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THIRD QUARTER REPORT

SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST CHURCH ROCK SITE

December 2001

Prepared for:

United Nuclear Corporation
Gallup, New Mexico

Prepared by:

Earth Tech, Inc.
2 Market Plaza Way
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HMSS01Public

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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
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 monthly 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 third in the series of quarterly reports and covers the period from August 2001 through October 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. The baseline data set is described 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, second and third quarters of data collected from February through October 2001.

2.1.1 Baseline Data

A baseline data set was selected to represent conditions prior to turning off the pumps. The baseline data were 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 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 October 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 stabilizing at elevations similar to those measured in nearby monitoring wells. For example, in January 2001 the water level in Wells 803 and 805 differed by 21 feet at 6,839.9 and 6,860.9 feet, respectively. By July 2001, the water levels in the two wells differed by only 1.0 foot. As of October 2001, the pumping wells were close to stabilizing with increases in elevation typically less than 0.3 foot per month. Once the water levels in the pumped area recover from the effects of pumping, water levels are expected to decline as is evident at the wells located outside the influence of pumping. This decline will continue until the artificial saturation in the alluvium drains out naturally.

2.3 TEST DATA - WATER QUALITY DATA

Water quality data collected from January though October 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 *Southwest Alluvium Groundwater Geochemistry Report* (Earth Tech 2000) and presented in the November 2000 meeting.

Table 2 shows that the 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 at Wells 509 D, 632, and 801. For this third reporting period, as was the case in the first and second reporting periods, the only metal that exceeds its standard is manganese. The exceedance occurs only within the property boundary at Wells 509 D, 801, and EPA 23. An

improvement in water quality is evident from the fact that manganese is no longer present in concentrations exceeding the standard at Wells 802, 803, or 808. No radionuclides exceed the site standards. Chloroform exceeds the standards in four wells as previously observed but, as discussed in *Southwest Alluvium Groundwater Geochemistry Report* (Earth Tech 2000) 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. For this third reporting period, the extent of sulfate exceedances has contracted because sulfate concentrations have decreased over the past three months in Well 624. As was the case previously, 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, other than the January 2001 data, the water quality at this well is similar to that at the other pumping wells. TDS, sulfate, chloroform and manganese are the only constituents exceeding the standards.

As discussed in the second quarter report (Earth Tech 2001), the January 2001 sample is not considered representative of water quality in the well. This is because of the sampling techniques used in January (high velocity pump causing turbulent flow and no filtration). Therefore, the January data are not used in the trend analyses presented later in this report.

2.4 STATISTICAL EVALUATION

The statistical evaluation used nonparametric trend analysis to verify whether changes in concentration, specifically increases in concentrations, are occurring and whether the changes are significant. As in the second quarter report, the statistical analysis consists of a qualitative analysis of trend using linear regression supported by the statistical methods of Mann-Kendall's (Kendall's) Test for Trend and Sen's Estimate of Slope. Kendall's test and Sen's estimate, which are nonparametric procedures, were applied because the size of the test population was generally not sufficient to apply parametric trending techniques in accordance with EPA (1992) recommendations.

Appendix A provides graphs of constituent concentrations over time for each well with regression lines applied for both the background and test data sets. The graphs are presented on Figures A.1 through A.14 and include 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). Chloroform graphs are not included for wells where the chloroform concentrations were all nondetect. Uranium is included with the set of graphs to represent the radionuclide constituents. As is evident from Table 2, none of the radionuclides exceed the site standards in the Southwest Alluvium; however, uranium is included in this data presentation to provide information about the radionuclides.

Review of the graphs shows that the majority of the test data exhibits a trend that is similar to that evident in the baseline data. A few constituents exhibit an apparent change in trend compared to the baseline data, but most of these trends indicate an improvement in water quality (decrease in constituent concentrations). The primary evident change in trend is that bicarbonate and chloride concentrations appear to be increasing for many of the wells. Because these two constituents indicate seepage impacts, the increasing concentrations indicate that seepage is continuing to migrate. However, there is not a corresponding increase in the concentrations of constituents of concern, specifically manganese, chloroform and uranium. The lack of change in the constituents of concern demonstrates that natural attenuation processes discussed in the

November 14 and 15, 2000, meeting are working and that natural attenuation, not extraction pumping, is the primary factor controlling water quality in the Southwest Alluvium.

To assess the reliability of the linear regression as an indication of water quality trends, several tests were applied to the data. First, the coefficient of determination (or R^2) value was listed for the regression lines for both the baseline and test data sets on each graph. Ideally, for the best fit of the line to the data the R^2 value should be 1.0. The greater the data variability, the smaller the value of R^2. The R^2 values for the third quarter test data have increased compared to those reported in second quarter. Approximately one-third of the test data trend lines now have R^2 values greater than 0.5, indicating that the data are less variable and more reliable for quantitative data evaluation.

Sen's estimate of the slope was then applied to the data to determine whether the direction and magnitude of the regression line slope was a reasonable qualitative representation of the data. Sen's estimate was used because it is a nonparametric procedure that is not greatly affected by gross data errors or outliers (Gilbert 1987). Appendix B includes a description of how Sen's estimate is calculated and includes an example calculation. The results of the calculations are presented in Table B.5 along with the slope calculated for the linear regression.

Review of Table B.5 shows that, for the majority of the data, the slopes calculated for the linear regressions are very similar both in direction (positive number for upward or flat trends and negative number for downward trends) and magnitude to the true slope estimated using Sen's estimate. Therefore, as was the case in second quarter, the linear regression lines do provide a good qualitative representation of water quality trends.

To quantitatively verify the presence of the trends indicated by the regression lines, Kendall's test for trend was implemented. Kendall's test is used because the data do not need to conform to any particular distribution (Gilbert 1987). The baseline and test data have a combination of normal, lognormal and unknown distributions, so application of Kendall's test is appropriate. Kendall's test for trend examines the background and test data sets, compares the concentration

values against each other, and determines whether a statistically significant trend exists for the background data set and for the test data set.

The results of these statistical tests are summarized in Table B.6 of Appendix B. As with the qualitative trend analysis discussed above, the statistical analysis was implemented for the constituents with concentrations exceeding the site standards, for the two constituents that indicate seepage (bicarbonate and chloride), and for uranium. For each well, the results of Kendall's test are listed for both the baseline and test data. If a statistically significant trend is identified, then the median slope of the trend calculated using Sen's estimate is also listed. Finally, a graphical depiction of the trend is provided using arrows to designate the direction of the trend.

Review of the table shows that the test data are less variable than was evident in the second quarter. This change was expected because of the increase in the R^2 values for many of the trend lines, which corresponds to an increased number of significant trends identified by Kendall's calculation. Also, comparison of Table B.6 with Figures A.1 through A.14 shows that the regression line trends are confirmed by the Kendall's and Sen's analyses where statistically significant trends are present. Therefore, the qualitative analysis provides a good overall assessment of the trends in the baseline and test data.

A comparison of trends by constituent is presented Table B.7. Three main features in the trends are evident from this table:

1. <u>Increase in Upward Trends for Bicarbonate, Chloride and, to a Lesser Extent, TDS</u>

   The increasing number of upward trends for the seepage indicator constituents (bicarbonate and chloride) confirms that seepage-impacted water is no longer being captured in contrast to the partial capture of seepage-impacted water that occurred before the pumping ceased. The figures in Appendix A show that, as expected, the greatest magnitude in upward trend occurs at the pumping and adjacent monitoring wells (Wells 801, 802, 803 and 632) that are experiencing the greatest change in hydraulic conditions (e.g., water levels rising 30 feet from the levels maintained when the wells were pumping) since the extraction wells were turned off.

2. Overall Downward Trend for Sulfate

   The overall downward trend for sulfate is controlled by gypsum equilibrium and, as was demonstrated in the November 2000 presentation, is not related to either pumping or not pumping the extraction wells. Sulfate concentrations will change or remain stable regardless of whether the extraction wells are pumping or turned off. The water chemistry for the most recent samples (October 2001) continues to be in equilibrium with gypsum as confirmed by MINTEQ simulations.

3. No Change in the Trends for Manganese, Chloroform or Uranium

   The lack of change in trends for manganese, chloroform and uranium confirms that natural attenuation mechanisms, rather than pumping from the extraction wells, are controlling the concentrations of the remaining constituents of concern. As discussed above, the change in the trends for chloride and bicarbonate indicate that seepage-impacted water is no longer being captured and a corresponding change in the trends for the constituents of concern (i.e., increased number of upward trends) would be expected if pumping were the mechanism controlling concentrations. However, the trend evaluation in Table B.6 and in the Appendix A graphs shows that this is not the case, even for the extraction and nearby monitoring wells. Therefore, natural attenuation is at least as effective a remedial measure as active remediation.

Review of the graphs in Appendix A shows that the upward trends in the most of the test data are well within in the range of concentrations that have been seen in the baseline data. Therefore, the trend analysis indicates that water quality has not declined and, as indicated by the decreasing concentrations of manganese for some of the wells and for sulfate in almost all the wells, to an extent the water quality has improved since the pumps were turned off.

3.0 REFERENCES

Earth Tech, Inc. 2000. *Southwest Alluvium Groundwater Geochemistry Report, Church Rock Site, Gallup, New Mexico*. Prepared for UNC Mining and Milling. June.

_____. 2001. *Second Quarter Report – Southwest Alluvium Natural Attenuation Test, Church Rock Site.* Prepared for United Nuclear Corporation. October.

Gilbert, Robert O. 1987. *Statistical Methods for Environmental Pollution Monitoring.* John Wiley & Sons, Inc.

Lyssy, Greg. 2000. *Letter to Meeting Attendees re: Meeting at Window Rock on the 15th.* U.S. Environmental Protection Agency. November 15.

U.S. Environmental Protection Agency. 1992. *Guidance for Data Useability in Risk Assessment (Part A)*

———. 1995. *Drinking Water Regulations and Health Advisories.* Office of Water, Washington, DC. May.

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
THIRD QUARTER WATER QUALITY DATA

Well Number	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO3 (mg/L)	SO4 (mg/L)	Cl (mg/L)	NH4 as N (mg/L)	NO3 as N (mg/L)	Chloroform (mg/L)
NRC Standard		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001
EPA Standard		NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	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	30.6	-0.001
0509 D	2/5/01	6,882.35	6.5	7.03	5,090	1,000	384	265	13.5	2,090	1,860	365	1.75	29.5	-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	28.4	-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	31.8	-0.001
0509 D	5/7/01	6,881.90	6.46	7.01	5,240	864	338	221	12.5	2,060	1,700	322	1.56	27.3	-0.001
0509 D	6/4/01	6,882.10	6.46	6.97	4,860	848	336	232	12.7	2,070	1,760	318	1.92	30.2	-0.001
0509 D	7/9/01	6,881.80	6.36	6.84	5,210	956	369	293	12.6	2,180	1,730	326	0.8	29.2	-0.001
0509 D	8/6/01	6,881.60	6.36	7.3	5,210	890	340	230	13	2,130	1,500	370	0.61	26.6	-0.001
0509 D	9/10/01	6,881.40	6.38	7.2	5,130	940	340	246	11.4	2,210	1,600	297	0.42	26	-0.001
0509 D	10/1/01	6,881.35	6.43	7.2	5,190	920	320	234	12.1	2,250	1,570	411	0.37	25	-0.001
0624	1/8/01	6,850.10	6.65	7.4	5,100	707	464	173	6.9	1,480	1,810	177	-0.05	104	-0.001
0624	2/5/01	6,850.10	6.72	7.31	5,110	801	510	171	7.6	1,480	2,320	170	0.21	93.9	-0.001
0624	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	-0.001
0624	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	-0.001
0624	5/8/01	6,849.90	6.62	7.54	5,150	677	444	181	6.7	1,450	1,880	187	0.08	99.3	-0.001
0624	6/5/01	6,849.90	6.62	7.02	5,050	683	454	182	6.5	1,470	2,000	182	0.11	101	-0.001
0624	7/10/01	6,849.90	6.62	7.4	5,290	726	488	198	6.1	1,480	2,050	172	-0.05	101	-0.001
0624	8/7/01	6,849.87	6.59	7.4	5,230	660	450	200	6	1,470	1,900	180	0.05	88	-0.001
0624	9/11/01	6,850.30	6.52	7.3	5,200	670	450	191	6.8	1,490	1,930	217	0.05	118	-0.001
0624	10/2/01	6,850.30	6.65	7.8	5,210	660	450	192	7	1,500	1,850	240	-0.05	100	-0.001
0627	1/9/01	6,838.55	7.23	8.03	5,170	583	303	454	5	595	2,460	57.9	-0.05	160	-0.001
0627	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	-0.001
0627	3/6/01	6,838.30	7.31	7.69	4,770	553	286	552	6.5	586	2,680	53	-0.05	156	-0.001
0627	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	-0.001
0627	5/8/01	6,838.10	7.08	7.68	5,190	557	289	530	4.9	577	2,320	60.2	0.09	154	-0.001
0627	6/5/01	6,838.30	7.14	7.67	4,950	576	304	521	3.8	580	2,660	55.1	0.09	142	-0.001
0627	7/10/01	6,838.05	7.48	7.45	5,270	585	313	585	4.4	600	2,450	55.9	0.06	149	-0.001
0627	8/8/01	6,838.00	7.09	7.6	5,220	540	290	460	4.1	596	2,300	64	0.11	140	-0.001
0627	9/11/01	6,838.00	6.99	7.8	4,190	550	290	540	4.9	600	2,380	64.4	0.08	158	-0.001
0627	10/2/01	6,838.05	7.08	7.7	5,230	540	290	540	5.6	609	2,300	74	-0.05	152	-0.001

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	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
NRC Standard		**NA**	**0.05**	**0.05**	**0.01**	**NA**	**0.05**	**NA**	**NA**	**0.05**	**0.01**	**0.1**	**0.3**	**5.0**	**5.0**	**1.0**	**15.0**
EPA Standard		**5**	**0.05**	**0.02**	**0.01**	**0.05**	**0.05**	**2.6**	**1**	**0.2**	**0.01**	**0.7**	**5**	**5**	**NA**	**NA**	**15**
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
0509 D	5/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.5	-0.1	-0.05	-0.001	-0.1	0.188	- 1.4	-0.2	-1	-1
0509 D	6/4/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.42	-0.1	-0.05	-0.001	-0.1	0.186	- 1.9	-0.2	-1	-1
0509 D	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.71	-0.1	-0.05	-0.001	-0.1	0.217	- 1.2	-0.2	-1	-1
0509 D	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.8	-0.1	-0.05	-0.001	-0.1	0.22	- 1.7	-0.2	-1	-1
0509 D	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.7	-0.1	-0.05	-0.001	-0.1	0.222	- 1.5	-0.2	-1	-1
0509 D	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.46	-0.1	-0.05	-0.001	-0.1	0.225	- 1.5	-0.2	-1	-1
0624	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
0624	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
0624	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
0624	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
0624	5/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.02	-0.1	-0.05	-0.001	-0.1	0.034	- 1.2	-0.2	-1	-1
0624	6/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	0.009	-0.1	0.065	- 1.2	-0.2	-1	-1
0624	7/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.03	-0.1	-0.05	-0.001	-0.1	0.0329	- 1.2	-0.2	-1	-1
0624	8/7/01	0.13	-0.001	-0.01	-0.005	-0.01	-0.05	0.03	-0.1	-0.05	-0.001	-0.1	0.04	2.7	-0.2	-1	-1
0624	9/11/01	0.11	-0.001	-0.01	-0.005	-0.01	-0.05	0.03	-0.1	-0.05	-0.001	-0.1	0.03	- 3.1	-0.2	-1	-1
0624	10/2/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.02	-0.1	-0.05	-0.001	-0.1	0.0319	- 1.2	-0.2	-1	-1
0627	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
0627	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
0627	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
0627	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	0.03	- 1.4	-0.2	-1	-1
0627	5/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.13	-0.1	-0.05	0.001	-0.1	0.024	- 1.2	-0.2	-1	-1
0627	6/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.12	-0.1	-0.05	0.003	-0.1	0.024	- 1.2	-0.2	-1	-1
0627	7/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.12	-0.1	-0.05	0.001	-0.1	0.024	- 1.2	-0.2	-1	-1
0627	8/8/01	-0.1	-0.001	-0.01	0.006	-0.01	-0.05	0.1	-0.1	-0.05	-0.001	-0.1	0.025	- 1.2	-0.2	-1	-1
0627	9/11/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.12	-0.1	-0.05	0.001	-0.1	0.023	- 1.6	-0.2	-1	-1
0627	10/2/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.1	-0.1	-0.05	0.001	-0.1	0.0235	- 1.7	-0.2	-1	-1

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO3 (mg/L)	SO4 (mg/L)	Cl (mg/L)	NH4 as N (mg/L)	NO3 as N (mg/L)	Chloroform (mg/L)
NRC Standard		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001
EPA Standard		NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA
0632	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
0632	2/5/01	6,859.80	6.55	7.04	6,410	729	701	428	10.3	1,660	3,420	233	0.35	5.9	0.0028
0632	3/6/01	6,860.20	6.51	7.31	6,100	630	653	450	10.3	1,640	3,400	199	0.34	12.7	0.0032
0632	4/3/01	6,860.70	6.45	7.17	6,800	710	713	359	8.1	1,600	3,370	228	0.33	21.6	0.00349
0632	5/7/01	6,860.90	6.3	7.41	6,860	625	650	410	8.7	1,600	3,000	244	0.36	26.5	0.0019
0632	6/4/01	6,861.20	6.36	7.22	6,620	622	663	316	8.9	1,580	3,180	246	0.38	32.7	0.0031
0632	7/9/01	6,861.43	6.84	7.08	6,990	682	742	348	8.5	1,680	3,260	253	0.33	35.9	0.0031
0632	8/6/01	6,861.39	6.27	7.2	7,000	620	680	340	9	1,670	3,000	300	0.31	34.2	0.0027
0632	9/10/01	6,861.60	6.25	7	7,020	630	700	355	9.4	1,700	3,100	273	0.32	45.3	0.00246
0632	10/1/01	6,861.65	6.35	7.4	7,080	610	690	336	10.1	1,730	2,900	311	0.28	40.2	0.00195
0801	1/8/01	6,852.90	6.67	7.7	7,330	578	820	359	16.6	1,570	3,700	240	9.07	48.9	0.0022
0801	2/6/01	6,853.85	6.9	7.42	7,200	642	882	397	15.8	1,570	3,970	226	9.46	29.9	0.0016
0801	3/5/01	6,854.30	6.92	7.19	6,610	550	785	273	15.1	1,580	3,660	203	8.34	21.9	0.0023
0801	4/3/01	6,854.80	6.59	7.37	6,930	615	825	320	12.8	1,570	3,580	214	7.88	17.5	0.00311
0801	5/7/01	6,855.20	6.47	7.53	7,090	541	723	282	12.6	1,560	3,120	229	7.71	13.3	0.0019
0801	6/4/01	6,855.20	6.47	7.33	6,680	549	745	294	12.7	1,560	3,380	225	8.12	8.45	0.0033
0801	7/9/01	6,855.38	7.02	7.11	6,900	585	800	312	12.7	1,610	3,320	237	7.07	6.25	0.0034
0801	8/6/01	6,855.43	6.76	7.4	6,890	550	760	310	13	1,580	3,300	240	7.5	4.4	0.003
0801	9/10/01	6,855.80	6.38	7	6,860	560	770	319	13.6	1,600	3,300	248	6.75	-0.1	0.00285
0801	10/1/01	6,855.75	6.45	7.5	7,060	530	750	330	14.1	1,600	3,200	253	7.2	2.9	0.0024
0802	1/8/01	6,857.50	6.43	7.69	7,360	751	758	300	8.2	2,180	3,190	203	1.2	89.3	0.0022
0802	2/5/01	6,860.50	6.49	7.1	6,910	739	834	348	8.2	2,050	3,160	200	1.02	93.8	0.0026
0802	3/5/01	6,861.00	6.64	7.17	6,120	737	661	370	8	2,000	2,850	158	0.12	103	0.0015
0802	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	-0.001
0802	5/7/01	6,861.65	6.42	7.23	6,660	737	608	257	6	2,020	2,420	193	0.08	102	-0.001
0802	6/4/01	6,861.95	6.46	7.16	6,200	729	591	231	6.3	1,960	2,520	190	0.1	101	0.0013
0802	7/9/01	6,862.10	7.07	7.06	6,580	794	651	274	5.4	2,060	2,520	216	0.07	114	0.001
0802	8/6/01	6,862.08	6.43	7.2	6,630	740	620	260	8	2,050	2,500	240	-0.05	97.5	-0.001
0802	9/10/01	6,862.30	6.37	6.9	6,400	770	600	284	5.6	2,100	2,400	216	-0.05	100	-0.001
0802	10/1/01	6,862.35	6.44	7.4	6,620	730	590	290	6.4	2,080	2,400	225	0.06	97.5	-0.001

