2 Market Plaza Way, Mechanicsburg, Pennsylvania 17055

July 16, 2001

Mr. Philip Ting, Chief
Fuel Cycle Licensing Branch, FCSS
c/o Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

40-8907

Mr. Greg Lyssy
U.S. Environmental Protection Agency
Superfund Coordinator
New Mexico Team (6SF-LT)
1445 Ross Avenue
Dallas, TX 75202-2733

Telephone
717.795.8001
Facsimile
717.795.8280

Subject: **Southwest Alluvium Natural Attenuation Test, First Quarter Report**

Dear Messrs. Ting and Lyssy:

Enclosed is the above-referenced document that was prepared as requested during the meeting held in Santa Fe, New Mexico, on November 14 and 15, 2000. Please contact Roy Blickwedel (General Electric Corporation) at (610) 992-7935 or me at (570) 925-5063 if you have any questions or need additional information.

Very truly yours,
Earth Tech, Inc.

Suzie du Pont
Project Manager

Enclosure

cc: Roy Blickwedel, General Electric Corporation
Larry Bush, United Nuclear
Ken Hooks, Nuclear Regulatory Commission
Beiling Liu, New Mexico Environment Department
Diane Malone, Navajo Superfund
George Padilla, Navajo Superfund
Bill von Till, Nuclear Regulatory Commission

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FIRST QUARTER REPORT

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST CHURCH ROCK SITE

July 2001

Prepared for:

United Nuclear Corporation
Gallup, New Mexico

Prepared by:

Earth Tech, Inc.
2 Market Plaza Way
Mechanicsburg, PA 17055

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LIST OF ABBREVIATIONS AND ACRONYMS

Earth Tech	Earth Tech, Inc.
EPA	U.S. Environmental Protection Agency
mg/L	milligrams per liter
SU	standard pH units
TDS	total dissolved solids
United Nuclear	United Nuclear Corporation

1.0 INTRODUCTION

On behalf of United Nuclear Corporation (United Nuclear), Earth Tech, Inc. (Earth Tech) is providing this quarterly review of the natural attenuation test being performed in the Southwest Alluvium at United Nuclear's Church Rock site near Gallup, New Mexico. The test consists of temporarily turning off the pumping wells in the Southwest Alluvium and monitoring water level and water quality on a monthly frequency for a minimum of 12 months and a maximum of 18 months. The test is to demonstrate whether turning off the pump-back wells will have an adverse effect on water quality (i.e., if there is a statistically significant difference in groundwater quality between the time before the temporary cessation of pumping and the time after the groundwater quality re-stabilized following the cessation period). The test procedures were discussed and agreed to during the November 14, 2000, meeting in Santa Fe, New Mexico, as documented in the U.S. Environmental Protection Agency's (EPA's) e-mail letter from Greg Lyssy dated November 15, 2000 (Lyssy 2000).

This report is the first in the series of quarterly reports and covers the period from February 2001 through April 2001.

2.0 DATA EVALUATION

2.1 DATA SET

Water quality and water level data were collected from the four pumping and ten monitoring wells listed in Table 1 and shown on Figure 1. Two data sets were used including:

- Baseline data – samples collected prior to turning off the pumping wells in January 2001. A description of the baseline data is presented below.
- Test data – samples collected on a monthly frequency after the pumping wells were turned off. Three months of data are to be included in each quarterly report. This report presents the first quarter of data collected in February, March and April 2001.

2.1.1 Baseline Data

A baseline data set was selected to represent conditions prior to turning off the pumps. The baseline data was then compared to the test data to evaluate the effect of turning off the pumps. The baseline data set includes the performance monitoring samples collected quarterly since July 1995 and samples collected in early January 2001 before the pumping wells were turned off.

In accordance with discussions during the November 2000 meeting, this time period (July 1995 through January 2001) was selected based on a review of the water quality data from the three pumping wells (Wells 801, 802 and 803) that are monitored as part of the Performance Monitoring Program. This review revealed that constituent concentrations were changing in the first few years of operation, but stabilized after about July 1995. The period during which water quality was stabilized (July 1995 through January 2001) was selected for the baseline data set. The January 2001 data were selected during the November 2000 meeting as the last samples to be collected prior to turning off the pumps. This provided a common end point for the baseline data and also allowed collection of a baseline sample from Well 808, which was not included in the Performance Monitoring Program and had no water quality data prior to that time.

2.2 TEST DATA - WATER LEVEL DATA

Water levels are measured in all the wells on a monthly basis. Figure 2 presents the water level elevations for April 2001. As shown, water flows from northeast to southwest along the alignment of Pipeline Arroyo. Figure 3 is a graph of water levels over time in the pumping and monitoring wells. As shown, water levels in the vicinity of the pumping wells increased after the pumping wells were turned off in January. Water levels in the former pumping wells are approaching the stabilized elevations measured in nearby monitoring wells.

2.3 TEST DATA - WATER QUALITY DATA

Water quality data collected from January though April 2001 are presented in Table 2 and summarized on Figures 4 through 7. Concentrations exceeding the site standards are shaded in the table. The figures show the approximate extent of seepage impacts (light blue shading on the figures) delineated by bicarbonate concentrations greater than 1,000 milligrams per liter (mg/L) and chloride concentrations greater than 150 mg/L. The justification for delineating seepage impacts using these two indicator parameters was made in the *Southwest Alluvium Groundwater Geochemistry Report* (Earth Tech 2000a) and presented in the November 2000 meeting.

Table 2 shows that water quality is similar to that reported previously, with sulfate and total dissolved solids (TDS) being the primary constituents that exceed the site standards. Chloride is exceeded only at well 509 D. The only metal that exceeds its standard is manganese, and the exceedance occurs only within the property boundary at Wells 801, 802, 803, 808 and EPA 23 as was historically reported. The only exceptions are the exceedances of nickel and cobalt in the baseline January 2001 sample for Well 808. However, as discussed below, these exceedances appear to be related to particulate material in the sample from using the extraction pump to collect the sample. These metals were reported in much lower concentrations after the shutoff test began and low-flow sampling techniques were employed. No radionuclides exceed the site standards. Chloroform exceeds the standards in four wells but, as discussed in *Southwest Alluvium Groundwater Geochemistry Report* (Earth Tech 2000a) and at the November 2000

meeting, these exceedances are two orders of magnitude below EPA's drinking water standards (EPA 1995) and only occur on-site.

Figure 4 shows that sulfate is variable with concentrations above and below the site standard both inside and outside the seepage-impacted area. As discussed in the geochemistry report and in the November 2000 presentation, the sulfate concentrations are in equilibrium with gypsum, a naturally occurring mineral. The concentrations of manganese (Figure 5) and chloroform (Figure 6) exceeding the standards are isolated in small areas within the seepage-impacted area and within the property boundary. As shown on Figure 7, uranium concentrations are below the site standard both inside and outside the seepage-impacted area.

2.3.1 Well 808

Well 808 is included in the natural attenuation test, but the evaluation of the water quality is not as comprehensive as for the other wells because only one baseline sample was collected. This well was not included in the Performance Monitoring Program, and therefore no water quality data were collected prior to January 2001. Review of the Well 808 data reveals that the January 2001 data differ from the remaining data in that the metals concentrations, particularly aluminum, manganese, cobalt and nickel, are substantially higher. These higher metals concentrations are probably caused by the presence of precipitate material in the well that, as documented in the recent Annual Review reports (Rust Environment and Infrastructure 1998, Earth Tech 1999 and 2000b), has caused severe plugging in the discharge piping. The precipitate material is believed to have been present in the collected water. When the sample was acidified, metals associated with the precipitate material would have dissolved into the sample water.

Evidence for this process is twofold:

- The high concentration of the aluminum, nickel and cobalt reported for the January 2001 data is not compatible with the pH of the water, which was greater than 6.0 standard units (SU). Detectable concentrations of the metals, particularly aluminum, in the near-neutral water indicates that the metals were introduced from suspended matter. Normally these metals are found only in dissolved form at a pH of 5.0 or less.

- The decrease in metals concentrations between the January event when the well was still pumping and all succeeding events confirms the hypothesis that the metals originated from suspended matter in the sample water. In January, the well was sampled using the extraction pump, but the later samples were collected using low-flow methods. None of these four samples was filtered. The higher flow rate of the extraction pump causes more suspended material to be in the water sample. Because the sample was not filtered, the particulate material would have been present when the sample was acidified to preserve it, and metals would dissolve. The lower concentrations measured when the low-flow sampling technique was used indicate that less of the suspended matter was present in the water sample. Considering that the low-flow technique was developed specifically to eliminate the problem of particulate material in the sample water when analyzing for metals, the data from Well 808 confirms that the low-flow technique works.

The next quarterly report will present the results for a filtered sample and an unfiltered sample that were collected from Well 808 in June.

2.4 STATISTICAL EVALUATION

The statistical evaluation will use trend analysis and population testing to identify whether changes in concentration, specifically increases in concentrations, are occurring and whether the changes are statistically significant. Because only three data points for the test data are available for this report, the analysis was not performed. A minimum of four points is required to give the analysis sufficient power. However, Appendix A includes plots of the constituent concentrations over time that provide an overview of trends in water quality. Graphs for the constituents that are reported in concentrations exceeding the standards (sulfate, TDS, manganese and chloroform) and for the parameters that indicate seepage impacts (bicarbonate and chloride) are included. A vertical dashed line is drawn on each graph to indicate when the pumping wells were turned off.

Review of the graphs shows that overall there is no change in the trend of constituent concentrations after the pumps were turned off. This is true even for the pumping wells where changes in water quality, if any, are most likely to occur. An exception to this pattern is the concentration of sulfate in Well 632. The graph shows that sulfate concentrations increased after the pumping wells were turned off. Although the three months of data collected after the pumps

were turned off have higher concentrations than previous sampling events, these concentrations show a decreasing trend on the graph.

2.5 SUMMARY

The results of this first quarter evaluation indicate that overall water quality during the first quarter of the test period is similar to that observed before the pumps were turned off. TDS and sulfate are the primary constituents exceeding water quality standards. Manganese is the only metal that is consistently reported in detectable concentrations and that exceeds the standard, and the radionuclides are below site standards in all wells.

Because of the limited data available for this first report, a detailed statistical evaluation using trend analysis and population testing was not performed. This evaluation will compare the baseline and test data concentration trends and mean concentrations to determine if constituent concentrations after the pumps were turned off (test data) differ from concentrations during pumping (baseline data). The statistical methods used will be selected based on the size and distribution of the baseline and test data sets. The next report will include a description of and backup calculations for the analysis.

3.0 REFERENCES

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TABLES

TABLE 1

WELLS INCLUDED IN THE SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST

Well	Use[1]	Water Level	Water Quality	Time Period of Baseline Data
509 D	Monitor	X	X	7/95 to 1/01
624	Monitor	X	X	7/95 to 1/01
627	Monitor	X	X	7/95 to 1/01
632	Monitor	X	X	7/95 to 1/01
801[2]	Pumping	X	X	7/95 to 1/00 and 1/01
802	Pumping	X	X	7/95 to 1/01
803	Pumping	X	X	7/95 to 1/01
805	Monitor	X		7/95 to 1/01
807	Monitor	X		7/95 to 1/01
808[3]	Pumping	X	X	1/01
EPA 23	Monitor	X	X	7/95 to 1/01
EPA 25	Monitor	X	X	7/95 to 1/01
EPA 28	Monitor	X	X	7/95 to 1/01
GW 1	Monitor	X	X	7/95 to 1/01
GW 2	Monitor	X	X	7/95 to 1/01
GW 3	Monitor	X	X	7/95 to 1/01

Notes:

[1] Pumping wells turned off in January 2001 after final baseline samples were collected. Well 801 is the exception, see Note 2.

[2] Well 801 was turned off at the end of July 1999 because it met decommissioning criteria. Sample collection ceased after the first quarter 2000. Well 801 water quality is included in the test program, therefore sampling recommenced January 2001.

[3] Well 808 was not included in the Performance Monitoring Program, therefore no data are available prior to January 2001.

TABLE 2

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
FIRST QUARTER WATER QUALITY DATA

Well No.	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO_3 (mg/L)	SO_4 (mg/L)	Cl (mg/L)	NH_4 as N (mg/L)	NO_3 as N (mg/L)	Chloro-form (mg/L)
	NRC Standard	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00100
	EPA Standard	NA	NA	NA	4,800	NA	NA	NA	NA	NA	2,125	250	NA	190	NA
0509 D	1/8/01	6,882.70	6.46	7.47	5,010	924	331	220	11.1	2,200	1,610	317	0.94	30.60	-0.001
0509 D	2/5/01	6,882.35	6.50	7.03	5,090	1000	384	265	13.5	2,090	1,860	365	1.75	29.50	-0.001
0509 D	3/5/01	6,882.10	6.65	7.41	5,110	901	347	310	13.9	2,100	1,850	279	0.91	28.40	-0.001
0509 D	4/3/01	6,882.30	6.42	6.76	5,120	984	366	211	11.8	2,080	1,800	311	0.82	31.80	-0.001
624	1/8/01	6,850.10	6.65	7.40	5,100	707	464	173	6.9	1,480	1,810	177	-0.05	104.00	-0.001
624	2/5/01	6,850.10	6.72	7.31	5,110	801	510	171	7.6	1,480	2,320	170	0.21	93.90	-0.001
624	3/5/01	6,850.10	7.03	7.47	4,740	690	457	148	8.1	1,450	2,190	154	-0.05	101.00	-0.001
624	4/10/01	6,850.10	7.24	7.33	4,910	791	497	238	7.3	1,470	2,250	176	-0.05	103.00	-0.001
627	1/9/01	6,838.55	7.23	8.03	5,170	583	303	454	5	595	2,460	57.9	-0.05	160.00	-0.001
627	2/6/01	6,838.50	7.53	7.48	5,040	654	321	558	6.1	592	2,780	52.5	-0.05	158.00	-0.001
627	3/6/01	6,838.30	7.31	7.69	4,770	553	286	552	6.5	586	2,680	53	-0.05	156.00	-0.001
627	4/10/01	6,838.60	7.52	7.47	5,020	656	319	446	5.3	590	2,840	57.3	-0.05	149.00	-0.001
632	1/8/01	6,858.50	6.38	7.38	6,180	624	612	347	8.7	1,740	3,020	223	0.17	2.69	0.0035
632	2/5/01	6,859.80	6.55	7.04	6,410	729	701	428	10.3	1,660	3,420	233	0.35	5.90	0.0028
632	3/6/01	6,860.20	6.51	7.31	6,100	630	653	450	10.3	1,640	3,400	199	0.34	12.70	0.0032
632	4/3/01	6,860.70	6.45	7.17	6,800	710	713	359	8.1	1,600	3,370	228	0.33	21.60	0.00349
801	1/8/01	6,852.90	6.67	7.70	7,330	578	820	359	16.6	1,570	3,700	240	9.07	48.90	0.0022
801	2/6/01	6,853.85	6.90	7.42	7,200	642	882	397	15.8	1,570	3,970	226	9.46	29.90	0.0016
801	3/5/01	6,854.30	6.92	7.19	6,610	550	785	273	15.1	1,580	3,660	203	8.34	21.90	0.0023
801	4/3/01	6,854.80	6.59	7.37	6,930	615	825	320	12.8	1,570	3,580	214	7.88	17.50	0.00311

TABLE 2

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
FIRST QUARTER WATER QUALITY DATA

Well No.	Date	Al (mg/L)	As (mg/L)	Be (mg/L)	Cd (mg/L)	Co (mg/L)	Pb (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	Se (mg/L)	V (mg/L)	U (mg/L)	Ra-226+ Ra-228 (pCi/L)	Th-230 (pCi/L)	Pb-210 (pCi/L)	Gross Alpha (pCi/L)
	NRC Standard	**NA**	**0.05**	**0.05**	**0.01**	**NA**	**0.05**	**NA**	**NA**	**0.05**	**0.01**	**0.10**	**0.3**	**5.0**	**5.0**	**1.0**	**15.0**
	EPA Standard	**5.0**	**0.05**	**0.02**	**0.01**	**0.05**	**0.05**	**2.60**	**1.00**	**0.2**	**0.01**	**0.70**	**5.0**	**5.0**	**NA**	**NA**	**15.0**
0509 D	1/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.08	-0.1	-0.05	-0.001	-0.1	0.211	-1.5	-0.2	-1	-1
0509 D	2/5/01	0.2	0.001	-0.01	-0.005	-0.01	-0.05	2.2	-0.1	-0.05	-0.001	-0.1	0.197	-1.6	-0.2	-1	-1
0509 D	3/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.51	-0.1	-0.05	0.001	-0.1	0.186	-2.5	-0.2	-1	-1
0509 D	4/3/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.53	-0.1	-0.05	-0.001	-0.1	0.183	-1.5	-0.2	-1	-1
624	1/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.02	-0.1	-0.05	-0.001	-0.1	0.032	-1.4	-0.2	-1	-1
624	2/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.02	-0.1	-0.05	-0.001	-0.1	0.033	-1.3	-0.2	-1	-1
624	3/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.02	-0.1	-0.05	-0.001	-0.1	0.0327	-4.2	-0.2	-1	-1
624	4/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.03	-0.1	-0.05	-0.001	-0.1	0.031	-1.3	-0.2	-1	-1
627	1/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.11	-0.1	-0.05	0.001	-0.1	0.023	2.9	-0.2	-1	-1
627	2/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.11	-0.1	-0.05	0.002	-0.1	0.0239	2.0	-0.2	-1	-1
627	3/6/01	-0.1	0.001	-0.01	-0.005	-0.01	-0.05	0.12	-0.1	-0.05	0.001	-0.1	0.024	-1.4	-0.2	-1	-1
627	4/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.14	-0.1	-0.05	0.001	-0.1	0.030	-1.4	-0.2	-1	-1
632	1/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.85	-0.1	-0.05	0.001	-0.1	0.064	2.6	-0.2	-1	-1
632	2/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.85	-0.1	-0.05	-0.001	-0.1	0.066	3.6	-0.2	-1	-1
632	3/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.92	-0.1	-0.05	-0.001	-0.1	0.0601	-2.0	-0.2	-1	-1
632	4/3/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.87	-0.1	-0.05	-0.001	-0.1	0.059	-2.1	-0.2	-1	1.7
801	1/8/01	-0.1	0.002	-0.01	-0.005	-0.01	-0.05	6.52	-0.1	-0.05	0.001	-0.1	0.087	-1.2	-0.2	-1	-1
801	2/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	7.28	-0.1	-0.05	-0.001	-0.1	0.071	-1.5	-0.2	-1	-1
801	3/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	7.98	-0.1	-0.05	-0.001	-0.1	0.0582	-1.2	-0.2	-1	-1
801	4/3/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	7.02	-0.1	-0.05	-0.001	-0.1	0.053	-1.4	-0.2	-1	-1

TABLE 2

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
FIRST QUARTER WATER QUALITY DATA

Well No.	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO_3 (mg/L)	SO_4 (mg/L)	Cl (mg/L)	NH_4 as N (mg/L)	NO_3 as N (mg/L)	Chloro-form (mg/L)
	NRC Standard	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00100
	EPA Standard	NA	NA	NA	4,800	NA	NA	NA	NA	NA	2,125	250	NA	190	NA
802	1/8/01	6,857.50	6.43	7.69	7,360	751	758	300	8.2	2,180	3,190	203	1.20	89.30	0.0022
802	2/5/01	6,860.50	6.49	7.10	6,910	739	834	348	8.2	2,050	3,160	200	1.02	93.80	0.0026
802	3/5/01	6,861.00	6.64	7.17	6,120	737	661	370	8	2,000	2,850	158	0.12	103.00	0.0015
802	4/9/01	6,861.60	6.86	7.24	6,400	847	671	263	6.6	2,050	2,840	180	0.06	111.00	-0.001
803	1/8/01	6,839.90	6.50	7.78	7,010	739	730	277	12.5	1,970	3,240	178	1.06	46.30	-0.001
803	2/5/01	6,863.35	6.38	7.11	6,820	826	784	268	13	1,830	3,380	163	0.67	40.70	-0.001
803	3/5/01	6,863.60	6.67	7.14	6,810	726	716	320	12.4	1,770	3,320	129	0.73	39.10	-0.001
803	4/9/01	6,864.10	6.40	7.01	6,630	798	768	222	12.1	1,790	3,460	149	0.81	43.90	-0.001
808	1/8/01	6,853.00	6.34	7.14	7,470	720	721	382	14.5	2,080	3,400	233	16.00	26.00	0.0014
808	2/5/01	6,863.60	6.46	7.04	5,820	879	489	295	13.2	2,040	2,740	185	4.99	-0.10	-0.001
808	3/5/01	6,863.85	6.65	7.43	5,480	879	482	377	12.1	2,100	2,580	213	5.01	-0.10	-0.001
808	4/9/01	6,864.40	6.65	7.04	6,030	841	468	312	11.6	2,130	2,480	247	6.39	-0.10	-0.001
EPA 23	1/9/01	6,878.70	6.75	7.68	4,340	648	391	114	9.2	1,050	2,150	67.7	0.97	1.14	-0.001
EPA 23	2/6/01	6,878.60	6.80	7.56	4,380	737	429	118	10.6	1,060	2,510	68.5	1.08	1.25	-0.001
EPA 23	3/6/01	6,878.50	6.93	7.61	4,070	636	389	150	10.2	1,030	2,410	65.6	1.09	1.25	-0.001
EPA 23	4/4/01	6,878.50	6.87	7.49	4,400	702	410	118	9.3	1,040	2,310	71	1.16	1.41	-0.001
EPA 25	1/9/01	6,852.10	7.12	7.89	3,910	699	234	155	7	761	1,760	63.4	-0.05	106.00	-0.001
EPA 25	2/6/01	6,852.10	7.33	7.34	3,970	792	251	135	8.3	783	1,930	64.3	0.06	106.00	-0.001
EPA 25	3/6/01	6,852.15	7.27	7.87	3,710	676	224	186	8.2	757	1,840	58.7	-0.05	105.00	-0.001
EPA 25	4/10/01	6,852.25	7.41	7.34	3,940	778	241	143	7.9	782	1,910	71.7	0.08	101.00	-0.001

