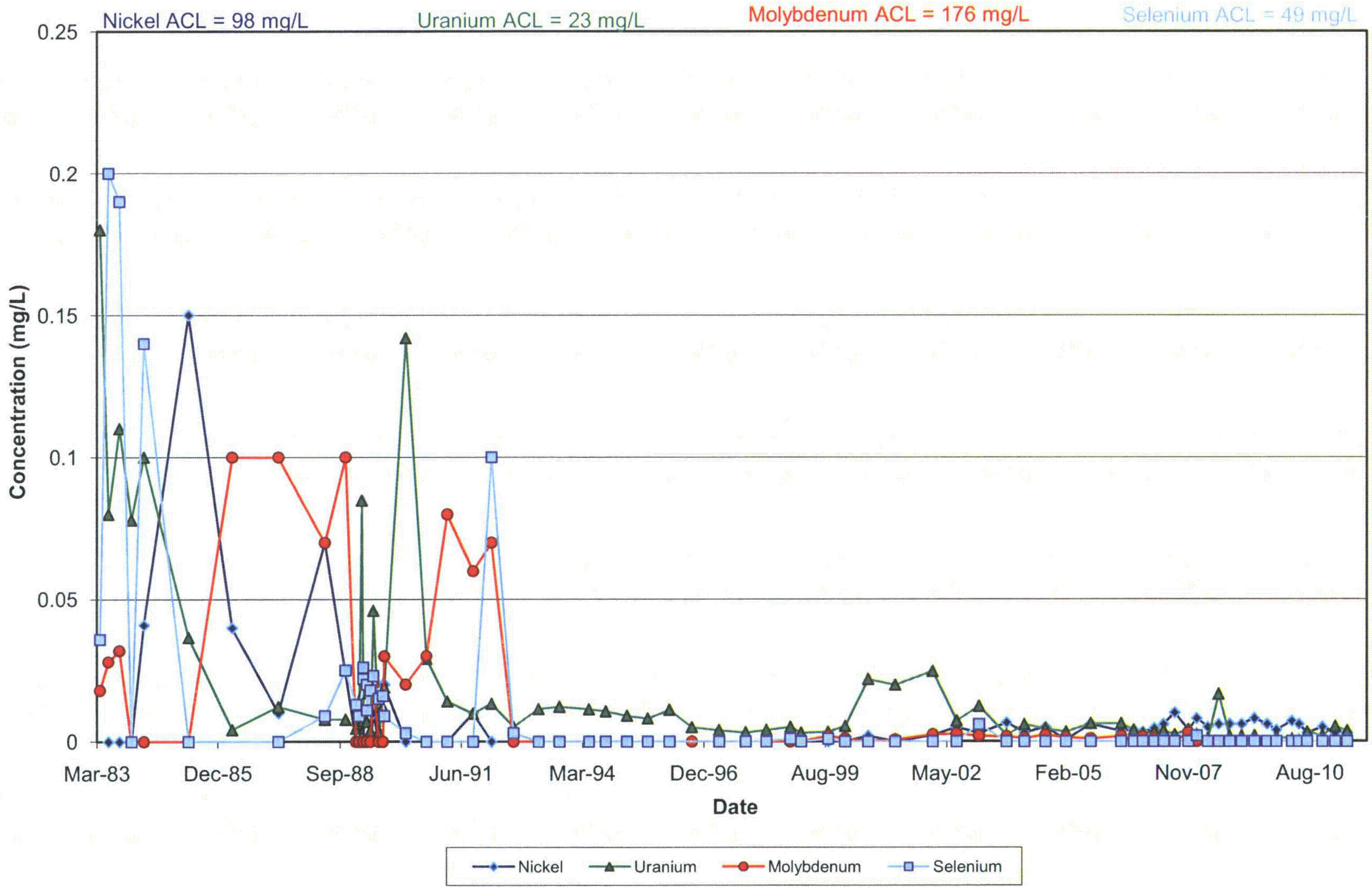


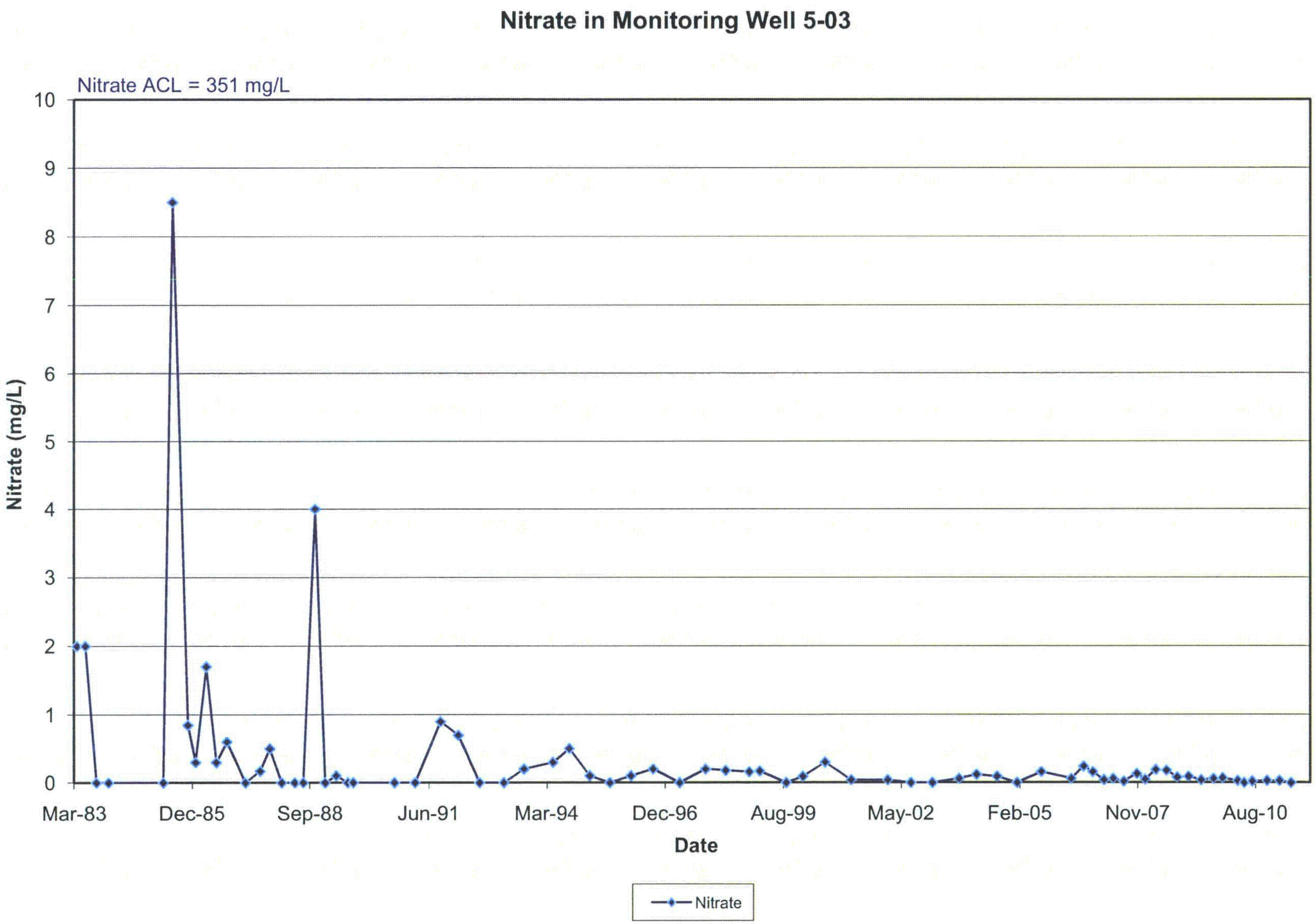
Radionuclides in Monitoring Well 32-59
Pb-210 ACL = 1,274 pCi/L
Th-230 ACL = 13,627 pCi/L
Ra-226+228 ACL = 3,167 pCi/L
Gross Alpha ACL = 8,402 pCi/L
Concentration (pCi/L)
200
160
120
80
40
0
-40
-80
-120
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date

Anions and TDS in Monitoring Well 5-03



Metals in Monitoring Well 5-03





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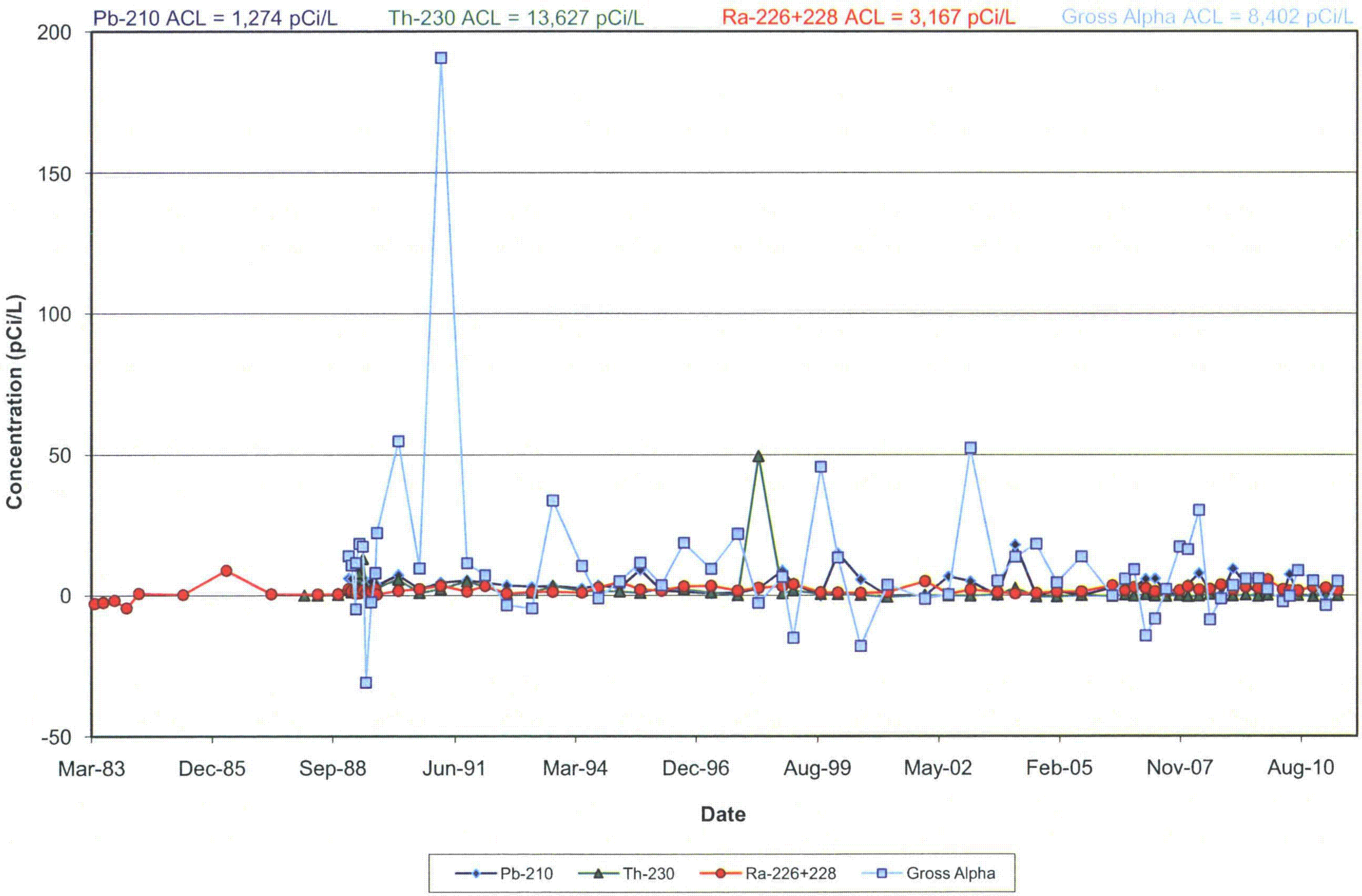
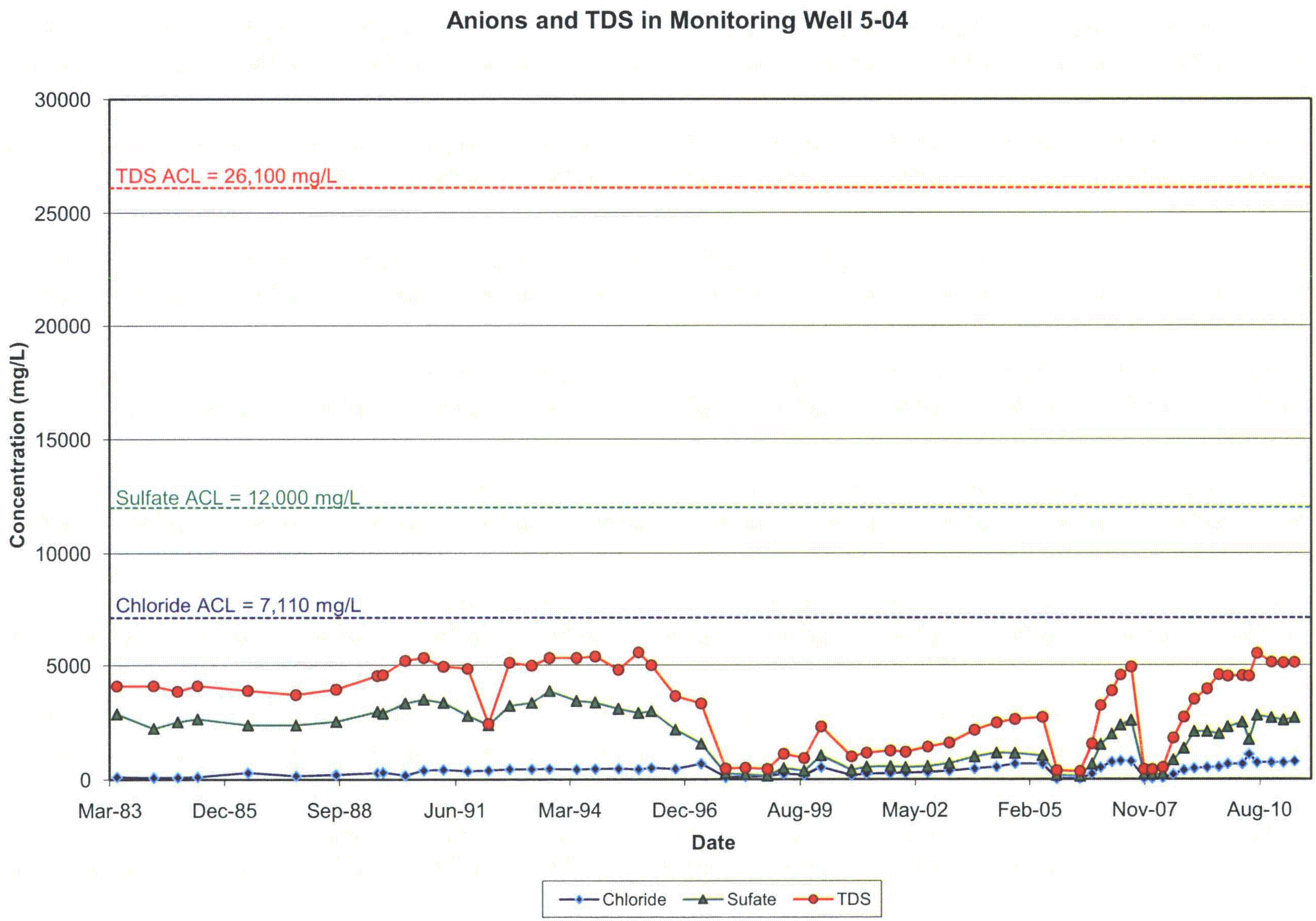
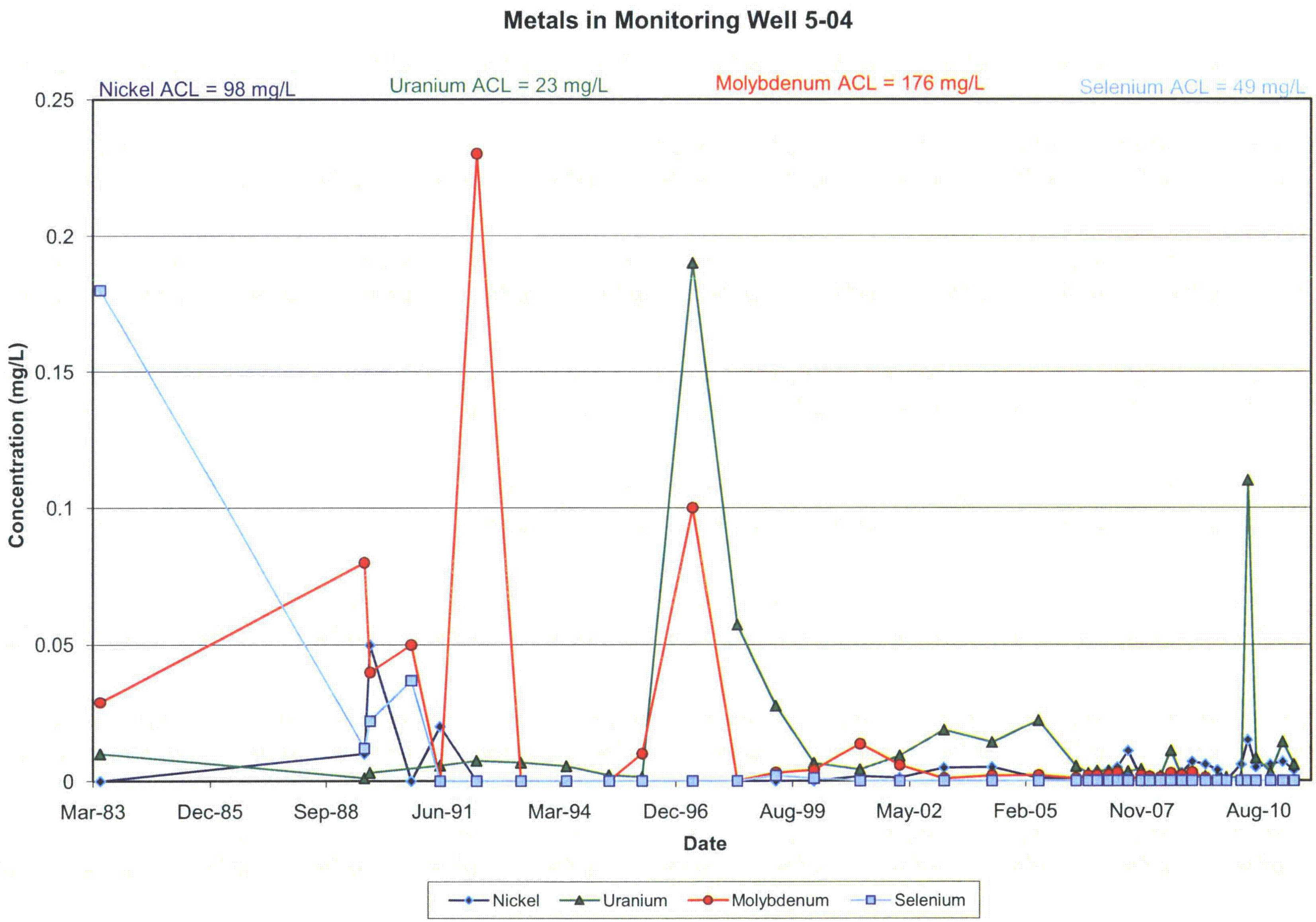
Radionuclides in Monitoring Well 5-03