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	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
NRC Standard		NA	0.05	0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	5.0	5.0	1.0	15.0
EPA Standard		5	0.05	0.02	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	5	NA	NA	15
0632	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
0632	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
0632	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
0632	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
0632	5/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.95	-0.1	-0.05	-0.001	-0.1	0.062	- 1.2	-0.2	-1	-1
0632	6/4/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.98	-0.1	-0.05	0.004	-0.1	0.06	4.5	-0.2	-1	-1
0632	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.97	-0.1	-0.05	-0.001	-0.1	0.0632	- 2.1	-0.2	-1	-1
0632	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.1	-0.1	-0.05	-0.001	-0.1	0.072	2.9	-0.2	-1	-1
0632	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.91	-0.1	-0.05	-0.001	-0.1	0.0582	3.7	-0.2	-1	-1
0632	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.85	-0.1	-0.05	-0.001	-0.1	0.0608	- 2.1	-0.2	-1	-1
0801	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
0801	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
0801	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
0801	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
0801	5/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	8.7	-0.1	-0.05	-0.001	-0.1	0.049	- 1.4	-0.2	-1	-1
0801	6/4/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	8.24	-0.1	-0.05	-0.001	-0.1	0.046	- 1.2	-0.2	-1	-1
0801	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	8.34	-0.1	-0.05	-0.001	-0.1	0.0486	- 1.8	-0.2	-1	-1
0801	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	7.7	-0.1	-0.05	-0.001	-0.1	0.048	- 1.4	-0.2	-1	-1
0801	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	6.24	-0.1	-0.05	-0.001	-0.1	0.044	- 1.3	-0.2	-1	-1
0801	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	6.87	-0.1	-0.05	-0.001	-0.1	0.0373	- 1.7	-0.2	-1	-1
0802	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
0802	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
0802	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
0802	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	0.17	- 1.2	-0.2	-1	-1
0802	5/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.6	-0.1	-0.05	0.001	-0.1	0.181	- 1.2	-0.2	-1	-1
0802	6/4/01	-0.1	0.001	-0.01	-0.005	-0.01	-0.05	0.62	-0.1	-0.05	0.011	-0.1	0.214	- 1.2	-0.2	-1	-1
0802	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.6	-0.1	-0.05	0.001	-0.1	0.221	- 1.2	-0.2	-1	-1
0802	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.65	-0.1	-0.05	-0.001	-0.1	0.23	- 1.2	-0.2	-1	-1
0802	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.68	-0.1	-0.05	-0.001	-0.1	0.25	3.0	-0.2	-1	-1
0802	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.57	-0.1	-0.05	-0.001	-0.1	0.244	1.8	-0.2	-1	-1

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO3 (mg/L)	SO4 (mg/L)	Cl (mg/L)	NH4 as N (mg/L)	NO3 as N (mg/L)	Chloroform (mg/L)
NRC Standard		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001
EPA Standard		NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA
0803	1/8/01	6,839.90	6.5	7.78	7,010	739	730	277	12.5	1,970	3,240	178	1.06	46.3	-0.001
0803	2/5/01	6,863.35	6.38	7.11	6,820	826	784	268	13	1,830	3,380	163	0.67	40.7	-0.001
0803	3/5/01	6,863.60	6.67	7.14	6,810	726	716	320	12.4	1,770	3,320	129	0.73	39.1	-0.001
0803	4/9/01	6,864.10	6.4	7.01	6,630	798	768	222	12.1	1,790	3,460	149	0.81	43.9	-0.001
0803	5/7/01	6,863.95	6.43	7.3	7,040	696	713	217	11.5	1,760	2,980	159	0.74	46.9	-0.001
0803	6/4/01	6,864.40	6.45	7.17	6,750	700	723	202	11.6	1,790	3,280	164	0.84	47.8	-0.001
0803	7/9/01	6,864.30	6.95	6.96	6,980	751	793	217	11.5	1,820	3,160	190	0.49	66	-0.001
0803	8/6/01	6,864.25	6.38	7.2	6,950	690	730	220	12	1,820	3,000	200	0.4	57.6	-0.001
0803	9/10/01	6,864.40	6.49	7.3	6,910	700	750	241	11.6	1,900	3,100	186	0.39	57.4	-0.001
0803	10/1/01	6,864.45	6.4	7.2	6,940	670	710	231	12	1,880	2,800	215	0.45	56.4	-0.001
0808	1/8/01	6,853.00	6.34	7.14	7,470	720	721	382	14.5	2,080	3,400	233	16	26	0.0014
0808	2/5/01	6,863.60	6.46	7.04	5,820	879	489	295	13.2	2,040	2,740	185	4.99	-0.1	-0.001
0808	3/5/01	6,863.85	6.65	7.43	5,480	879	482	377	12.1	2,100	2,580	213	5.01	-0.1	-0.001
0808	4/9/01	6,864.40	6.65	7.04	6,030	841	468	312	11.6	2,130	2,480	247	6.39	-0.1	-0.001
0808	5/7/01	6,864.20	6.44	7.4	6,600	797	577	359	8.6	2,210	2,540	216	1.66	60.2	-0.001
0808	6/5/01	6,864.50	6.54	6.95	6,680	843	582	361	9.2	2,280	2,790	238	2.11	32.4	0.0018
0808	7/9/01	6,864.70	7.05	7.17	6,870	830	710	320	6.3	1,940	2,800	246	0.16	119	0.0033
0808	8/6/01	6,864.55	6.4	7.2	6,860	700	620	290	7.5	1,950	2,500	210	0.09	116	0.0029
0808	9/10/01	6,864.75	6.4	7.2	6,750	720	610	300	6.1	1,960	2,500	150	0.41	140	0.0029
0808	10/1/01	6,864.80	6.47	7.4	6,780	720	630	214	6.5	1,970	2,400	165	0.08	122	0.0024
0808 filtr	6/5/01	6,864.50	6.46	6.9	6,900	841	580	361	9.4	2,270	2,780	244	2.13	34.6	-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	6.8	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 23	5/7/01	6,878.40	6.97	7.14	4,460	622	371	113	10	1,040	2,070	78.6	1.28	1.25	-0.001
EPA 23	6/4/01	6,878.80	6.67	7.22	4,360	618	371	107	9.5	1,040	2,210	75.4	1.29	1.67	-0.001
EPA 23	7/9/01	6,878.40	6.6	7.12	4,470	684	418	116	9.7	1,060	2,250	86	1.07	1.36	-0.001
EPA 23	8/6/01	6,878.25	6.58	7.2	4,500	640	390	110	10	1,060	2,300	86	1.1	1.28	-0.001
EPA 23	9/10/01	6,878.49	6.56	7.5	4,490	650	390	122	9.9	1,100	2,200	75.6	1.02	1.2	-0.001
EPA 23	10/1/01	6,878.40	6.68	7.3	4,500	600	370	115	10.4	1,080	2,100	87.9	1.15	1	-0.001

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	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
NRC Standard		NA	0.05	0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	5.0	5.0	1.0	15.0
EPA Standard		5	0.05	0.02	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	5	NA	NA	15
0803	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
0803	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
0803	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
0803	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	0.1	- 1.2	-0.2	-1	-1
0803	5/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.13	-0.1	-0.05	-0.001	-0.1	0.093	- 1.2	-0.2	-1	-1
0803	6/4/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.34	-0.1	-0.05	0.004	-0.1	0.086	- 1.4	-0.2	-1	-1
0803	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.69	-0.1	-0.05	-0.001	-0.1	0.136	- 1.2	-0.2	-1	-1
0803	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2.1	-0.1	-0.05	-0.001	-0.1	0.16	- 1.2	-0.2	-1	-1
0803	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.8	-0.1	-0.05	-0.001	-0.1	0.125	- 1.3	-0.2	-1	-1
0803	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.6	-0.1	-0.05	-0.001	-0.1	0.148	- 1.8	-0.2	-1	-1
0808	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
0808	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
0808	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
0808	4/9/01	0.11	-0.001	-0.01	-0.005	0.03	-0.05	4	-0.1	-0.05	-0.001	-0.1	0.034	- 1.4	-0.2	-1	-1
0808	5/7/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	1.91	-0.1	-0.05	-0.001	-0.1	0.074	- 1.2	-0.2	-1	-1
0808	6/5/01	0.2	-0.001	-0.01	-0.005	-0.01	-0.05	1.47	-0.1	-0.05	-0.001	-0.1	0.059	- 1.2	-0.2	-1	-1
0808	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.69	-0.1	-0.05	0.001	-0.1	0.165	- 1.2	-0.2	-1	-1
0808	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.71	-0.1	-0.05	-0.001	-0.1	0.194	- 1.2	-0.2	-1	-1
0808	9/10/01	0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.97	-0.1	-0.05	-0.001	-0.1	0.253	3.7	-0.2	-1	-1
0808	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.55	-0.1	-0.05	-0.001	-0.1	0.157	- 1.3	-0.2	-1	-1
0808 filtr	6/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.49	-0.1	-0.05	-0.001	-0.1	0.06	- 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	-0.1	-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 23	5/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	5.74	-0.1	-0.05	-0.001	-0.1	0.026	- 1.2	-0.2	-1	-1
EPA 23	6/4/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	5.11	-0.1	-0.05	-0.001	-0.1	0.025	- 1.2	-0.2	-1	-1
EPA 23	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	5.1	-0.1	-0.05	-0.001	-0.1	0.0276	- 1.2	-0.2	-1	-1
EPA 23	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	5.4	-0.1	-0.05	-0.001	-0.1	0.025	- 1.2	-0.2	-1	-1
EPA 23	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	4.68	-0.1	-0.05	-0.001	-0.1	0.0229	- 1.2	-0.2	-1	-1
EPA 23	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	4.38	-0.1	-0.05	-0.001	-0.1	0.0239	- 1.5	-0.2	-1	-1

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO3 (mg/L)	SO4 (mg/L)	Cl (mg/L)	NH4 as N (mg/L)	NO3 as N (mg/L)	Chloroform (mg/L)
NRC Standard		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001
EPA Standard		NA	NA	NA	4800	NA	NA	NA	NA	NA	2125	250	NA	190	NA
EPA 23Dup	1/9/01	6,878.40	6.76	7.63	4,370	650	392	119	9.3	1,060	2,380	69.7	1.05	1.14	-0.001
EPA 23Dup	2/6/01	6,878.35	6.68	7.56	4,380	729	424	111	10.5	1,060	2,500	67.1	1.08	1.3	-0.001
EPA 23Dup	3/6/01	6,878.20	7.08	7.78	4,110	637	389	150	10.1	1,030	2,420	64.7	1.12	1.2	-0.001
EPA 23Dup	4/4/01	6,778.30	6.87	7.51	4,410	711	414	114	9.2	1,040	2,350	73.9	1.2	1.42	-0.001
EPA 23Dup	5/7/01	6,878.35	6.88	7.21	4,450	620	371	109	10	1,030	2,060	79.4	1.21	1.27	-0.001
EPA 23Dup	6/4/01	6,878.14	6.67	7.24	4,020	617	372	102	9.8	1,020	2,240	76.2	1.33	1.6	-0.001
EPA 23Dup	7/9/01	6,878.14	6.59	7.05	4,480	682	418	113	9.6	1,070	2,240	90	1.12	1.51	-0.001
EPA 23Dup	8/6/01	6,878.01	6.59	7.2	4,480	630	390	110	10	1,060	2,100	91	1.1	1.29	-0.001
EPA 23Dup	9/10/01	6,878.10	6.56	7.5	4,460	650	390	118	10	1,100	2,200	76.2	1.03	1.2	-0.001
EPA 23Dup	10/1/01	6,878.15	6.67	7.4	4,510	610	370	113	10.6	1,090	2,200	97.7	1.06	1	-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	-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	-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	-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	-0.001
EPA 25	5/8/01	6,852.00	7.02	7.67	3,990	668	222	148	7.6	715	1,570	74.2	0.13	108	-0.001
EPA 25	6/5/01	6,852.10	7.03	7.57	3,920	705	236	132	7.3	785	1,780	71.2	0.12	94.7	-0.001
EPA 25	7/10/01	6,852.10	7.29	7.39	4,060	730	244	159	7.3	817	1,720	75.8	0.1	103	-0.001
EPA 25	8/7/01	6,852.02	7.26	7.5	4,060	650	220	150	7.6	819	1,600	82	0.13	94	-0.001
EPA 25	9/11/01	6,852.30	6.81	7.8	4,130	680	220	154	7.8	841	1,630	85.9	0.08	111	-0.001
EPA 25	10/2/01	6,852.40	6.96	7.6	4,090	670	220	142	7.9	883	1,700	100	0.11	97	-0.001
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	-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	47.6	-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	49.4	-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	50.1	-0.001
EPA 28	5/8/01	6,856.70	6.81	7.62	5,120	520	489	190	11.5	647	2,480	118	0.09	53.6	-0.001
EPA 28	6/5/01	6,856.75	6.84	7.35	4,510	546	532	191	10.3	635	2,870	113	0.07	42.3	-0.001
EPA 28	7/10/01	6,856.90	6.94	7.33	5,220	554	542	208	11.6	628	2,690	97	0.05	48.3	-0.001
EPA 28	8/7/01	6,856.90	6.72	7.7	5,220	510	500	190	12	625	2,600	120	0.05	42	-0.001
EPA 28	9/11/01	6,857.05	6.74	7.5	5,100	520	500	186	12.1	649	2,600	143	0.05	55	-0.001

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	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
NRC Standard		NA	0.05	0.05	0.01	NA	0.05	NA	NA	0.05	0.01	0.1	0.3	5.0	5.0	1.0	15.0
EPA Standard		5	0.05	0.02	0.01	0.05	0.05	2.6	1	0.2	0.01	0.7	5	5	NA	NA	15
EPA 23Dup	1/9/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	4.65	-0.1	-0.05	-0.001	-0.1	0.024	- 1.2	-0.2	-1	-1
EPA 23Dup	2/6/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	4.85	-0.1	-0.05	-0.001	-0.1	0.025	2.6	-0.2	-1	-1
EPA 23Dup	3/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	5.03	-0.1	0.07	-0.001	-0.1	0.0252	- 1.4	-0.2	-1	-1
EPA 23Dup	4/4/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	4.19	-0.1	-0.05	-0.001	-0.1	0.023	- 1.2	-0.2	-1	-1
EPA 23Dup	5/7/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	5.75	-0.1	-0.05	-0.001	-0.1	0.025	- 1.2	-0.2	-1	-1
EPA 23Dup	6/4/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	5.15	-0.1	-0.05	-0.001	-0.1	0.024	- 1.2	-0.2	-1	-1
EPA 23Dup	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	5.19	-0.1	-0.05	-0.001	-0.1	0.0263	- 1.2	-0.2	-1	-1
EPA 23Dup	8/6/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	5.5	-0.1	-0.05	-0.001	-0.1	0.027	- 1.2	-0.2	-1	-1
EPA 23Dup	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	4.96	-0.1	-0.05	-0.001	-0.1	0.0245	- 1.2	-0.2	-1	-1
EPA 23Dup	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	4.39	-0.1	-0.05	-0.001	-0.1	0.0235	- 1.2	-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
EPA 25	5/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.42	-0.1	-0.05	0.001	-0.1	0.091	- 1.2	-0.2	-1	-1
EPA 25	6/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.53	-0.1	-0.05	0.001	-0.1	0.09	- 1.2	-0.2	-1	-1
EPA 25	7/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.58	-0.1	-0.05	0.001	-0.1	0.0981	- 1.2	-0.2	-1	-1
EPA 25	8/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.4	-0.1	-0.05	-0.001	-0.1	0.1	- 1.2	-0.2	-1	-1
EPA 25	9/11/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.5	-0.1	-0.05	-0.001	-0.1	0.0904	- 1.2	-0.2	-1	-1
EPA 25	10/2/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.42	-0.1	-0.05	-0.001	-0.1	0.0949	- 1.2	-0.2	-1	-1
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
EPA 28	5/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.47	-0.1	-0.05	-0.001	-0.1	0.042	- 1.2	-0.2	-1	-1
EPA 28	6/5/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.47	-0.1	-0.05	0.001	-0.1	0.038	- 1.4	-0.2	-1	-1
EPA 28	7/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.48	-0.1	-0.05	-0.001	-0.1	0.0403	- 1.7	-0.2	-1	-1
EPA 28	8/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.48	-0.1	-0.05	-0.001	-0.1	0.043	2.8	-0.2	-1	-1
EPA 28	9/11/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.42	-0.1	-0.05	-0.001	-0.1	0.037	- 1.3	-0.2	-1	-1