TABLE 2

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
FIRST QUARTER WATER QUALITY DATA

Well No.	Date	Al (mg/L)	As (mg/L)	Be (mg/L)	Cd (mg/L)	Co (mg/L)	Pb (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	Se (mg/L)	V (mg/L)	U (mg/L)	Ra-226+ Ra-228 (pCi/L)	Th-230 (pCi/L)	Pb-210 (pCi/L)	Gross Alpha (pCi/L)
	NRC Standard	**NA**	**0.05**	**0.05**	**0.01**	**NA**	**0.05**	**NA**	**NA**	**0.05**	**0.01**	**0.10**	**0.3**	**5.0**	**5.0**	**1.0**	**15.0**
	EPA Standard	**5.0**	**0.05**	**0.02**	**0.01**	**0.05**	**0.05**	**2.60**	**1.00**	**0.2**	**0.01**	**0.70**	**5.0**	**5.0**	**NA**	**NA**	**15.0**
802	1/8/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	2.73	-0.1	-0.05	0.004	-0.1	0.193	-3.8	-0.2	-1	-1
802	2/5/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	3.34	-0.1	-0.05	0.001	-0.1	0.159	-1.4	-0.2	-1	-1
802	3/5/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	0.96	-0.1	-0.05	0.001	-0.1	0.165	-3.1	-0.2	-1	-1
802	4/9/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	0.64	-0.1	-0.05	-0.001	-0.1	0.170	-1.2	-0.2	-1	-1
803	1/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.91	-0.1	-0.05	0.001	-0.1	0.09	-3.0	-0.2	-1	-1
803	2/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.37	-0.1	-0.05	0.001	-0.1	0.1	-1.6	-0.2		-1
803	3/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.75	-0.1	0.05	0.001	-0.1	0.0874	-2.4	-0.2	-1	-1
803	4/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.29	-0.1	-0.05	-0.001	-0.1	0.100	-1.2	-0.2	-1	-1
808	1/8/01	6.02	0.001	-0.01	-0.005	0.13	-0.05	18.1	-0.1	0.09	0.001	-0.1	0.082	-1.2	-0.2	-1	-1
808	2/5/01	0.11	-0.001	-0.01	-0.005	0.02	-0.05	2.61	-0.1	-0.05	-0.001	-0.1	0.0338	2.5	-0.2	-1	-1
808	3/5/01	-0.1	-0.001	-0.01	-0.005	0.02	-0.05	3.18	-0.1	-0.05	-0.001	-0.1	0.0338	-1.2	-0.2	-1	-1
808	4/9/01	0.11	-0.001	-0.01	-0.005	0.03	-0.05	4.0	-0.1	-0.05	-0.001	-0.1	0.034	-1.4	-0.2	-1	-1
EPA 23	1/9/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	4.77	-0.1	-0.05	0.001	-0.1	0.024	-2.5	-0.2	-1	-1
EPA 23	2/6/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	4.77	-0.1	-0.05	-0.001	-0.1	0.025	2.5	-0.2	-1	-1
EPA 23	3/6/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	5.0	-0.1	-0.05	-0.001	-0.1	0.0245	-1.2	-0.2	-1	-1
EPA 23	4/4/01	-0.1	0.001	-0.01	-0.005	-0.01	-0.05	4.29	-0.1	-0.05	-0.001	-0.1	0.024	-1.3	-0.2	-1	-1
EPA 25	1/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.25	-0.1	-0.05	0.002	-0.1	0.086	-2.9	-0.2	-1	-1
EPA 25	2/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.33	-0.1	-0.05	0.002	-0.1	0.094	-1.2	-0.2	-1	-1
EPA 25	3/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.35	-0.1	-0.05	0.001	-0.1	0.0911	-2.6	-0.2	-1	-1
EPA 25	4/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.45	-0.1	-0.05	0.001	-0.1	0.091	-1.2	-0.2	-1	-1

TABLE 2

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
FIRST QUARTER WATER QUALITY DATA

Well No.	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO_3 (mg/L)	SO_4 (mg/L)	Cl (mg/L)	NH_4 as N (mg/L)	NO_3 as N (mg/L)	Chloro-form (mg/L)
	NRC Standard	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**0.00100**
	EPA Standard	**NA**	**NA**	**NA**	**4,800**	**NA**	**NA**	**NA**	**NA**	**NA**	**2,125**	**250**	**NA**	**190**	**NA**
EPA 28	1/8/01	6,856.15	6.88	7.66	5,110	538	512	179	11.4	633	2,850	116	-0.05	51.00	-0.001
EPA 28	2/5/01	6,856.40	7.01	7.56	5,090	615	567	178	12.2	636	3,060	107	-0.05	47.60	-0.001
EPA 28	3/5/01	6,856.35	7.56	7.53	4,670	535	515	155	12.3	644	2,910	103	-0.05	49.40	-0.001
EPA 28	4/10/01	6,856.70	7.13	7.42	4,950	596	546	188	12.1	650	3,010	117	-0.05	50.10	-0.001
GW 1	1/8/01	6,856.00	6.73	7.75	4,290	628	316	196	5.2	944	1,830	112	0.76	79.90	-0.001
GW 1	2/5/01	6,856.20	6.91	7.44	4,270	721	352	184	6.1	960	2,110	114	0.77	73.70	-0.001
GW 1	3/5/01	6,856.50	7.15	7.40	4,080	635	323	166	6.1	975	2,070	104	0.79	74.20	-0.001
GW 1	4/4/01	6,856.70	7.00	7.50	4,360	713	347	201	4.1	946	2,070	116	0.79	84.70	-0.001
GW 2	1/8/01	6,858.10	6.51	7.23	5,270	599	537	211	9.7	1,420	2,620	159	0.09	4.04	-0.001
GW 2	2/6/01	6,858.65	6.79	7.37	5,290	679	578	230	10.4	1,410	2,800	153	0.05	3.84	-0.001
GW 2	3/6/01	6,858.80	6.86	7.54	5,150	586	528	275	10.6	1,400	2,680	140	-0.05	3.36	-0.001
GW 2	4/9/01	6,859.30	6.92	7.26	5,200	668	568	220	10.1	1,420	2,730	152	-0.05	3.68	-0.001
GW 3	1/9/01	6,858.00	6.82	7.62	4,660	830	265	207	8.5	1,210	1,850	125	-0.05	115.00	-0.001
GW 3	2/6/01	6,858.30	6.99	7.12	4,720	943	290	183	9.7	1,220	2,120	123	-0.05	110.00	-0.001
GW 3	3/6/01	6,858.70	7.00	7.63	4,380	817	263	164	9.3	1,180	2,040	120	0.16	112.00	-0.001
GW 3	4/10/01	6,859.05	7.26	7.20	4,680	945	287	207	9.1	1,250	2,070	128	0.14	108.00	-0.001

TABLE 2

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
FIRST QUARTER WATER QUALITY DATA

Well No.	Date	Al (mg/L)	As (mg/L)	Be (mg/L)	Cd (mg/L)	Co (mg/L)	Pb (mg/L)	Mn (mg/L)	Mo (mg/L)	Ni (mg/L)	Se (mg/L)	V (mg/L)	U (mg/L)	Ra-226+ Ra-228 (pCi/L)	Th-230 (pCi/L)	Pb-210 (pCi/L)	Gross Alpha (pCi/L)
	NRC Standard	**NA**	**0.05**	**0.05**	**0.01**	**NA**	**0.05**	**NA**	**NA**	**0.05**	**0.01**	**0.10**	**0.3**	**5.0**	**5.0**	**1.0**	**15.0**
	EPA Standard	**5.0**	**0.05**	**0.02**	**0.01**	**0.05**	**0.05**	**2.60**	**1.00**	**0.2**	**0.01**	**0.70**	**5.0**	**5.0**	**NA**	**NA**	**15.0**
EPA 28	1/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.42	-0.1	-0.05	-0.001	-0.1	0.039	-1.2	-0.2	-1	-1
EPA 28	2/5/01	0.6	-0.001	-0.01	-0.005	-0.01	-0.05	0.42	-0.1	-0.05	-0.001	-0.1	0.042	-1.5	-0.2	-1	-1
EPA 28	3/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.45	-0.1	-0.05	-0.001	-0.1	0.0398	-1.2	-0.2	-1	-1
EPA 28	4/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.43	-0.1	-0.05	-0.001	-0.1	0.037	-2.5	-0.2	-1	-1
GW 1	1/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.04	-0.1	-0.05	0.001	-0.1	0.063	-5.3	-0.2	-1	-1
GW 1	2/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	-0.001	-0.1	0.068	-1.3	-0.2	-1	-1
GW 1	3/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	-0.001	-0.1	0.0671	-4.1	-0.2	-1	-1
GW 1	4/4/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	-0.001	-0.1	0.068	-1.2	-0.2	-1	-1
GW 2	1/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.49	-0.1	-0.05	-0.001	-0.1	0.063	-1.2	-0.2	-1	-1
GW 2	2/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.5	-0.1	-0.05	-0.001	-0.1	0.065	-1.2	-0.2	-1	-1
GW 2	3/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.5	-0.1	-0.05	-0.001	-0.1	0.0626	-1.2	-0.2	-1	-1
GW 2	4/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.54	-0.1	-0.05	-0.001	-0.1	0.074	-1.2	-0.2	-1	-1
GW 3	1/9/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	1.9	-0.1	-0.05	0.001	-0.1	0.056	-3.8	-0.2	-1	-1
GW 3	2/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.91	-0.1	-0.05	0.002	-0.1	0.059	-1.2	-0.2	-1	-1
GW 3	3/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.87	-0.1	-0.05	0.001	-0.1	0.0569	-1.2	-0.2	-1	-1
GW 3	4/10/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	1.91	-0.1	-0.05	0.001	-0.1	0.057	-2.6	-0.2	-1	1.3

Notes:

1. NRC standard as listed in License Condition 30, Part B.
2. EPA standard as listed in Table 2, "Contaminant-Specific Groundwater ARARs" of the Record of Decision (EPA, 1988).
3. "-" (hyphen) indicates that the concentration is less than the laboratory reporting limits. A hyphen for combined Ra-226 and Ra-228 indicates that at least one of these constituents was less than the laboratory reporting limits, which are 0.2 and 1.0 pCi/L, respectively.
4. All values that exceed the NRC and/or EPA standards are shaded.

ft AMSL = feet above mean sea level
SU = Standard pH units
mg/L = milligrams per liter
pCi/L = picocuries per liter

FIGURES

E 54,000 E 56,000 E 58,000 E 60,000 E 62,000 E 64,000

N

N 76,000

N 74,000

N 72,000

REFERENCE

TOPOGRAPHIC MAP OF SEC. 2, T16N, R16W, N.M.P.M. & VICINITY PROVIDED BY UNITED NUCLEAR CORPORATION, GALLUP, NEW MEXICO. DATED: 8-1-96. SCALE: 1" = 400'

PROPERTY BOUNDARY

LEGEND:

- 803 ◆ EXTRACTION WELL, LOCATION AND DESIGNATION
- 804 ▲ MONITORING WELL (CONTAINS WATER), LOCATION AND DESIGNATION
- EPA 27 △ MONITORING WELL (NOT INCLUDED IN NA TEST, DRY OR CONTAINS INSUFFICIENT WATER FOR SAMPLING), LOCATION AND DESIGNATION
- INDICATES APPROXIMATE LIMITS OF TAILINGS UNDERLYING RECLAIMED AREA

PIPELINE ARROYO

NORTH CELL

CENTRAL CELL

SOUTH CELL

RECLAIMED TAILINGS AREA

BORROW PIT No. 2 (RECLAIMED)

EVAPORATION PONDS

SOUTHWEST ALLUVIUM REMEDIAL ACTION TARGET AREA

SECTION 2

SECTION 3

SECTION 10

EPA 1 EPA 11 EPA 12 EPA 13 EPA 15 EPA 17 EPA 18 EPA 2 EPA 3 EPA 4 EPA 5 EPA 7 EPA 8 EPA 9 EPA 22A DRY EPA 23 EPA 25 EPA 26 EPA 27 DRY

GW 1 GW 2 GW 3 CW-4 DRY 29 A DRY 839 DRY 842 DRY 844 DRY 845 DRY

627 824

NOTES:

1. EXTRACTION WELL 808 WAS INSTALLED AND BEGAN OPERATING IN JUNE 1991. THE WELL WAS ADDED TO THE SOUTHWEST ALLUVIUM SYSTEM AS REQUIRED BY THE NRC AND EPA IN THEIR COMMENTS TO THE 1990 ANNUAL REVIEW.

SCALE

800 0 800 FEET

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	7/16/01	ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 1ST QUARTER 2001	SAB	KTS	SdP

FIGURE 1

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST WELL LOCATIONS

PREPARED FOR:

UNC MINING AND MILLING
GALLUP, NEW MEXICO

C01

EARTH TECH

B1213.DWG

1

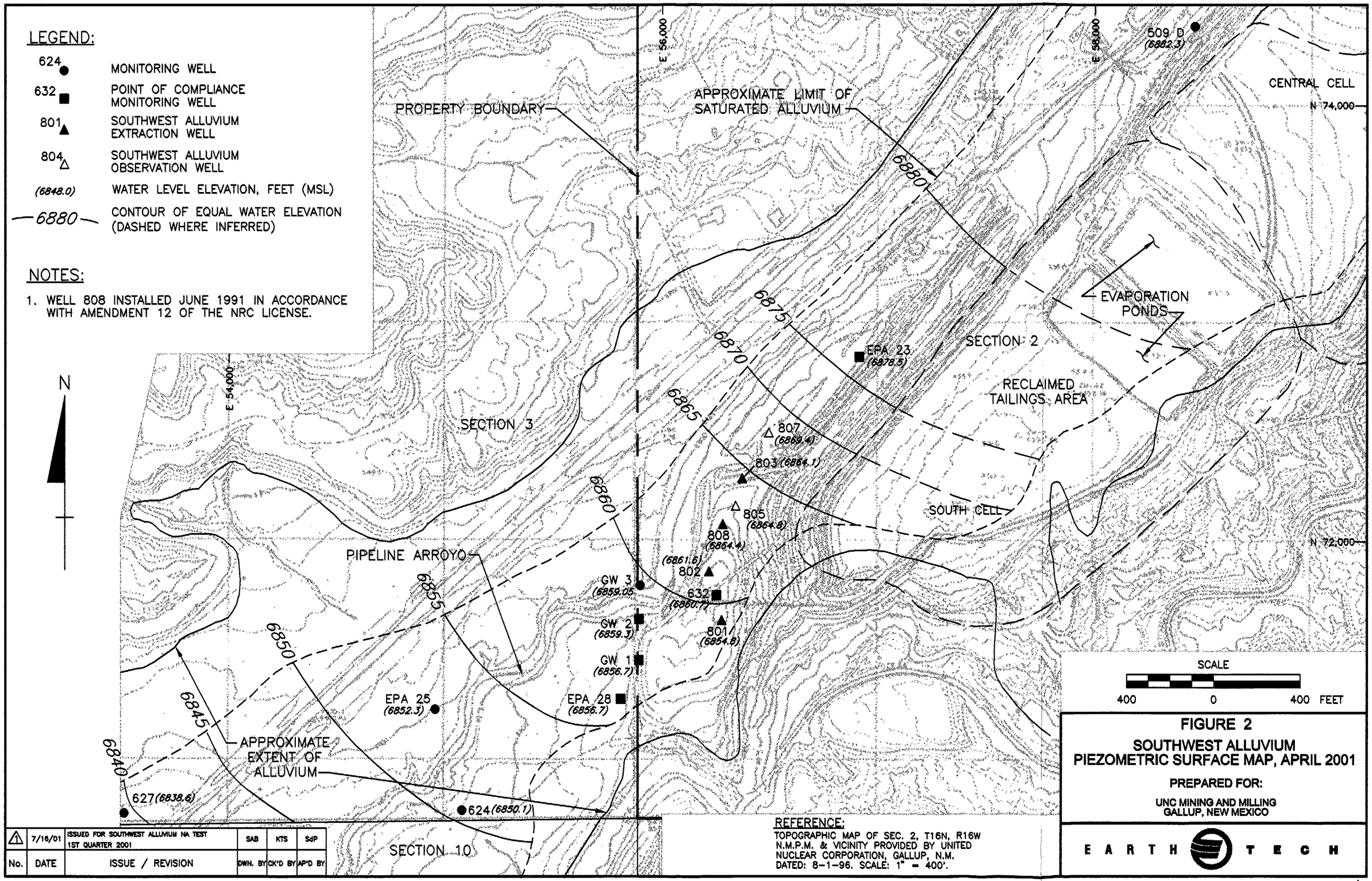


FIGURE 2

SOUTHWEST ALLUVIUM
PIEZOMETRIC SURFACE MAP, APRIL 2001

PREPARED FOR:

UNC MINING AND MILLING
GALLUP, NEW MEXICO

REFERENCE:
TOPOGRAPHIC MAP OF SEC. 2, T16N, R16W N.M.P.M. & VICINITY PROVIDED BY UNITED NUCLEAR CORPORATION, GALLUP, N.M. DATED: 8-1-96. SCALE: 1" = 400'.

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	7/16/01	ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 1ST QUARTER 2001	SAB	KTS	SdP

B1208.DWG

EARTH TECH

1

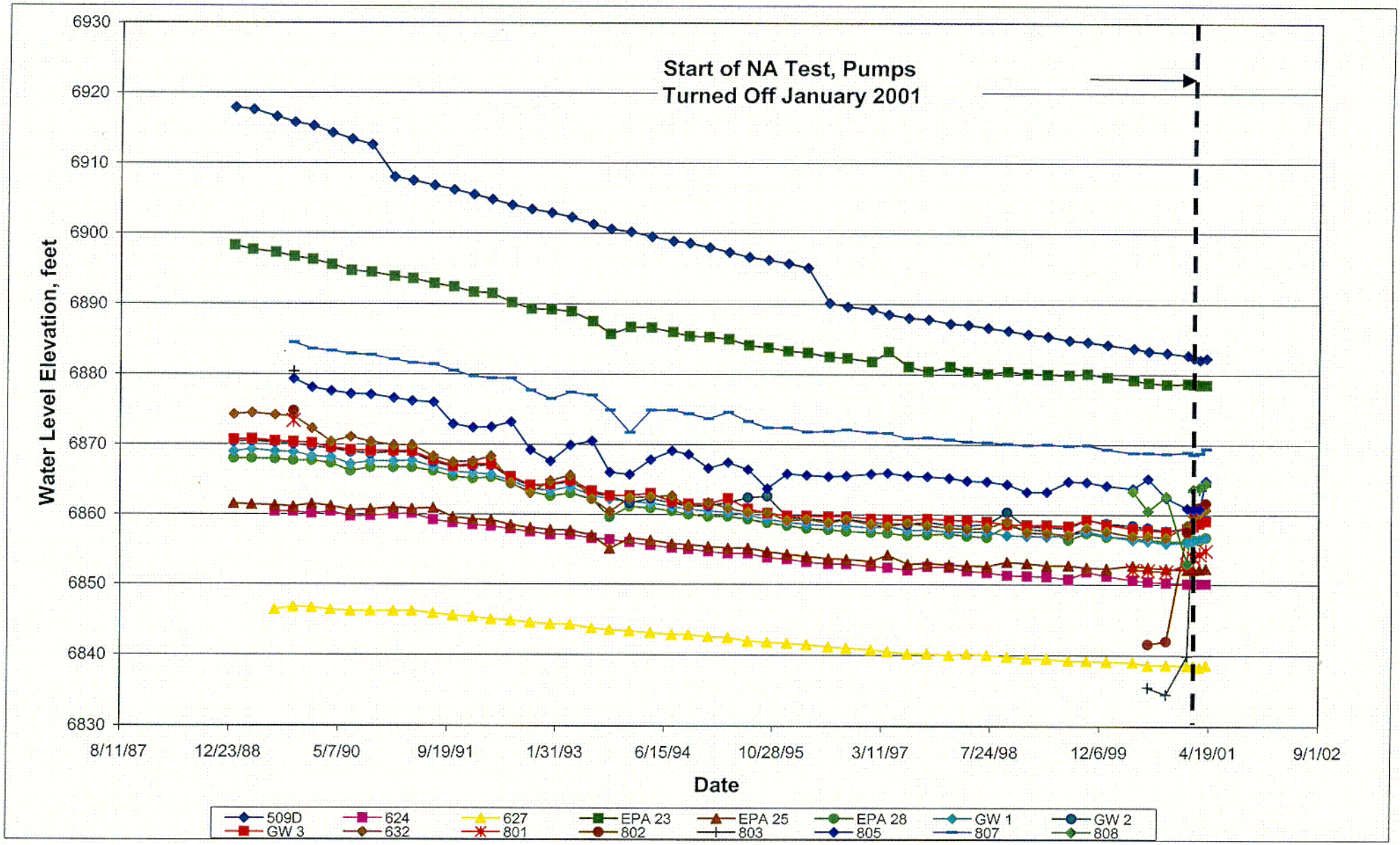


FIGURE 3

Southwest Alluvium Water Levels Over Time

C02

SWA Natural Attenuation Test
First Quarter Report, July 2001

LEGEND:

- 624 ● MONITORING WELL
- 632 ■ POINT OF COMPLIANCE MONITORING WELL
- 801 ▲ SOUTHWEST ALLUVIUM EXTRACTION WELL
- 804 △ SOUTHWEST ALLUVIUM OBSERVATION WELL
- APPROXIMATE AREA IMPACTED BY TAILINGS SEEPAGE
- APPROXIMATE EXTENT OF SULFATE EXCEEDING 2,125 mg/L
- (2,310) SULFATE CONCENTRATION, mg/L

NOTES:

1. WELL 808 INSTALLED JUNE 1991 IN ACCORDANCE WITH AMENDMENT 12 OF THE NRC LICENSE.
2. SEEPAGE IMPACTED WATER EXTENDS APPROXIMATELY 347 FEET DOWNGRADIENT FROM WELL 624.