INTERA


Anions and TDS in Monitoring Well 5-04
30000
25000
20000
15000
10000
5000
0
Concentration (mg/L)
TDS ACL = 26,100 mg/L
Sulfate ACL = 12,000 mg/L
Chloride ACL = 7,110 mg/L
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Chloride
Sufate
TDS

INTERA



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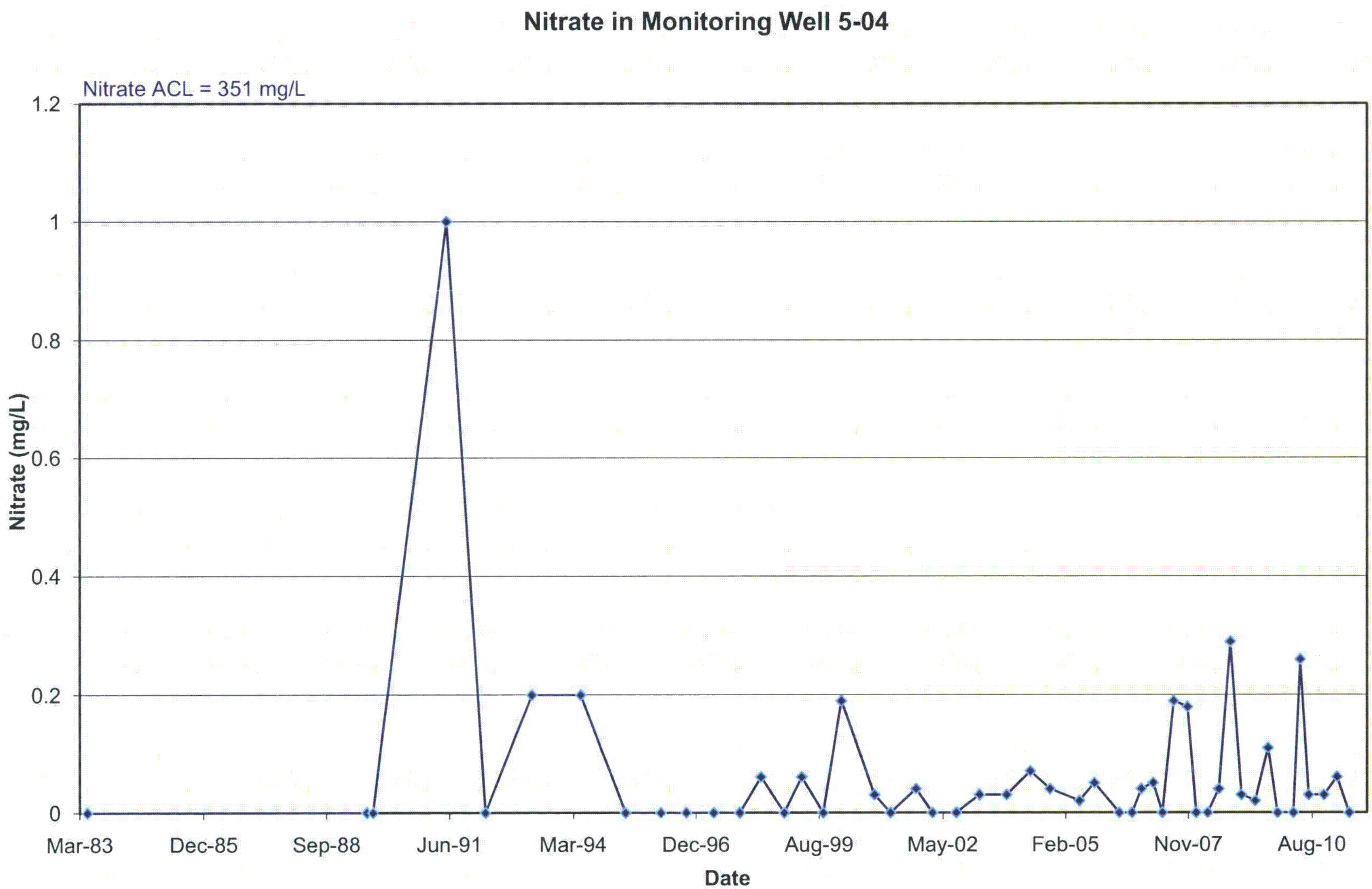

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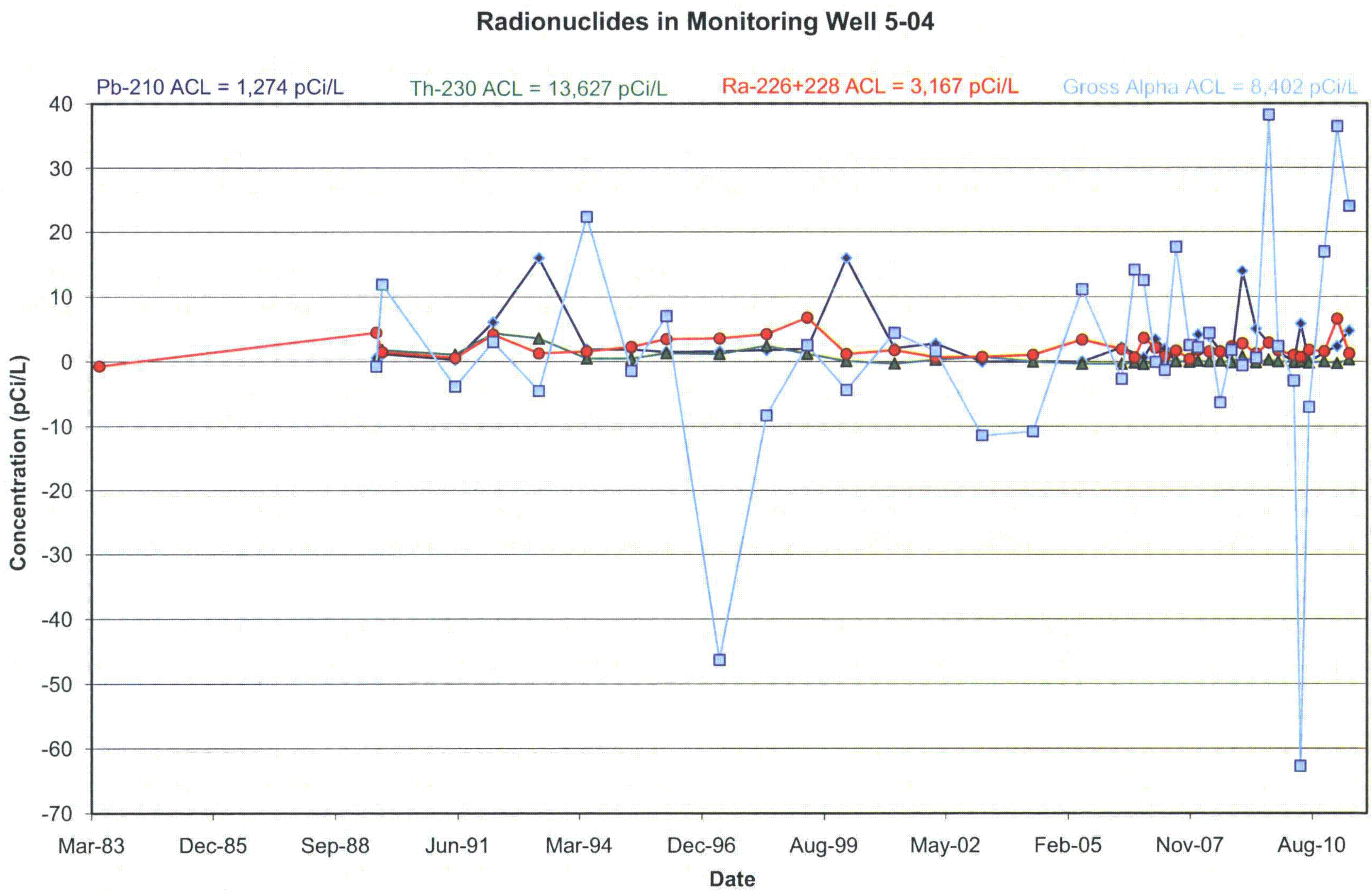
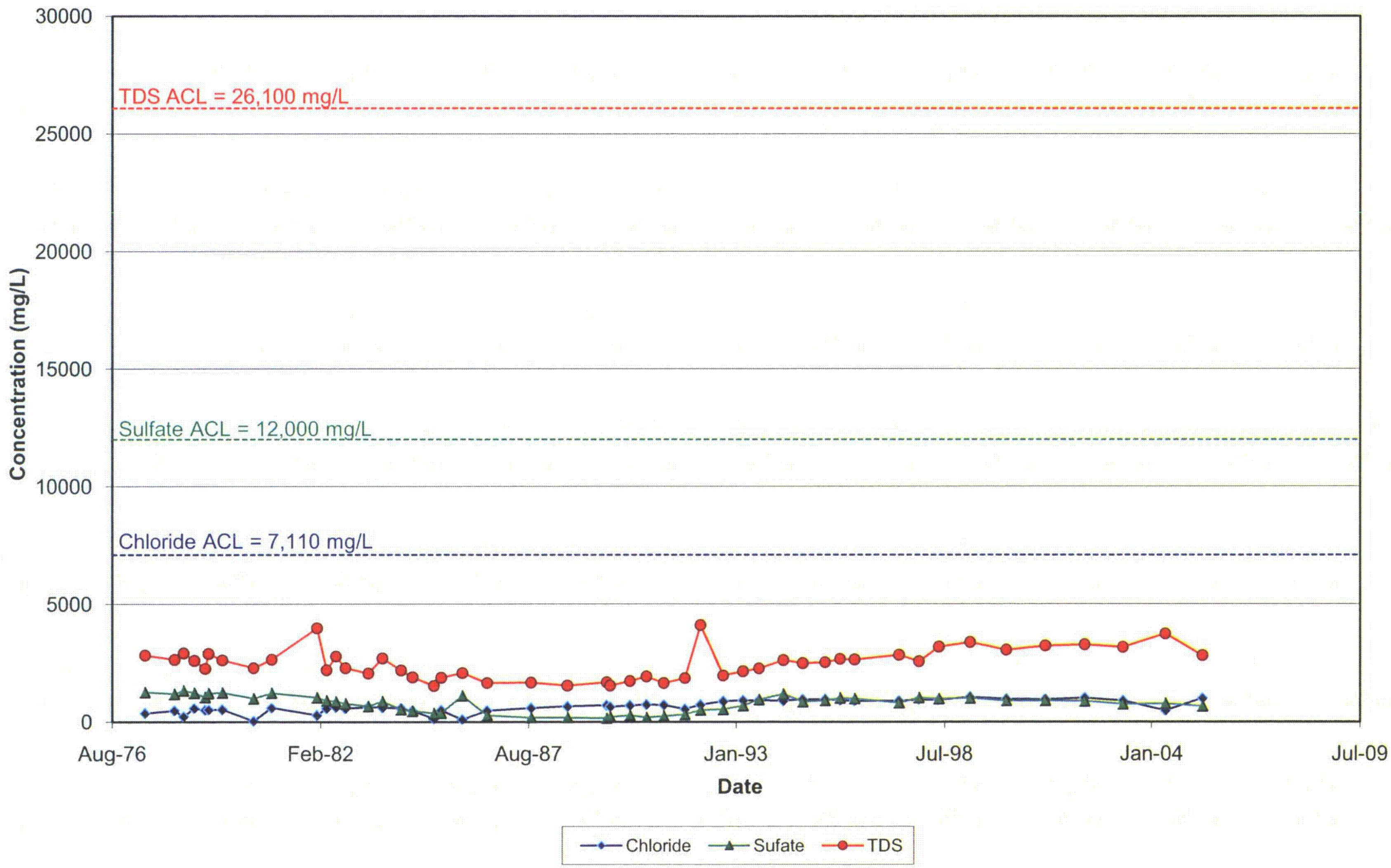
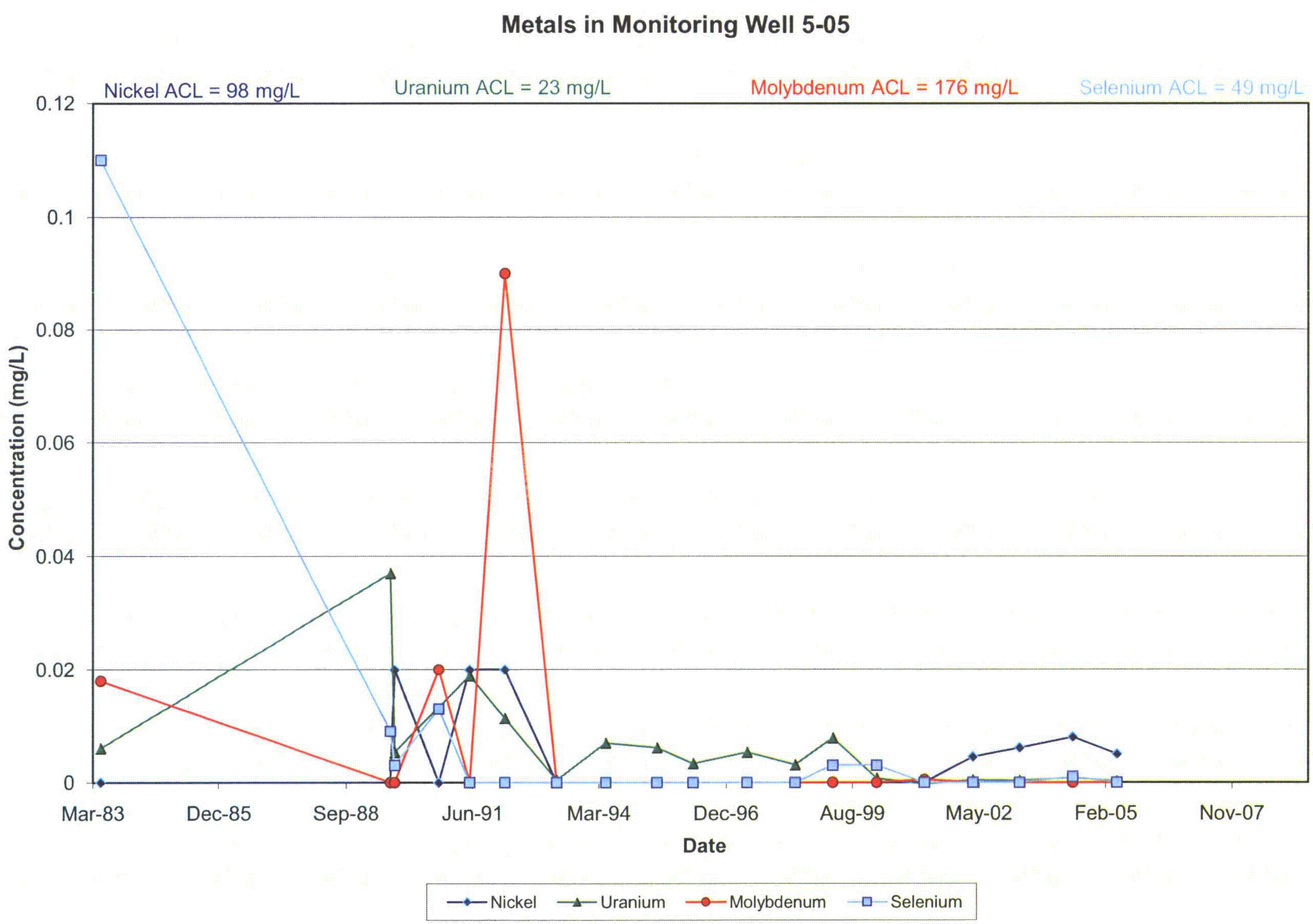