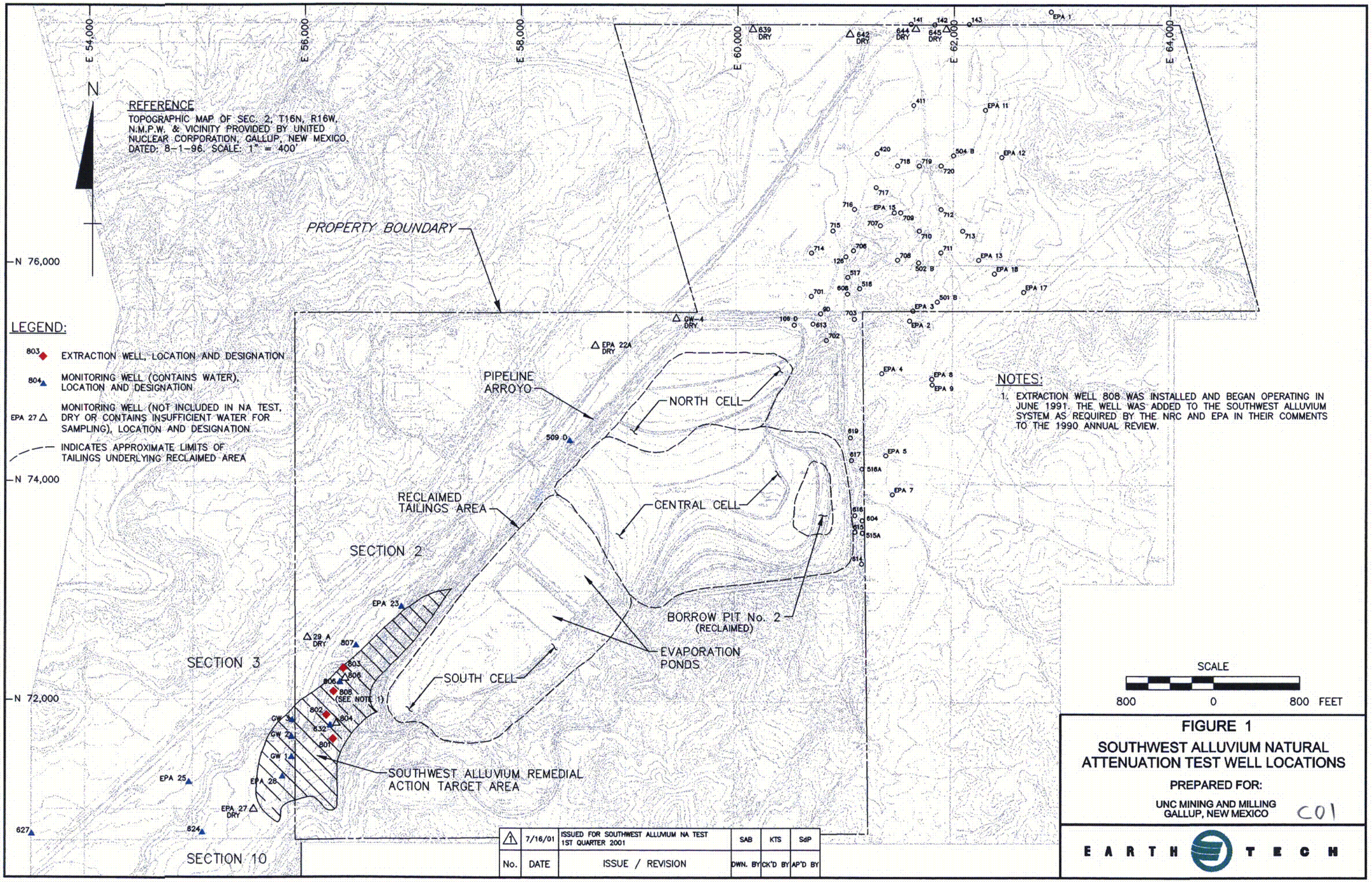
TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	Date	Water Elevation (ft AMSL)	Field pH (SU)	Lab pH (SU)	Lab TDS (mg/L)	Ca (mg/L)	Mg (mg/L)	Na (mg/L)	K (mg/L)	HCO3 (mg/L)	SO4 (mg/L)	Cl (mg/L)	NH4 as N (mg/L)	NO3 as N (mg/L)	Chloroform (mg/L)
NRC Standard		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.001**
EPA Standard		NA	NA	NA	**4800**	NA	NA	NA	NA	NA	**2125**	**250**	NA	**190**	NA
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	79.9	-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	73.7	-0.001
GW 1	3/5/01	6,856.50	7.15	7.4	4,080	635	323	166	6.1	975	2,070	104	0.79	74.2	-0.001
GW 1	4/4/01	6,856.70	7	7.5	4,360	713	347	201	4.1	946	2,070	116	0.79	84.7	-0.001
GW 1	5/8/01	6,856.80	6.72	7.51	4,500	628	314	201	4.7	944	1,830	124	0.79	78.2	-0.001
GW 1	6/4/01	6,857.05	6.67	6.98	4,420	635	322	187	4.7	944	1,980	119	0.83	76.4	-0.001
GW 1	7/10/01	6,857.10	7.12	7.47	4,680	694	353	197	4.1	892	2,110	134	0.8	86.7	-0.001
GW 1	8/7/01	6,857.12	6.61	7.5	4,910	650	340	210	4.5	878	2,100	140	0.69	84	-0.001
GW 1	9/11/01	6,857.25	6.64	7.4	4,960	690	350	214	4.6	899	2,200	140	0.68	101	-0.001
GW 1	10/1/01	6,857.40	6.73	7.8	5,190	690	350	206	5.3	913	2,200	170	0.63	91.5	-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 2	5/7/01	6,859.20	6.46	7.57	5,330	590	514	217	9.7	1,420	2,390	168	0.11	3.49	-0.001
GW 2	6/4/01	6,859.55	6.47	7.33	4,490	583	520	184	9.5	1,390	2,460	164	0.09	3.8	-0.001
GW 2	7/9/01	6,859.61	7.09	7.12	5,340	624	561	210	9.3	1,450	2,450	166	-0.05	4.4	-0.001
GW 2	8/7/01	6,859.45	6.43	7.2	5,320	570	520	220	9.8	1,460	2,300	170	-0.05	4.4	-0.001
GW 2	9/10/01	6,859.70	6.38	7.1	5,270	600	530	209	10.1	1,500	2,400	177	-0.05	6.3	-0.001
GW 2	10/1/01	6,859.80	6.48	7.6	5,330	570	510	222	10.7	1,480	2,200	202	0.07	6	-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	-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	-0.001
GW 3	3/6/01	6,858.70	7	7.63	4,380	817	263	164	9.3	1,180	2,040	120	0.16	112	-0.001
GW 3	4/10/01	6,859.05	7.26	7.2	4,680	945	287	207	9.1	1,250	2,070	128	0.14	108	-0.001
GW 3	5/8/01	6,859.10	6.72	7.49	4,850	808	256	195	8.9	1,250	1,730	146	0.15	107	-0.001
GW 3	6/5/01	6,859.30	6.76	7.25	4,230	847	274	194	8.6	1,280	1,940	136	0.2	97.5	-0.001
GW 3	7/10/01	6,859.30	6.87	7.1	4,980	888	288	244	9	1,350	1,880	125	0.11	98	-0.001
GW 3	8/7/01	6,859.32	6.59	7.2	5,010	820	270	210	9.4	1,390	1,800	160	0.11	90.5	-0.001
GW 3	9/11/01	6,859.50	6.65	7.5	4,980	840	270	233	8.9	1,400	1,810	154	0.1	104	-0.001

TABLE 2
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
THIRD QUARTER WATER QUALITY DATA

Well Number	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
NRC Standard		**NA**	**0.05**	**0.05**	**0.01**	**NA**	**0.05**	**NA**	**NA**	**0.05**	**0.01**	**0.1**	**0.3**	**5.0**	**5.0**	**1.0**	**15.0**
EPA Standard		**5**	**0.05**	**0.02**	**0.01**	**0.05**	**0.05**	**2.6**	**1**	**0.2**	**0.01**	**0.7**	**5**	**5**	**NA**	**NA**	**15**
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 1	5/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	-0.001	-0.1	0.075	- 1.2	-0.2	-1	-1
GW 1	6/4/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	0.009	-0.1	0.065	- 1.2	-0.2	-1	-1
GW 1	7/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	-0.001	-0.1	0.0731	- 1.2	-0.2	-1	-1
GW 1	8/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.05	-0.1	-0.05	-0.001	-0.1	0.081	- 1.2	-0.2	-1	-1
GW 1	9/11/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.04	-0.1	-0.05	-0.001	-0.1	0.0764	- 1.2	-0.2	-1	-1
GW 1	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.04	-0.1	-0.05	-0.001	-0.1	0.0903	- 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 2	5/7/01	0.15	-0.001	-0.01	-0.005	-0.01	-0.05	0.59	-0.1	-0.05	-0.001	-0.1	0.067	- 1.2	-0.2	-1	-1
GW 2	6/4/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	0.51	-0.1	-0.05	0.004	-0.1	0.061	- 1.2	-0.2	-1	-1
GW 2	7/9/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.53	-0.1	-0.05	-0.001	-0.1	0.0683	- 1.2	-0.2	-1	-1
GW 2	8/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.5	-0.1	-0.05	-0.001	-0.1	0.075	- 2.4	-0.2	-1	-1
GW 2	9/10/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.48	-0.1	-0.05	-0.001	-0.1	0.0627	- 1.2	-0.2	-1	-1
GW 2	10/1/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	0.45	-0.1	-0.05	-0.001	-0.1	0.0659	- 1.3	-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
GW 3	5/8/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	1.96	-0.1	-0.05	0.001	-0.1	0.06	- 1.2	-0.2	-1	-1
GW 3	6/5/01	0.1	-0.001	-0.01	-0.005	0.01	-0.05	2.06	-0.1	-0.05	0.005	-0.1	0.058	- 1.2	-0.2	-1	-1
GW 3	7/10/01	-0.1	-0.001	-0.01	-0.005	0.01	-0.05	2.22	-0.1	-0.05	0.001	-0.1	0.0676	- 1.2	-0.2	-1	-1
GW 3	8/7/01	-0.1	-0.001	-0.01	-0.005	-0.01	-0.05	2	-0.1	-0.05	-0.001	-0.1	0.071	- 1.4	-0.2	-1	-1
GW 3	9/11/01	0.13	-0.001	-0.01	-0.005	0.01	-0.05	1.99	-0.1	-0.05	0.001	-0.1	0.0655	- 1.2	-0.2	-1	-1

FIGURES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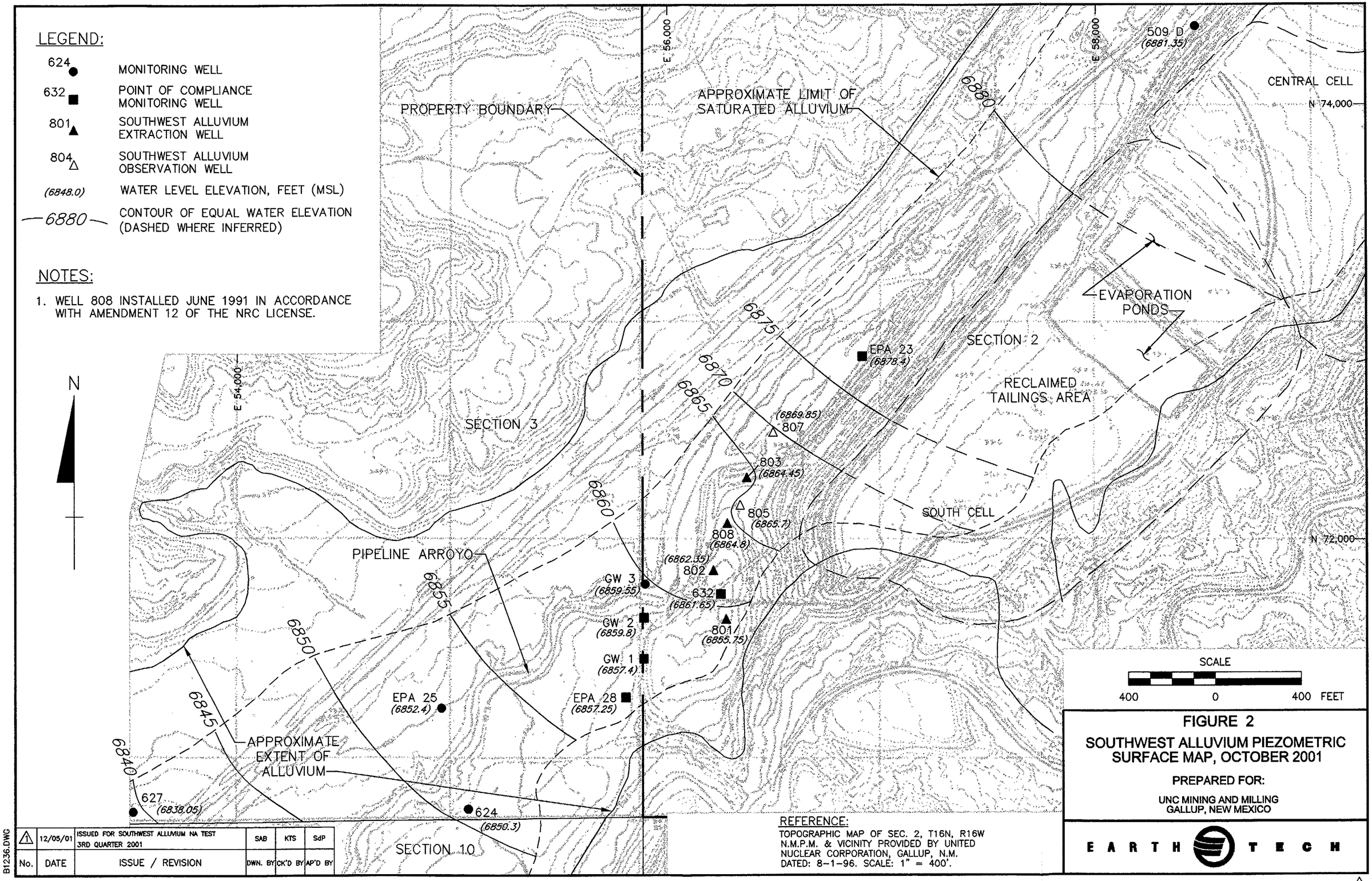
REFERENCE
TOPOGRAPHIC MAP OF SEC. 2, T16N, R16W, N.M.P.M. & VICINITY PROVIDED BY UNITED NUCLEAR CORPORATION, GALLUP, NEW MEXICO. DATED: 8-1-96. SCALE: 1" = 400'
E 54,000
E 56,000
E 58,000
E 60,000
E 62,000
E 64,000
N 76,000
N 74,000
N 72,000
PROPERTY BOUNDARY
LEGEND:
803 EXTRACTION WELL, LOCATION AND 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
RECLAIMED TAILINGS AREA
SECTION 2
SECTION 3
SECTION 10
BORROW PIT No. 2 (RECLAIMED)
EVAPORATION PONDS
SOUTH CELL
SOUTHWEST ALLUVIUM REMEDIAL ACTION TARGET AREA
808 (SEE NOTE 1)
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
FIGURE 1
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST WELL LOCATIONS
PREPARED FOR:
UNC MINING AND MILLING
GALLUP, NEW MEXICO
C01
EARTH TECH
B1213.DWG
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

1


LEGEND:
624 MONITORING WELL
632 POINT OF COMPLIANCE MONITORING WELL
801 SOUTHWEST ALLUVIUM EXTRACTION WELL
804 SOUTHWEST ALLUVIUM OBSERVATION WELL
(6848.0) WATER LEVEL ELEVATION, FEET (MSL)
6880 CONTOUR OF EQUAL WATER ELEVATION (DASHED WHERE INFERRED)
NOTES:
1. WELL 808 INSTALLED JUNE 1991 IN ACCORDANCE WITH AMENDMENT 12 OF THE NRC LICENSE.
N
PROPERTY BOUNDARY
APPROXIMATE LIMIT OF SATURATED ALLUVIUM
E 56,000
E 58,000
E 54,000
N 74,000
N 72,000
509 D (6881.35)
CENTRAL CELL
EVAPORATION PONDS
SECTION 2
RECLAIMED TAILINGS AREA
EPA 23 (6878.4)
SECTION 3
807 (6869.85)
803 (6864.45)
805 (6865.7)
808 (6864.6)
SOUTH CELL
802 (6862.35)
632 (6861.65)
801 (6855.75)
GW 3 (6859.55)
GW 2 (6859.8)
GW 1 (6857.4)
EPA 28 (6857.25)
EPA 25 (6852.4)
PIPELINE ARROYO
APPROXIMATE EXTENT OF ALLUVIUM
627 (6838.05)
624 (6850.3)
SECTION 10
6880
6875
6870
6865
6860
6855
6850
6845
6840
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'.
FIGURE 2
SOUTHWEST ALLUVIUM PIEZOMETRIC SURFACE MAP, OCTOBER 2001
PREPARED FOR:
UNC MINING AND MILLING GALLUP, NEW MEXICO
EARTH TECH
B1236.DWG
1 12/05/01 ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 3RD QUARTER 2001 SAB KTS SdP
No. DATE ISSUE / REVISION DWN. BY CK'D BY AP'D BY
1