N

E 54,000

E 56,000

E 58,000

N 74,000

N 72,000

PROPERTY BOUNDARY

APPROXIMATE LIMIT OF SATURATED ALLUVIUM

509 D (1,800)

CENTRAL CELL

SECTION 2

SECTION 3

SECTION 10

EVAPORATION PONDS

RECLAIMED TAILINGS AREA

SOUTH CELL

DIRECTION OF ALLUVIAL WATER FLOW

PIPELINE ARROYO

APPROXIMATE EXTENT OF ALLUVIUM

NOTE 2

EPA 23 (2,310)

807

803 (3,460)

805

808 (2,480)

802 (2,840)

632 (3,370)

801 (3,580)

GW 3 (2,070)

GW 2 (2,730)

GW 1 (2,070)

EPA 25 (1,910)

EPA 28 (3,010)

627 (2,840)

624 (2,250)

SCALE

400 0 400 FEET

REFERENCE:
TOPOGRAPHIC MAP OF SEC. 2, T16N, R16W N.M.P.M. & VICINITY PROVIDED BY UNITED NUCLEAR CORPORATION, GALLUP, N.M. DATED: 8-1-96. SCALE: 1" = 400'.

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	7/16/01	ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 1ST QUARTER 2001	SAB	KTS	SdP

B1210.DWG

FIGURE 4

APPROXIMATE EXTENT OF SULFATE EXCEEDING 2,125 mg/L, APRIL 2001

PREPARED FOR:

UNC MINING AND MILLING
GALLUP, NEW MEXICO

C03

EARTH TECH

1

LEGEND:

- 624 ● MONITORING WELL
- 632 ■ POINT OF COMPLIANCE MONITORING WELL
- 801 ▲ SOUTHWEST ALLUVIUM EXTRACTION WELL
- 804 △ SOUTHWEST ALLUVIUM OBSERVATION WELL
- APPROXIMATE AREA IMPACTED BY TAILINGS SEEPAGE
- APPROXIMATE EXTENT OF MANGANESE EXCEEDING 2.6 mg/L
- (4.29) MANGANESE CONCENTRATION, mg/L

NOTES:

1. WELL 808 INSTALLED JUNE 1991 IN ACCORDANCE WITH AMENDMENT 12 OF THE NRC LICENSE.
2. SEEPAGE IMPACTED WATER EXTENDS APPROXIMATELY 347 FEET DOWNGRADIENT FROM WELL 624.

N

E 54,000

E 56,000

E 58,000

N 74,000

N 72,000

PROPERTY BOUNDARY

APPROXIMATE LIMIT OF SATURATED ALLUVIUM

509 D (2.53)

CENTRAL CELL

EVAPORATION PONDS

SECTION 2

EPA 23 (4.29)

RECLAIMED TAILINGS AREA

SECTION 3

DIRECTION OF ALLUVIAL WATER FLOW

807

803 (2.29)

805

808 (4.0)

802 (0.64)

SOUTH CELL

PIPELINE ARROYO

GW 3 (1.91)

632 (0.67)

GW 2 (0.54)

801 (7.02)

GW 1 (0.05)

EPA 25 (1.45)

EPA 28 (0.43)

APPROXIMATE EXTENT OF ALLUVIUM

NOTE 2

627 (0.14)

624 (0.03)

SECTION 10

SCALE

400 0 400 FEET

REFERENCE:
TOPOGRAPHIC MAP OF SEC. 2, T16N, R16W N.M.P.M. & VICINITY PROVIDED BY UNITED NUCLEAR CORPORATION, GALLUP, N.M. DATED: 8-1-96. SCALE: 1" = 400'.

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	7/16/01	ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 1ST QUARTER 2001	SAB	KTS	SdP

B1211.DWG

FIGURE 5

APPROXIMATE EXTENT OF MANGANESE EXCEEDING 2.6 mg/L, APRIL 2001

PREPARED FOR:

UNC MINING AND MILLING
GALLUP, NEW MEXICO

C04

EARTH TECH

1

LEGEND:

- 624 ● MONITORING WELL
- 632 ■ POINT OF COMPLIANCE MONITORING WELL
- 801 ▲ SOUTHWEST ALLUVIUM EXTRACTION WELL
- 804 △ SOUTHWEST ALLUVIUM OBSERVATION WELL
- APPROXIMATE AREA IMPACTED BY TAILINGS SEEPAGE
- APPROXIMATE EXTENT OF CHLOROFORM EXCEEDING 0.001 mg/L
- (0.00349) CHLOROFORM CONCENTRATION, mg/L
- ND NONDETECT

NOTES:

1. WELL 808 INSTALLED JUNE 1991 IN ACCORDANCE WITH AMENDMENT 12 OF THE NRC LICENSE.
2. SEEPAGE IMPACTED WATER EXTENDS APPROXIMATELY 347 FEET DOWNGRADIENT FROM WELL 624.

N

E 54,000

E 56,000

E 58,000

N 74,000

N 72,000

PROPERTY BOUNDARY

APPROXIMATE LIMIT OF SATURATED ALLUVIUM

509 D (ND)

CENTRAL CELL

EVAPORATION PONDS

SECTION 2

RECLAIMED TAILINGS AREA

SECTION 3

DIRECTION OF ALLUVIAL WATER FLOW

EPA 23 (ND)

807

803 (ND)

805

808 (ND)

802 (ND)

SOUTH CELL

PIPELINE ARROYO

GW 3 (ND)

632 (0.00349)

801 (0.00311)

GW 2 (ND)

GW 1 (ND)

EPA 25 (ND)

EPA 28 (ND)

APPROXIMATE EXTENT OF ALLUVIUM

NOTE 2

627 (ND)

624 (ND)

SECTION 10

SCALE

400 0 400 FEET

FIGURE 6

APPROXIMATE EXTENT OF CHLOROFORM EXCEEDING 0.001 mg/L, APRIL 2001

PREPARED FOR:

UNC MINING AND MILLING
GALLUP, NEW MEXICO

C05

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	7/16/01	ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 1ST QUARTER 2001	SAB	KTS	SdP

B1212.DWG

REFERENCE:
TOPOGRAPHIC MAP OF SEC. 2, T16N, R16W N.M.P.M. & VICINITY PROVIDED BY UNITED NUCLEAR CORPORATION, GALLUP, N.M. DATED: 8-1-96. SCALE: 1" = 400'.

EARTH TECH

1

LEGEND:

- 624 ● MONITORING WELL
- 632 ■ POINT OF COMPLIANCE MONITORING WELL
- 801 ▲ SOUTHWEST ALLUVIUM EXTRACTION WELL
- 804 △ SOUTHWEST ALLUVIUM OBSERVATION WELL
- APPROXIMATE AREA IMPACTED BY TAILINGS SEEPAGE
- *(0.034)* URANIUM CONCENTRATION, mg/L

NOTES:

1. WELL 808 INSTALLED JUNE 1991 IN ACCORDANCE WITH AMENDMENT 12 OF THE NRC LICENSE.
2. SEEPAGE IMPACTED WATER EXTENDS APPROXIMATELY 347 FEET DOWNGRADIENT FROM WELL 624.

N

E 54,000

E 56,000

E 58,000

PROPERTY BOUNDARY

APPROXIMATE LIMIT OF SATURATED ALLUVIUM

509 D *(0.183)*

CENTRAL CELL

N 74,000

EVAPORATION PONDS

SECTION 2

EPA 23 *(0.024)*

RECLAIMED TAILINGS AREA

SECTION 3

DIRECTION OF ALLUVIAL WATER FLOW

△ 807

803 *(0.100)*

△ 805

808 *(0.034)*

802 *(0.170)*

SOUTH CELL

N 72,000

PIPELINE ARROYO

GW 3 *(0.057)*

632 *(0.059)*

GW 2 *(0.074)*

801 *(0.053)*

GW 1 *(0.068)*

EPA 25 *(0.091)*

EPA 28 *(0.037)*

APPROXIMATE EXTENT OF ALLUVIUM

NOTE 2

627 *(0.030)*

624 *(0.031)*

SECTION 10

SCALE

400 0 400 FEET

No.	DATE	ISSUE / REVISION	DWN. BY	CK'D BY	AP'D BY
1	7/16/01	ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 1ST QUARTER 2001	SAB	KTS	SdP

B1209.DWG

REFERENCE:
TOPOGRAPHIC MAP OF SEC. 2, T16N, R16W N.M.P.M. & VICINITY PROVIDED BY UNITED NUCLEAR CORPORATION, GALLUP, N.M. DATED: 8-1-96. SCALE: 1" = 400'.

FIGURE 7

APPROXIMATE EXTENT OF URANIUM EXCEEDING 0.3 mg/L, APRIL 2001

PREPARED FOR:

UNC MINING AND MILLING
GALLUP, NEW MEXICO

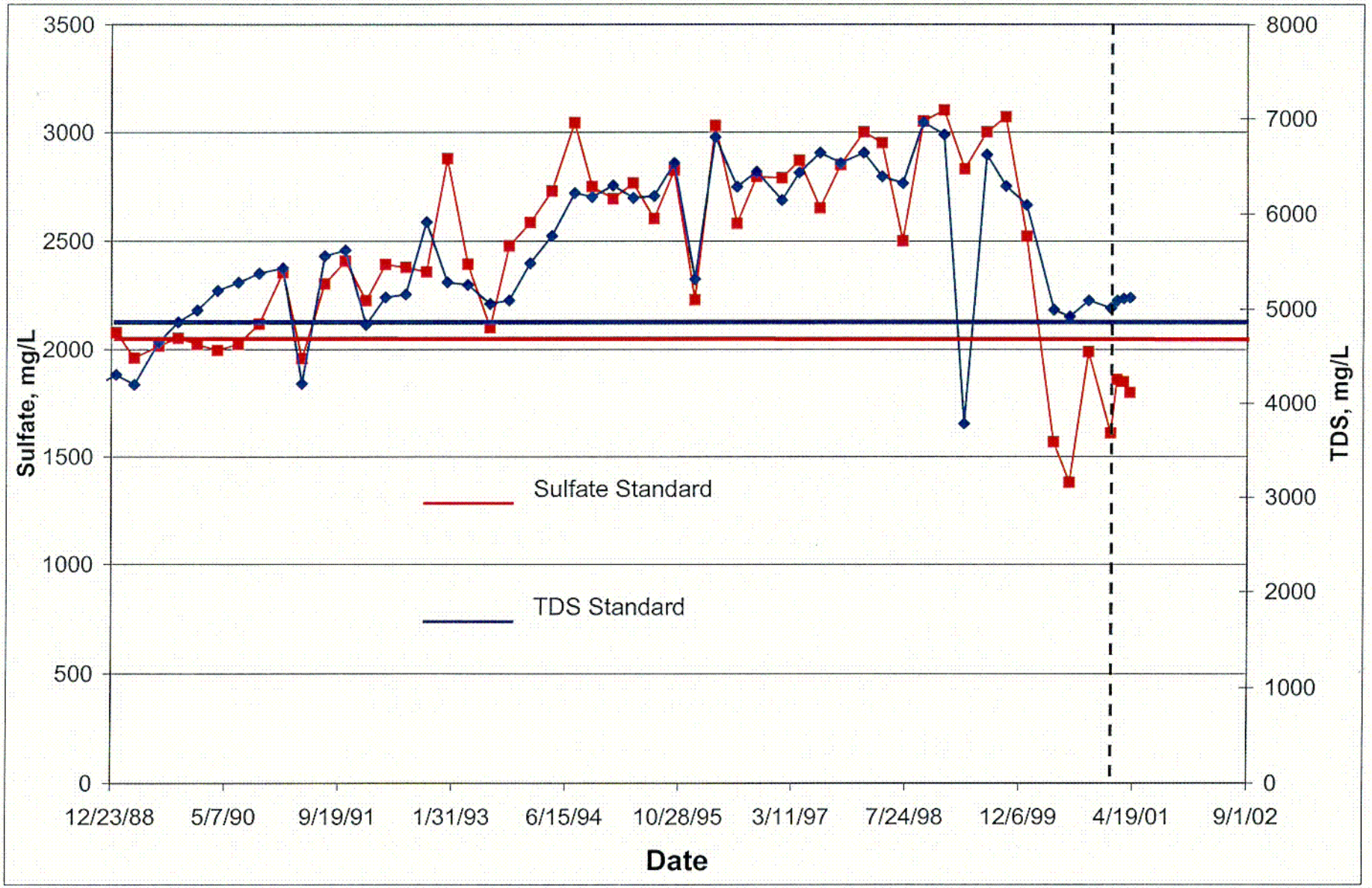
C06

EARTH TECH

1

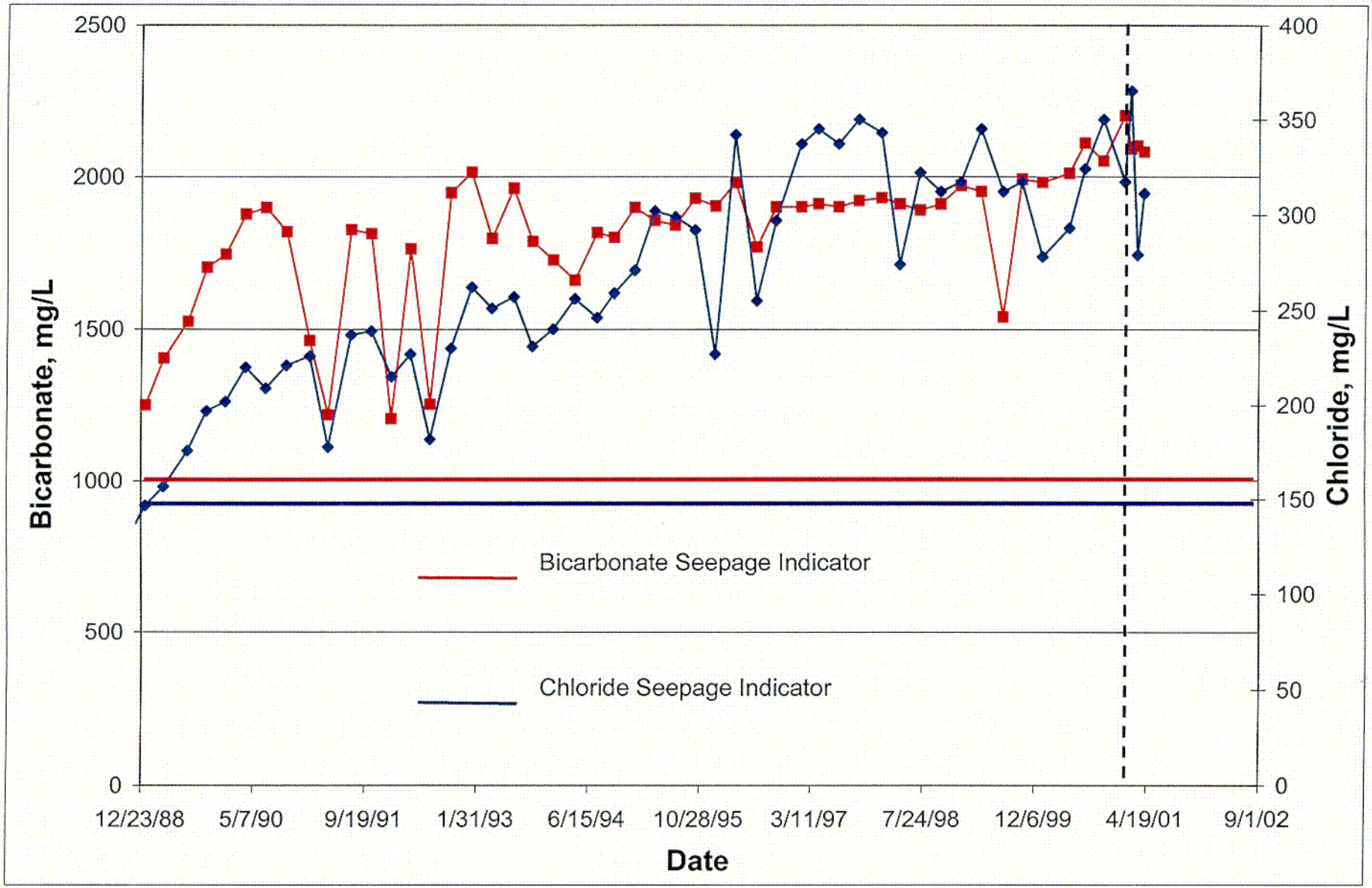
APPENDIX A

GRAPHS OF CONSTITUENT CONCENTRATIONS OVER TIME



509 D
Sulfate and TDS

C07

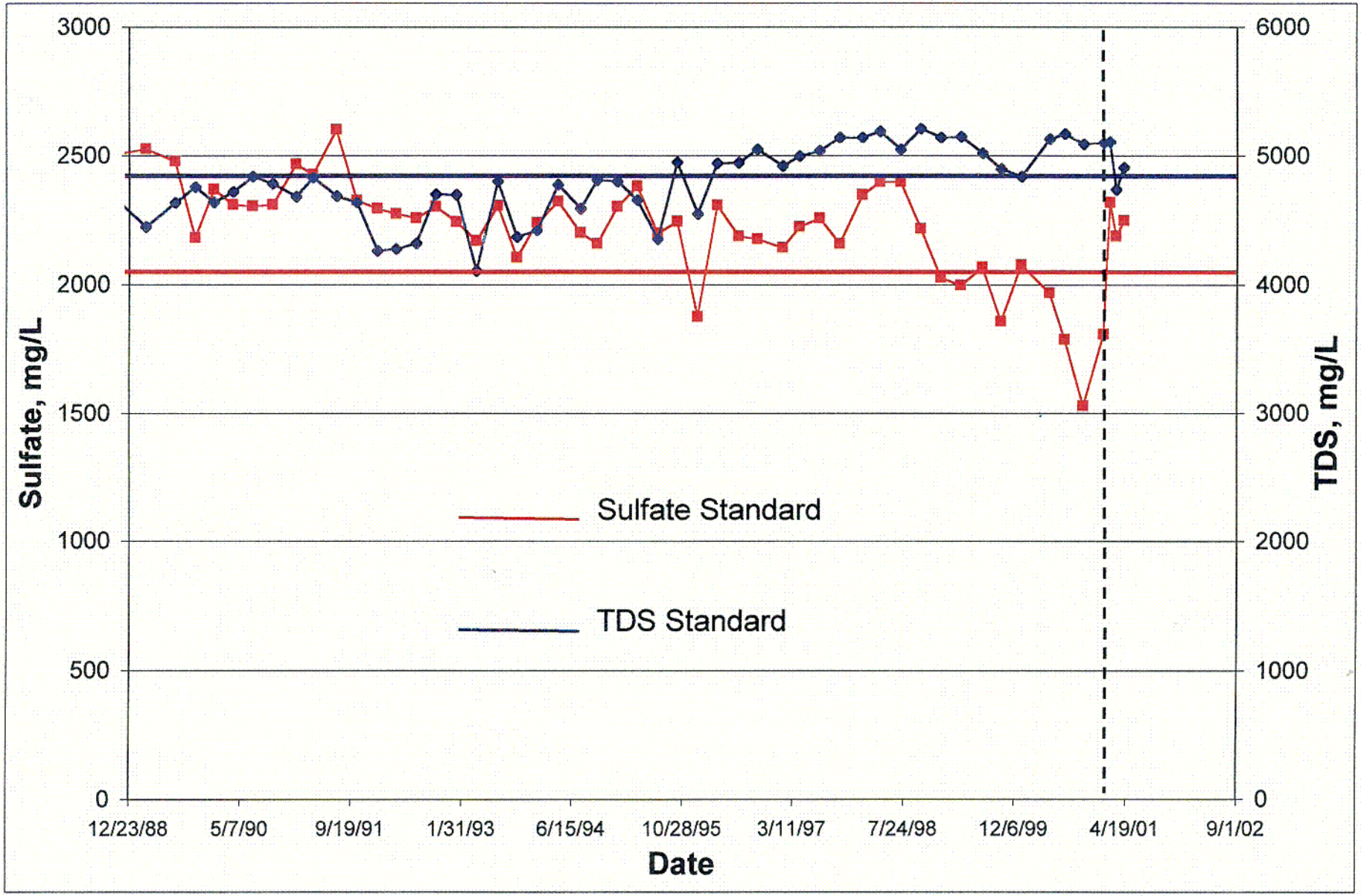


509 D

Bicarbonate and Chloride

SWA Natural Attenuation Test
First Quarter Report, July 2001

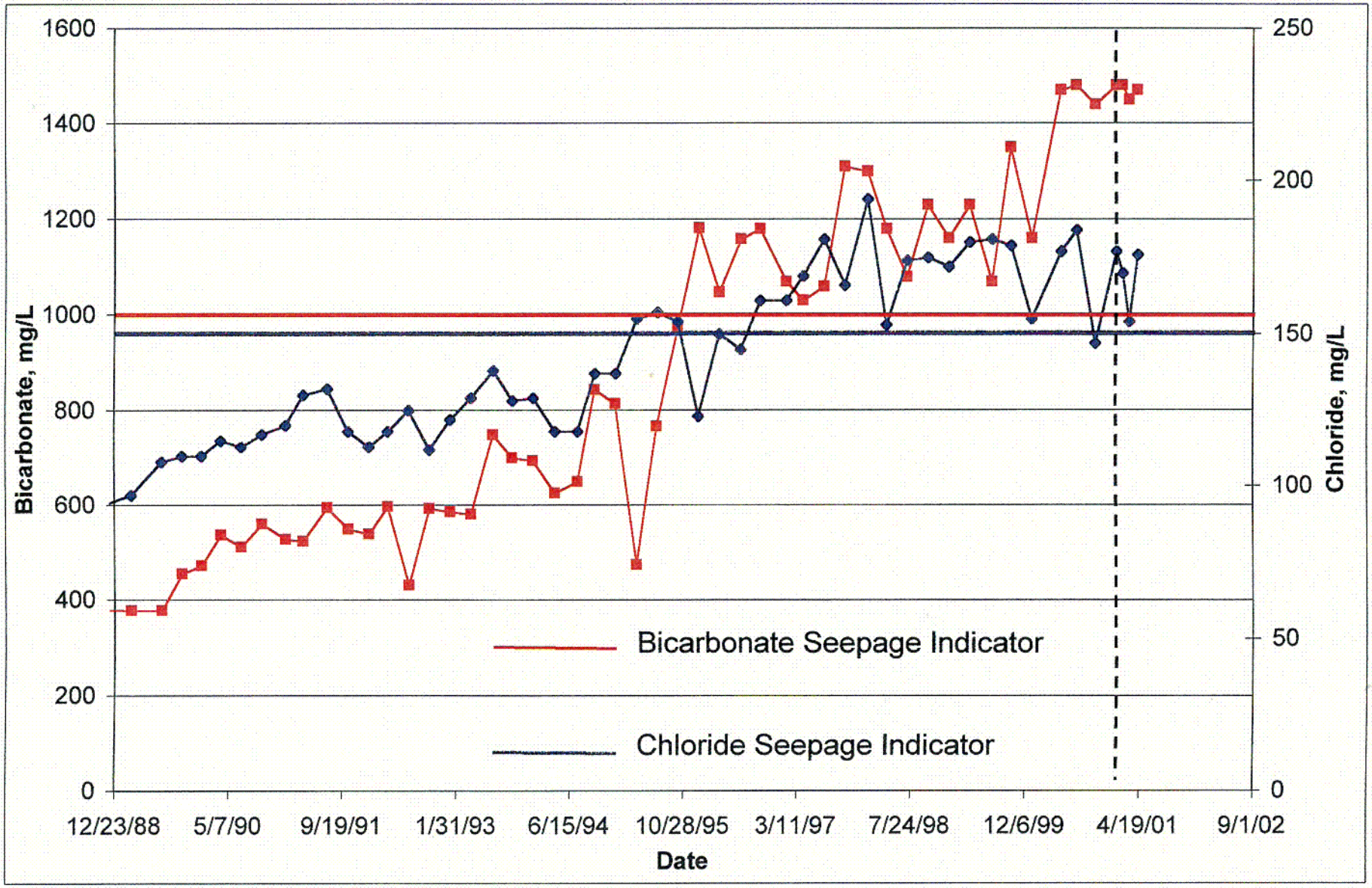
C08



624

Sulfate and TDS

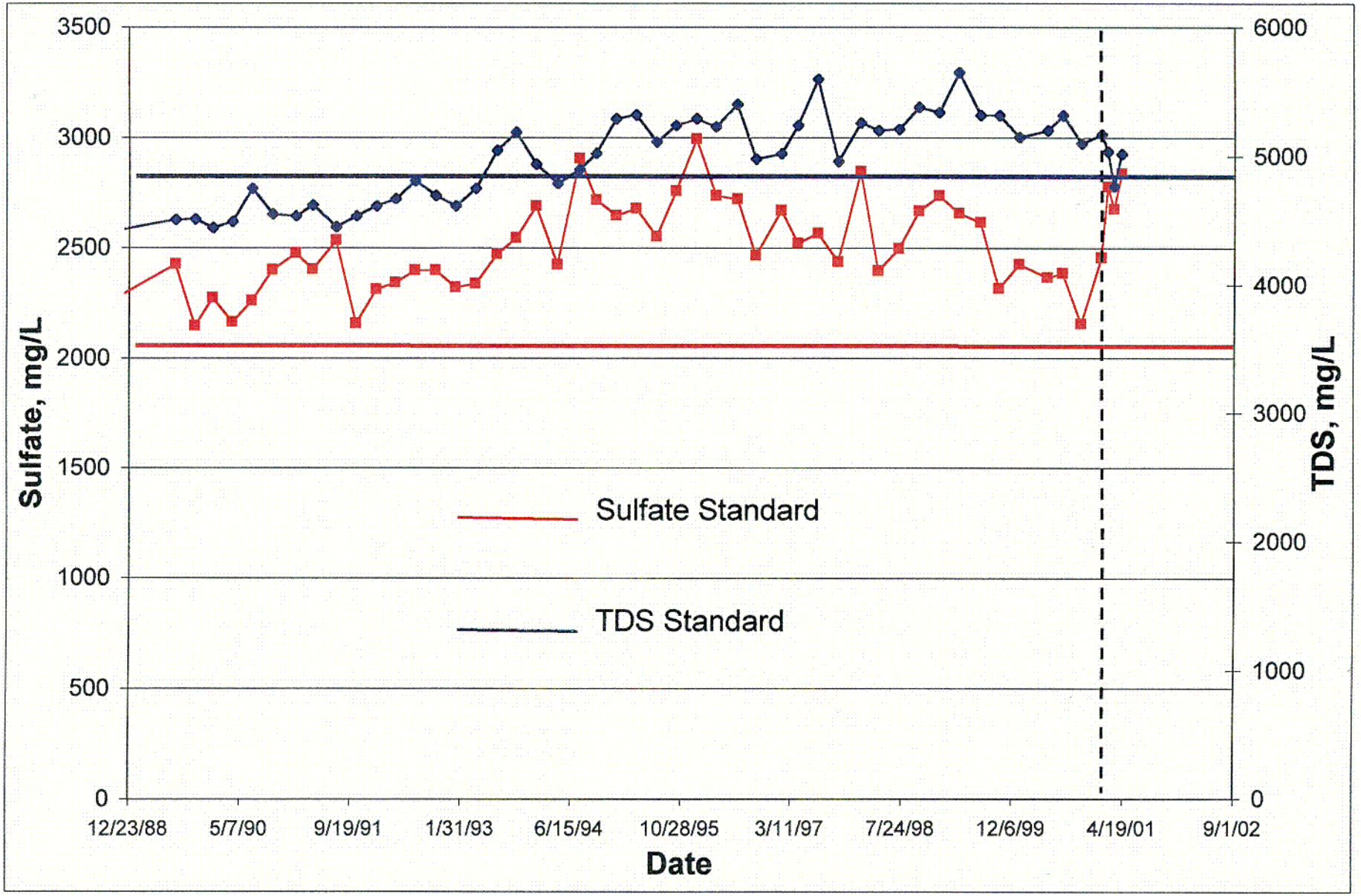
C09



624

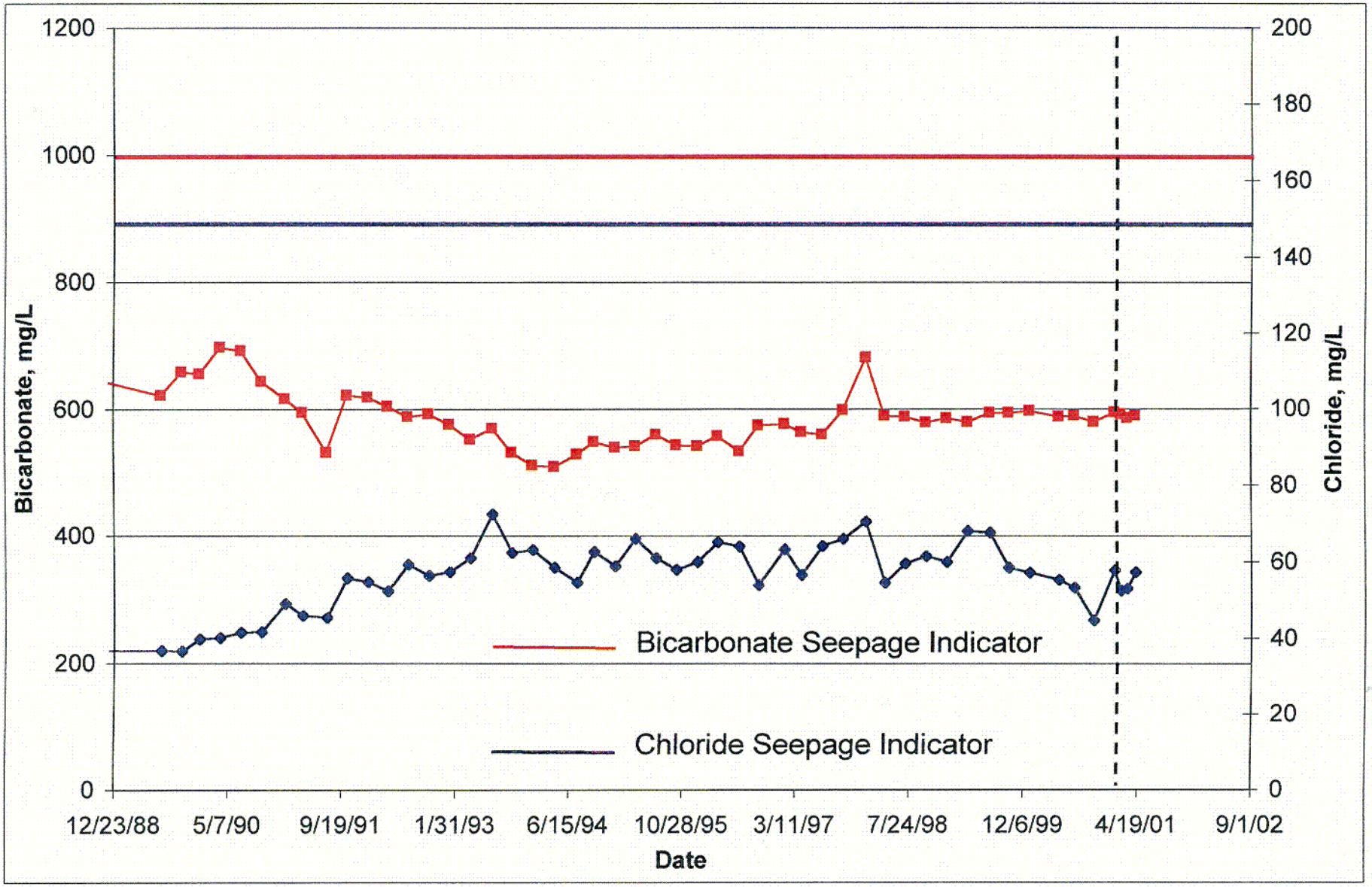
Bicarbonate and Chloride

C10



627

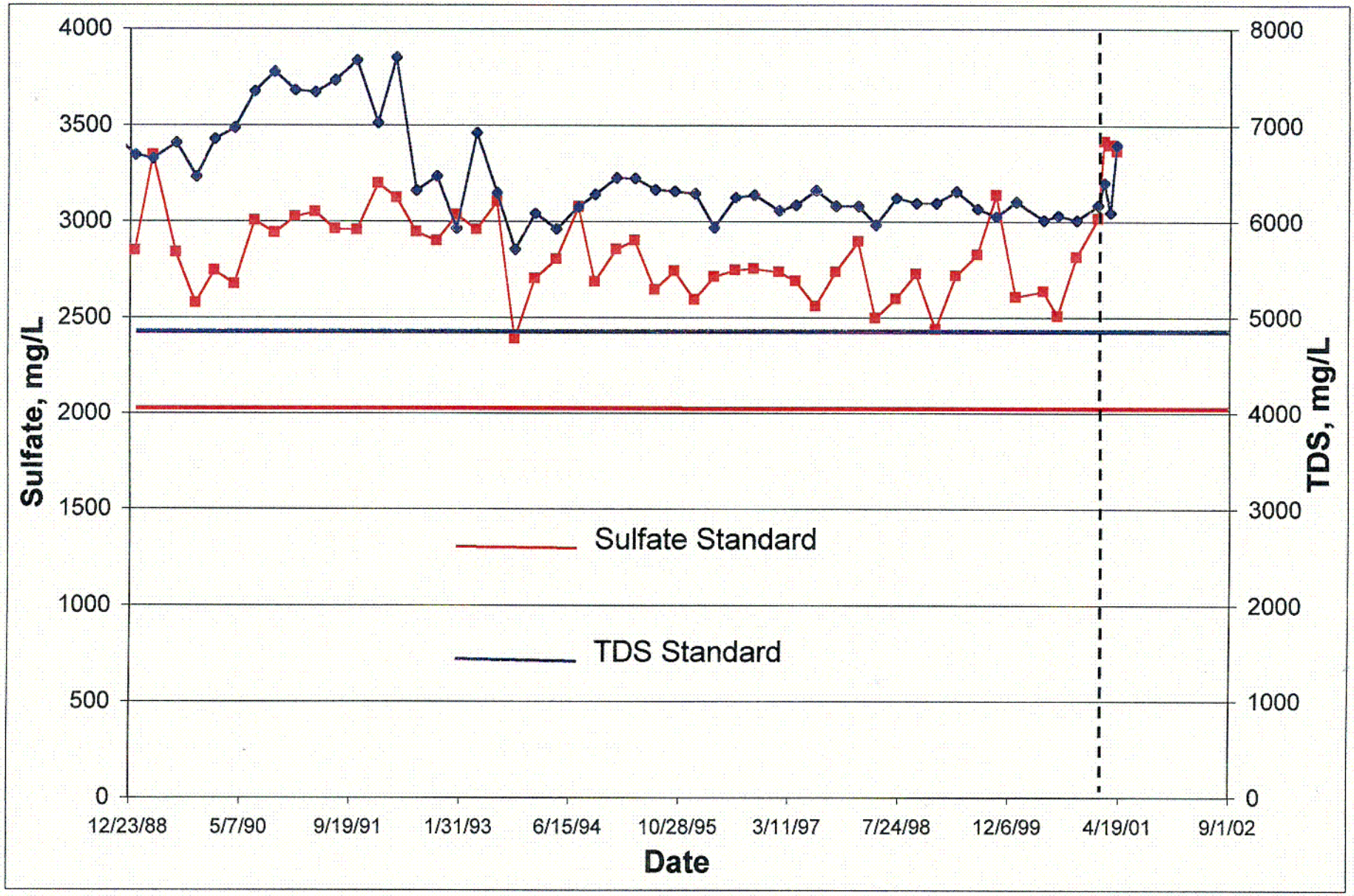
Sulfate and TDS



627