Radionuclides in Monitoring Well 5-04
Pb-210 ACL = 1,274 pCi/L
Th-230 ACL = 13,627 pCi/L
Ra-226+228 ACL = 3,167 pCi/L
Gross Alpha ACL = 8,402 pCi/L
Concentration (pCi/L)
40
30
20
10
0
-10
-20
-30
-40
-50
-60
-70
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date

Anions and TDS in Monitoring Well 5-05



INTERA

Metals in Monitoring Well 5-05



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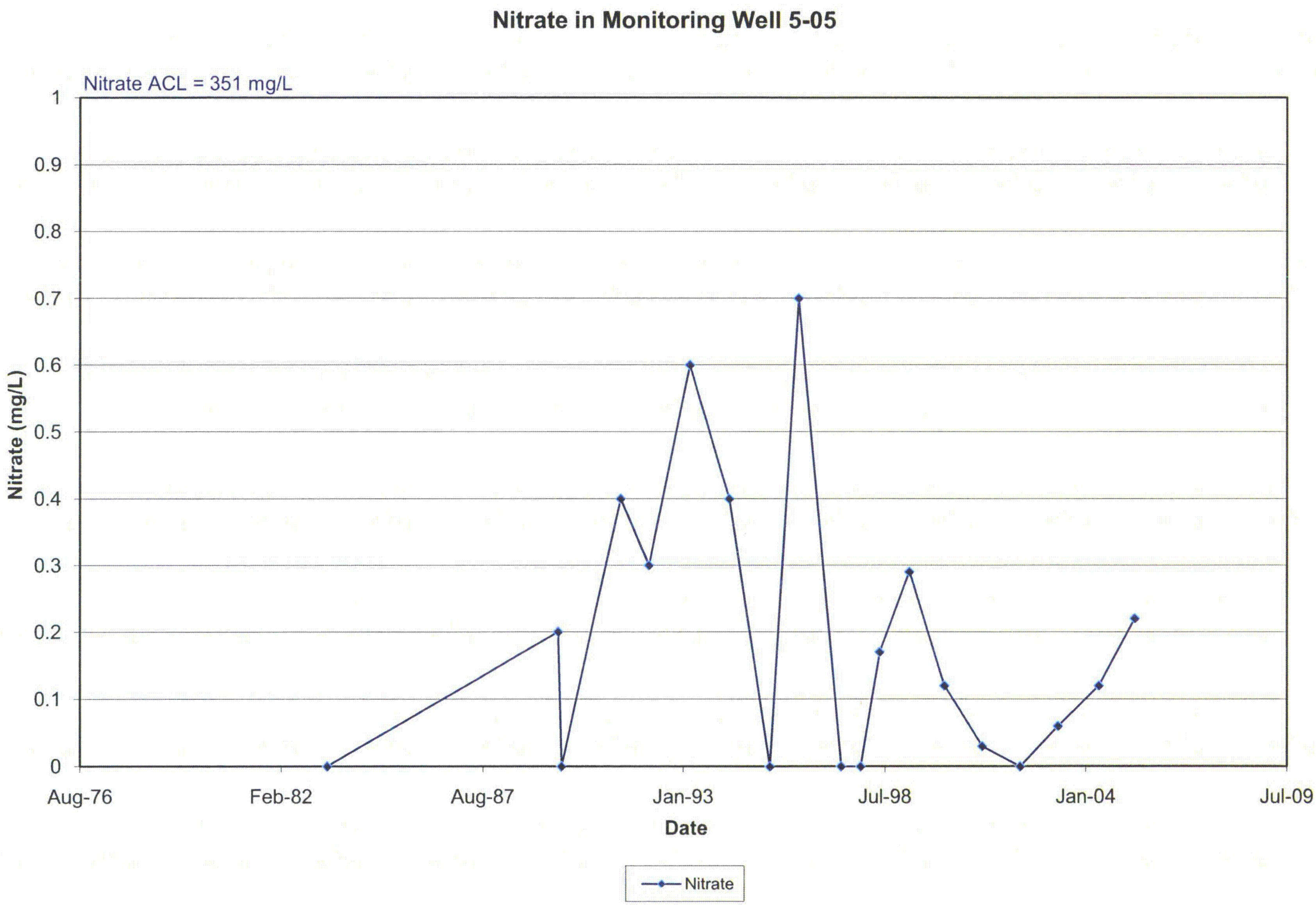
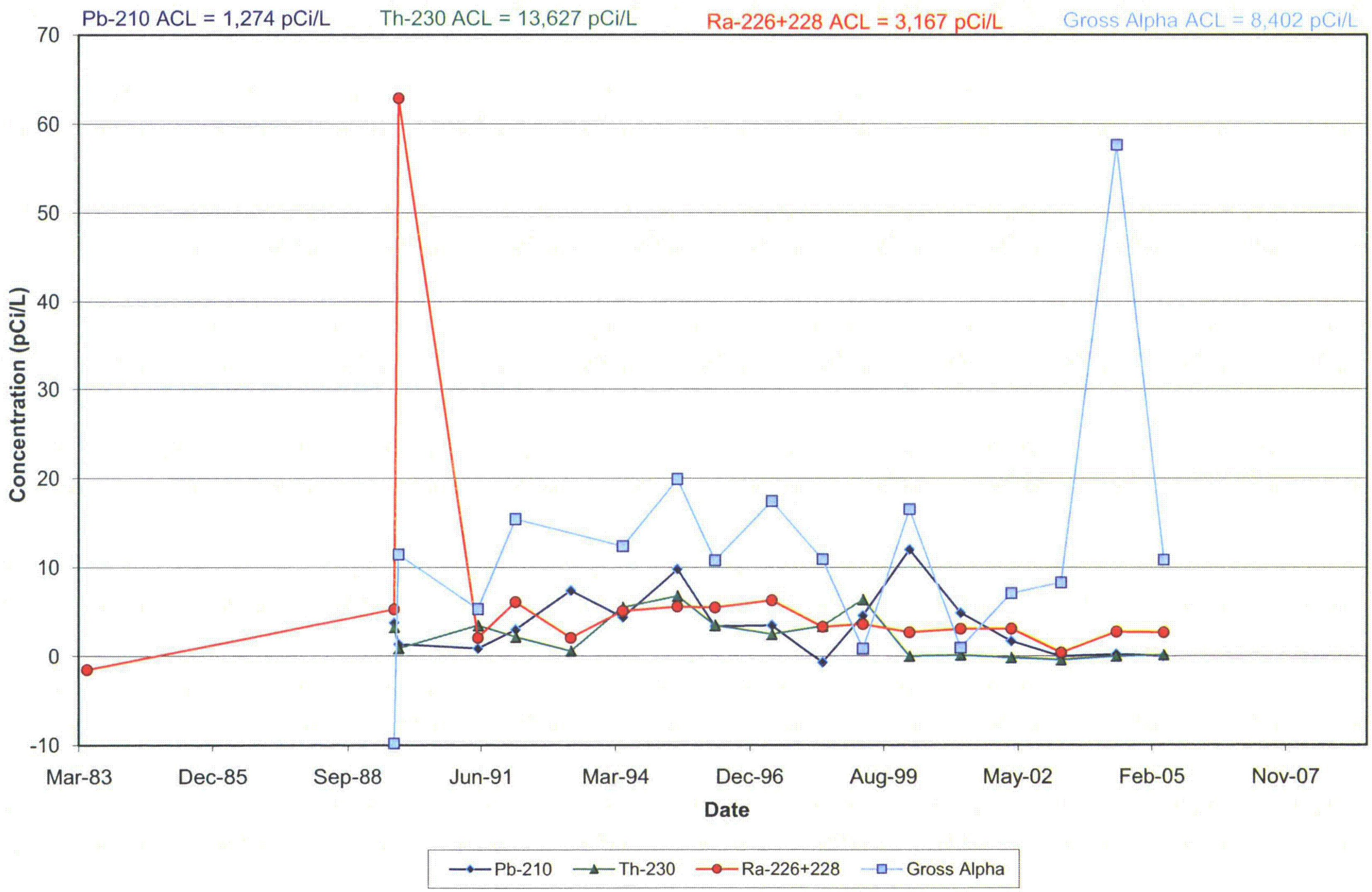
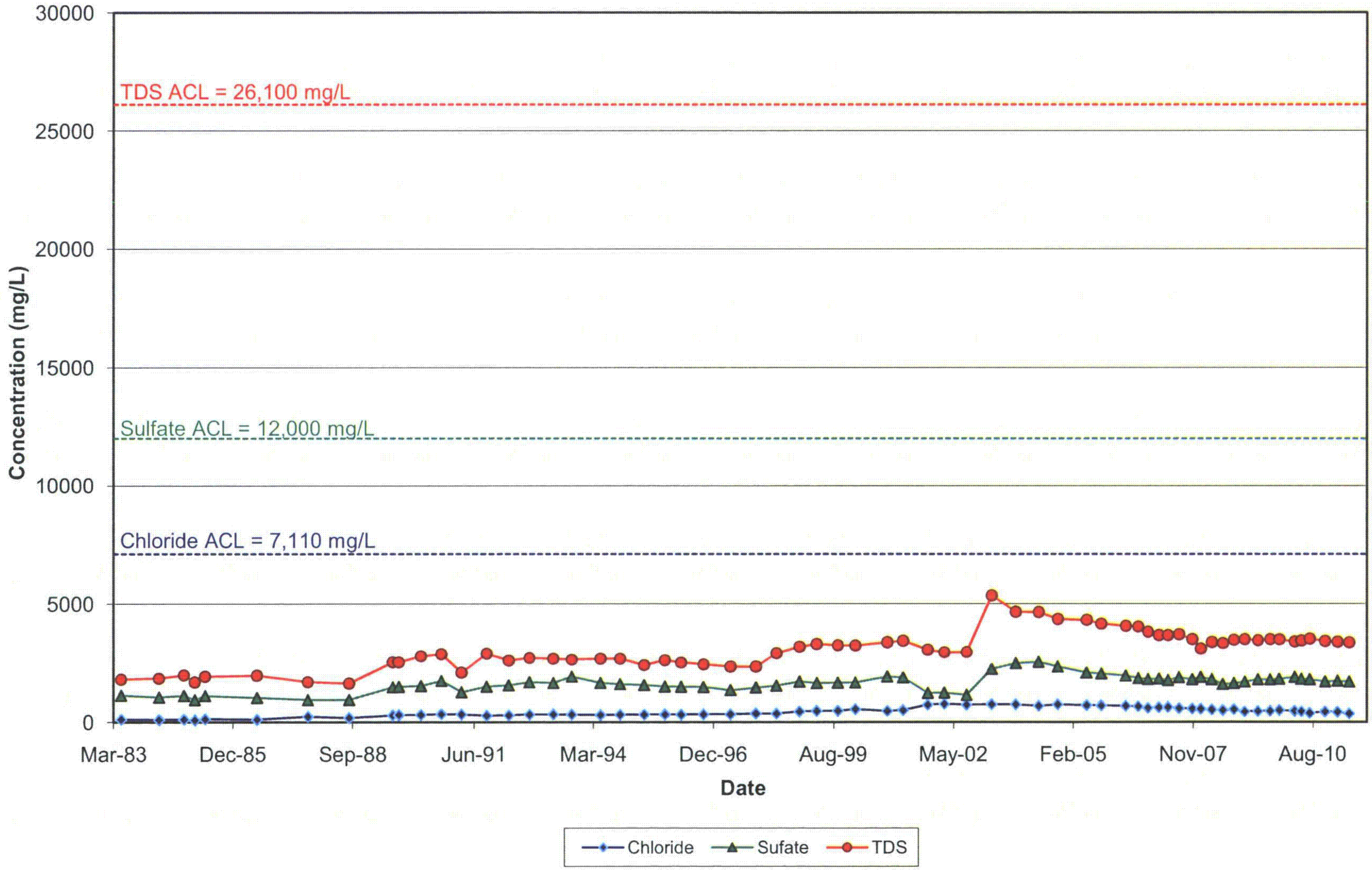