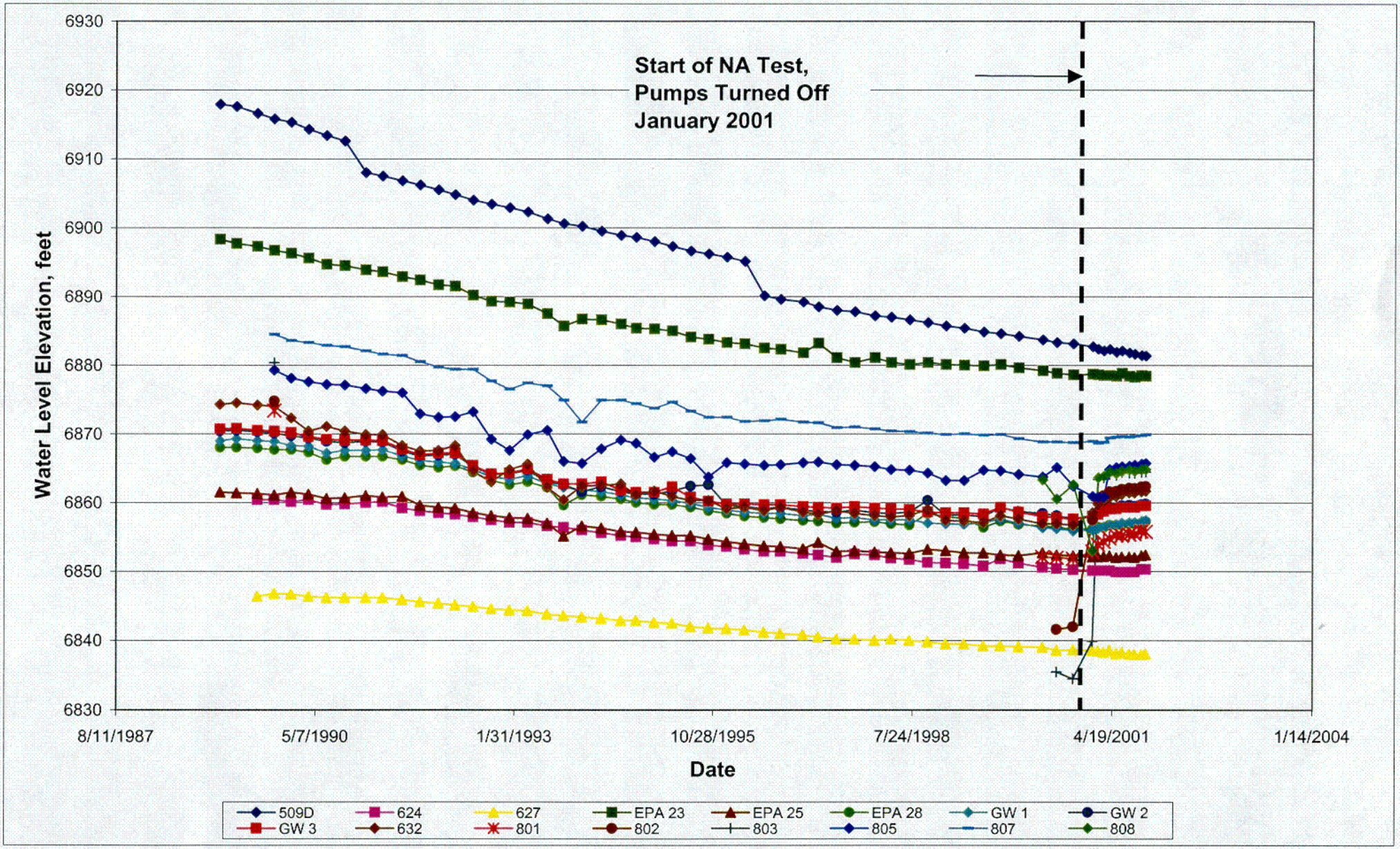
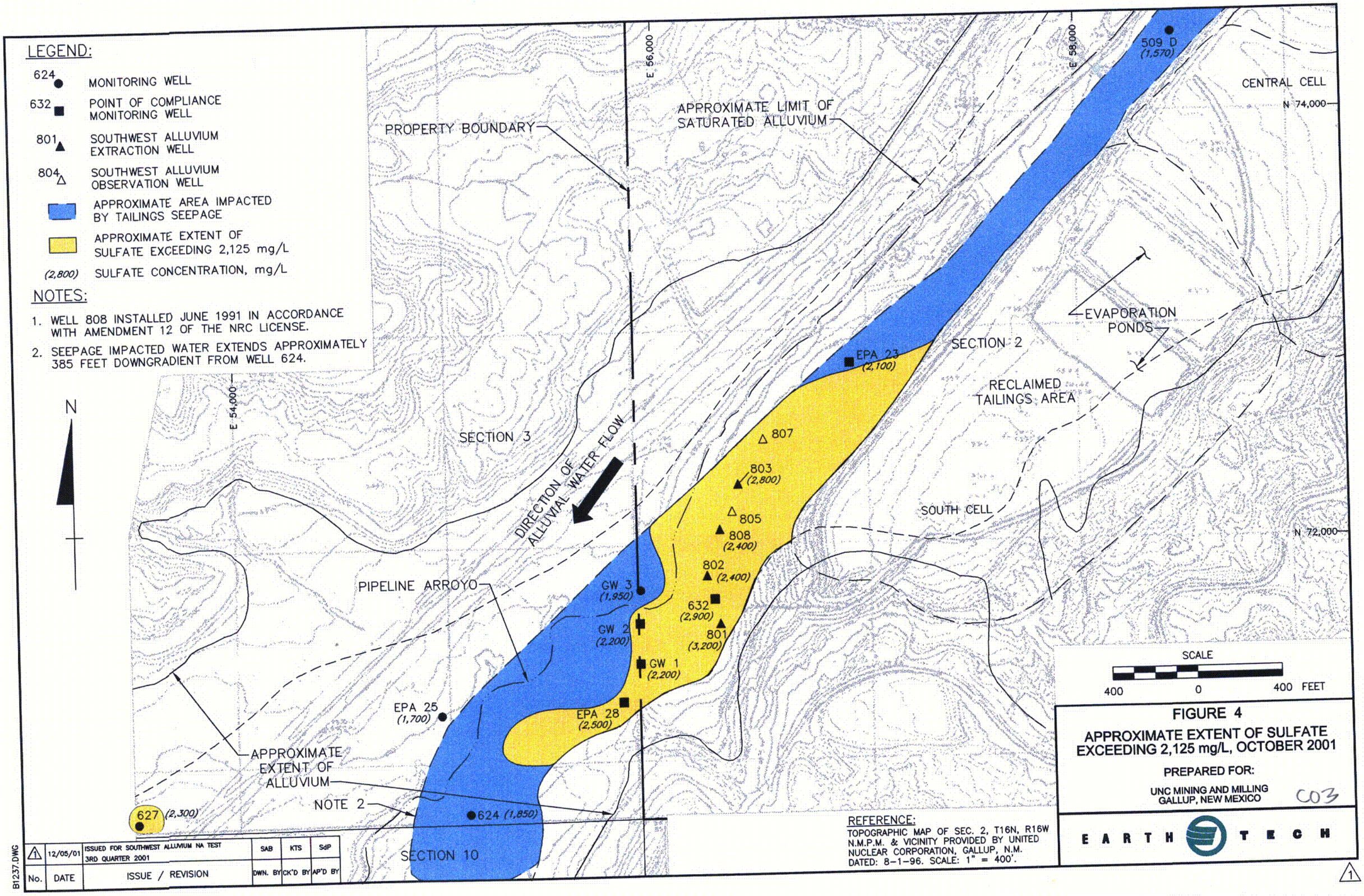
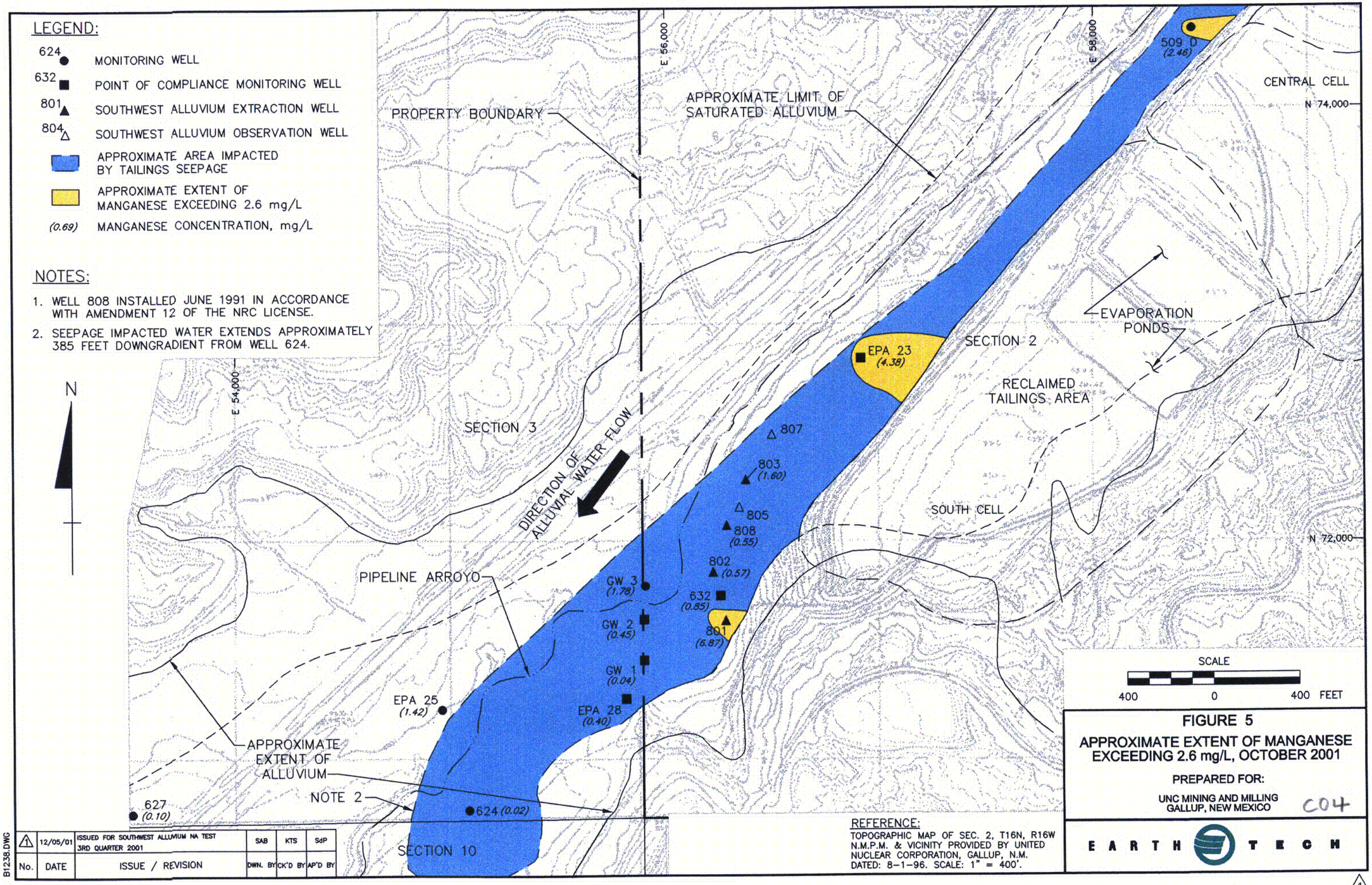
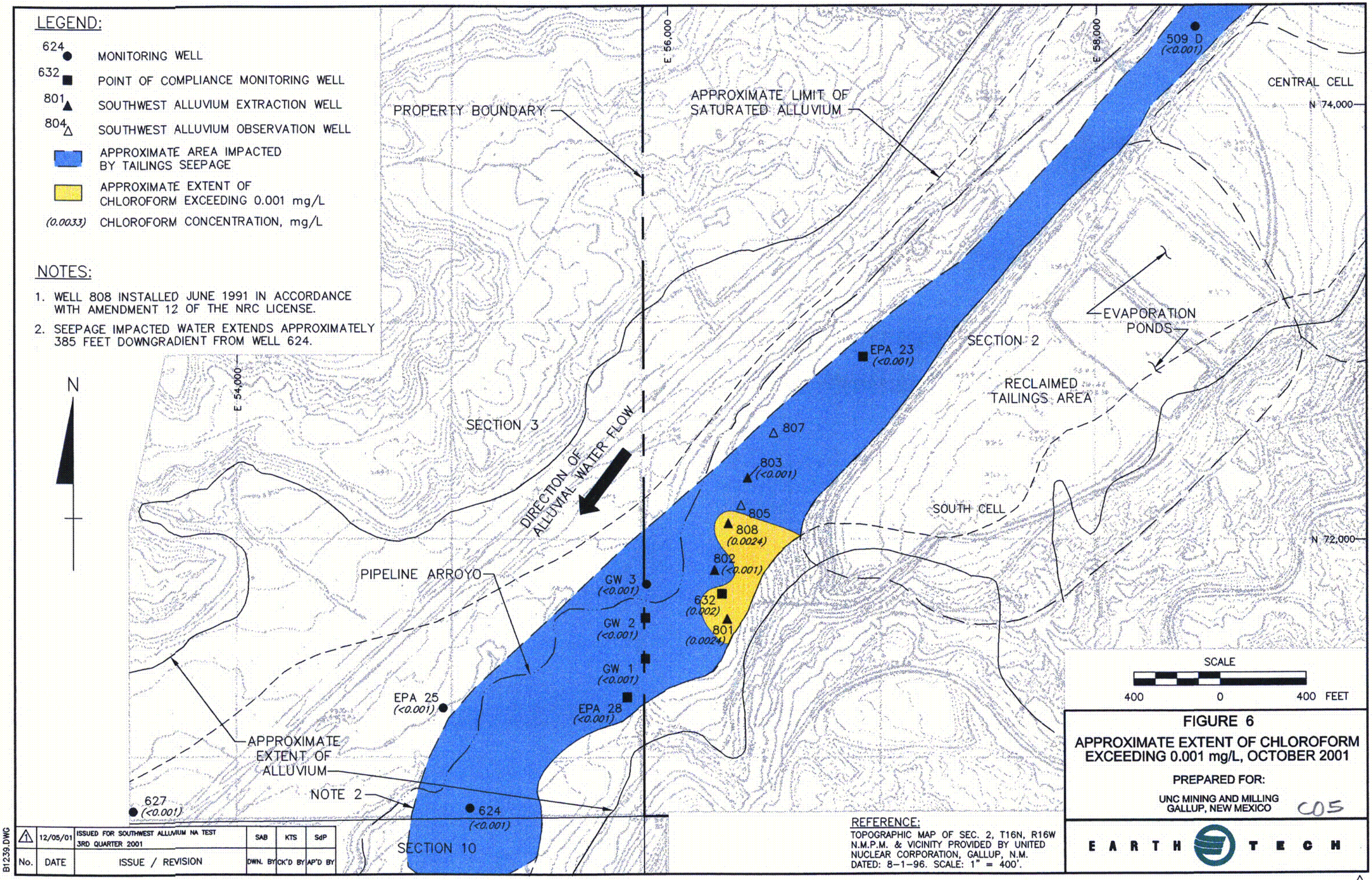


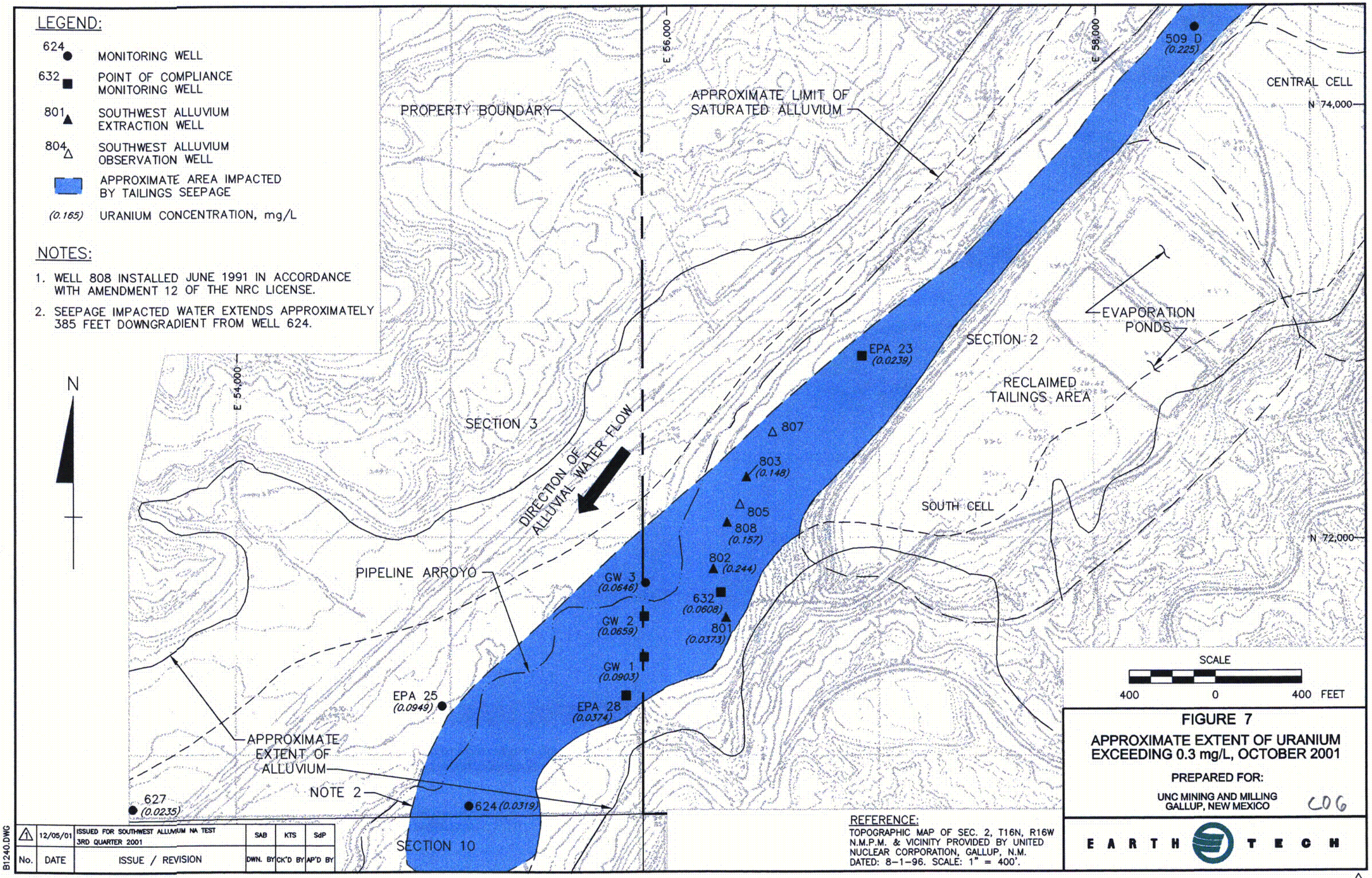
FIGURE 3
Southwest Alluvium Water Levels Over Time

C 02


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
(2,800) 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 385 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
CENTRAL CELL
509 D (1,570)
EVAPORATION PONDS
SECTION 2
RECLAIMED TAILINGS AREA
EPA 23 (2,100)
SECTION 3
DIRECTION OF ALLUVIAL WATER FLOW
807
803 (2,800)
805
808 (2,400)
802 (2,400)
632 (2,900)
801 (3,200)
SOUTH CELL
PIPELINE ARROYO
GW 3 (1,950)
GW 2 (2,200)
GW 1 (2,200)
EPA 25 (1,700)
EPA 28 (2,500)
APPROXIMATE EXTENT OF ALLUVIUM
NOTE 2
627 (2,300)
624 (1,850)
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'.
FIGURE 4
APPROXIMATE EXTENT OF SULFATE EXCEEDING 2,125 mg/L, OCTOBER 2001
PREPARED FOR:
UNC MINING AND MILLING
GALLUP, NEW MEXICO
C03
EARTH TECH
1
12/05/01 ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 3RD QUARTER 2001 SAB KTS SdP
No. DATE ISSUE / REVISION DWN. BY CK'D BY AP'D BY
B1237.DWG


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
(0.69) 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 385 FEET DOWNGRADIENT FROM WELL 624.
N
PROPERTY BOUNDARY
APPROXIMATE LIMIT OF SATURATED ALLUVIUM
E 56,000
E 58,000
E 54,000
509 D (2.46)
CENTRAL CELL
N 74,000
EVAPORATION PONDS
SECTION 2
EPA 23 (4.38)
RECLAIMED TAILINGS AREA
SECTION 3
DIRECTION OF ALLUVIAL WATER FLOW
807
803 (1.60)
805
808 (0.55)
SOUTH CELL
N 72,000
802 (0.57)
PIPELINE ARROYO
GW 3 (1.78)
632 (0.85)
GW 2 (0.45)
801 (6.87)
GW 1 (0.04)
EPA 25 (1.42)
EPA 28 (0.40)
APPROXIMATE EXTENT OF ALLUVIUM
NOTE 2
627 (0.10)
624 (0.02)
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'.
FIGURE 5
APPROXIMATE EXTENT OF MANGANESE EXCEEDING 2.6 mg/L, OCTOBER 2001
PREPARED FOR:
UNC MINING AND MILLING
GALLUP, NEW MEXICO
C04
EARTH TECH
B1238.DWG
No. DATE ISSUE / REVISION DWN. BY CK'D BY AP'D BY
1 12/05/01 ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 3RD QUARTER 2001 SAB KTS SdP
1