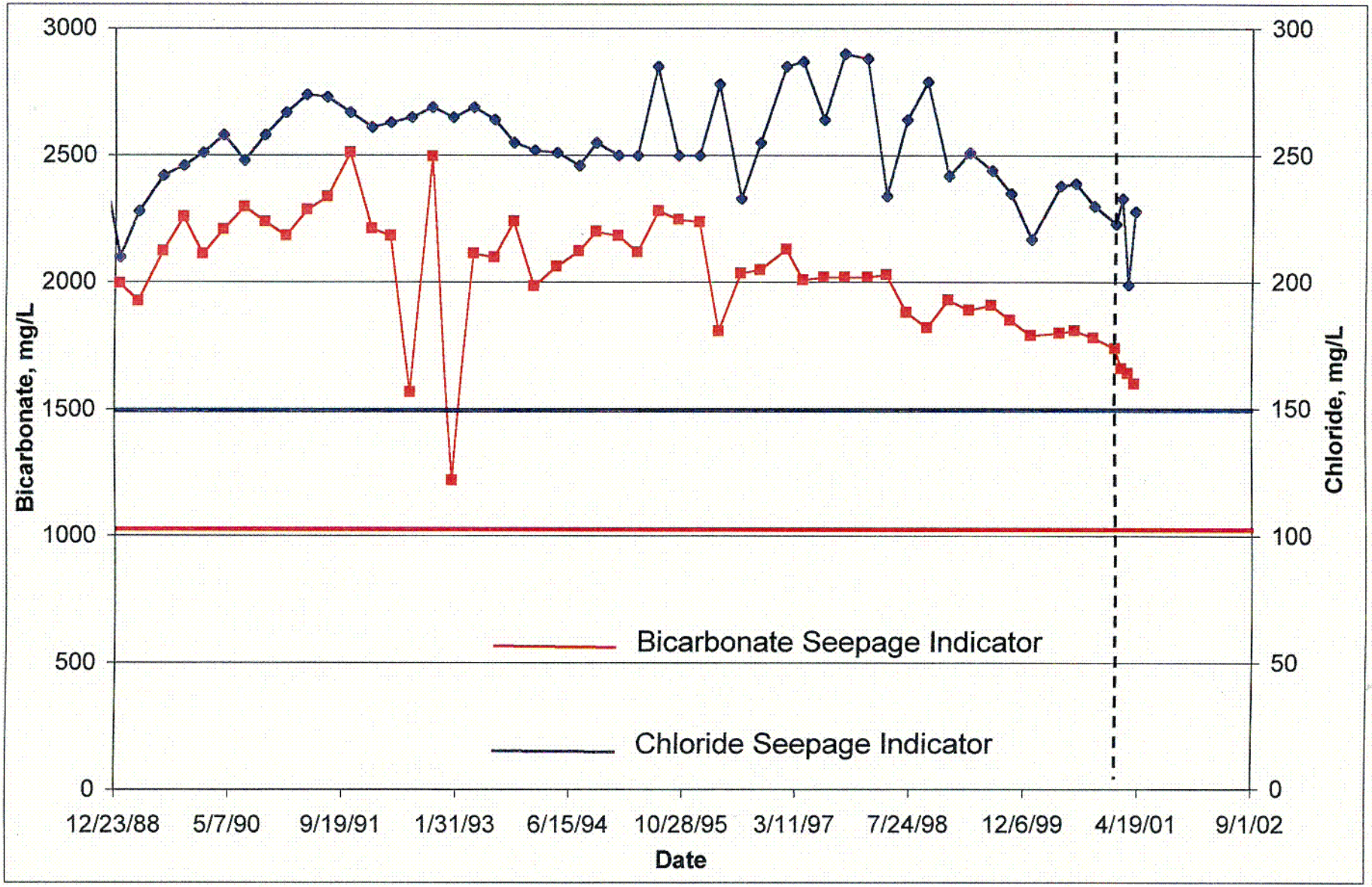
Bicarbonate and Chloride

C12



632

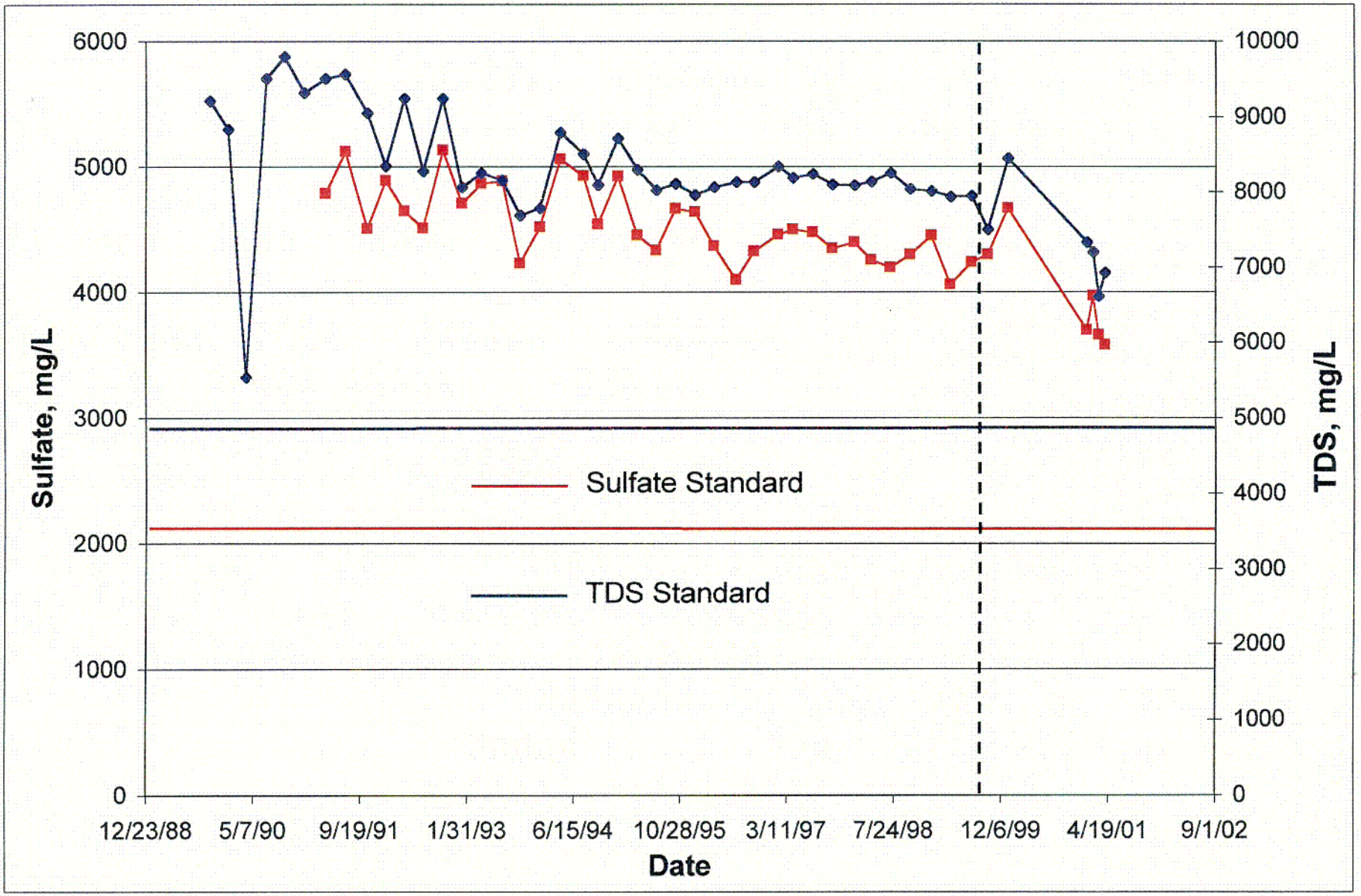
Sulfate and TDS



632

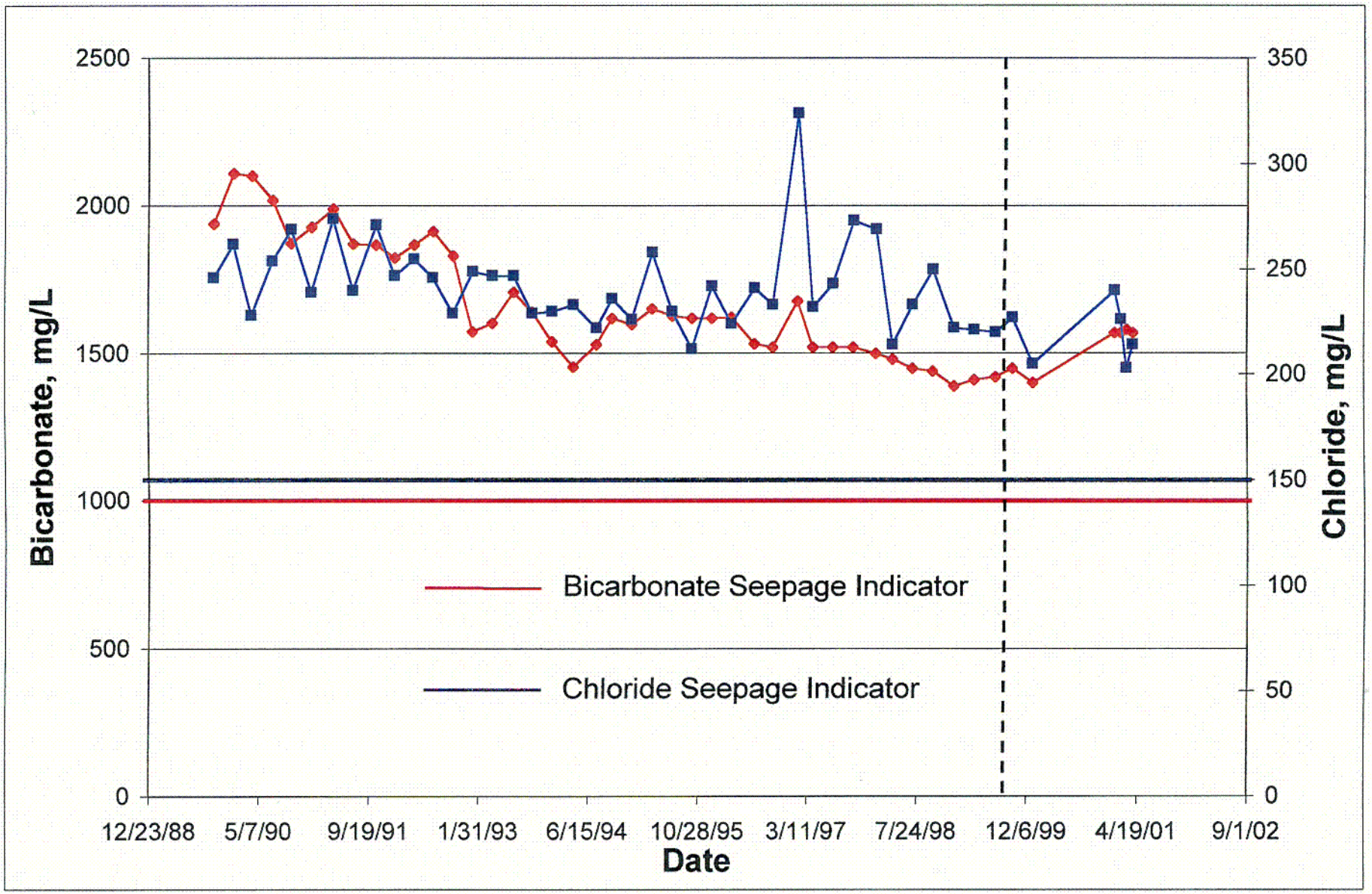
Bicarbonate and Chloride

C14



801

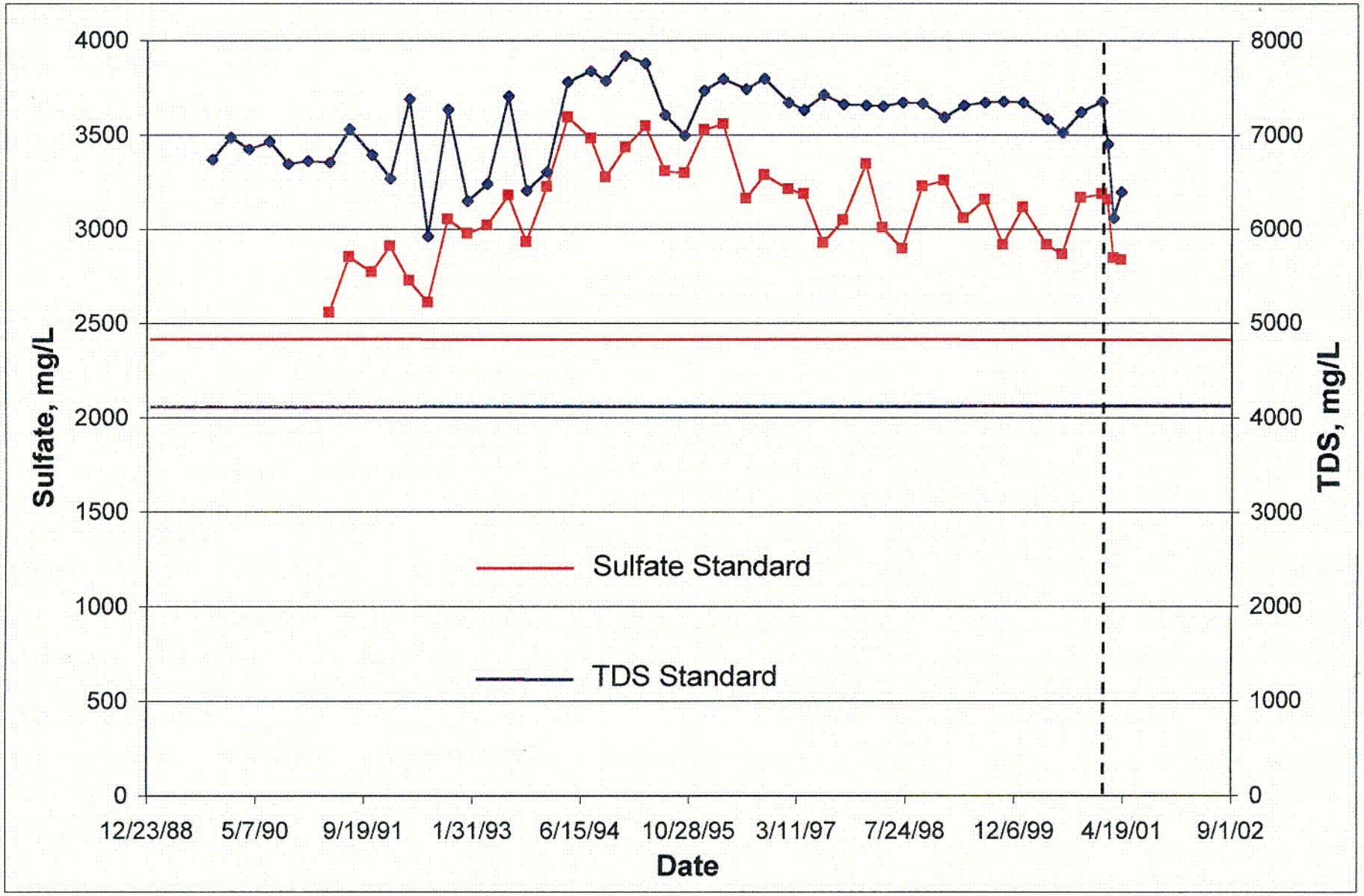
Sulfate and TDS



801

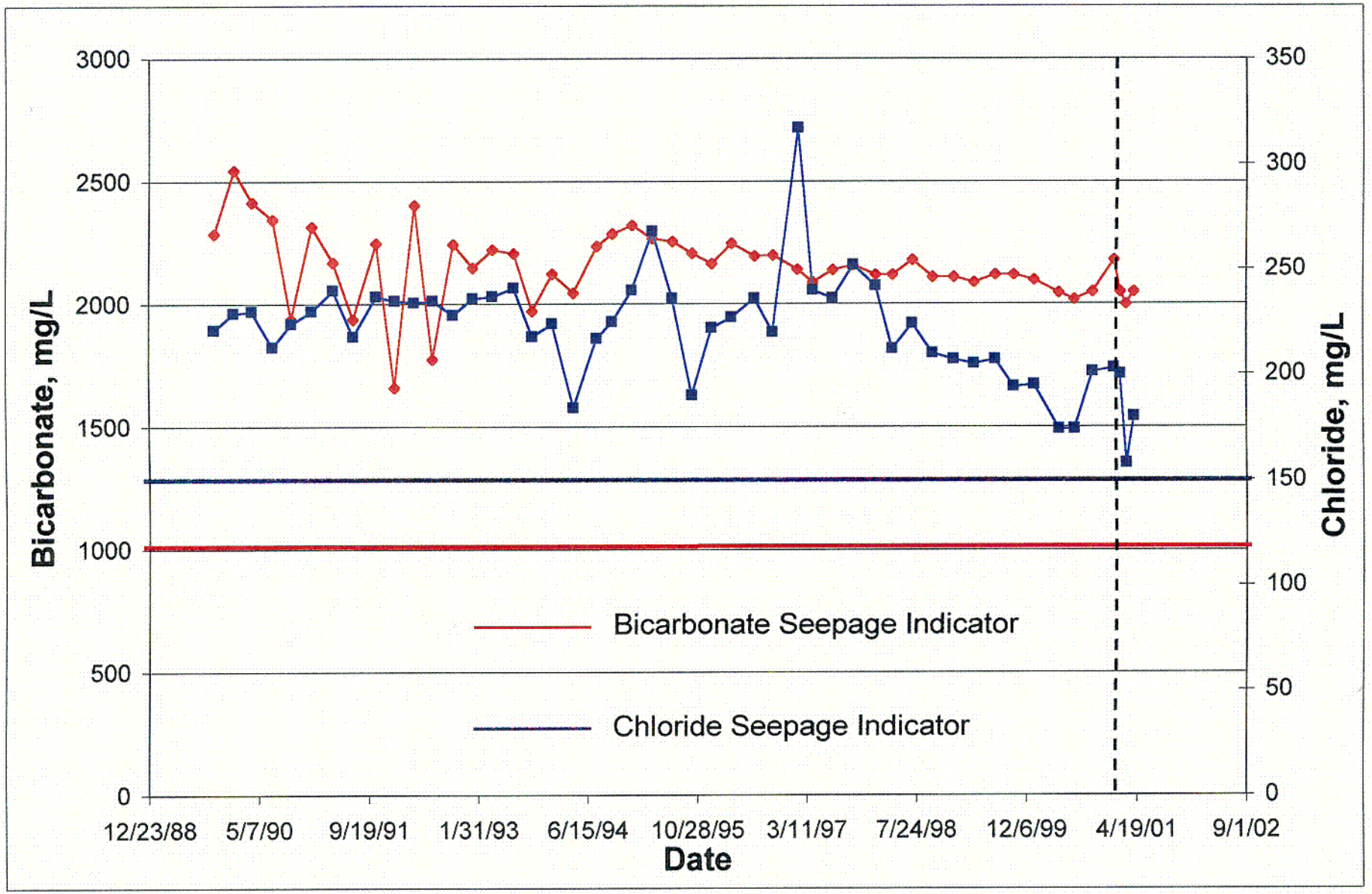
Bicarbonate and Chloride

C/6



802

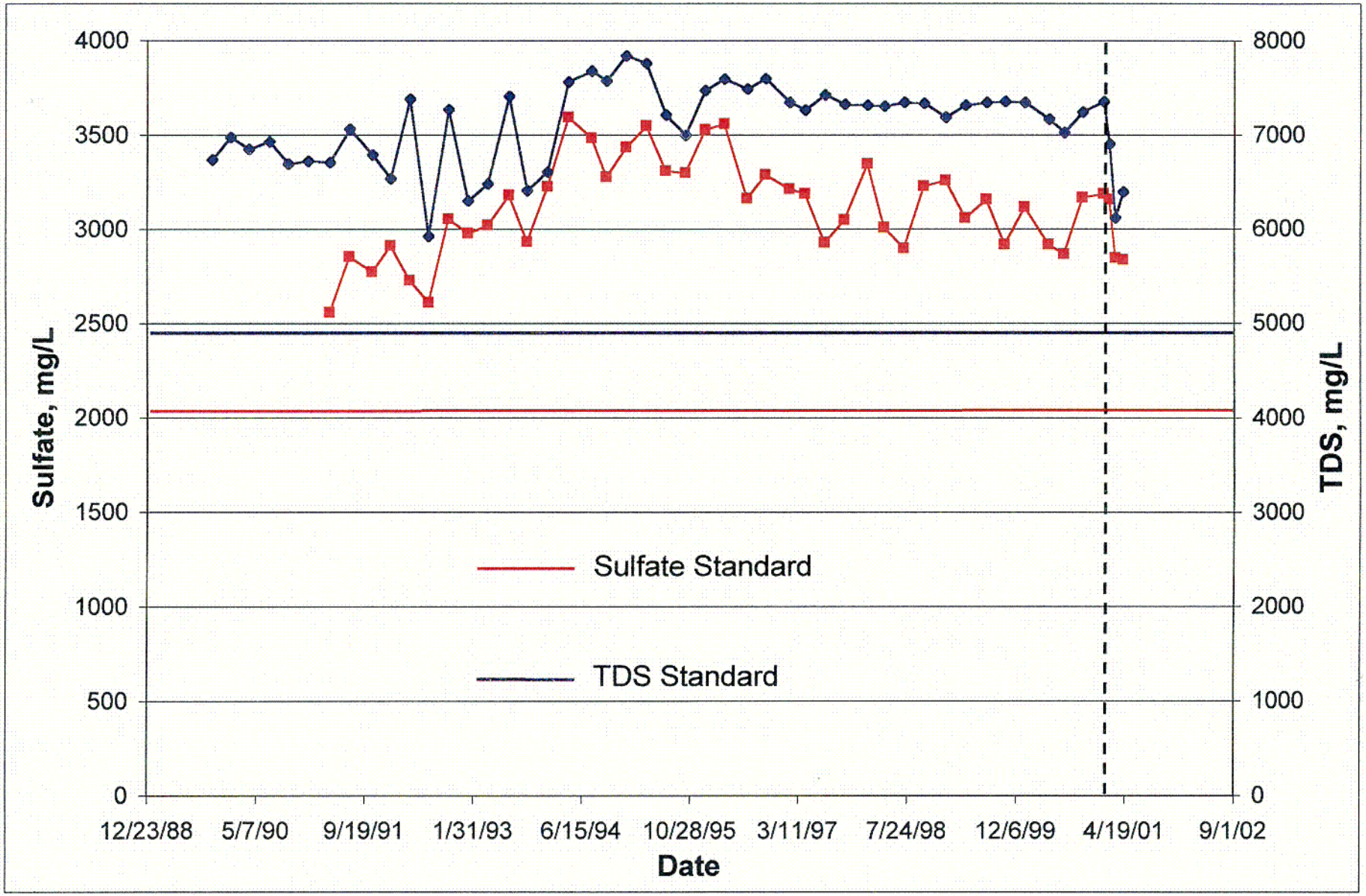
Sulfate and TDS



802

Bicarbonate and Chloride

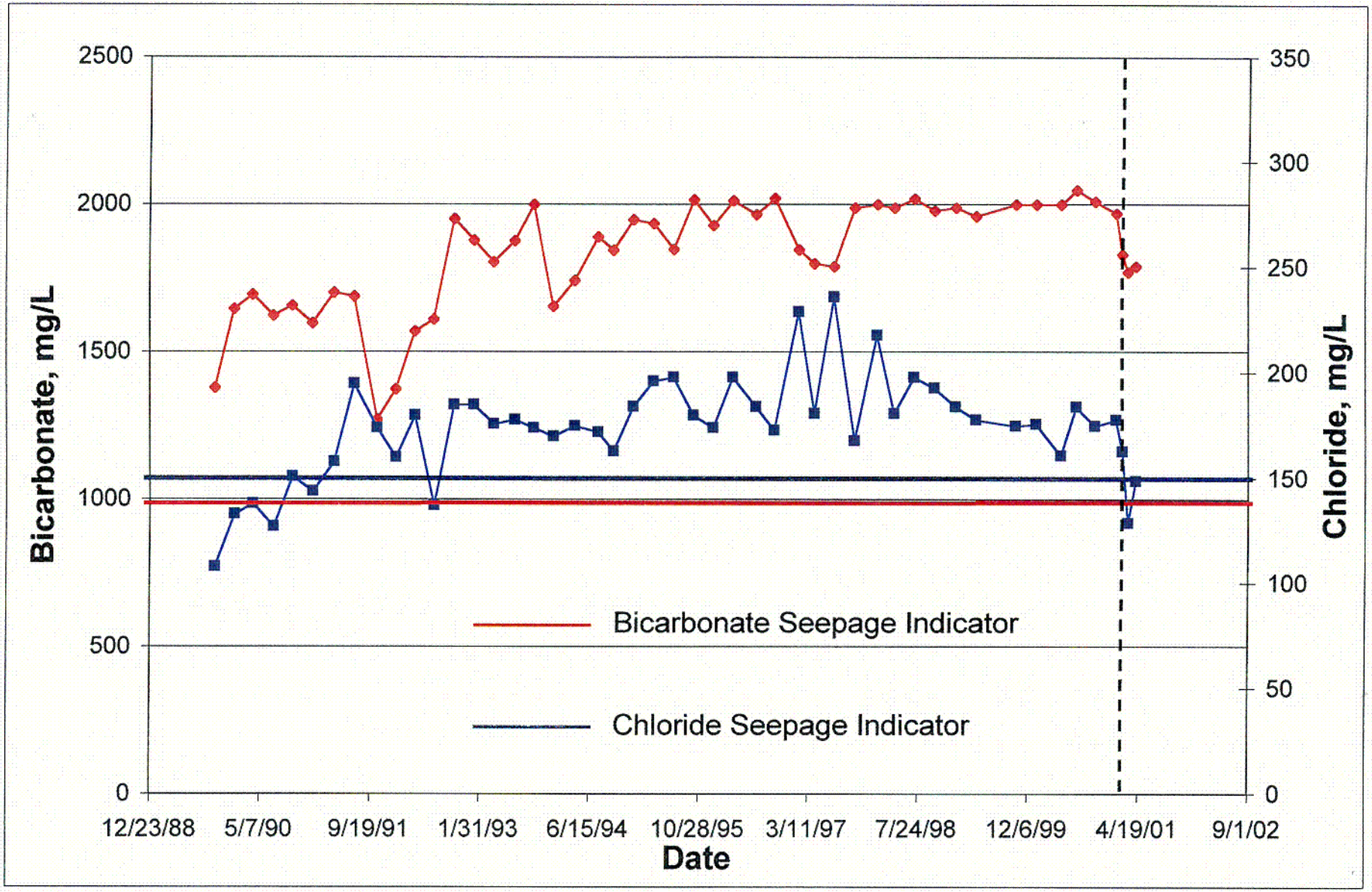
C/8



803

Sulfate and TDS

C19

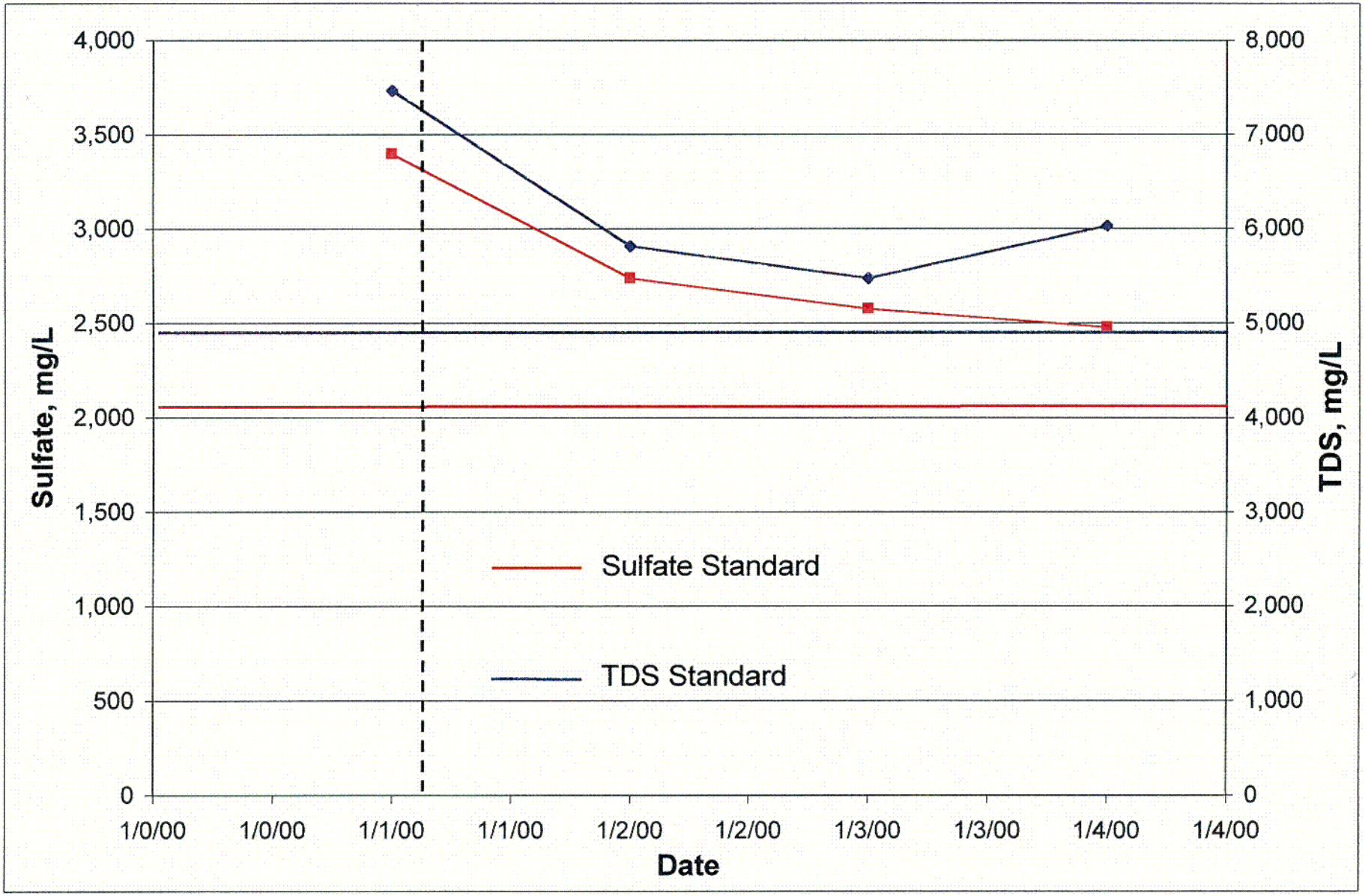


803

Bicarbonate and Chloride

SWA Natural Attenuation Test