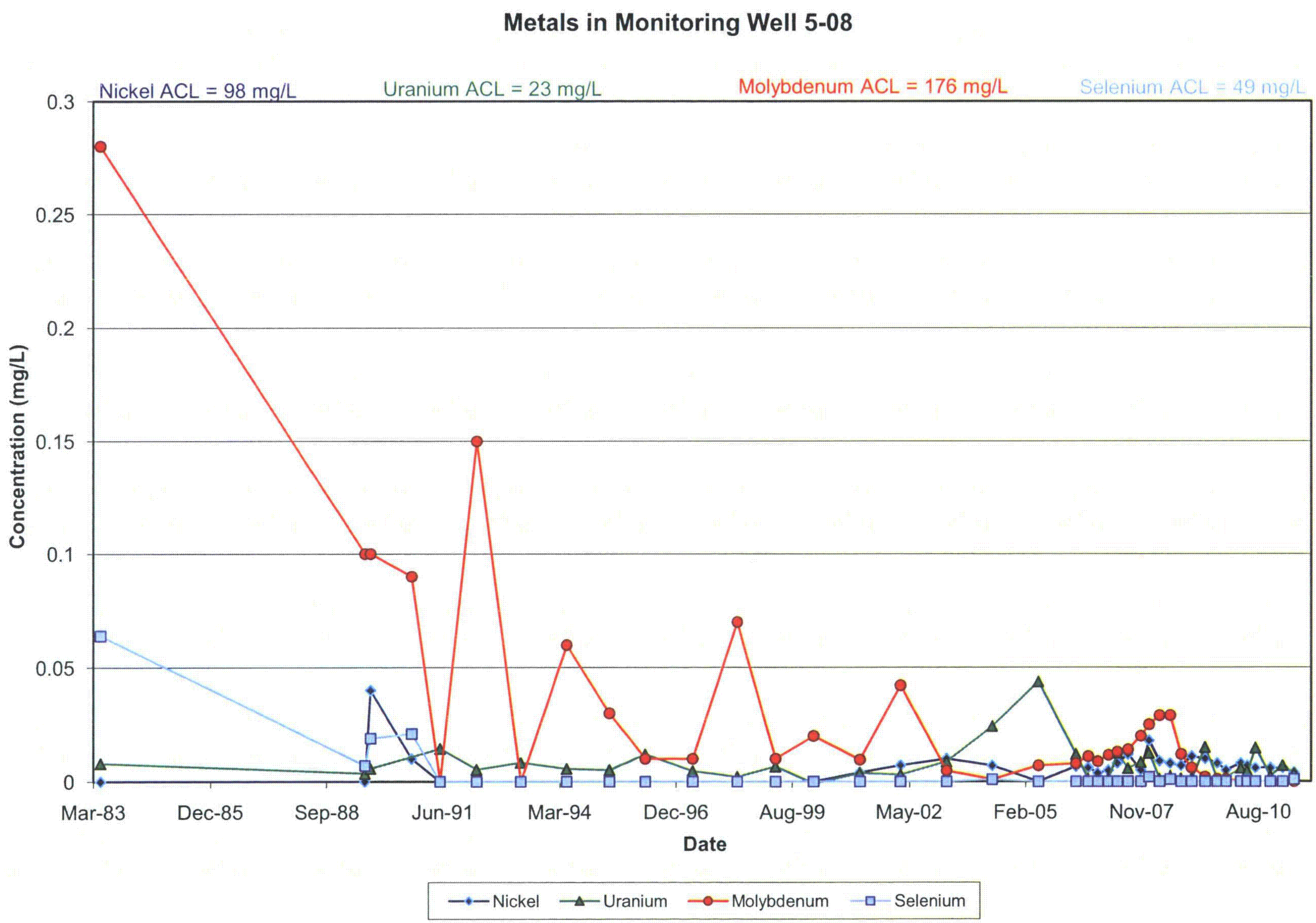
Nitrate in Monitoring Well 5-05
Nitrate ACL = 351 mg/L
Nitrate (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-76
Feb-82
Aug-87
Jan-93
Jul-98
Jan-04
Jul-09
Date
Nitrate

Radionuclides in Monitoring Well 5-05



Anions and TDS in Monitoring Well 5-08





INTERA

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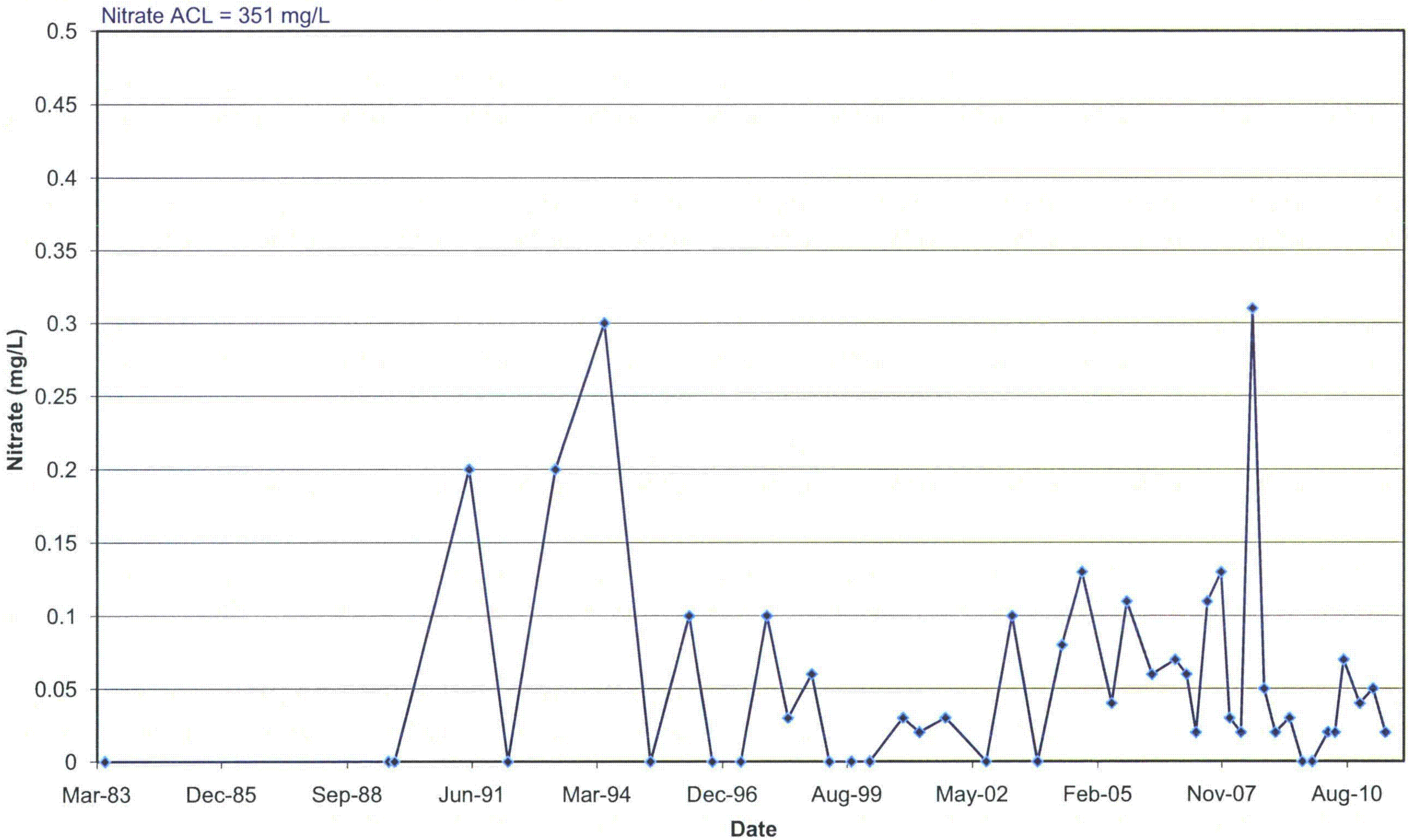
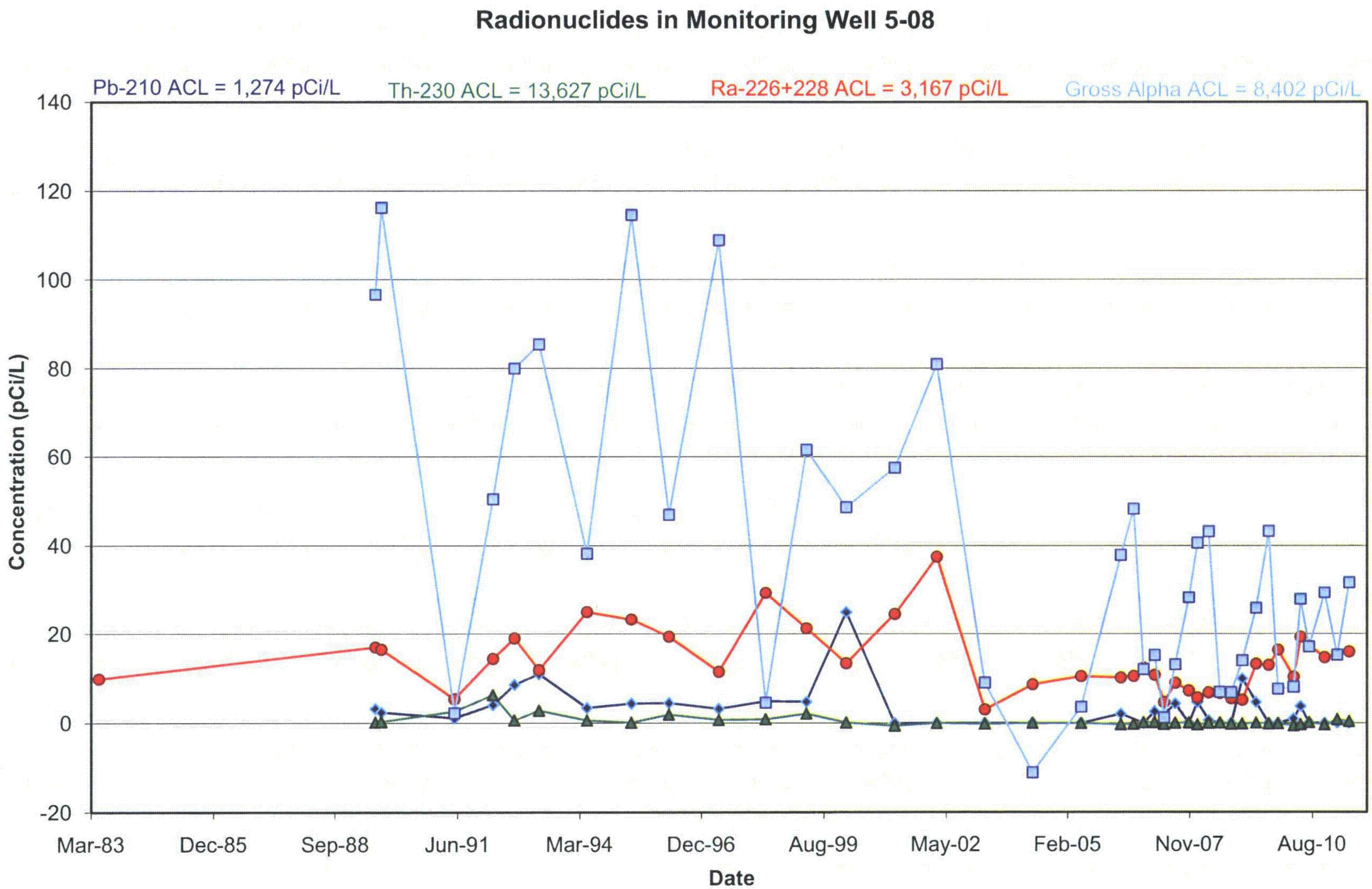
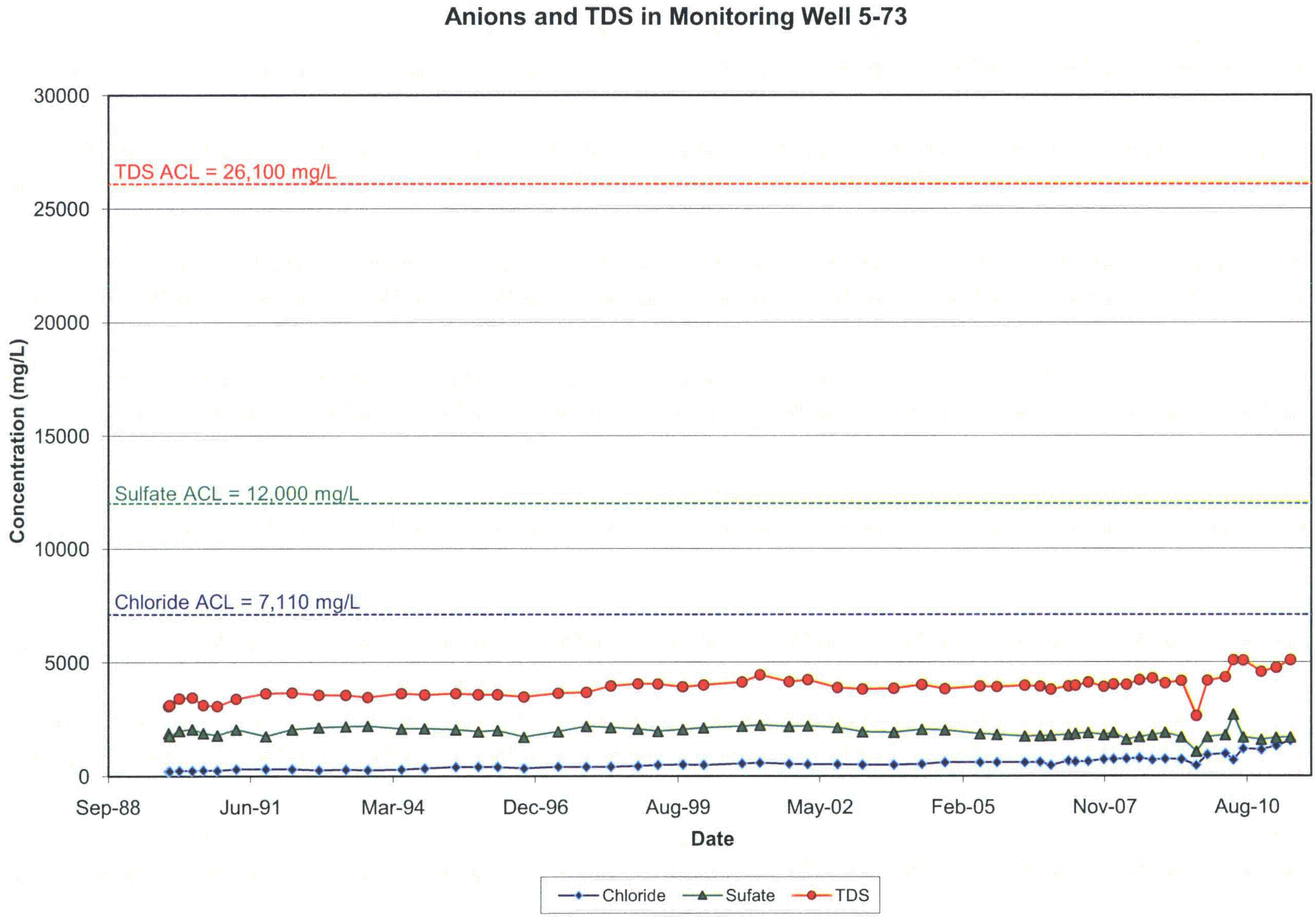
Nitrate in Monitoring Well 5-08