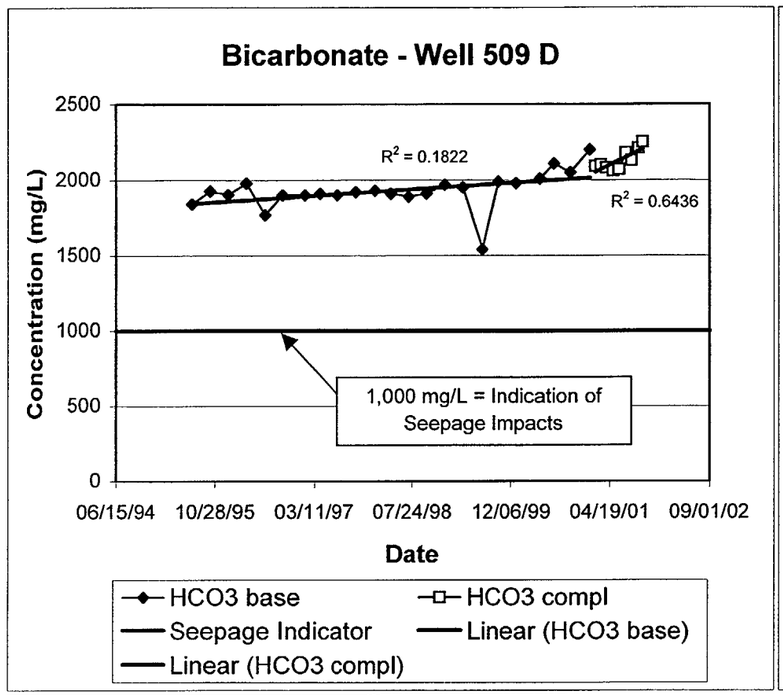

LEGEND:
624 MONITORING WELL
632 POINT OF COMPLIANCE MONITORING WELL
801 SOUTHWEST ALLUVIUM EXTRACTION WELL
804 SOUTHWEST ALLUVIUM OBSERVATION WELL
APPROXIMATE AREA IMPACTED BY TAILINGS SEEPAGE
APPROXIMATE EXTENT OF CHLOROFORM EXCEEDING 0.001 mg/L
(0.0033) CHLOROFORM CONCENTRATION, mg/L
NOTES:
1. WELL 808 INSTALLED JUNE 1991 IN ACCORDANCE WITH AMENDMENT 12 OF THE NRC LICENSE.
2. SEEPAGE IMPACTED WATER EXTENDS APPROXIMATELY 385 FEET DOWNGRADIENT FROM WELL 624.
N
PROPERTY BOUNDARY
APPROXIMATE LIMIT OF SATURATED ALLUVIUM
E 56,000
E 58,000
E 54,000
509 D (<0.001)
CENTRAL CELL
N 74,000
EVAPORATION PONDS
SECTION 2
RECLAIMED TAILINGS AREA
EPA 23 (<0.001)
SECTION 3
DIRECTION OF ALLUVIAL WATER FLOW
807
803 (<0.001)
805
808 (0.0024)
802 (<0.001)
632 (0.002)
801 (0.0024)
SOUTH CELL
N 72,000
PIPELINE ARROYO
GW 3 (<0.001)
GW 2 (<0.001)
GW 1 (<0.001)
EPA 25 (<0.001)
EPA 28 (<0.001)
APPROXIMATE EXTENT OF ALLUVIUM
NOTE 2
627 (<0.001)
624 (<0.001)
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'.
FIGURE 6
APPROXIMATE EXTENT OF CHLOROFORM EXCEEDING 0.001 mg/L, OCTOBER 2001
PREPARED FOR:
UNC MINING AND MILLING
GALLUP, NEW MEXICO
C05
EARTH TECH
B1239.DWG
No. DATE ISSUE / REVISION DWN. BY CK'D BY AP'D BY
1 12/05/01 ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 3RD QUARTER 2001 SAB KTS SdP
1

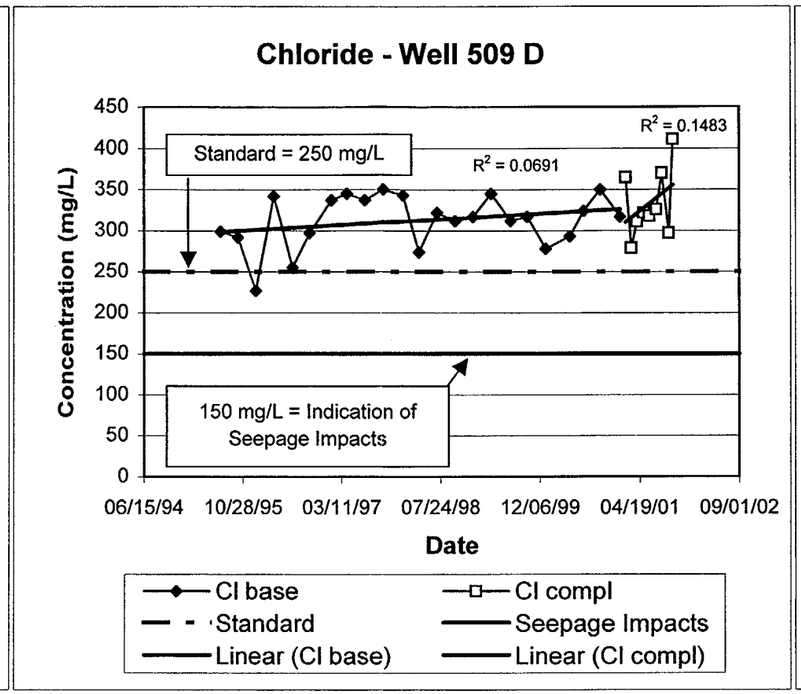

LEGEND:
624 MONITORING WELL
632 POINT OF COMPLIANCE MONITORING WELL
801 SOUTHWEST ALLUVIUM EXTRACTION WELL
804 SOUTHWEST ALLUVIUM OBSERVATION WELL
APPROXIMATE AREA IMPACTED BY TAILINGS SEEPAGE
(0.165) URANIUM CONCENTRATION, mg/L
NOTES:
1. WELL 808 INSTALLED JUNE 1991 IN ACCORDANCE WITH AMENDMENT 12 OF THE NRC LICENSE.
2. SEEPAGE IMPACTED WATER EXTENDS APPROXIMATELY 385 FEET DOWNGRADIENT FROM WELL 624.
N
PROPERTY BOUNDARY
APPROXIMATE LIMIT OF SATURATED ALLUVIUM
E 56,000
E 58,000
E 54,000
509 D (0.225)
CENTRAL CELL
N 74,000
EVAPORATION PONDS
SECTION 2
EPA 23 (0.0239)
RECLAIMED TAILINGS AREA
SECTION 3
DIRECTION OF ALLUVIAL WATER FLOW
807
803 (0.148)
805
808 (0.157)
802 (0.244)
SOUTH CELL
N 72,000
PIPELINE ARROYO
GW 3 (0.0646)
632 (0.0608)
GW 2 (0.0659)
801 (0.0373)
GW 1 (0.0903)
EPA 25 (0.0949)
EPA 28 (0.0374)
APPROXIMATE EXTENT OF ALLUVIUM
NOTE 2
627 (0.0235)
624 (0.0319)
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'.
FIGURE 7
APPROXIMATE EXTENT OF URANIUM EXCEEDING 0.3 mg/L, OCTOBER 2001
PREPARED FOR:
UNC MINING AND MILLING GALLUP, NEW MEXICO
COG
EARTH TECH
B1240.DWG
No. DATE ISSUE / REVISION DWN. BY CK'D BY AP'D BY
1 12/05/01 ISSUED FOR SOUTHWEST ALLUVIUM NA TEST 3RD QUARTER 2001 SAB KTS SdP
1

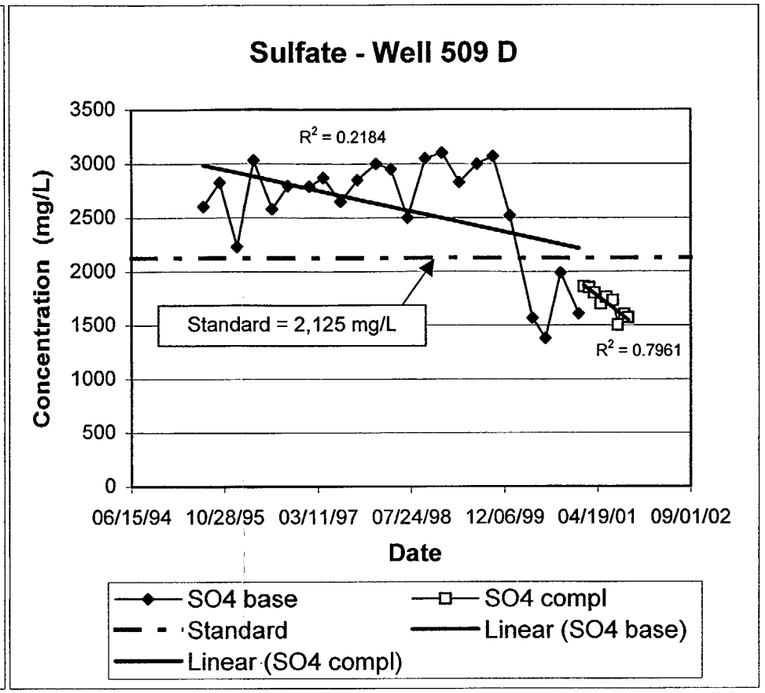
APPENDIX A

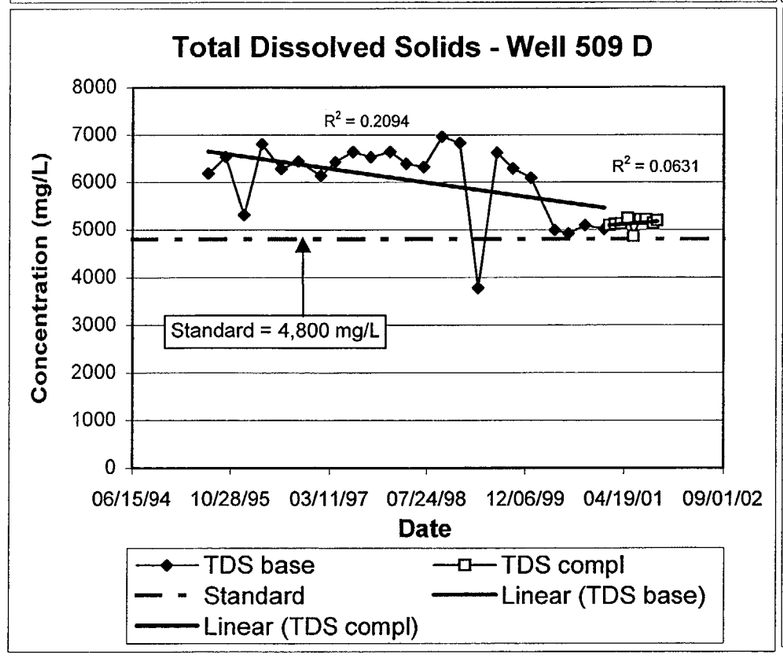
GRAPHS OF CONSTITUENT CONCENTRATIONS OVER TIME

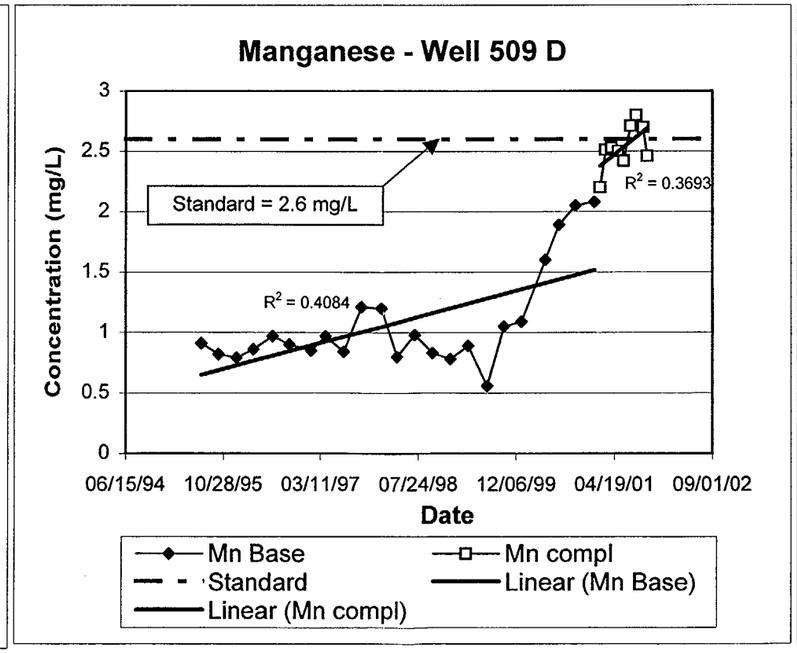
FIGURE A.1
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











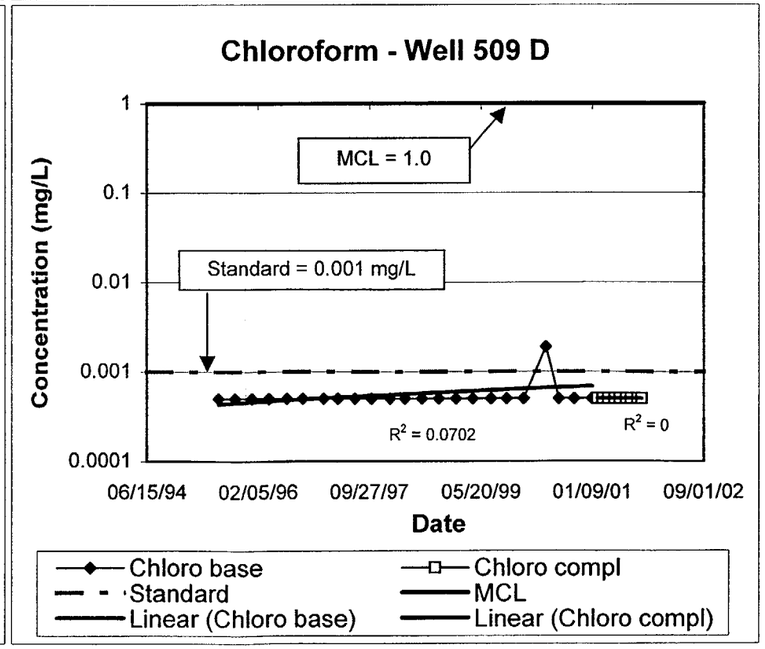


FIGURE A.1
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

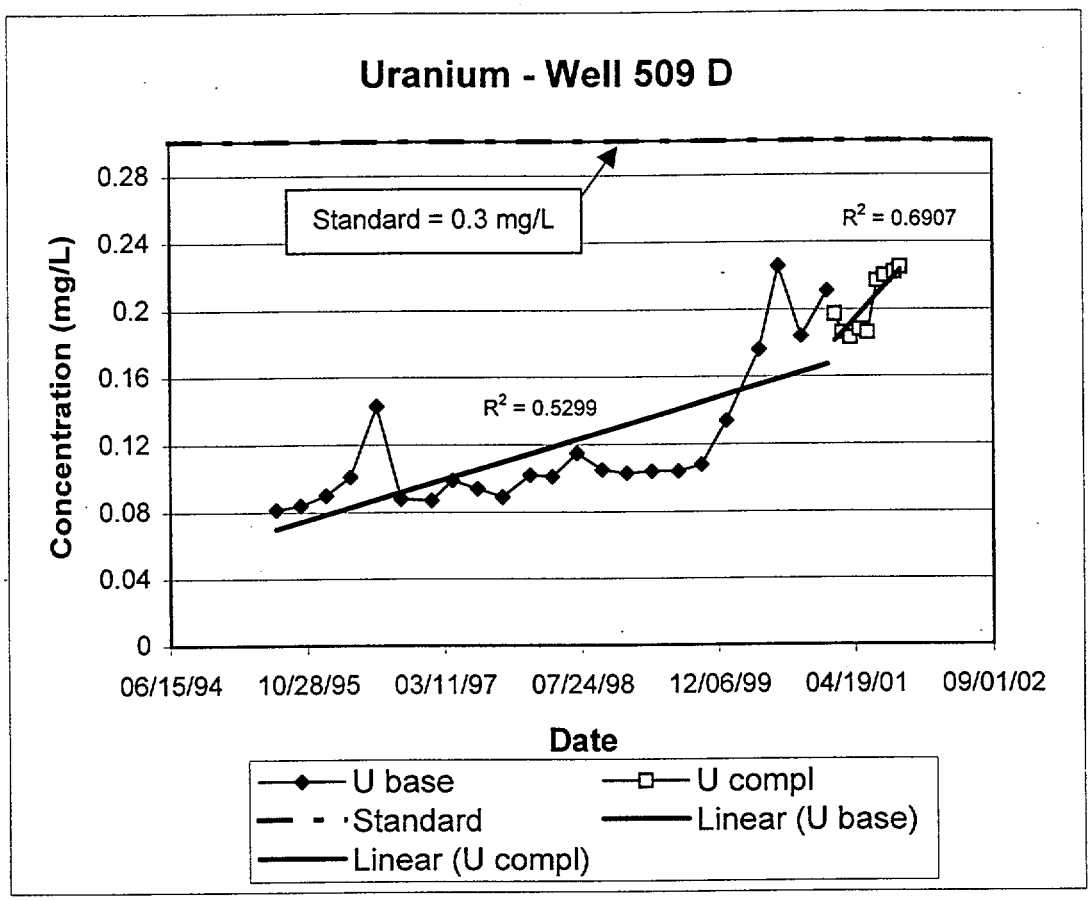
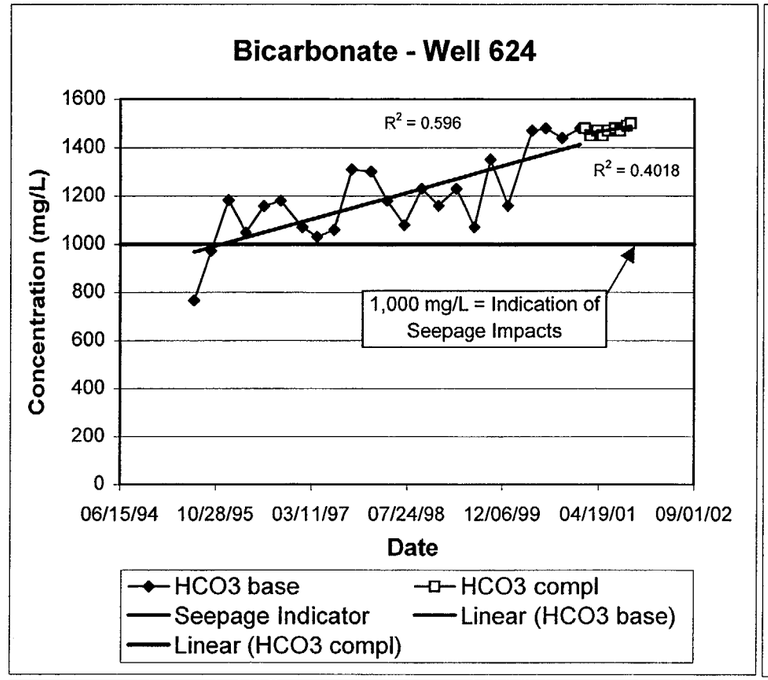
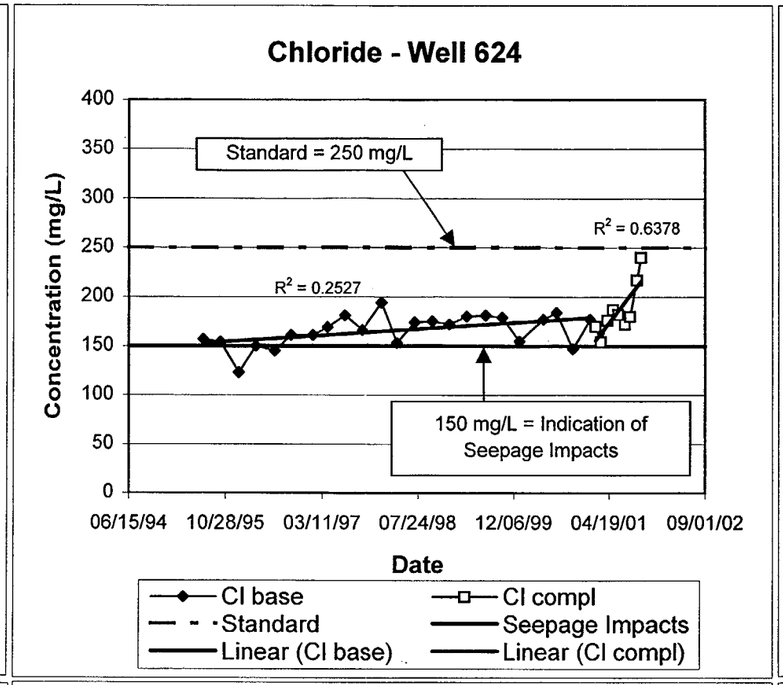
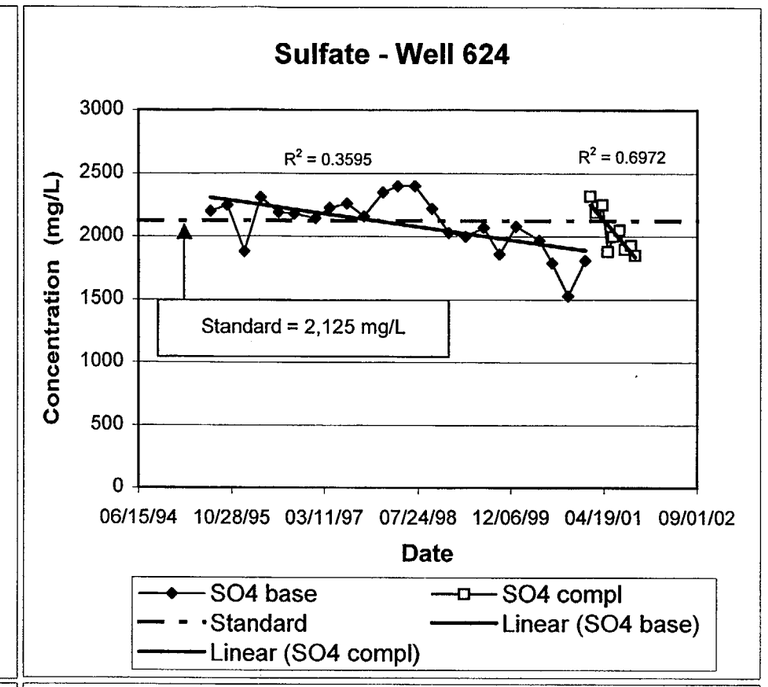
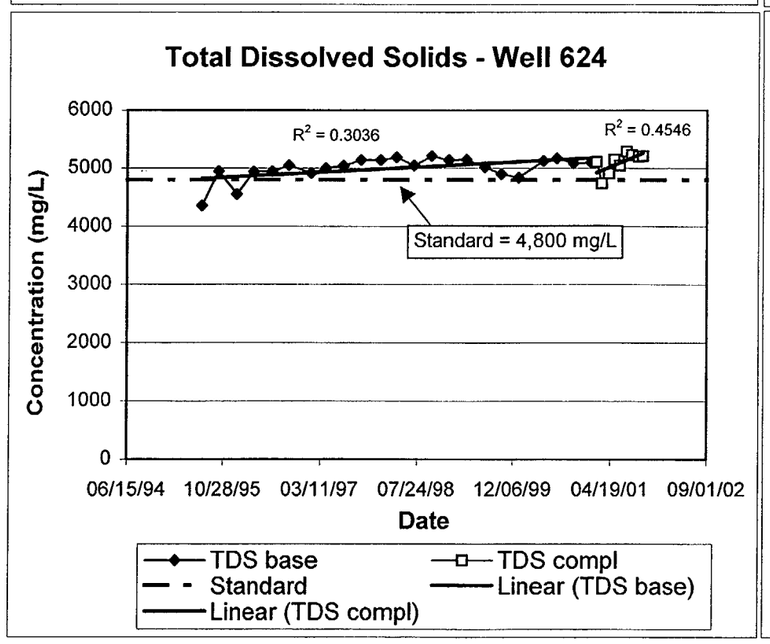