First Quarter Report, July 2001

C20

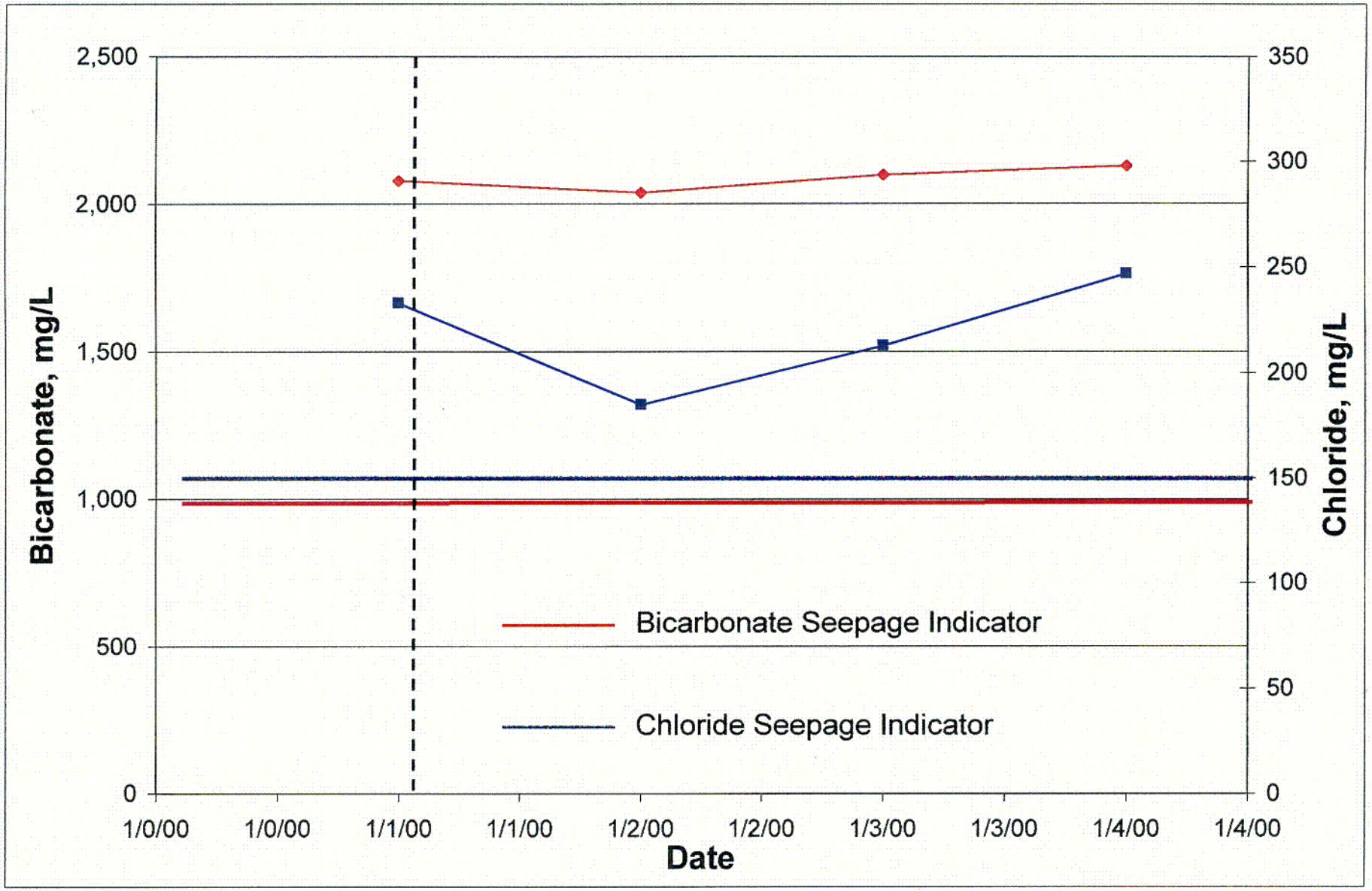


808

Sulfate and TDS

SWA Natural Attenuation Test
First Quarter Report, July 2001

C21

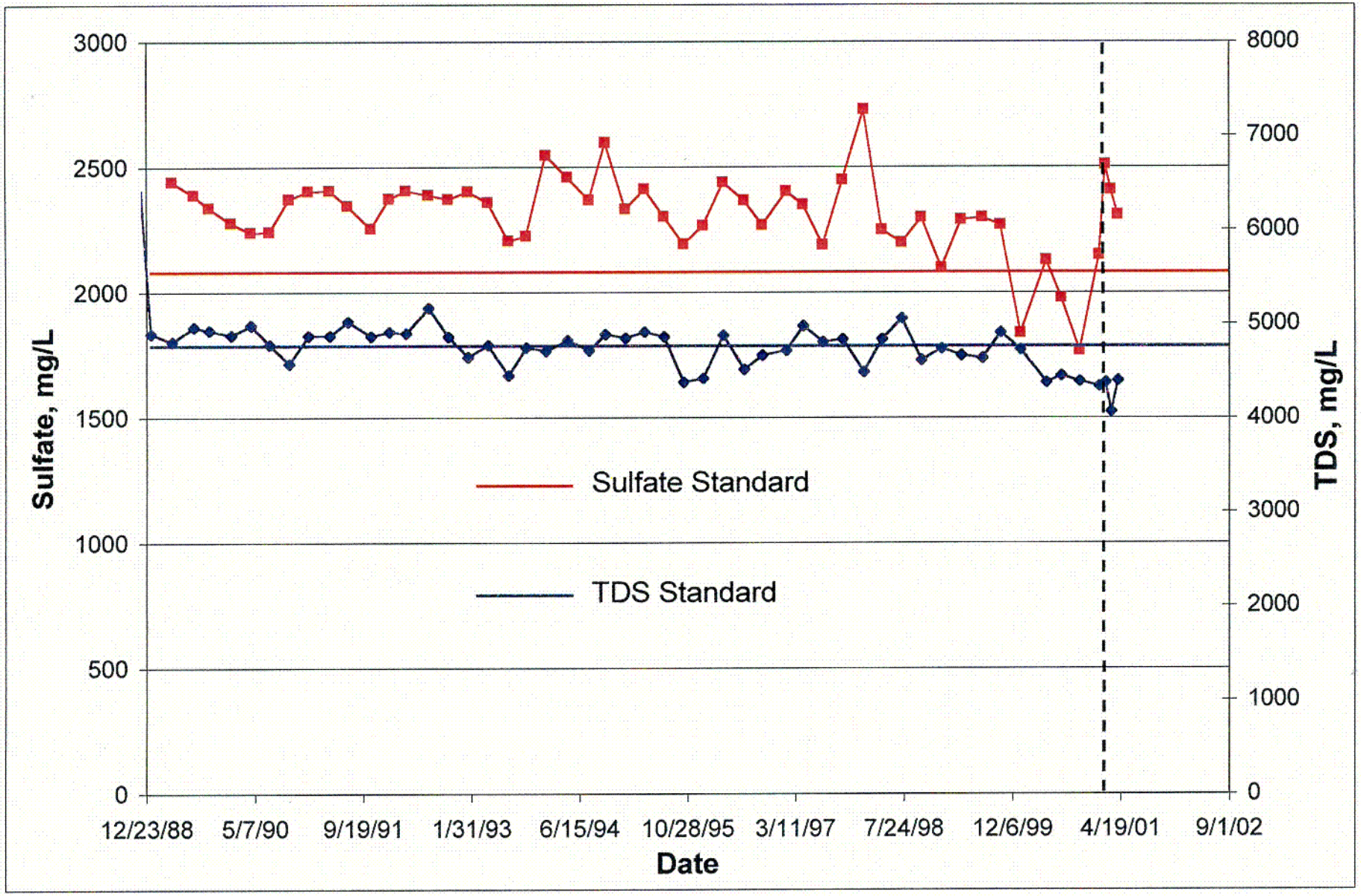


808

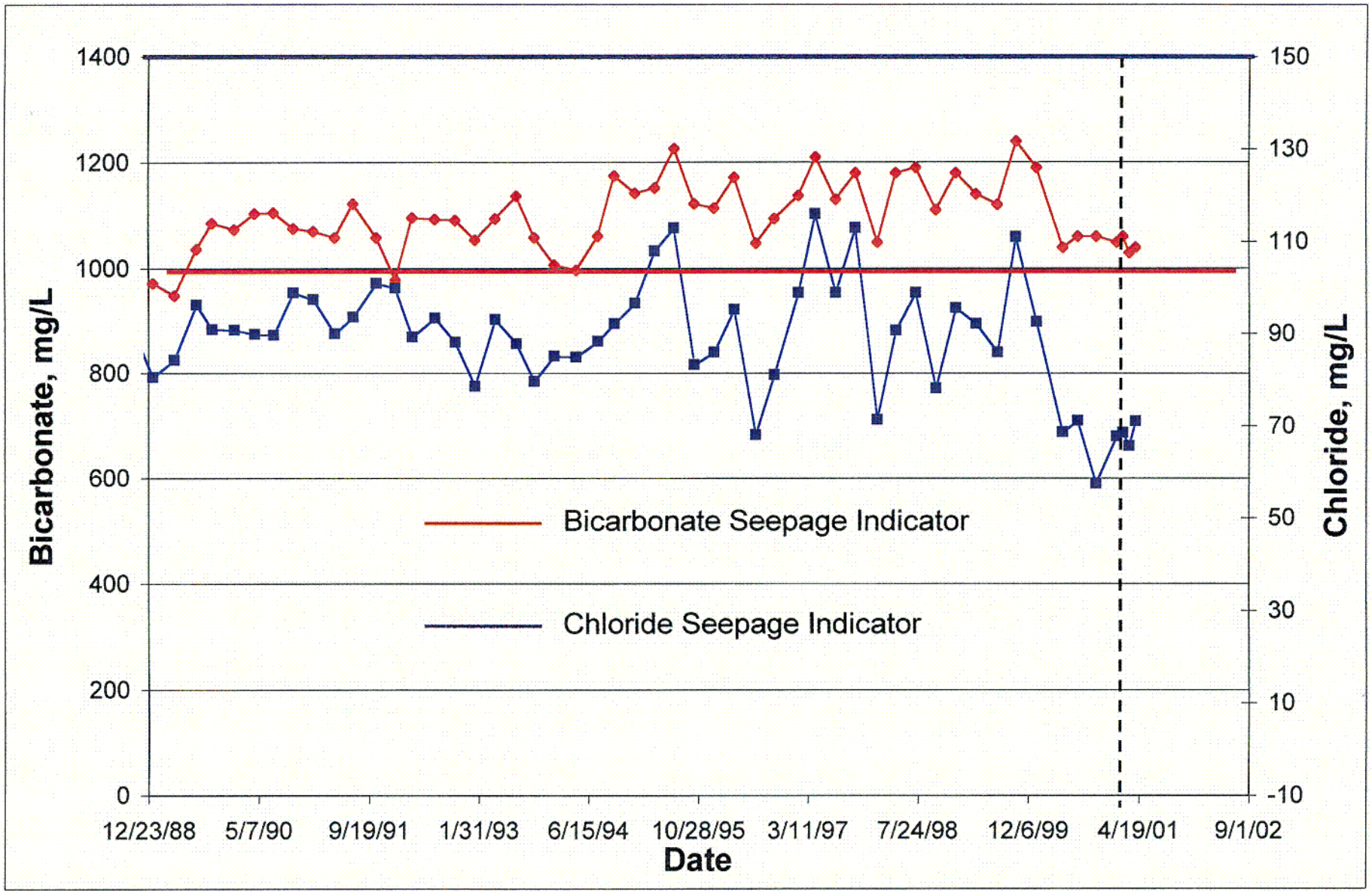
Bicarbonate and Chloride

SWA Natural Attenuation Test
First Quarter Report, July 2001

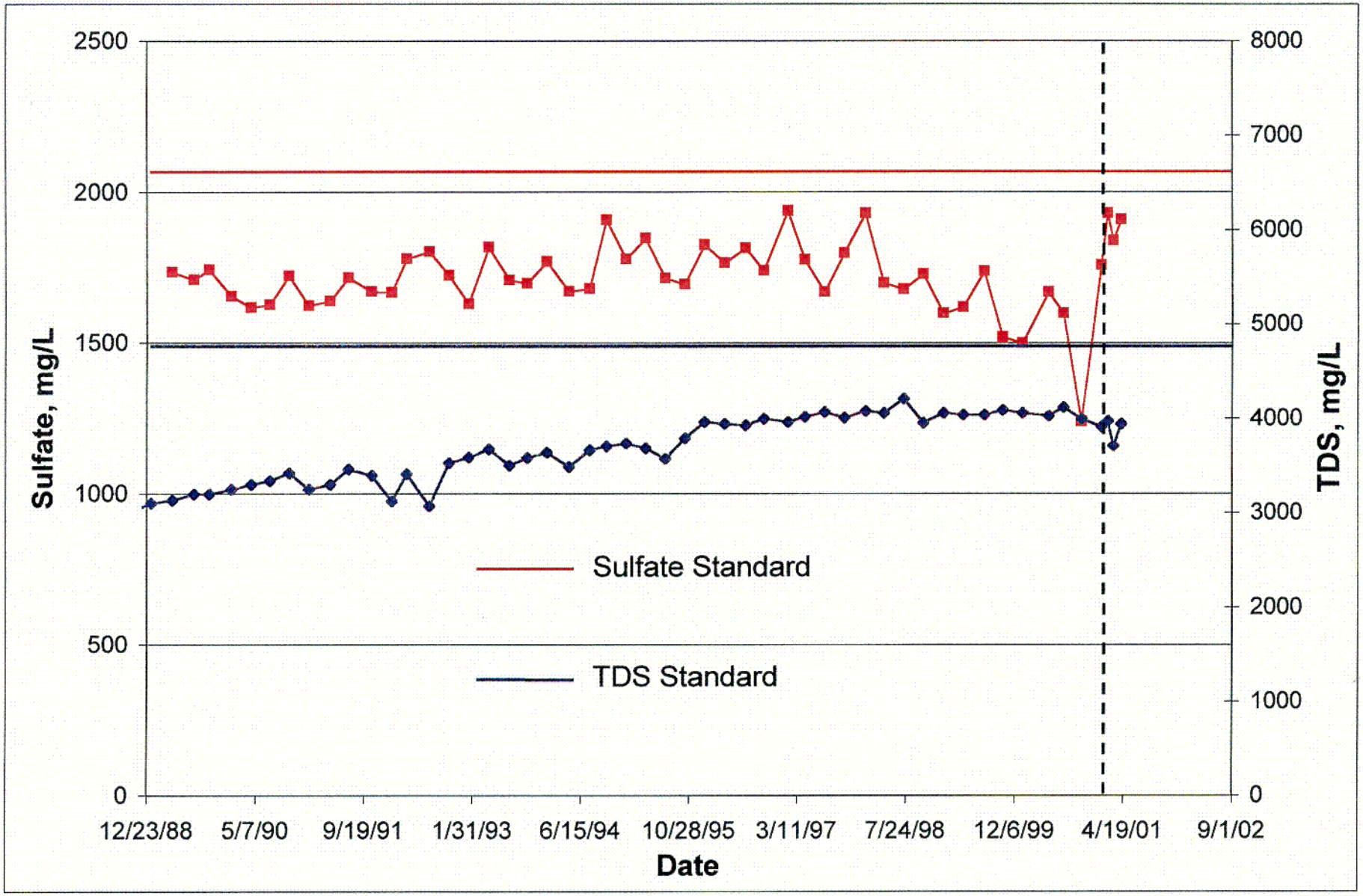
C22



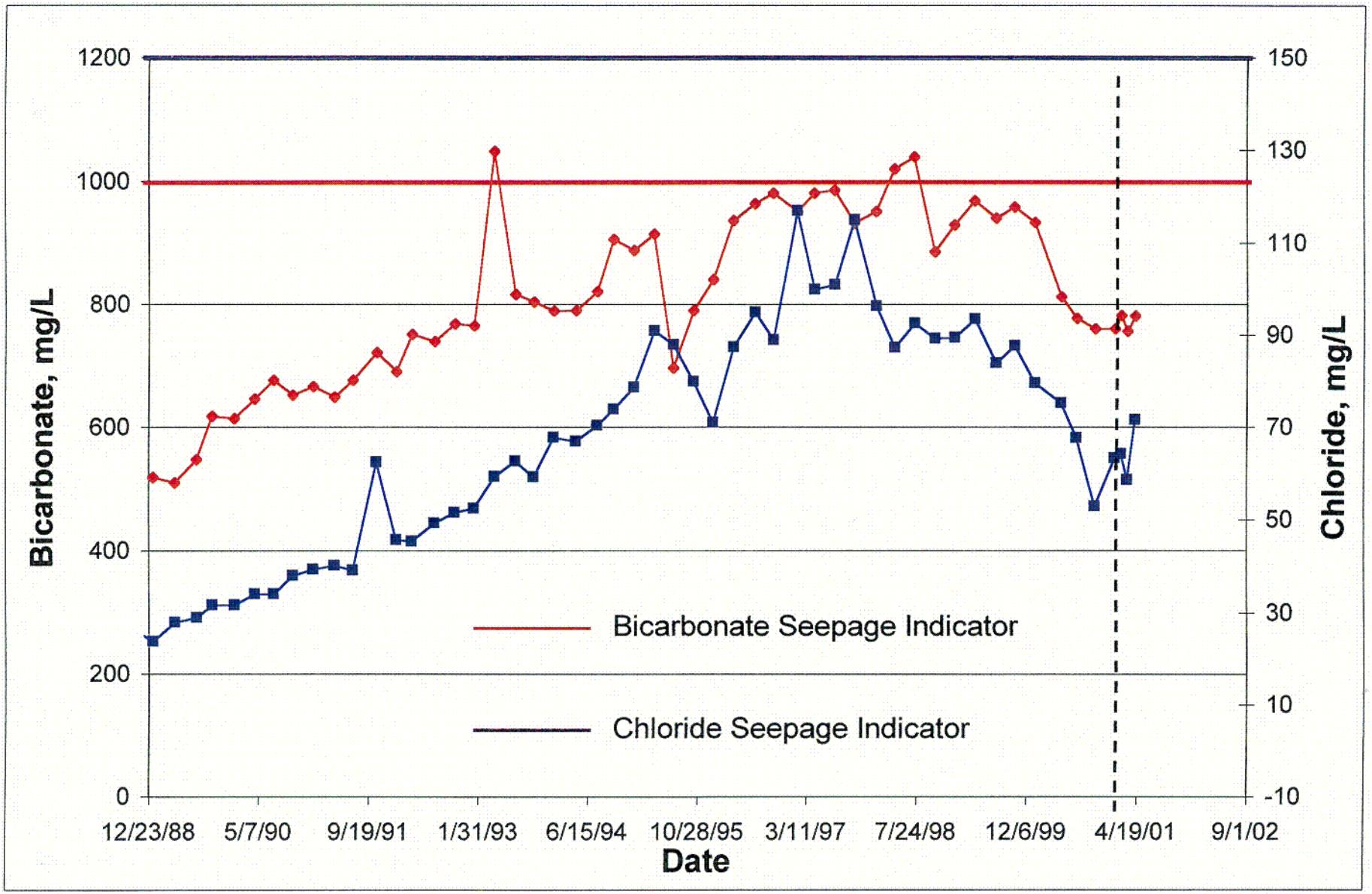
EPA 23
Sulfate and TDS



EPA 23
Bicarbonate and Chloride

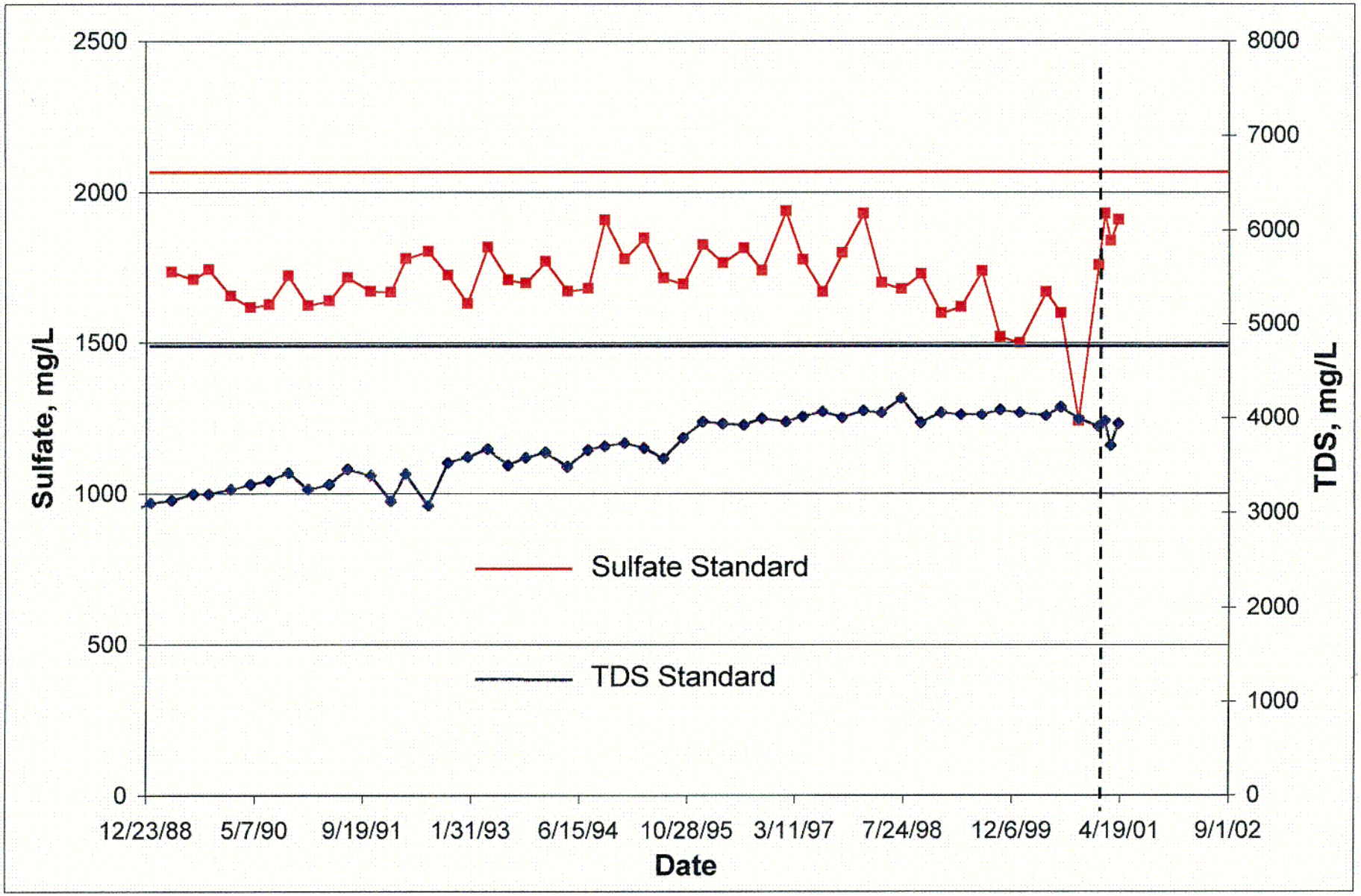


EPA 25
Sulfate and TDS



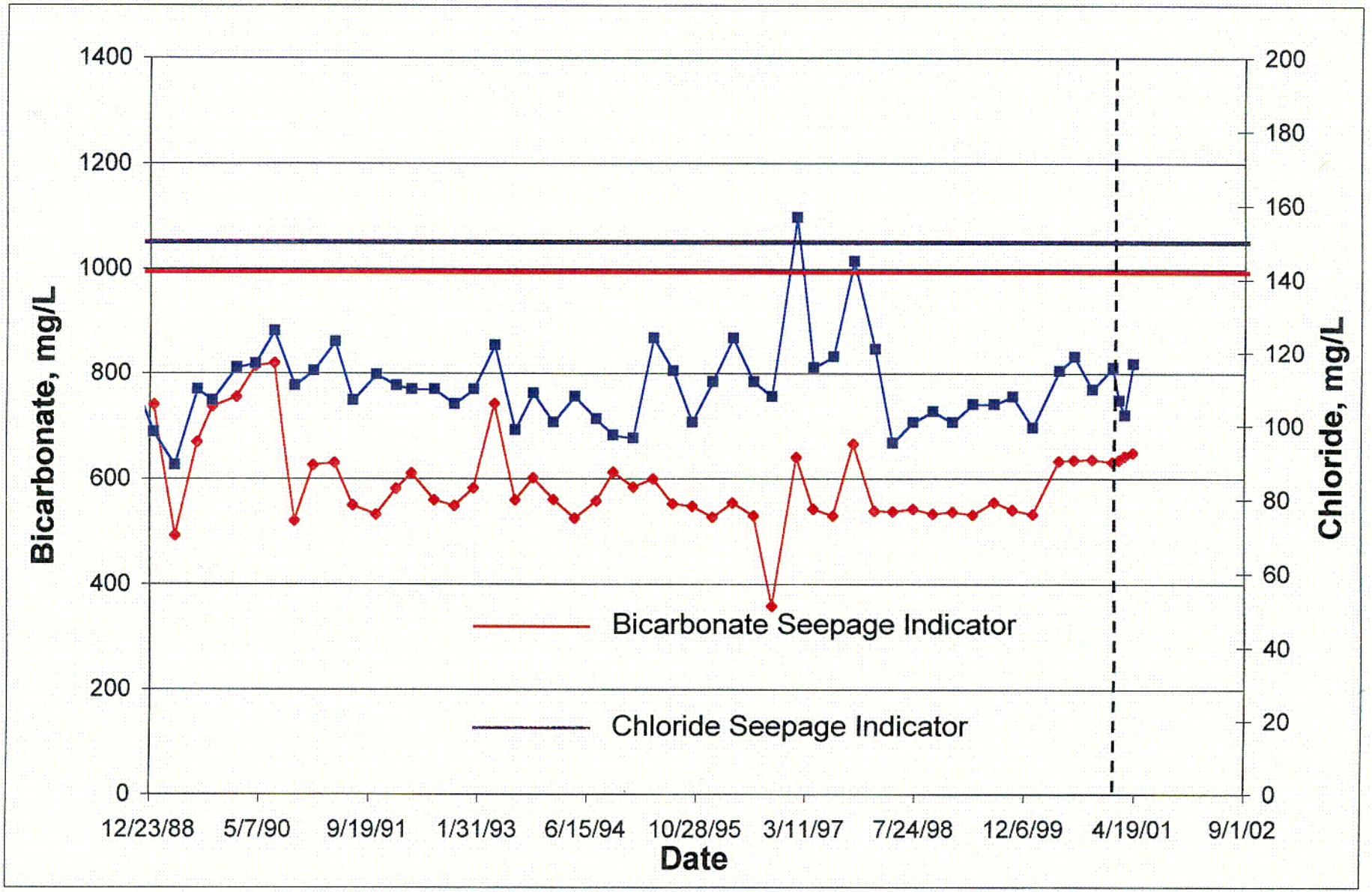
EPA 25

Bicarbonate and Chloride



EPA 28