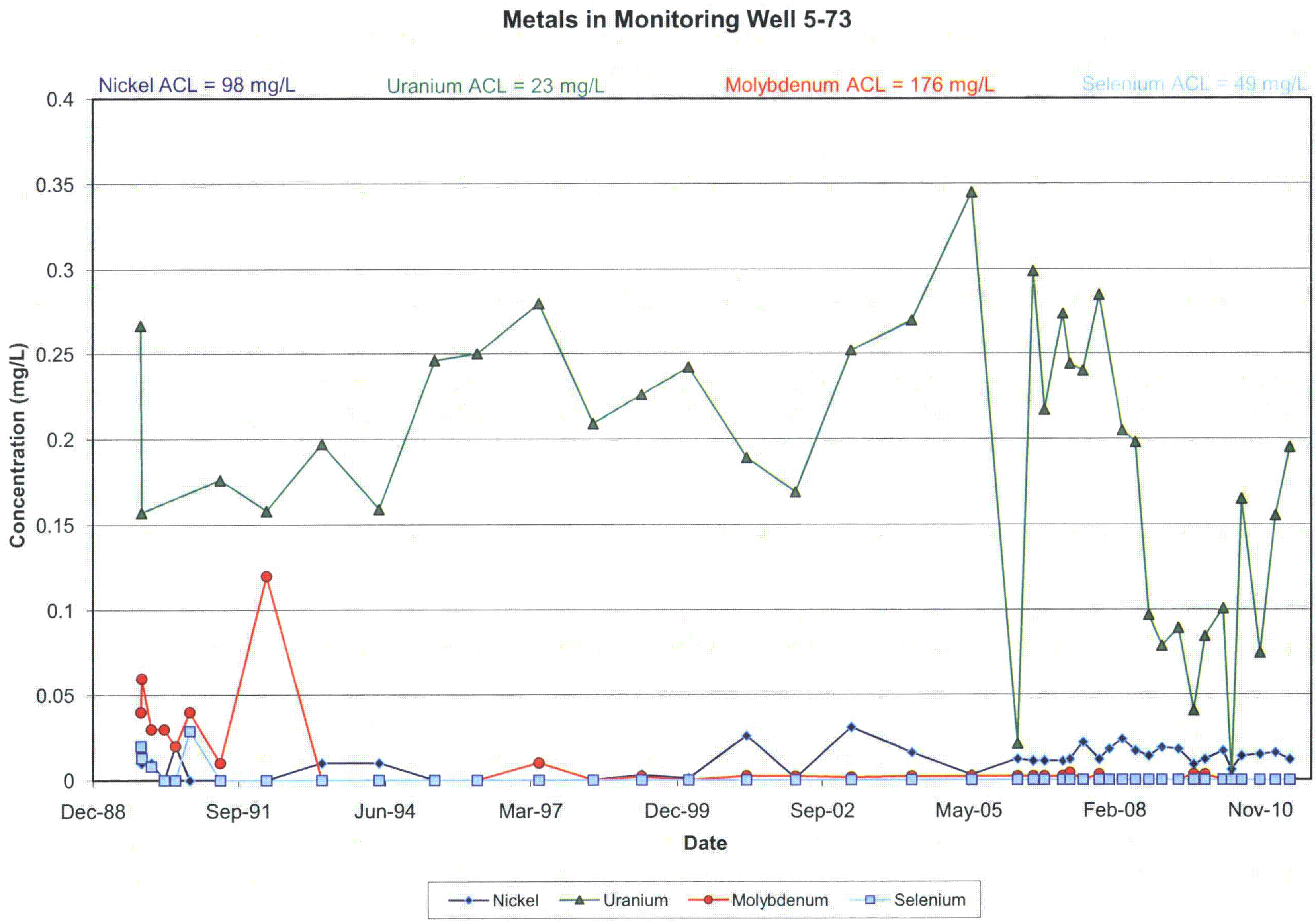



Radionuclides in Monitoring Well 5-08
Pb-210 ACL = 1,274 pCi/L
Th-230 ACL = 13,627 pCi/L
Ra-226+228 ACL = 3,167 pCi/L
Gross Alpha ACL = 8,402 pCi/L
140
120
100
80
60
40
20
0
-20
Concentration (pCi/L)
Mar-83
Dec-85
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date

INTERA



Anions and TDS in Monitoring Well 5-73
TDS ACL = 26,100 mg/L
Sulfate ACL = 12,000 mg/L
Chloride ACL = 7,110 mg/L
Concentration (mg/L)
30000
25000
20000
15000
10000
5000
0
Sep-88
Jun-91
Mar-94
Dec-96
Aug-99
May-02
Feb-05
Nov-07
Aug-10
Date
Chloride
Sufate
TDS



INTERA

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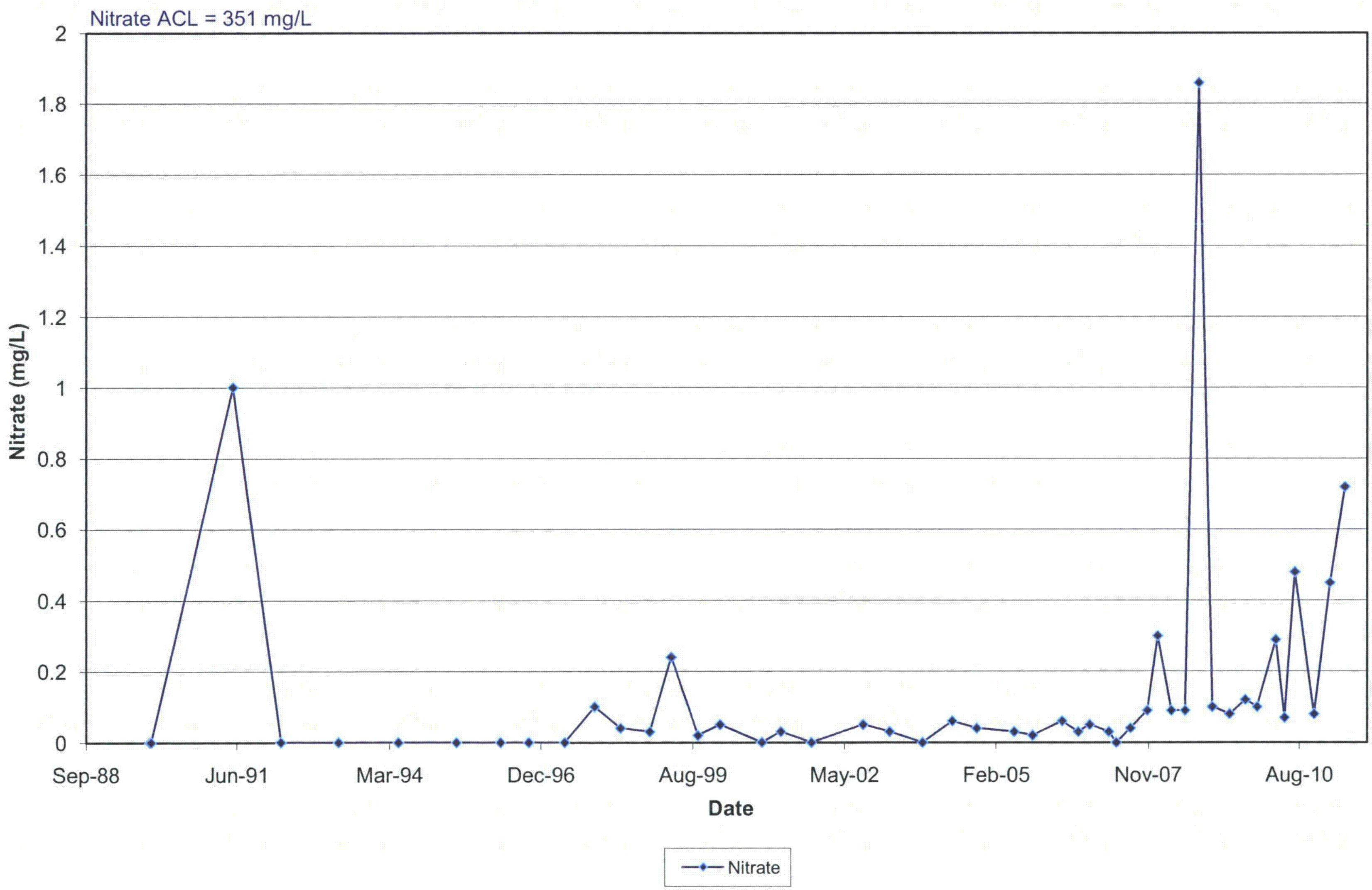
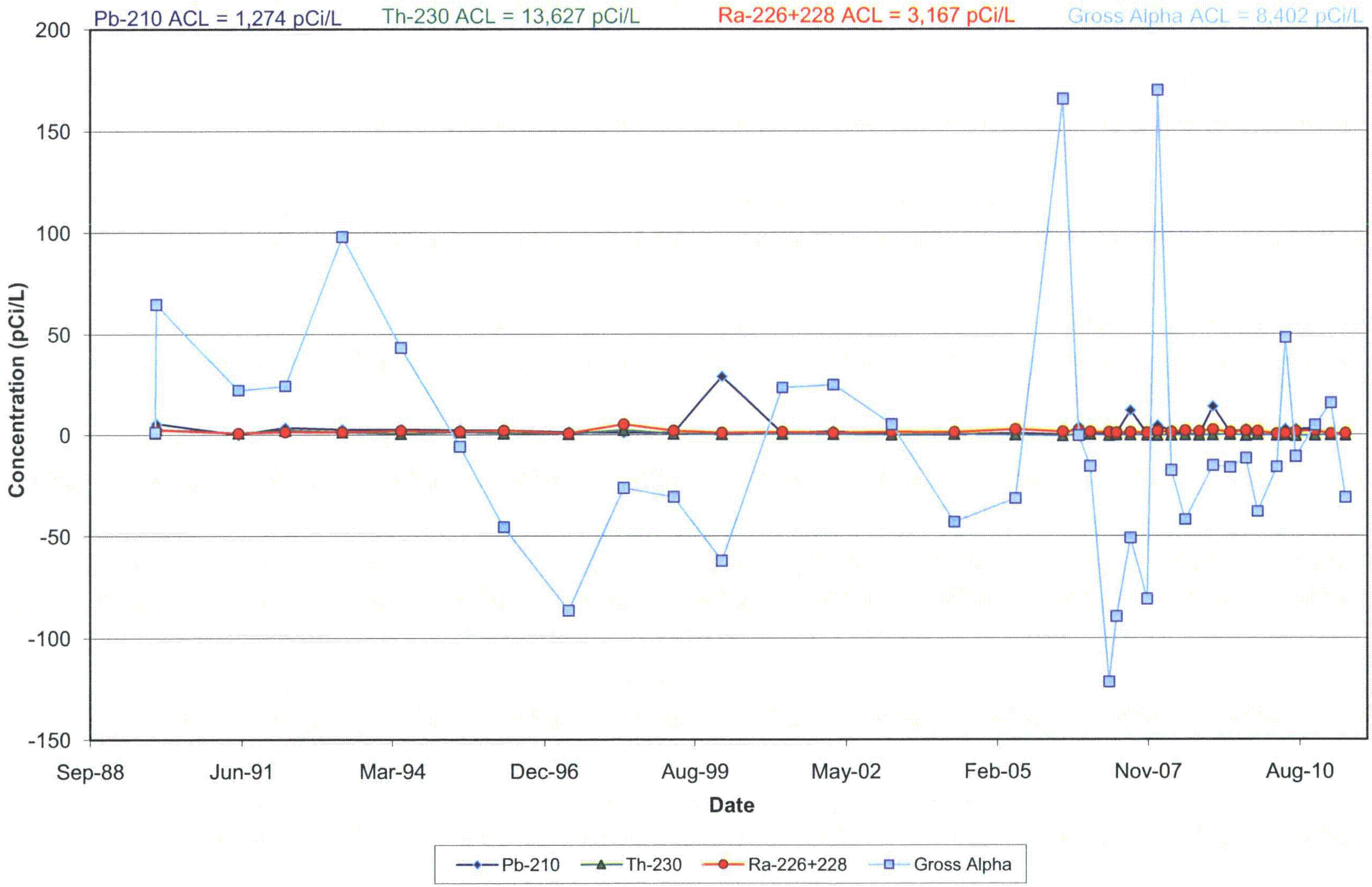
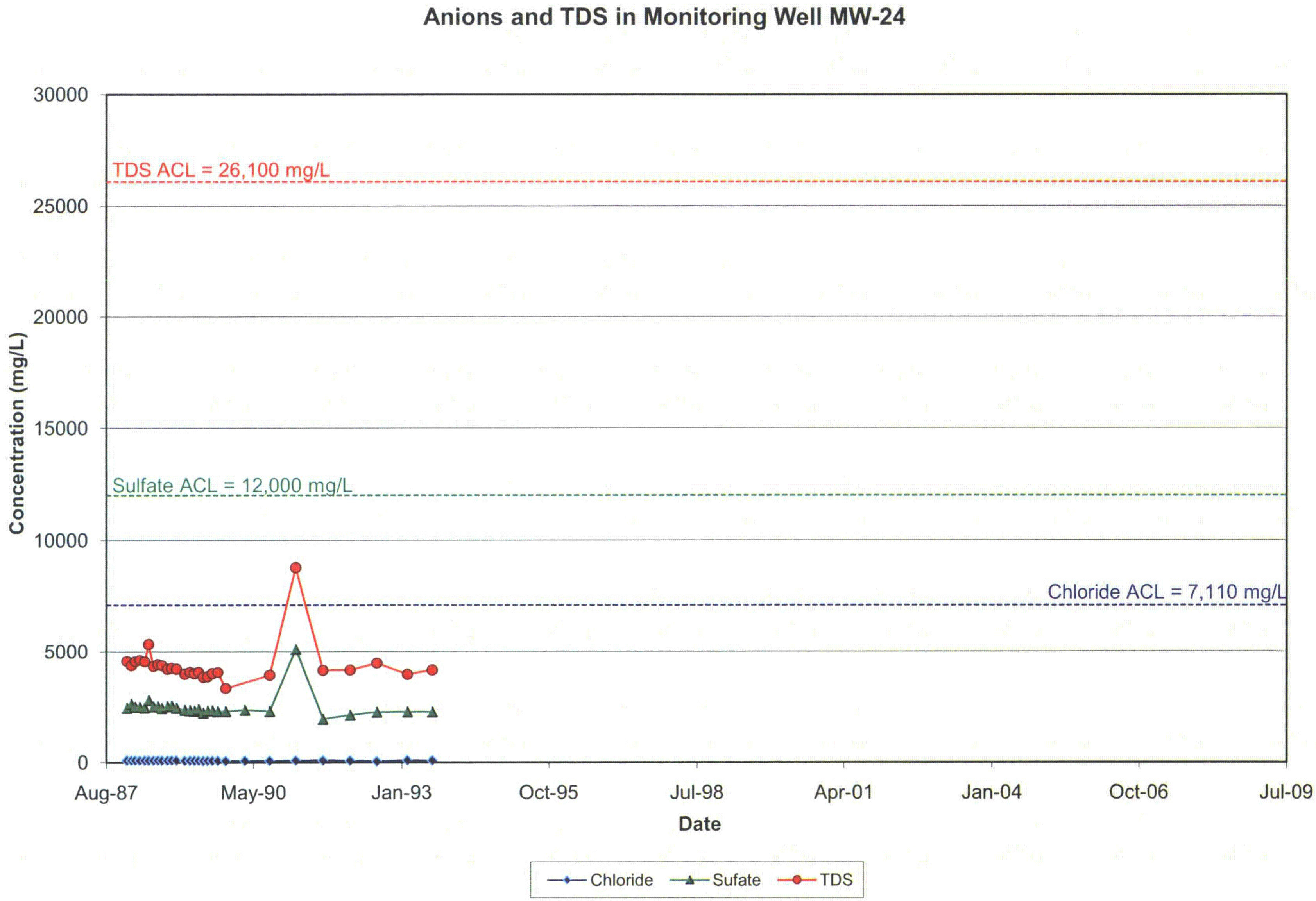
Nitrate in Monitoring Well 5-73