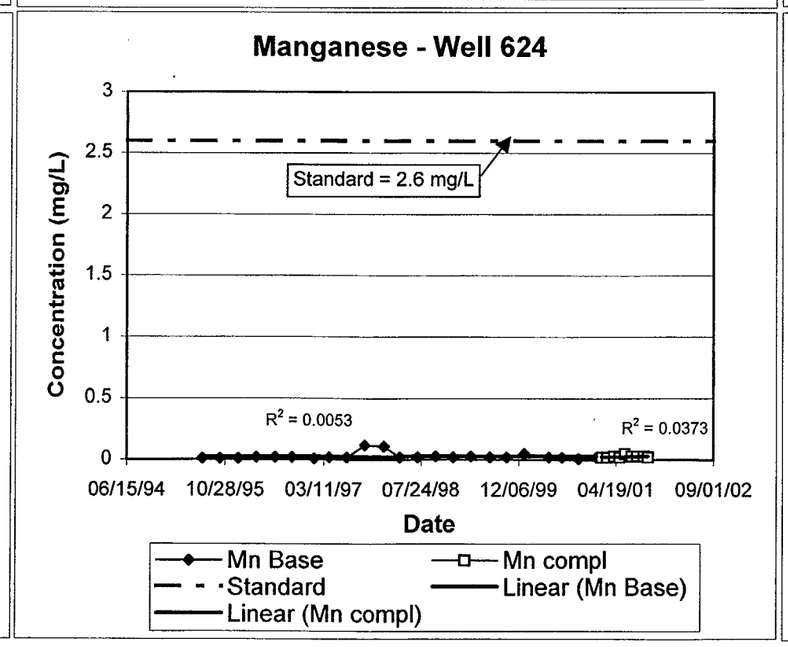
FIGURE A.2
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











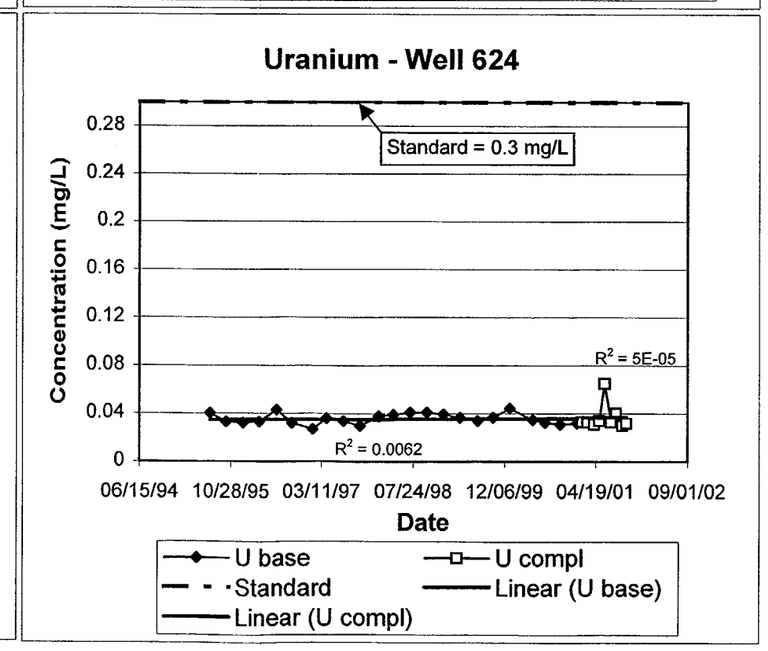
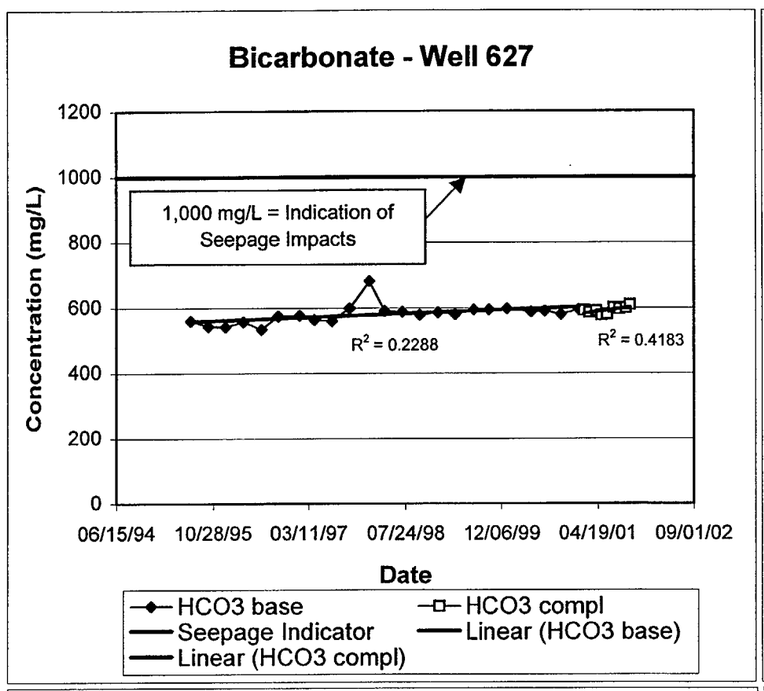
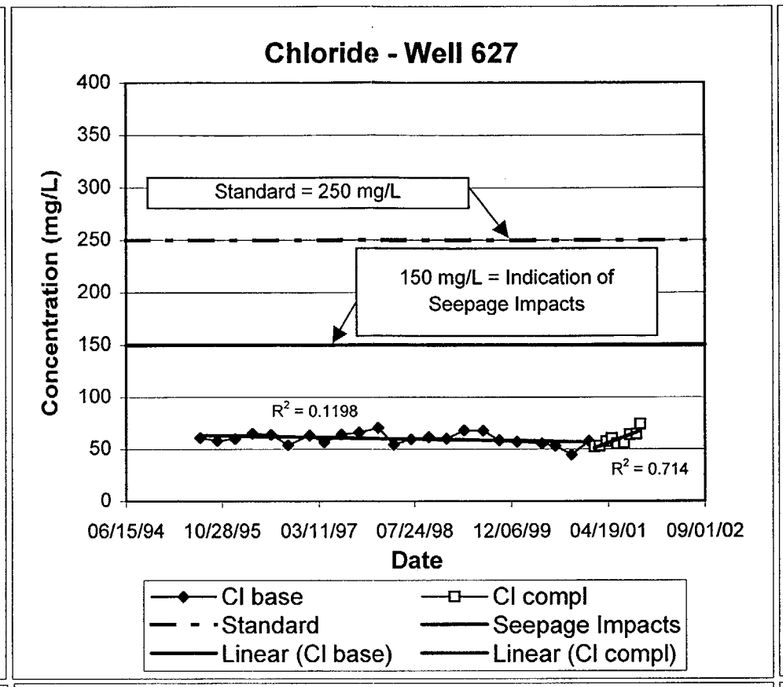
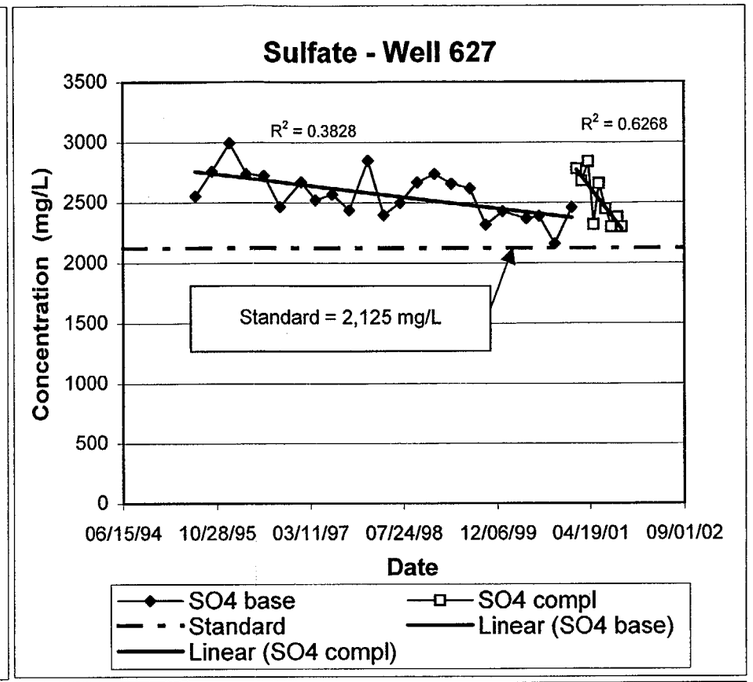
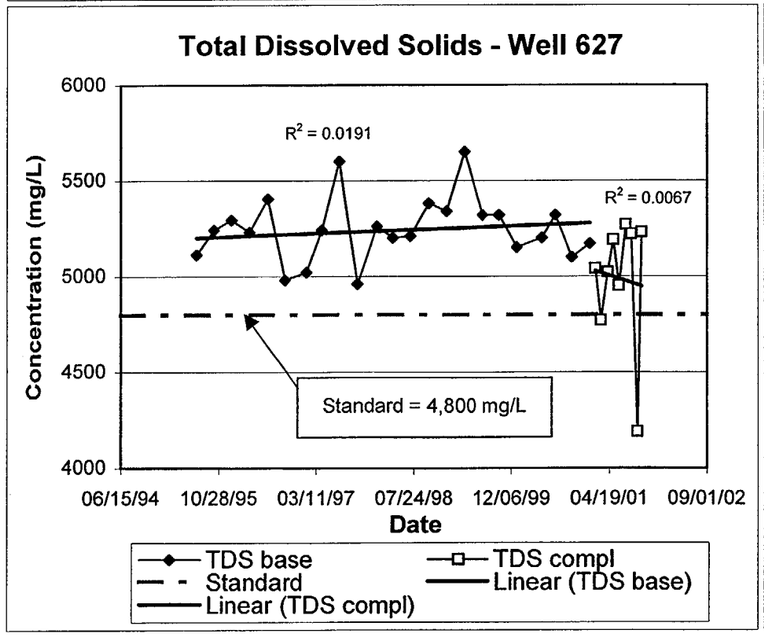


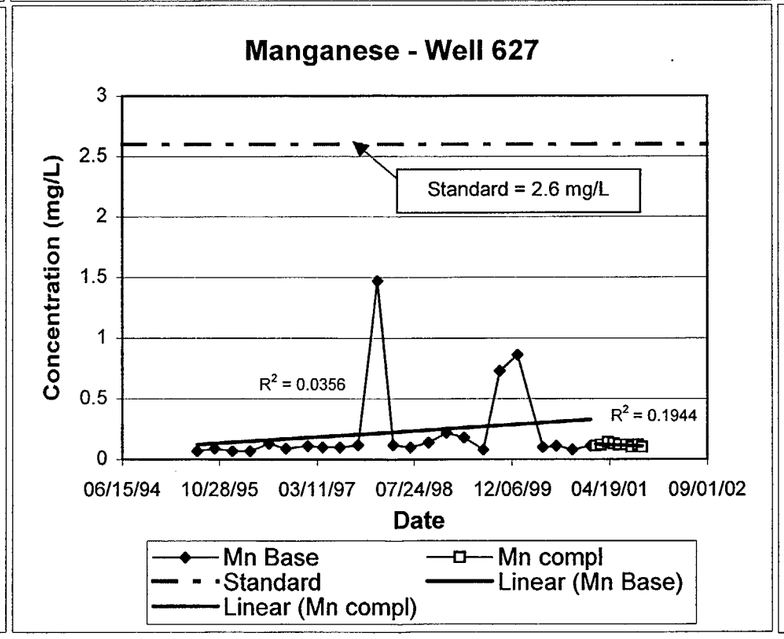
FIGURE A.3
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