Sulfate and TDS

SWA Natural Attenuation Test
First Quarter Report, July 2001

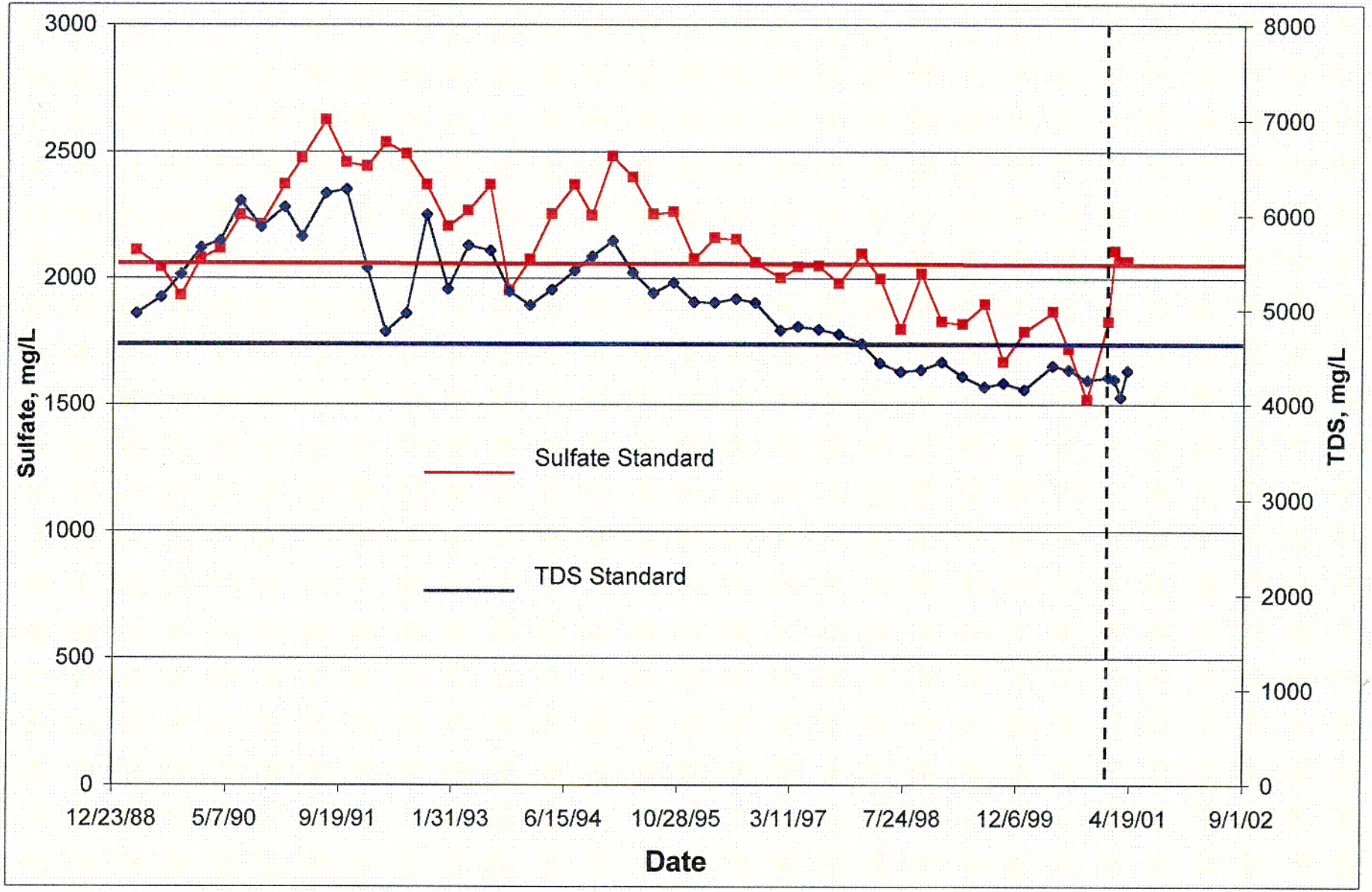


EPA 28

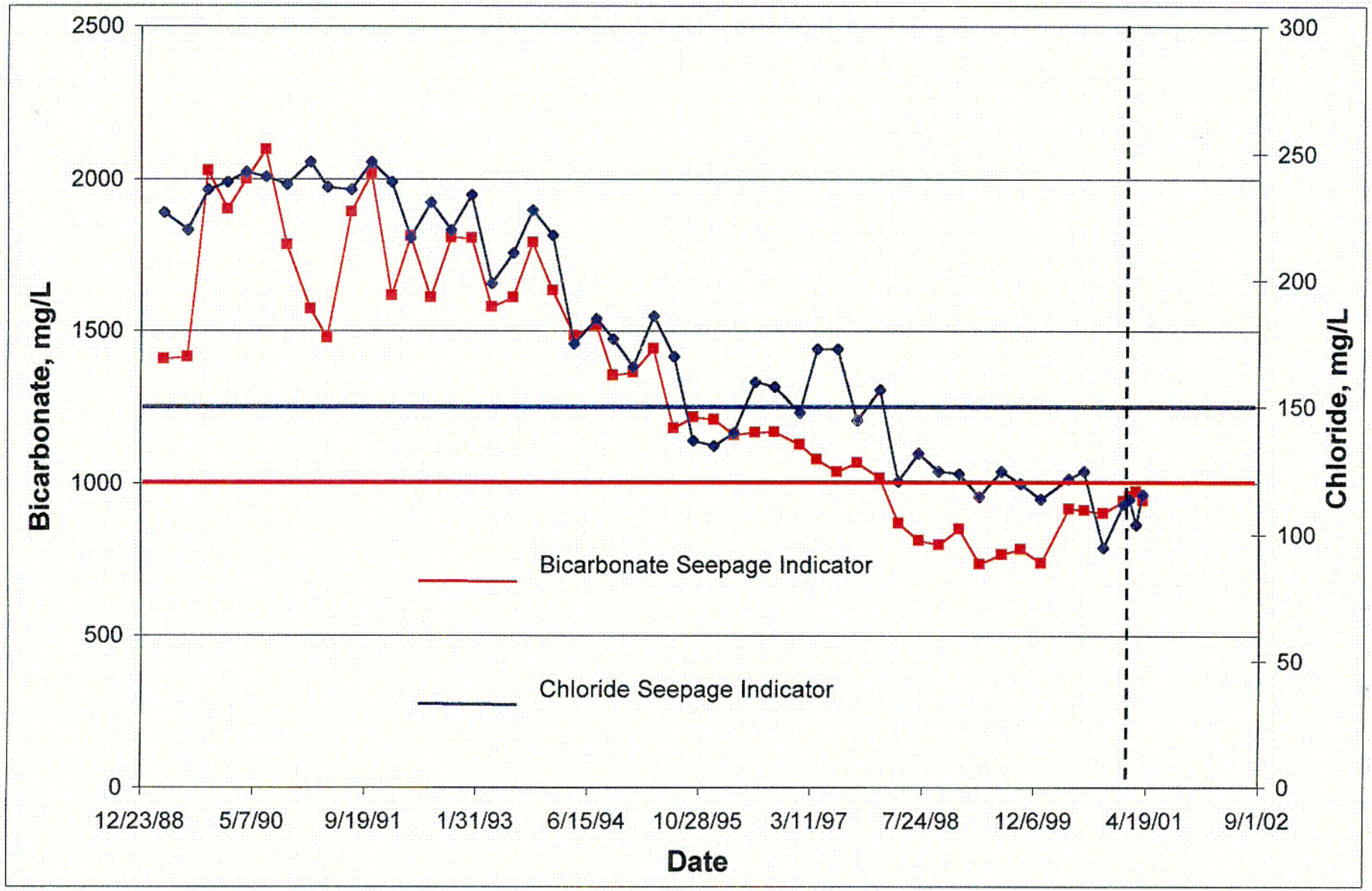
Bicarbonate and Chloride

SWA Natural Attenuation Test
First Quarter Report, July 2001

C28



GW-1
Sulfate and TDS

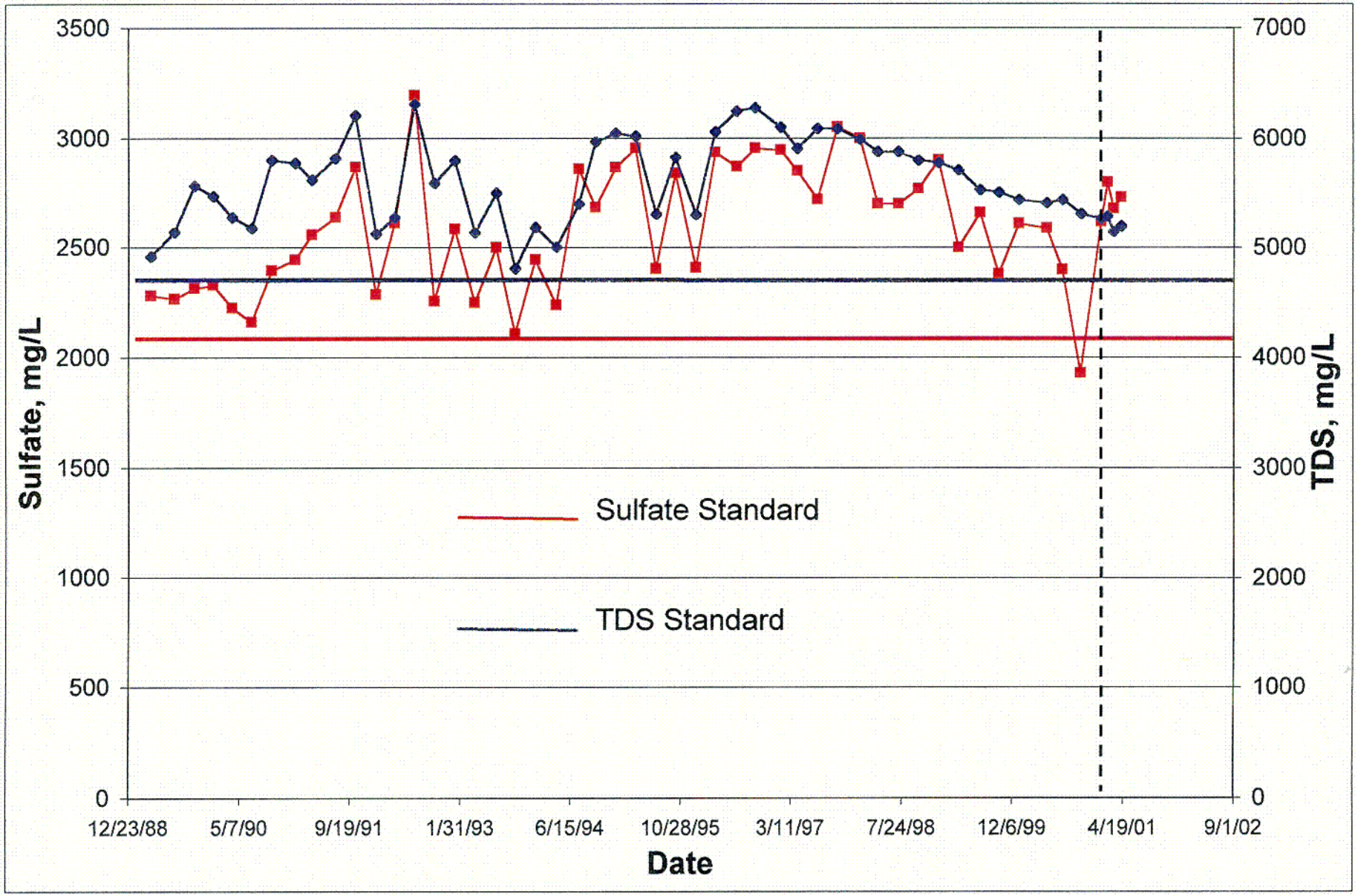


GW-1

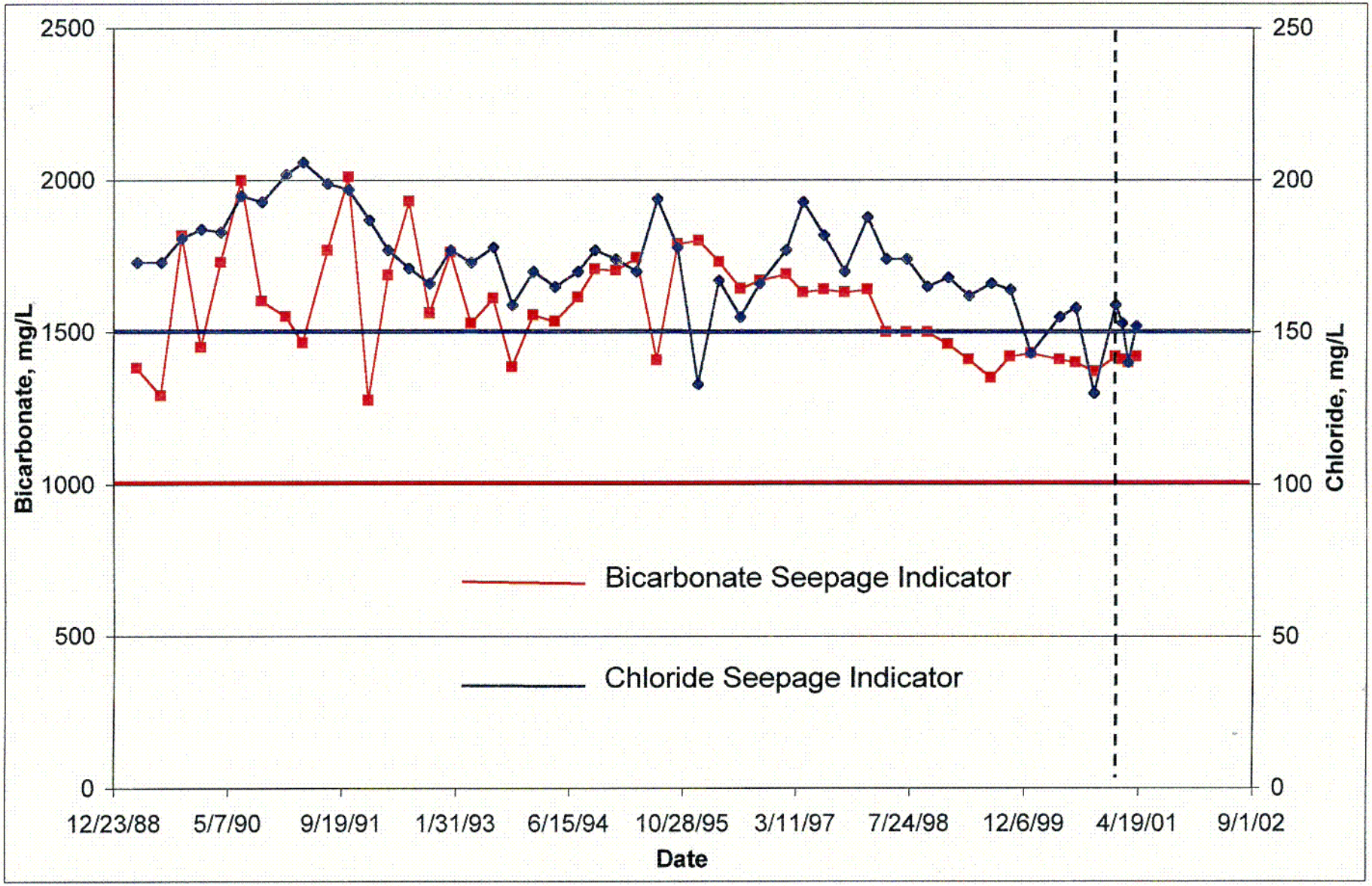
Bicarbonate and Chloride

SWA Natural Attenuation Test
First Quarter Report, July 2001

C30

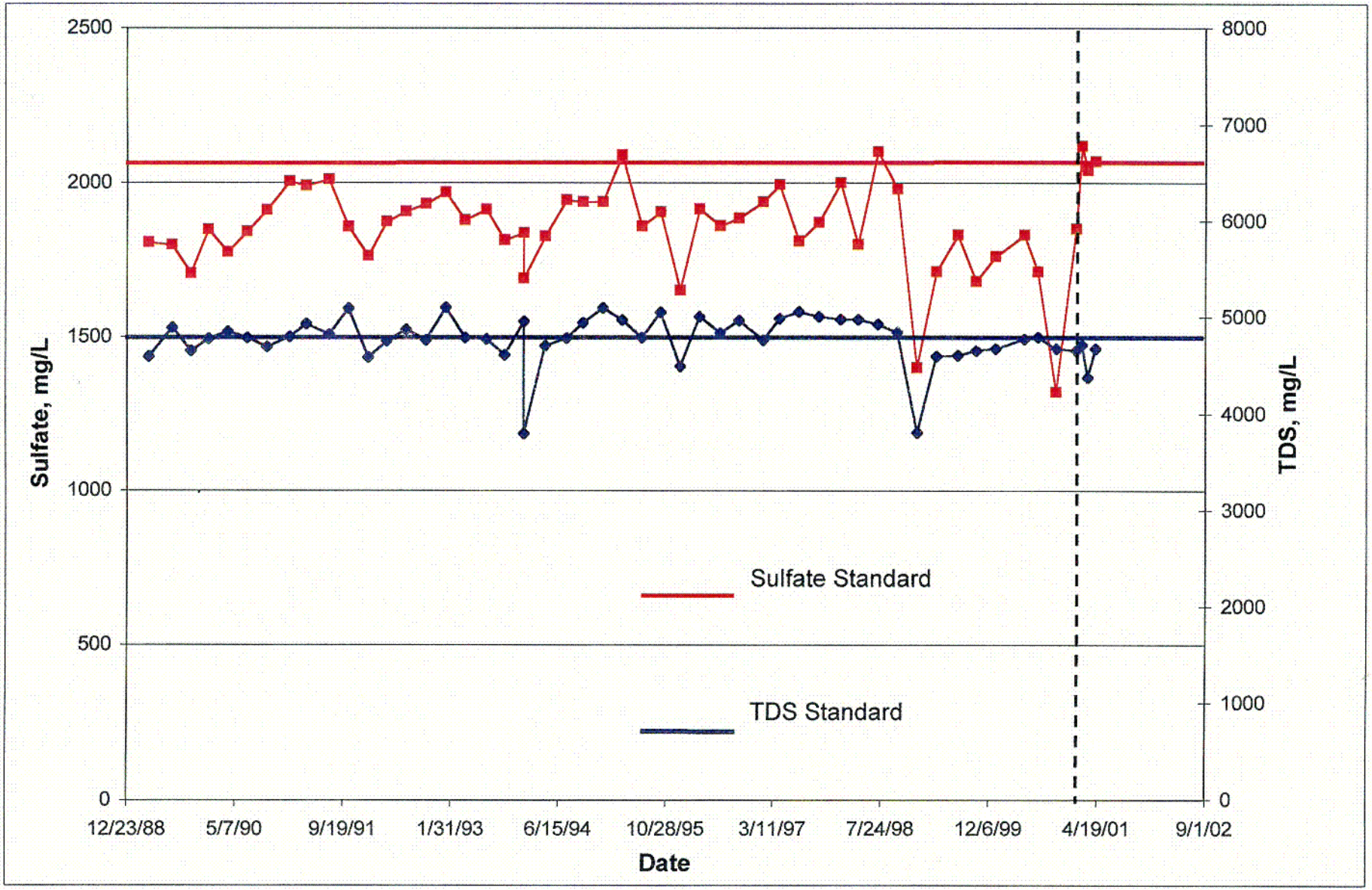


GW-2
Sulfate and TDS



GW-2

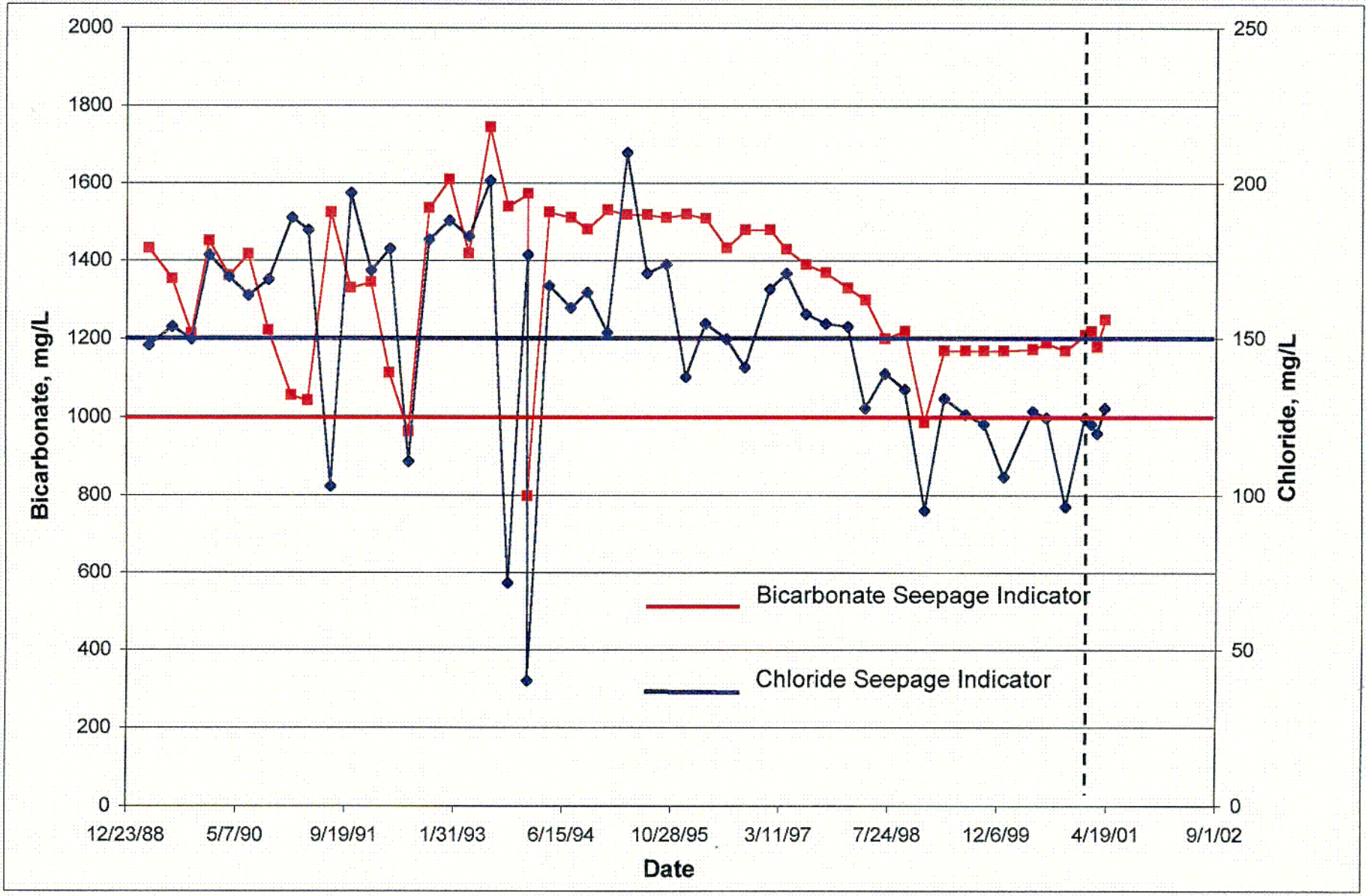
Bicarbonate and Chloride



GW-3
Sulfate and TDS

SWA Natural Attenuation Test