Radionuclides in Monitoring Well 5-73

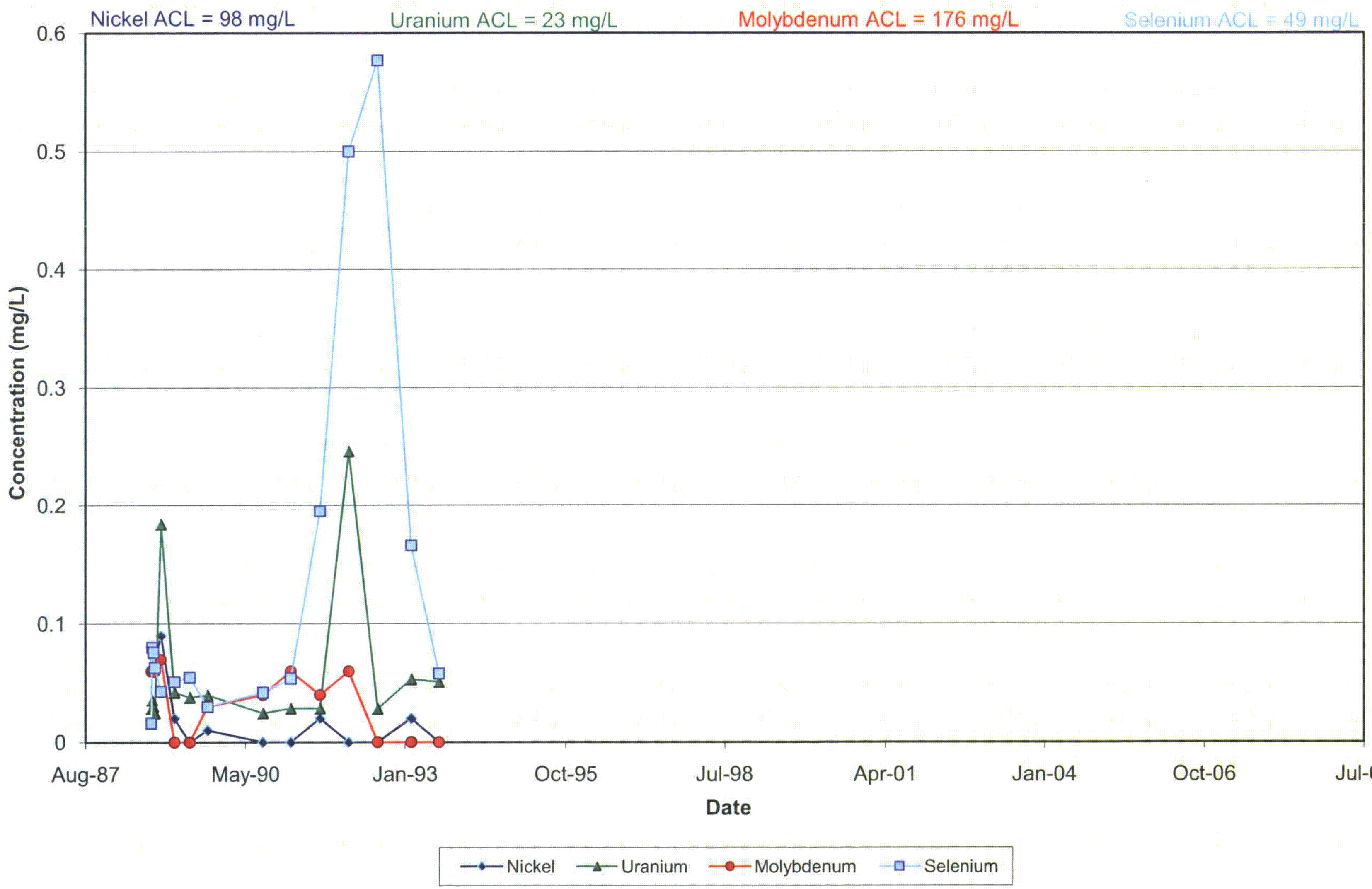


INTERA

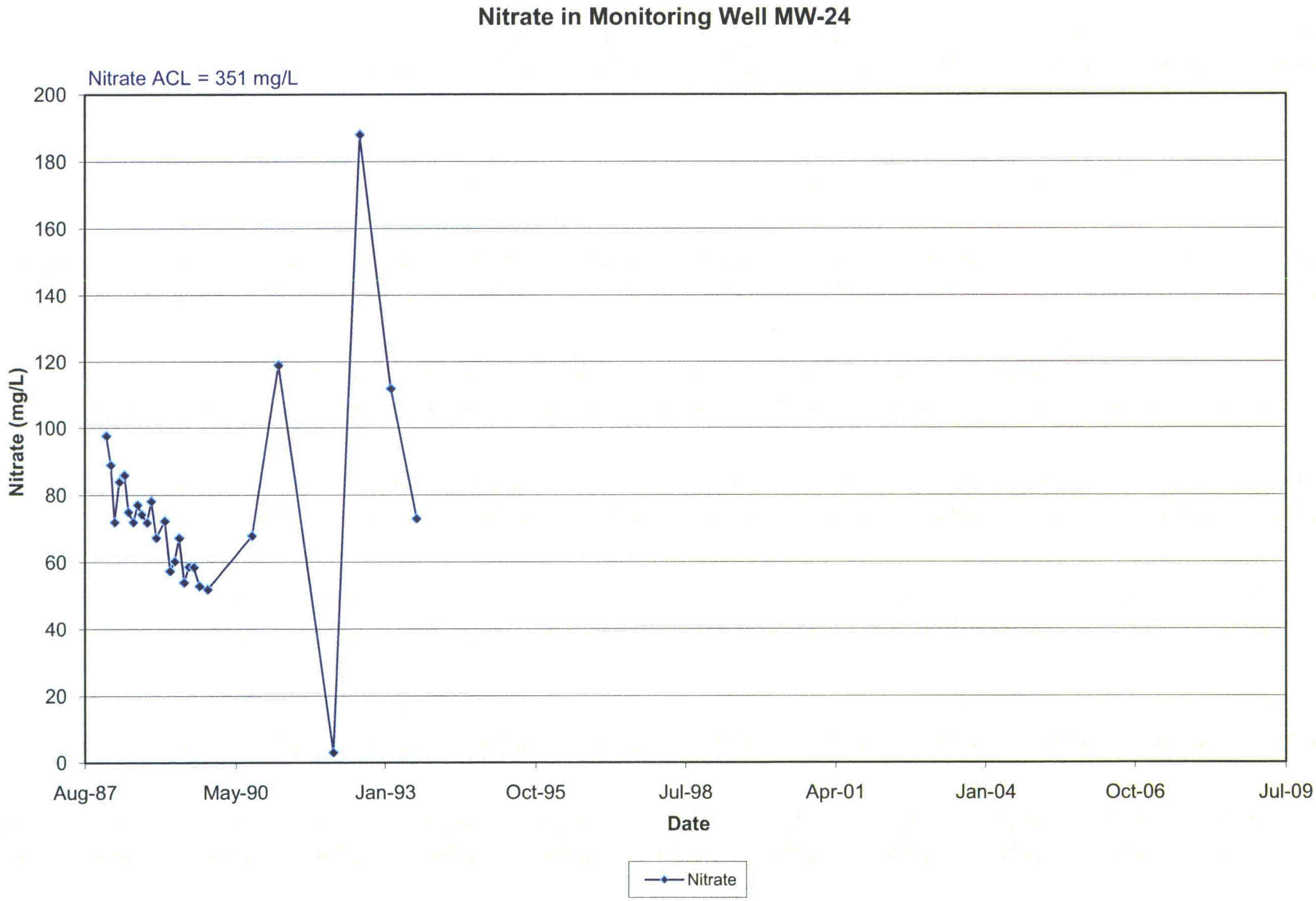

Anions and TDS in Monitoring Well MW-24
TDS ACL = 26,100 mg/L
Sulfate ACL = 12,000 mg/L
Chloride ACL = 7,110 mg/L
Concentration (mg/L)
30000
25000
20000
15000
10000
5000
0
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Date
Chloride
Sufate
TDS

INTERA

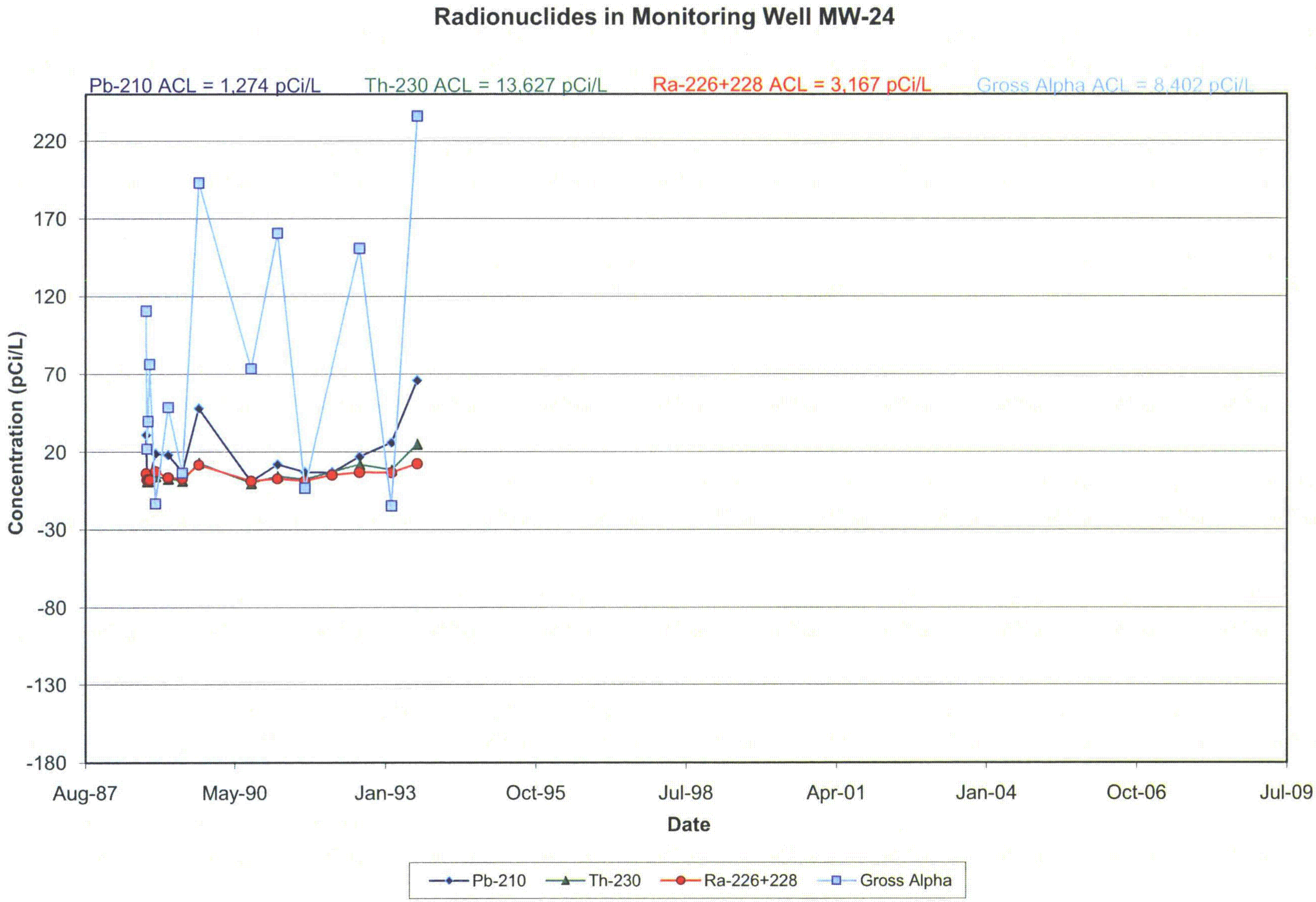
Metals in Monitoring Well MW-24



INTERA


Nitrate in Monitoring Well MW-24
Nitrate ACL = 351 mg/L
200
180
160
140
120
100
80
60
40
20
0
Nitrate (mg/L)
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Date
Nitrate

INTERA



Radionuclides in Monitoring Well MW-24
Pb-210 ACL = 1,274 pCi/L
Th-230 ACL = 13,627 pCi/L
Ra-226+228 ACL = 3,167 pCi/L
Gross Alpha ACL = 8,402 pCi/L
220
170
120
70
20
-30
-80
-130
-180
Concentration (pCi/L)
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Date
Pb-210
Th-230
Ra-226+228
Gross Alpha