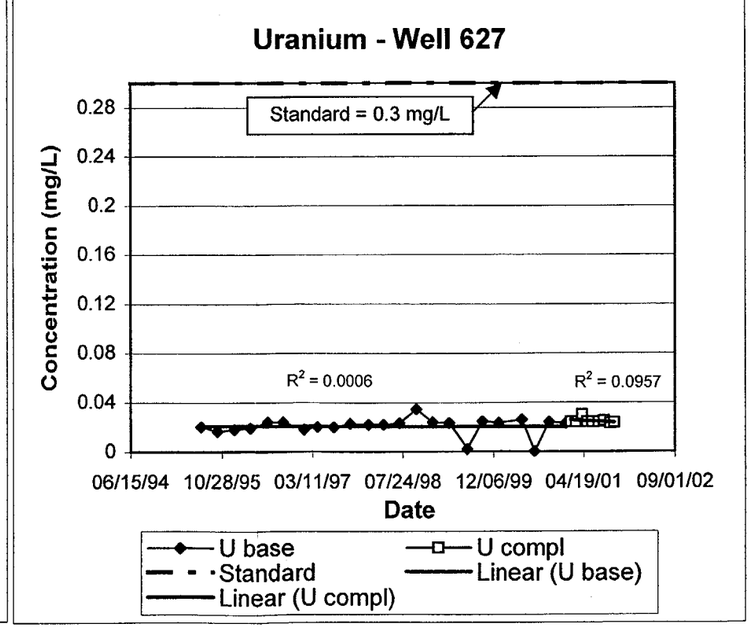
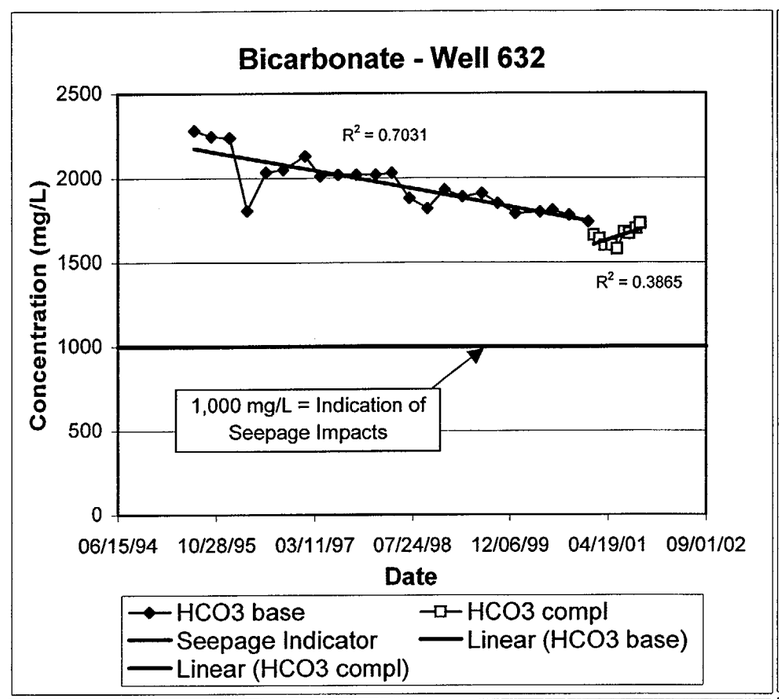
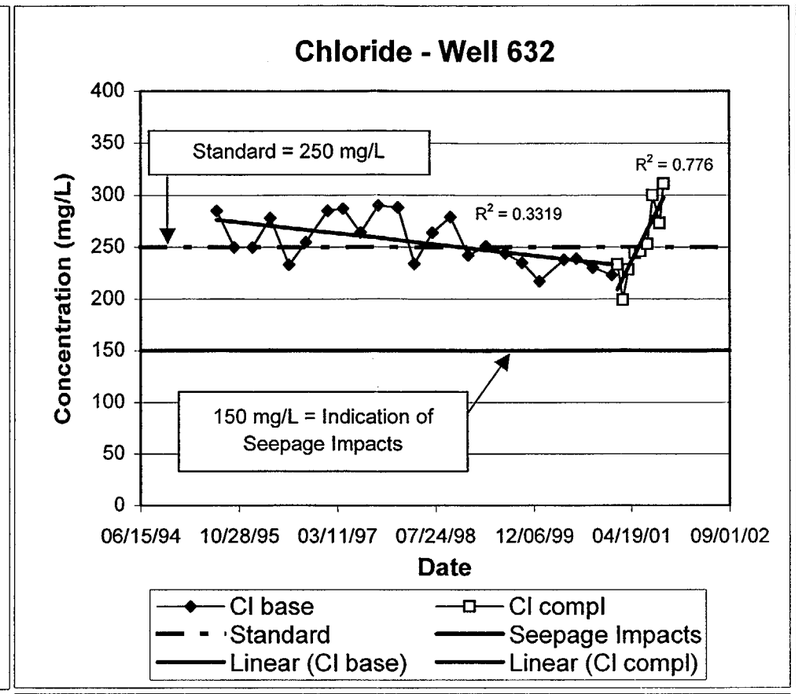
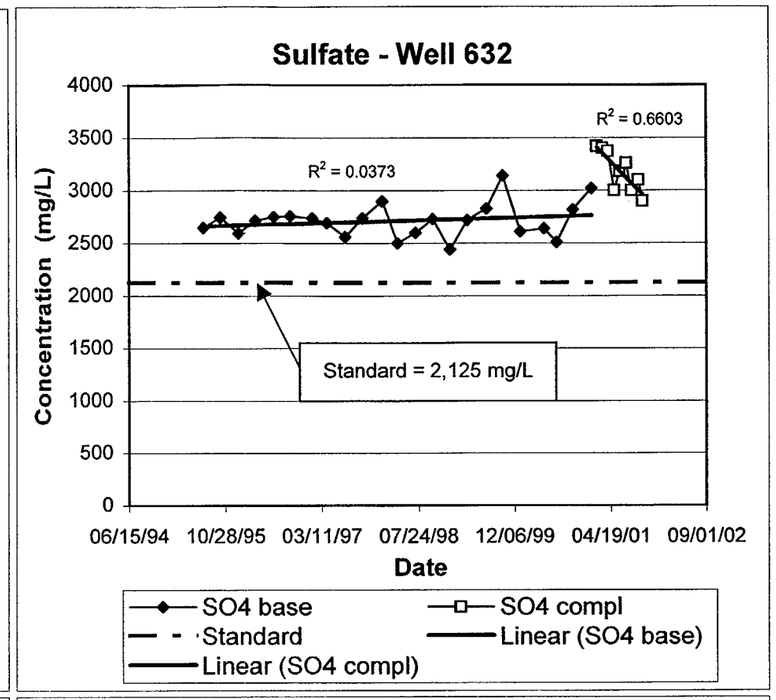
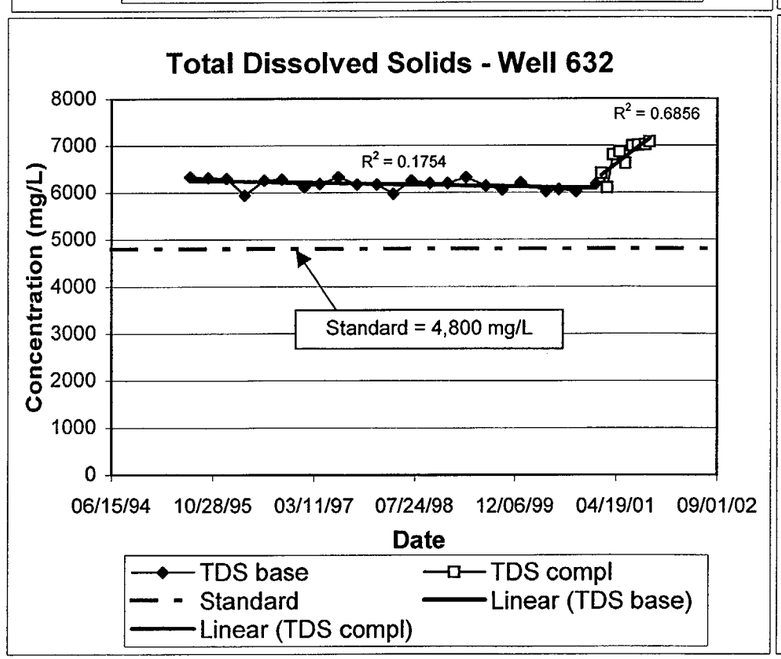


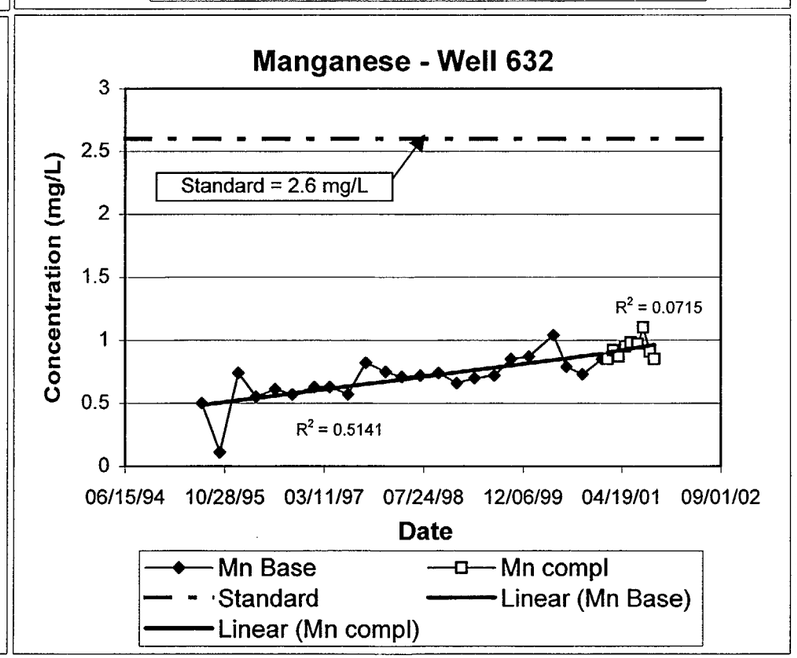
FIGURE A.4
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











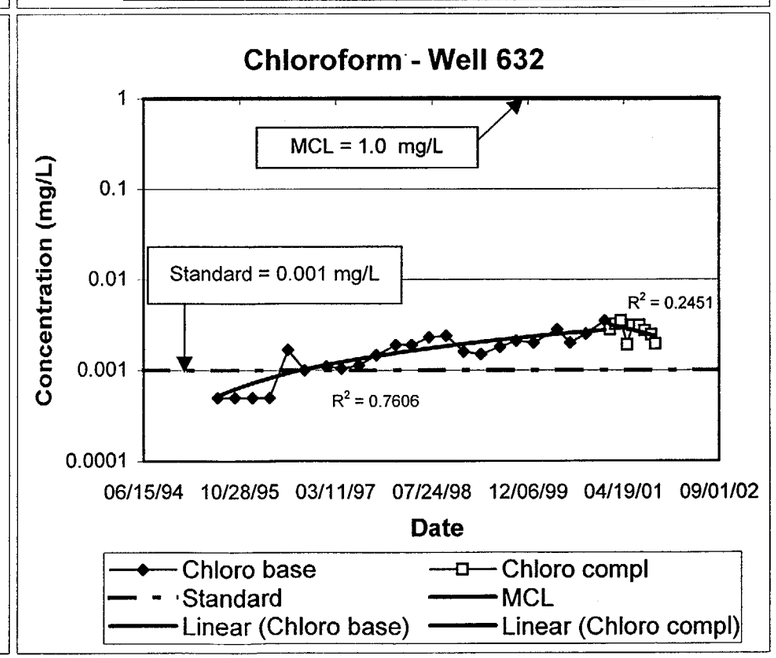


FIGURE A.4
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

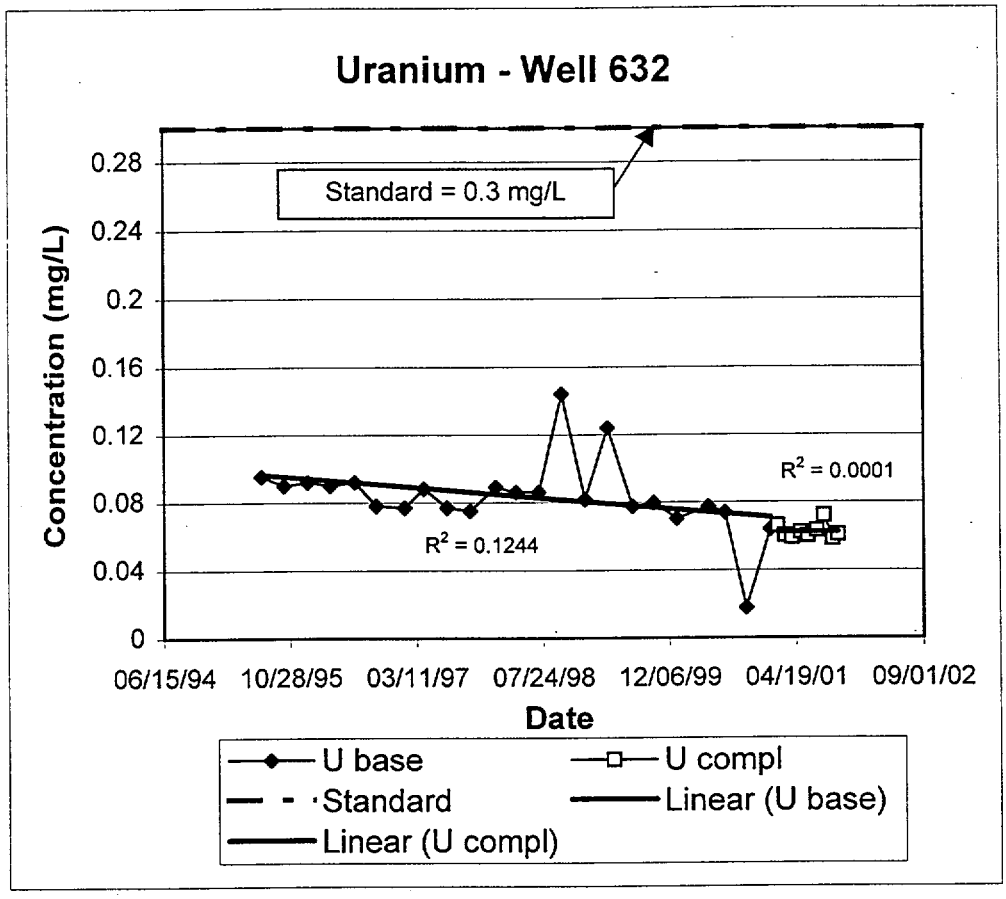
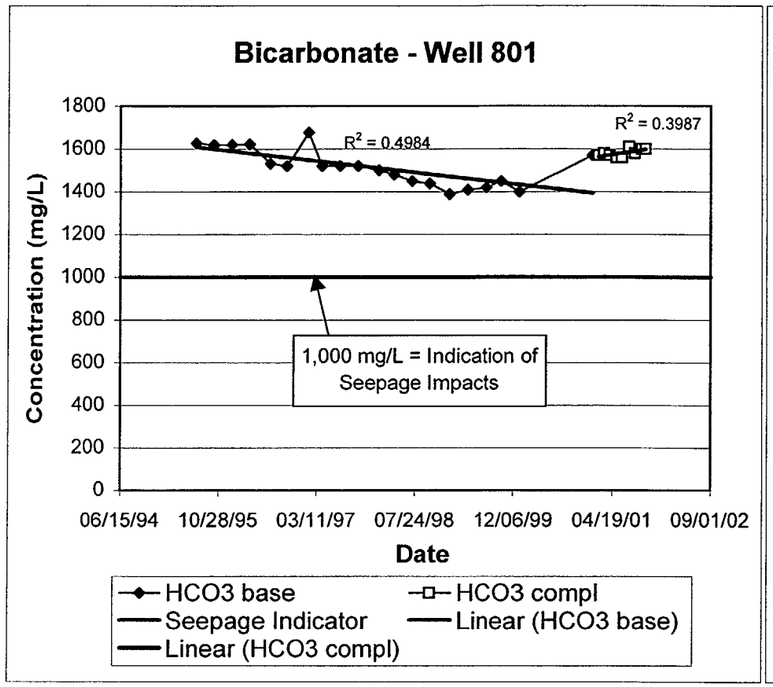
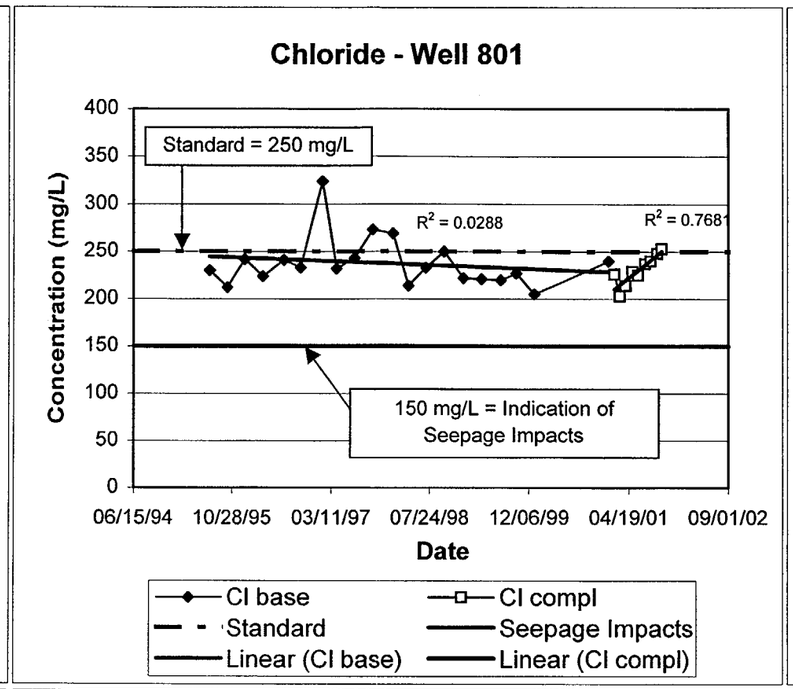
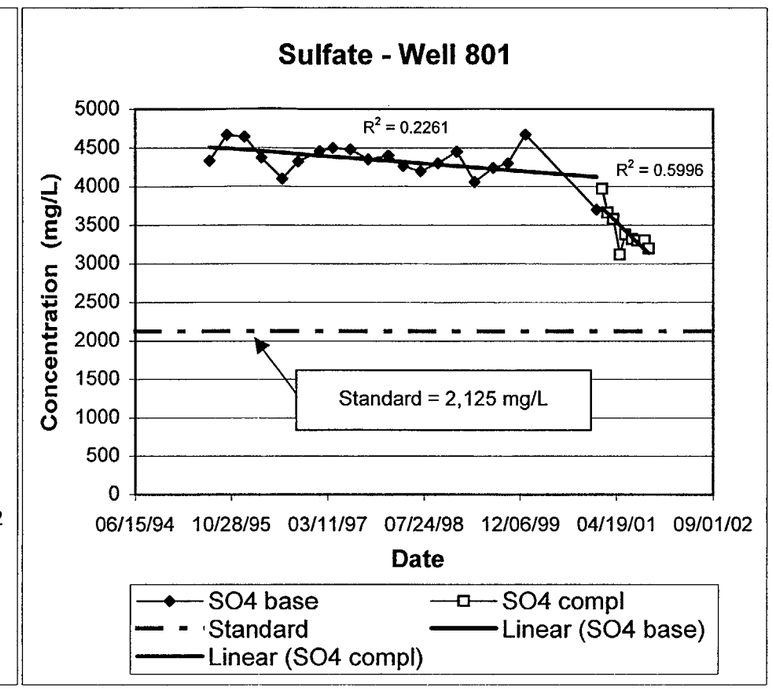
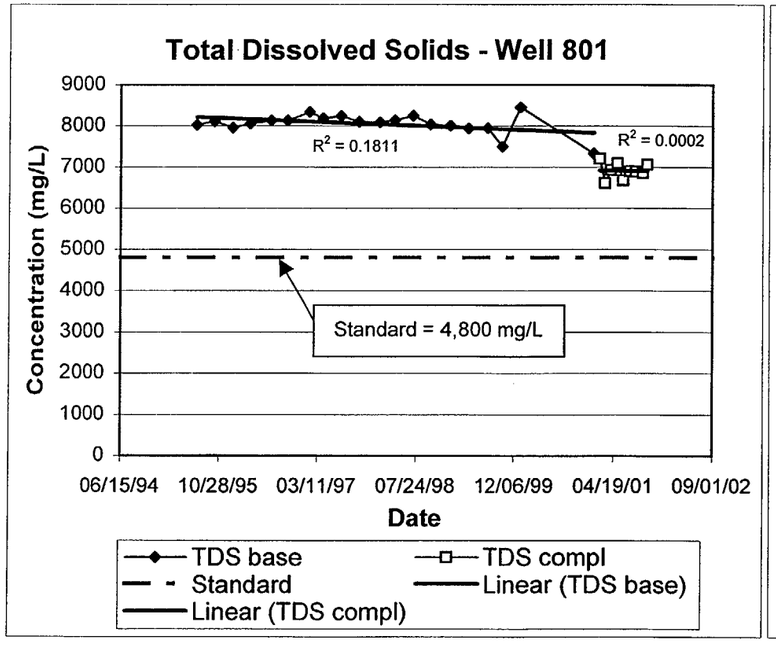


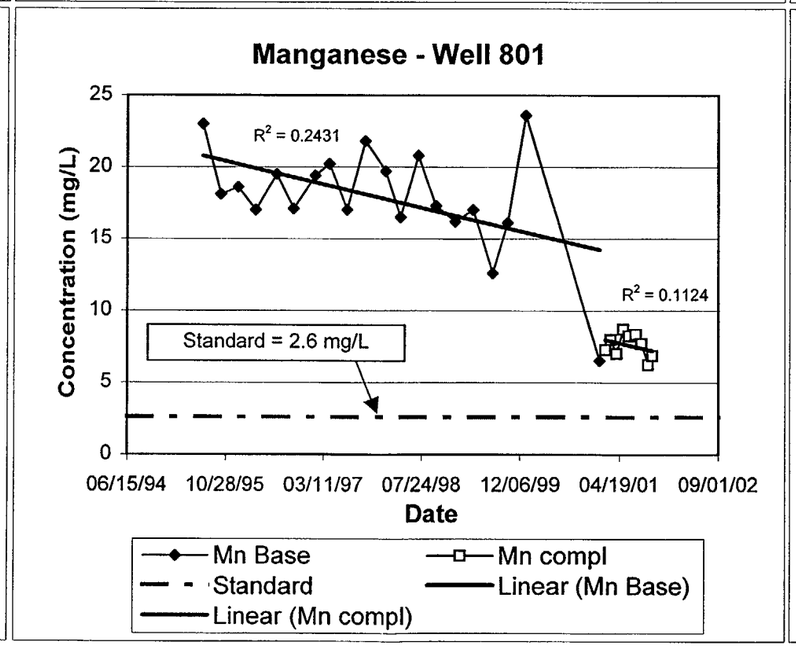
FIGURE A.5
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