First Quarter Report, July 2001

C33

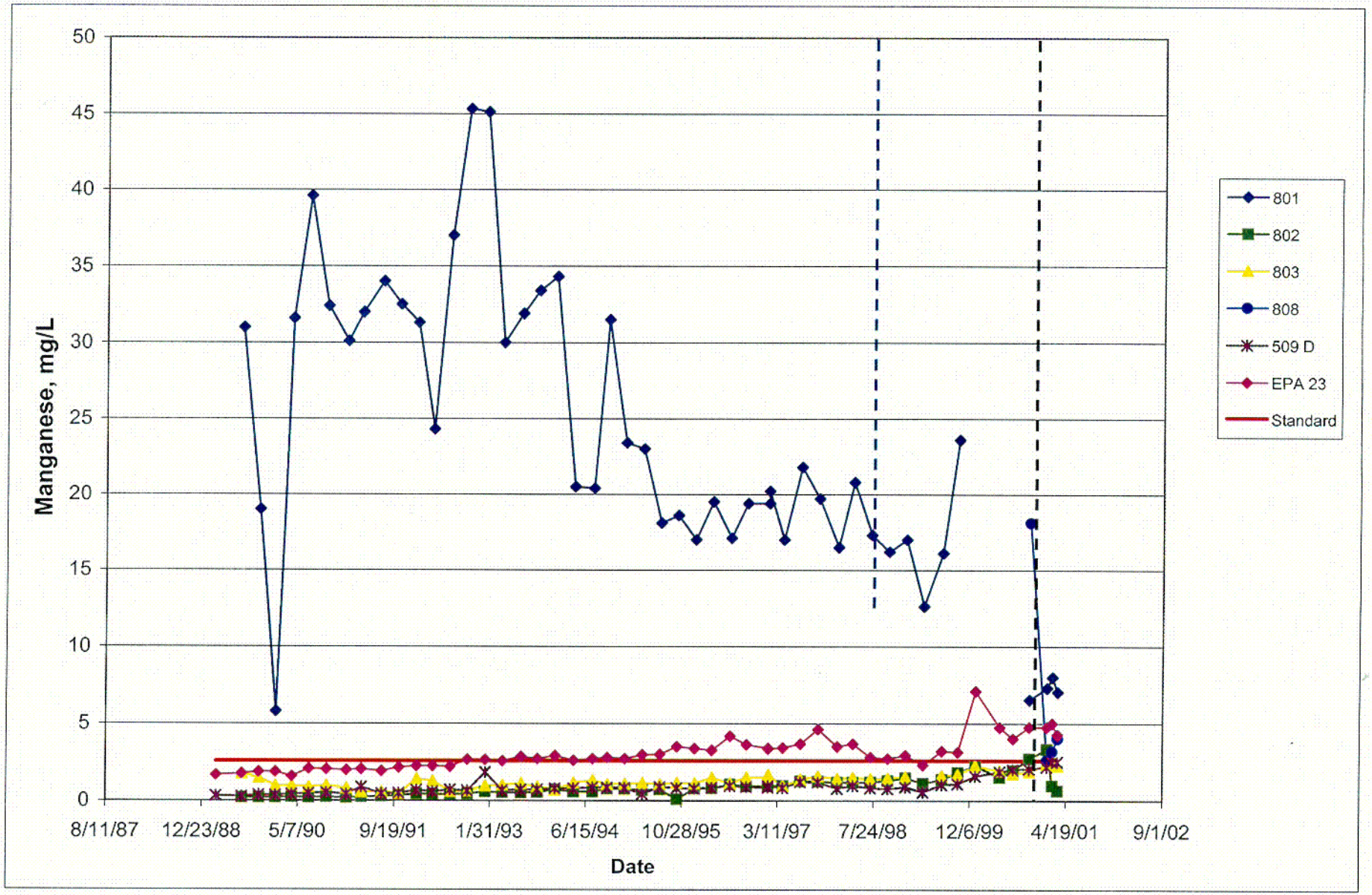


GW-3

Bicarbonate and Chloride

SWA Natural Attenuation Test
First Quarter Report, July 2001

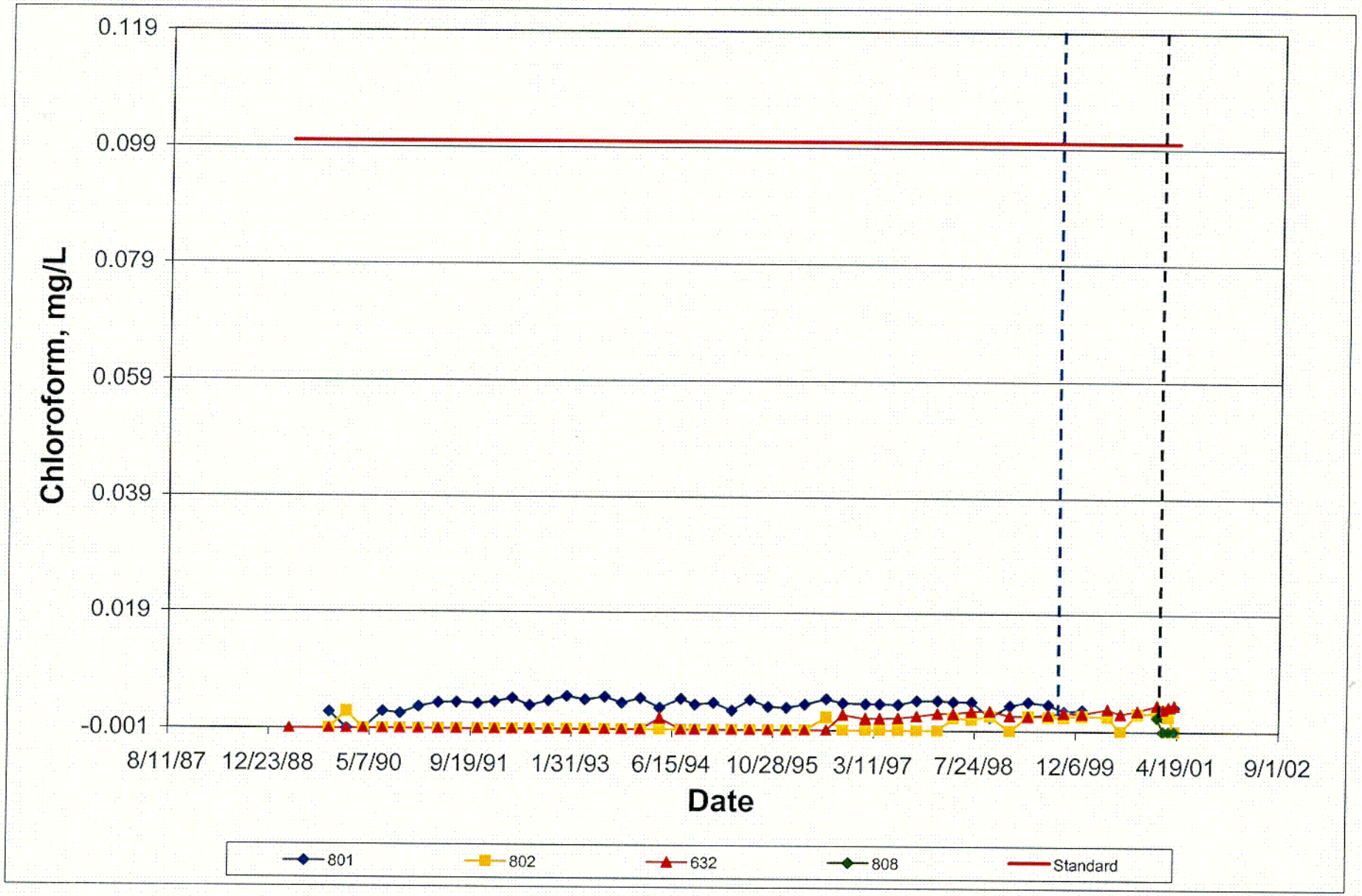
C34



Southwest Alluvium
Manganese Concentrations Over Time

SWA Natural Attenuation Test
First Quarter Report, July 2001

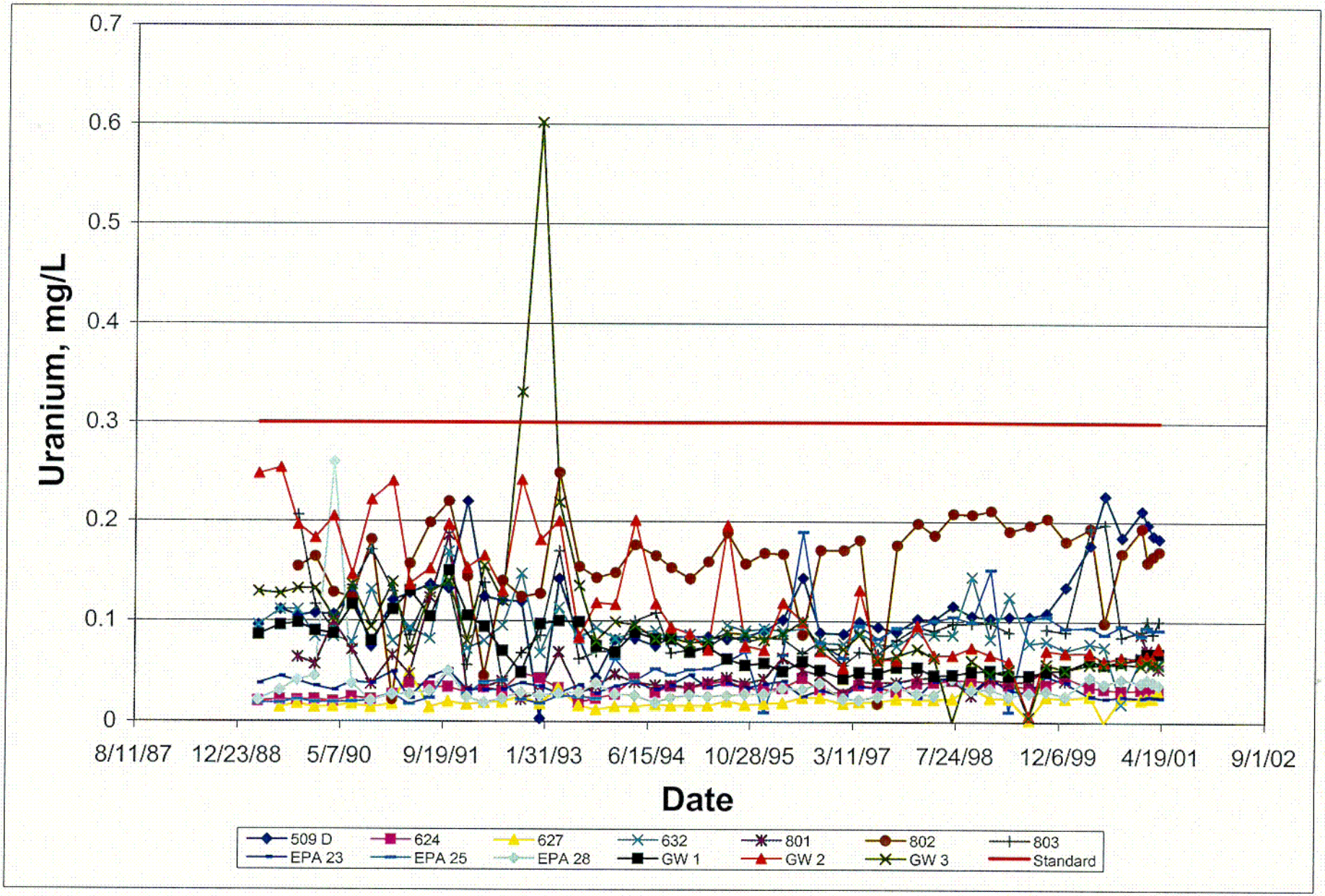
C35



Southwest Alluvium
Chloroform Concentrations Over Time

SWA Natural Attenuation Test
First Quarter Report, July 2001

C36



Southwest Alluvium
Uranium Concentrations Over Time

SWA Natural Attenuation Test
First Quarter Report, July 2001

C37