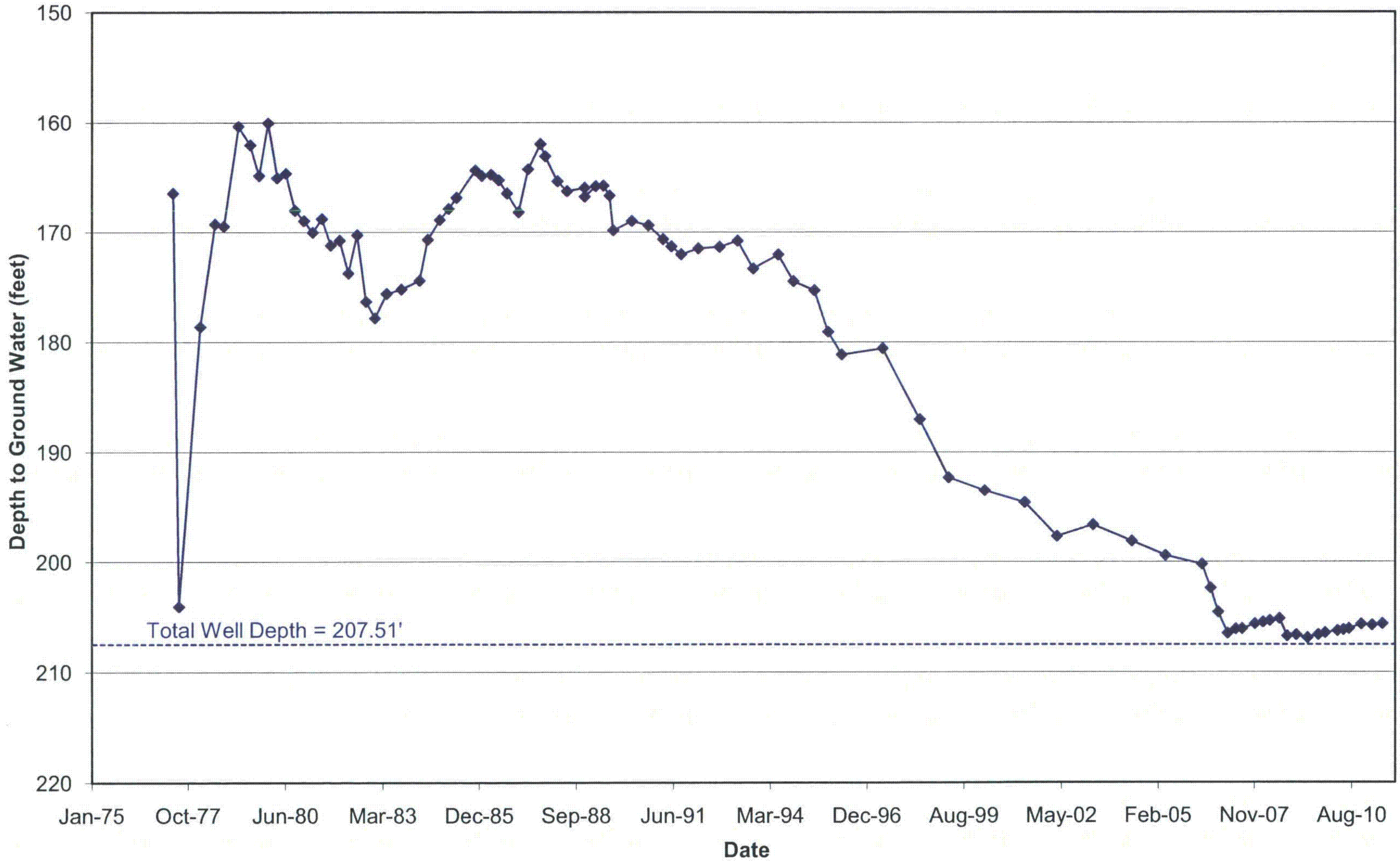
APPENDIX 3

Stability Monitoring Plan
Hydrographs

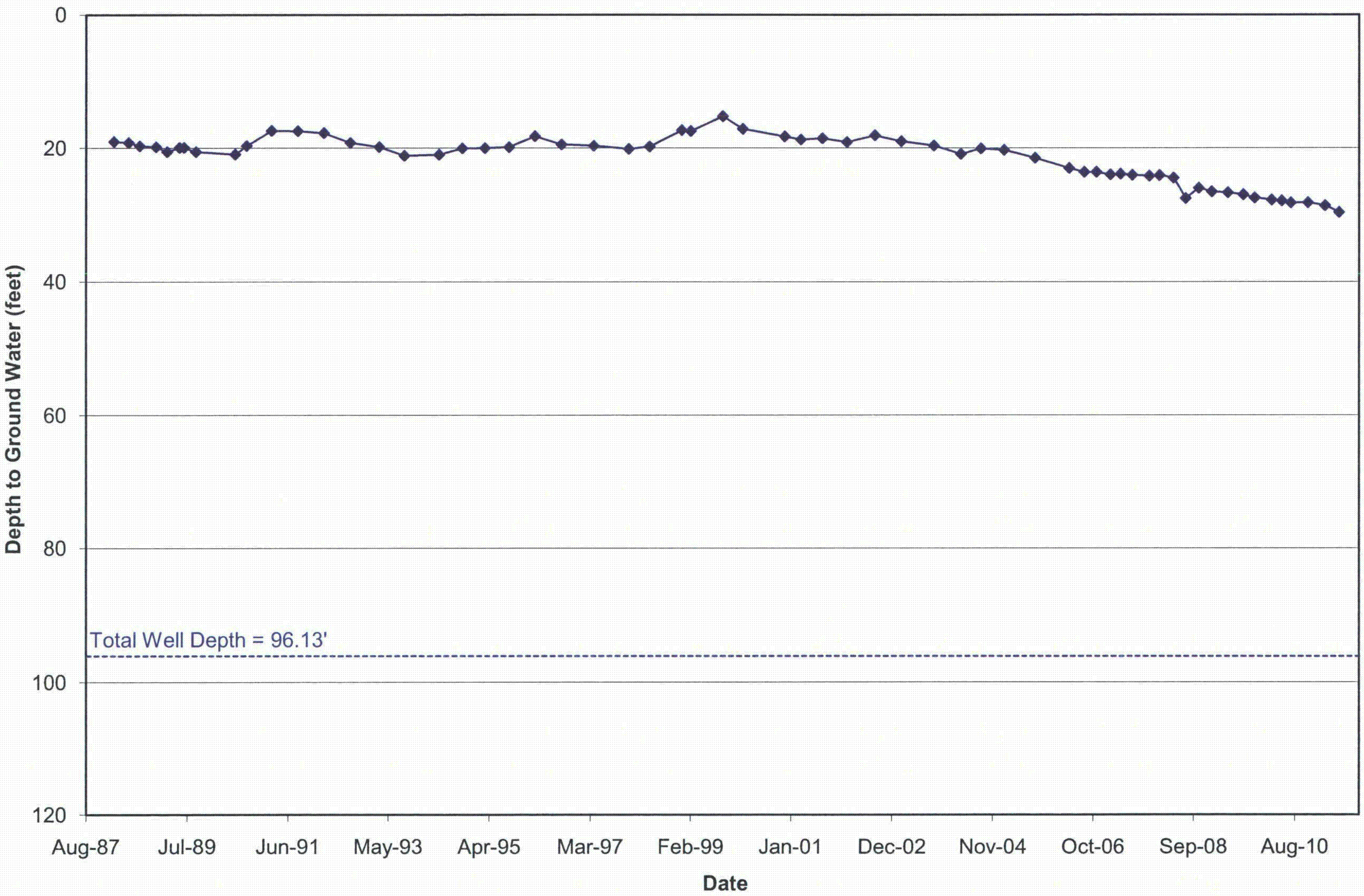
Hydrograph for Dakota Monitoring Well 30-02KD

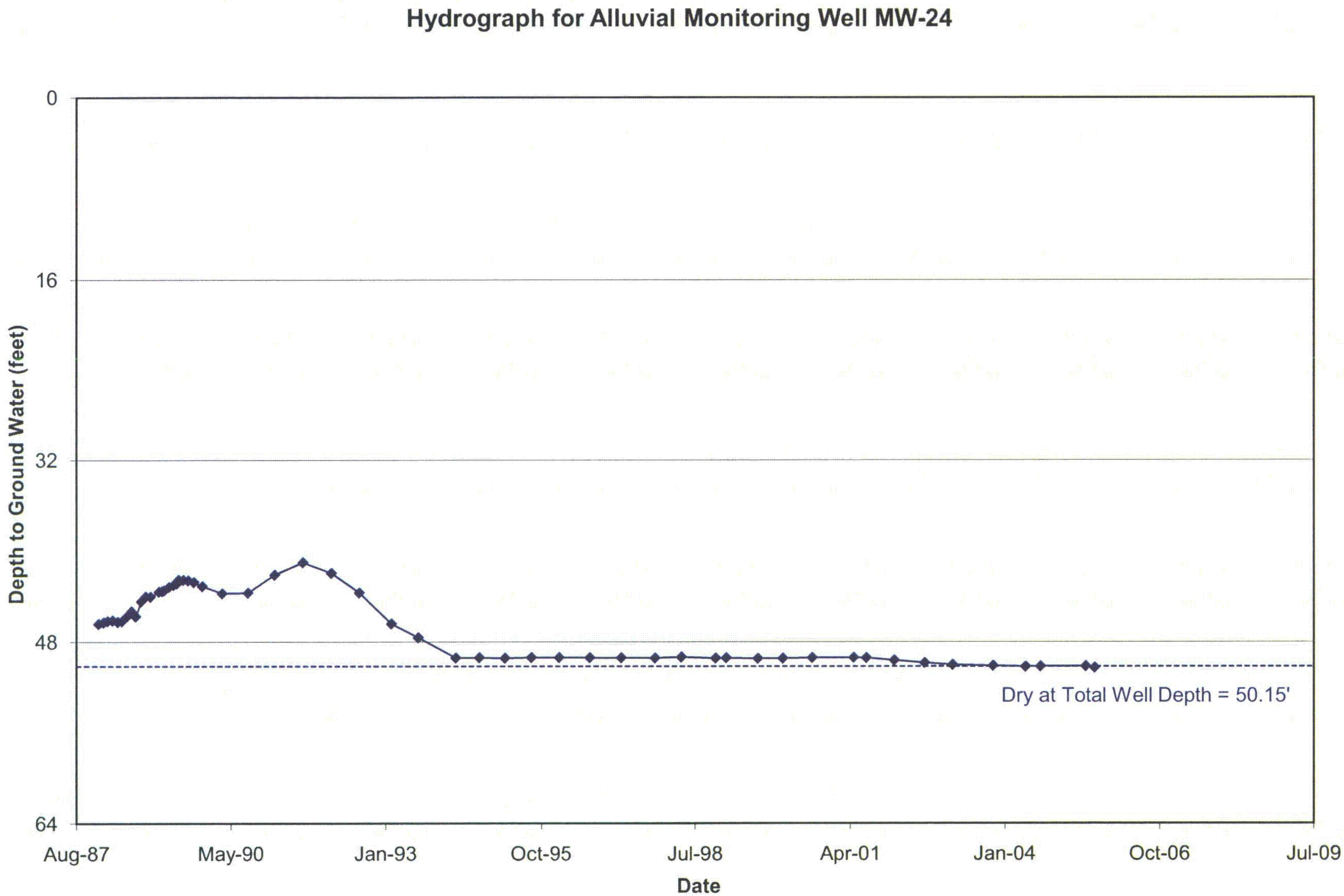
INTERA

Hydrograph for TRA Monitoring Well 30-01



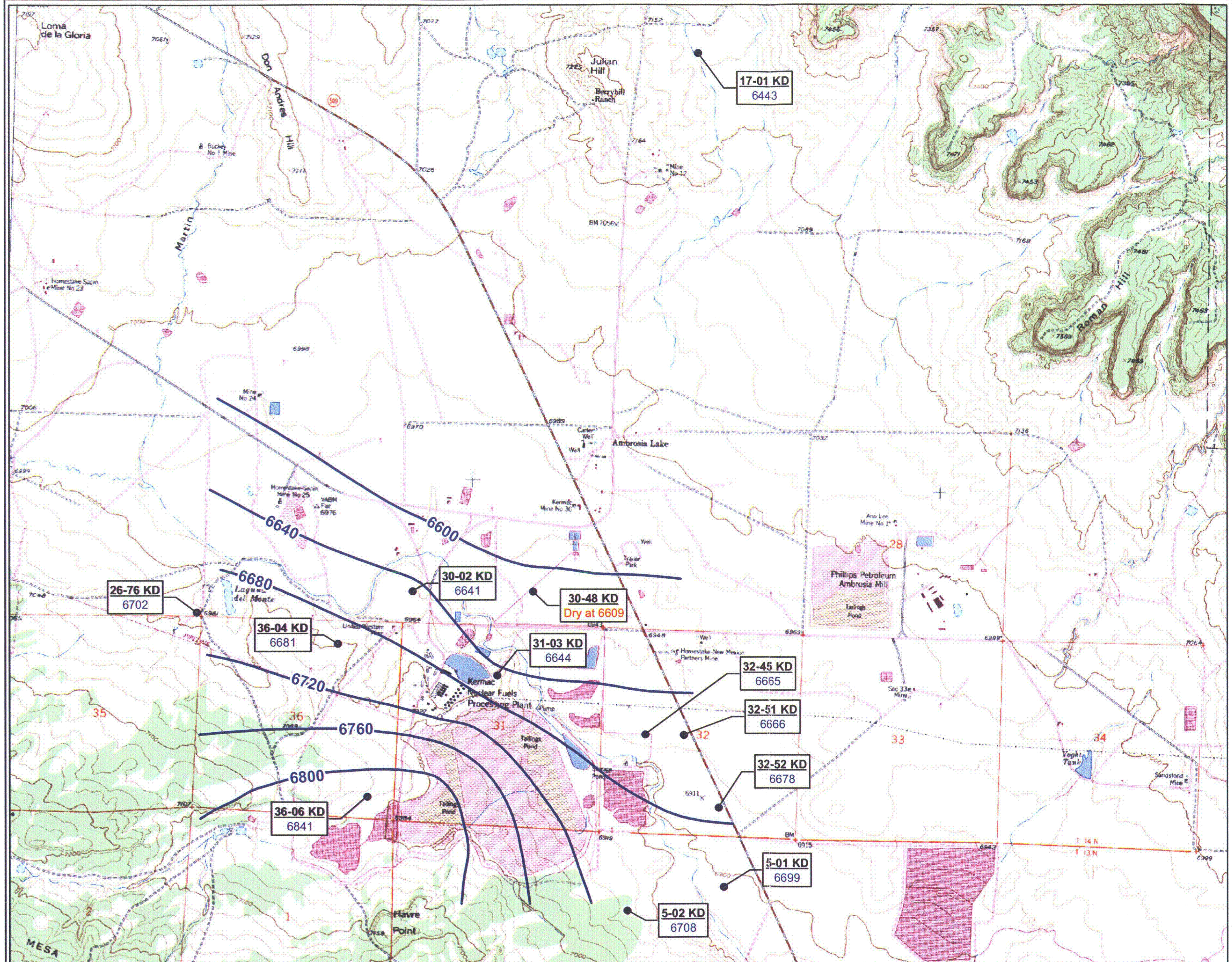
Hydrograph for TRB Monitoring Well 31-67




Hydrograph for Alluvial Monitoring Well MW-24
Depth to Ground Water (feet)
0
16
32
48
64
Dry at Total Well Depth = 50.15'
Aug-87
May-90
Jan-93
Oct-95
Jul-98
Apr-01
Jan-04
Oct-06
Jul-09
Date

APPENDIX 4

Stability Monitoring Plan
Potentiometric Surface Maps



INTERA

N

0 1,250 2,500 5,000 Feet

USGS 7.5 Minute Topographic Maps:
Ambosia Lake Quadrangle, 1957/rev.1980;
Contour Interval 20 Feet

Legend

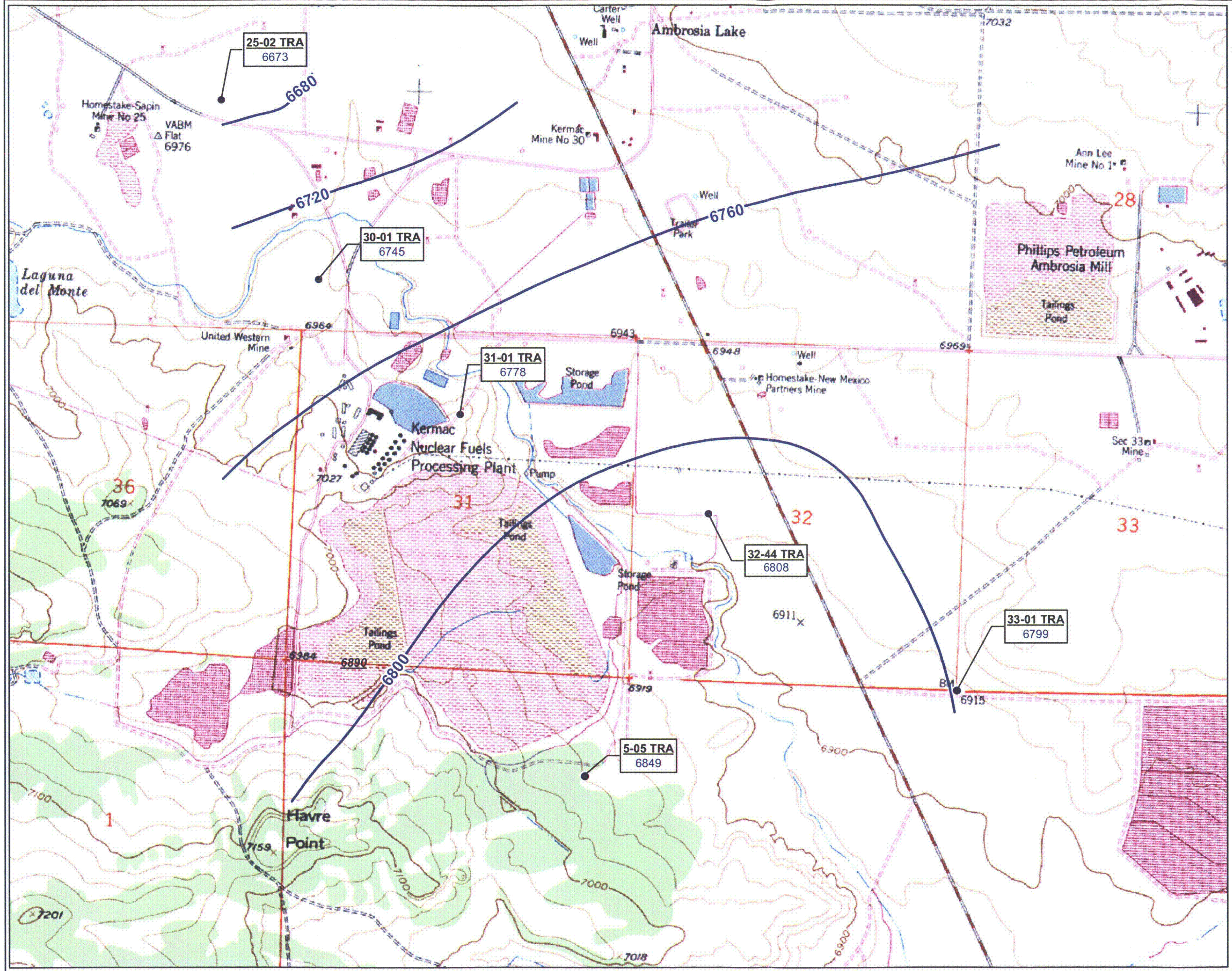
- Dakota Monitoring Well Location
- Dakota Potentiometric Iso-Contours (ft amsl)

Well ID
Groundwater Surface Elevation (ft amsl)

Gradient calculation:
(Difference in Groundwater Elevation Between Point of Compliance Well 36-06 KD and Trend Well 30-02 KD= 6,841 - 6,641 = 200 feet) Divided by (Distance Along a Flow Path Between Point of Compliance Well 36-06 KD and Trend Well 32-02 KD = 6,000 feet)

= 0.033 feet per foot

1st Half 2011 Dakota Potentiometric Surface Elevation Iso-Contours
Rio Algom DP-169 ACL
Semi-Annual Report



N

0 750 1,500 3,000 Feet

USGS 7.5 Minute Topographic Maps:
Ambosia Lake Quadrangle, 1957/rev.1980;
Contour Interval 20 Feet

Legend

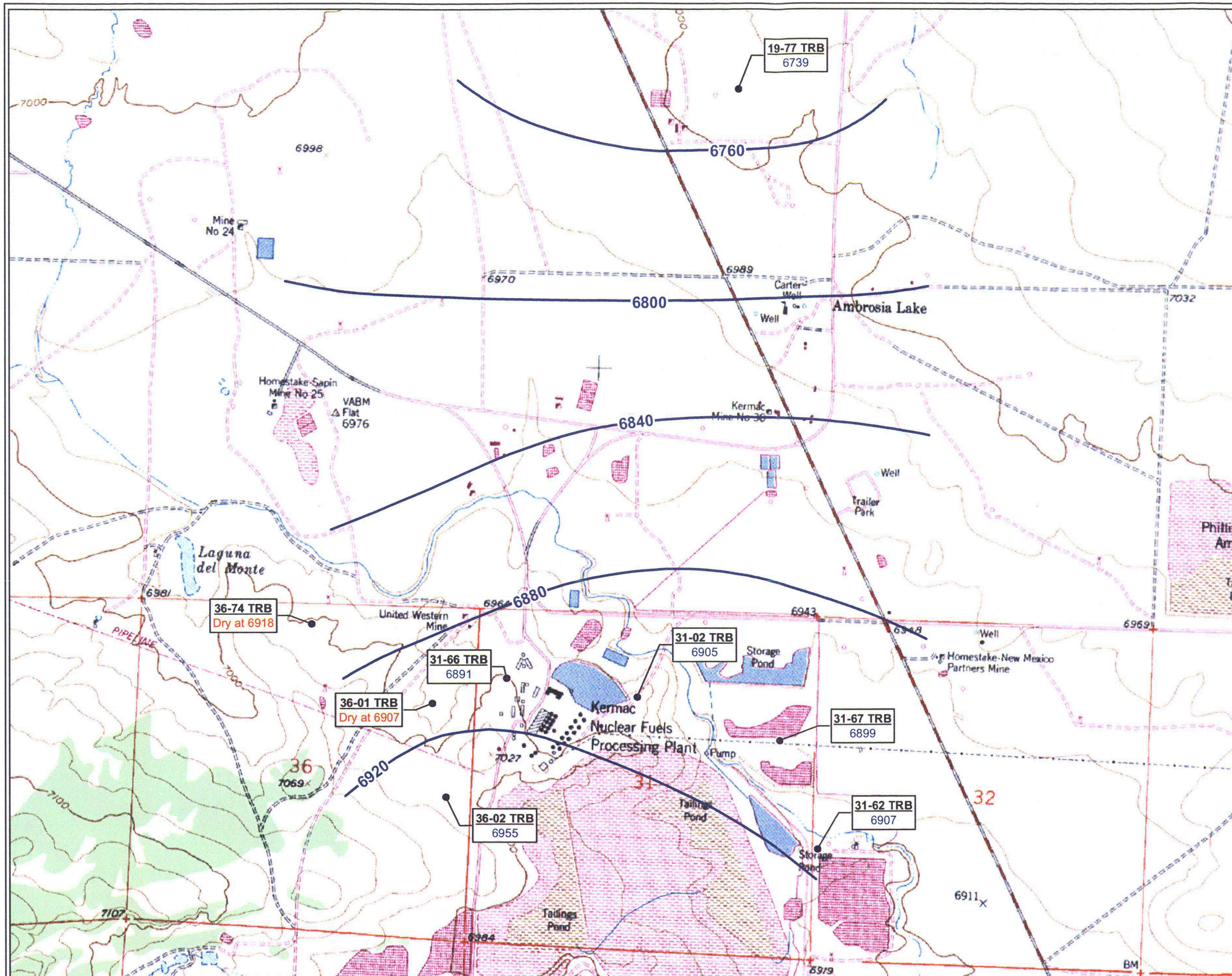
- TRA Well Location
- TRA Potentiometric Surface Elevation Iso-Contours (ft amsl)

Well ID
Groundwater Surface Elevation (ft amsl)

Gradient calculation:
(Difference in Groundwater Elevation Between Point of Compliance Well 31-01 and Trend Well 30-01 = 6,778 - 6,745 = 33 feet) Divided by (Distance Along a Flow Path Between Point of Compliance Well 31-01 and Trend Well 30-01= 3,750 feet)

= 0.009 feet per foot

1st Half 2011 TRA Potentiometric Surface Elevation Iso-Contours
Rio Algom DP-169 ACL
Semi-Annual Report



INTERA

N

0 750 1,500 3,000 Feet

USGS 7.5 Minute Topographic Maps:
Ambosia Lake Quadrangle, 1957/rev.1980;
Contour Interval 20 Feet

Legend

- ● TRB Monitoring Well Location
- TRB Potentiometric Surface Elevations (ft amsl)

Well ID
Groundwater Surface Elevation (ft amsl)

Gradient calculation:
(Difference in Groundwater Elevation Between Point of Compliance Well 31-02 and far downgradient Well 19-77 = 6,905 - 6,739 = 166 feet) Divided by (Distance Along a Flow Path Between Point of Compliance Well 31-02 and far downgradient Well 19-77 = 9,677 feet)

= 0.017 feet per foot

1st Half 2011 TRB Potentiometric Surface Elevation Iso-Contours
Rio Algom DP-169 ACL
Semi-Annual Report

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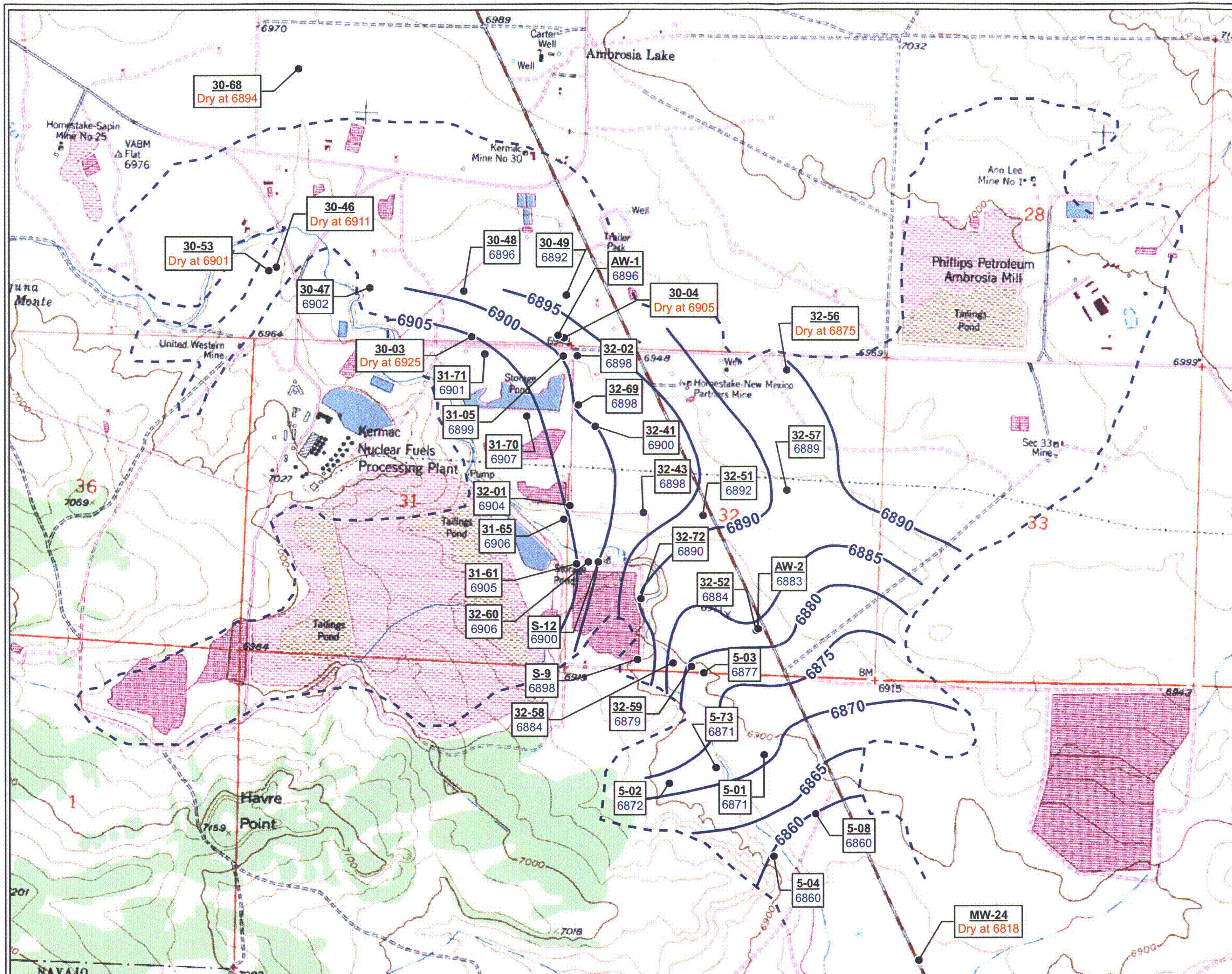

N

0 800 1,600 3,200 Feet

USGS 7.5 Minute Topographic Maps:
Ambosia Lake Quadrangle, 1957/rev.1980;
Contour Interval 20 Feet

Legend

- Alluvial Monitoring Well Location
- Alluvial Groundwater Surface Elevation (ft amsl)
- 1998 Boundary of Saturated Alluvium

Well ID
Groundwater Surface Elevation (ft amsl)

Gradient calculation:
(Difference in Groundwater Elevation Between Point of Compliance Well 31-61 and Trend Well 5-08 = 6,905 - 6,860 = 45 feet) Divided by (Distance Along a Flow Path Between Point of Compliance Well 31-61 and Trend Well 5-08 = 6,875 feet)

= 0.007 feet per foot

1st Half 2011 Alluvial Groundwater Surface Elevation Iso-Contours
Rio Algom DP-169 ACL
Semi-Annual Report

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