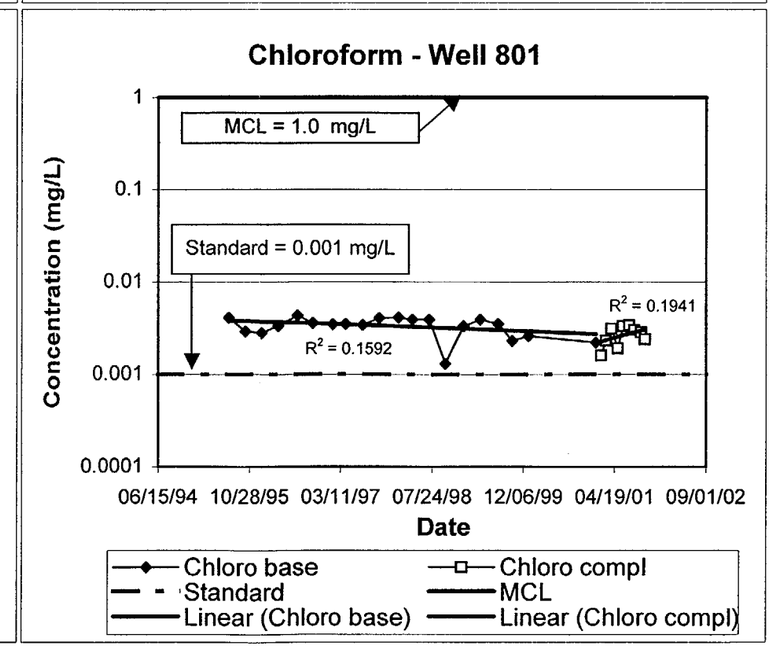


FIGURE A.5
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

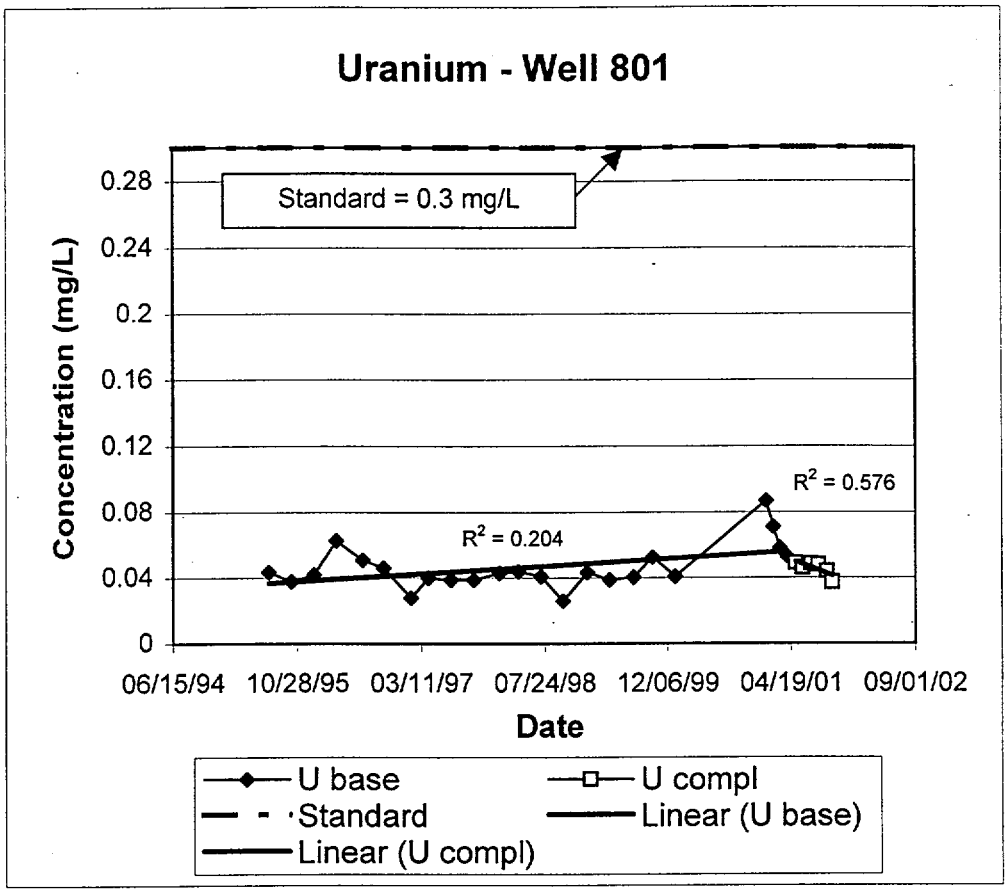


FIGURE A.6
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

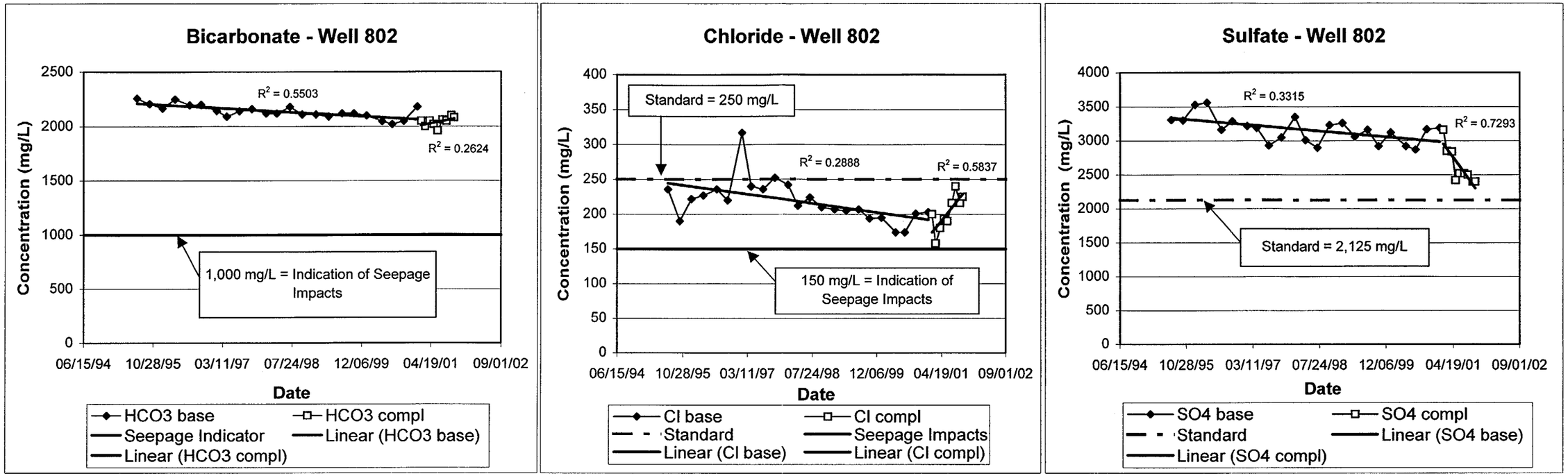


FIGURE A.6
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

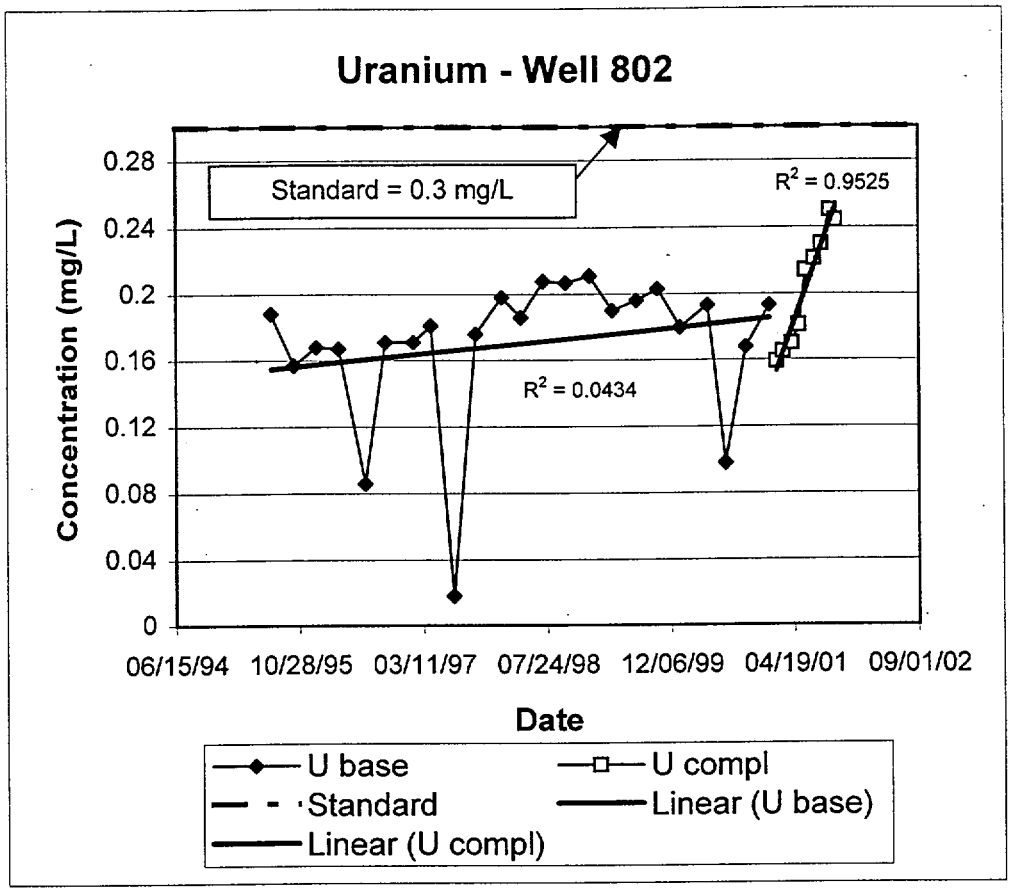


FIGURE A.7
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

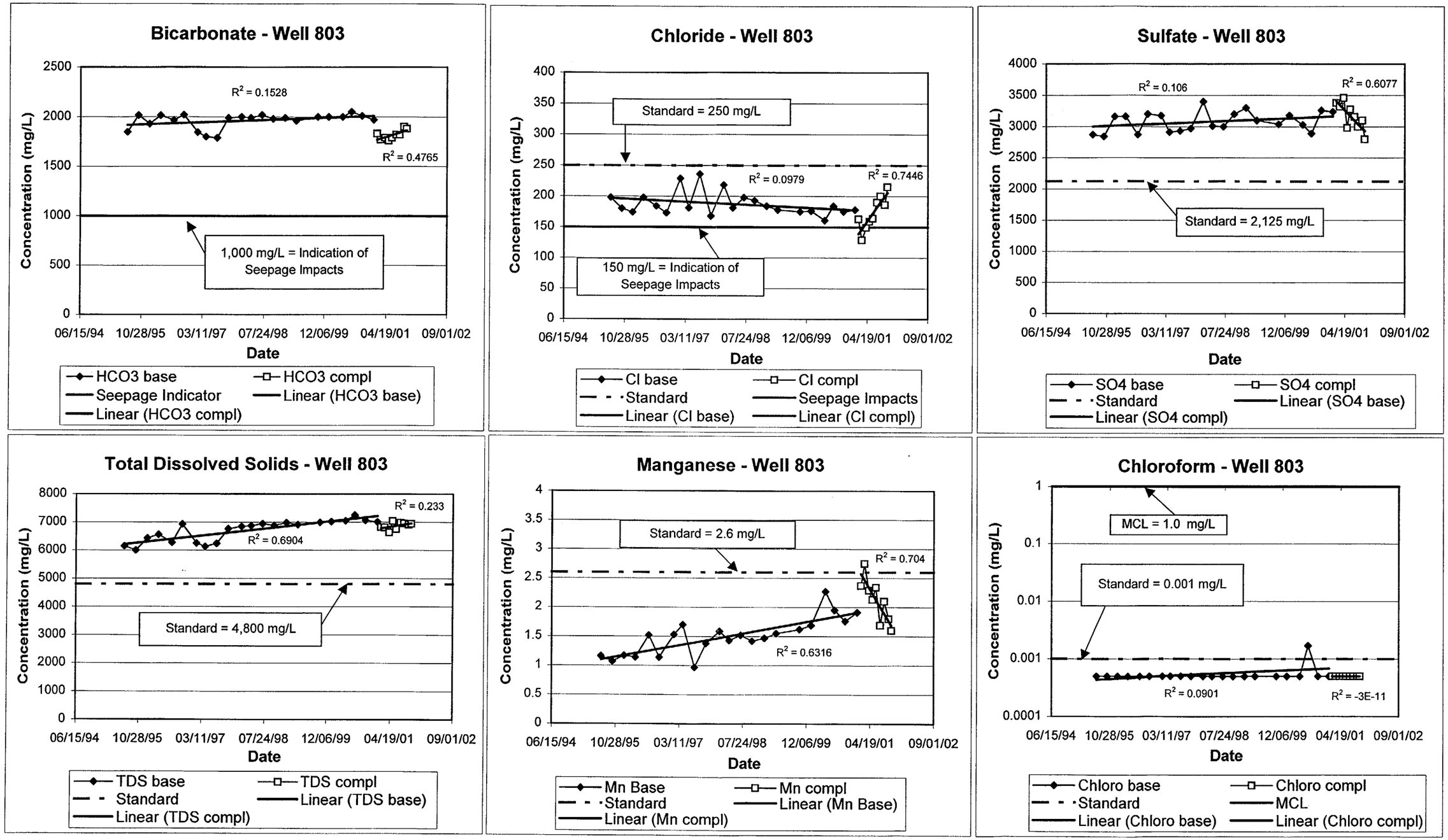


FIGURE A.7
TREND ANALYSIS COMPARING BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

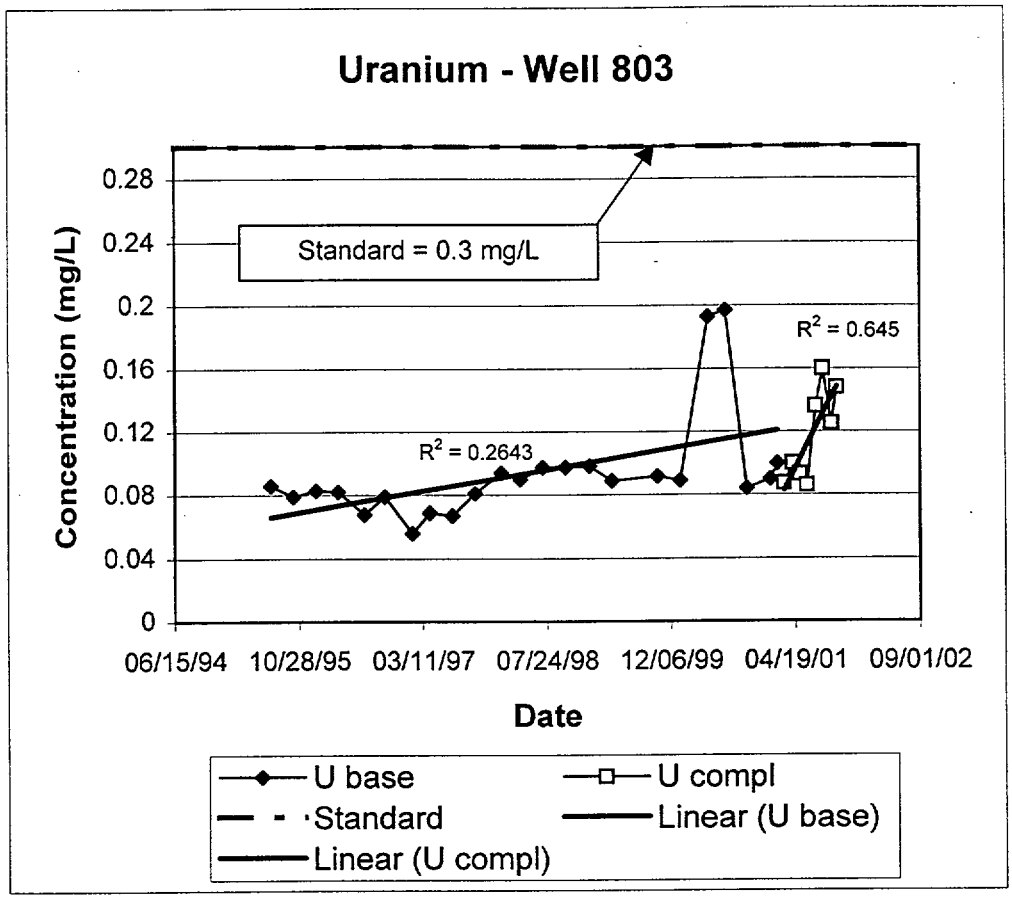
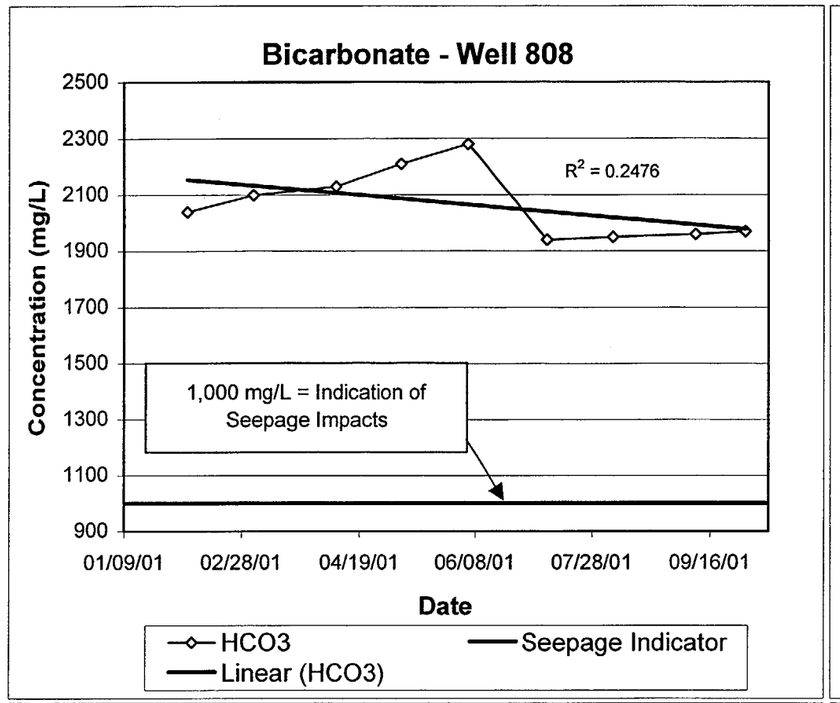
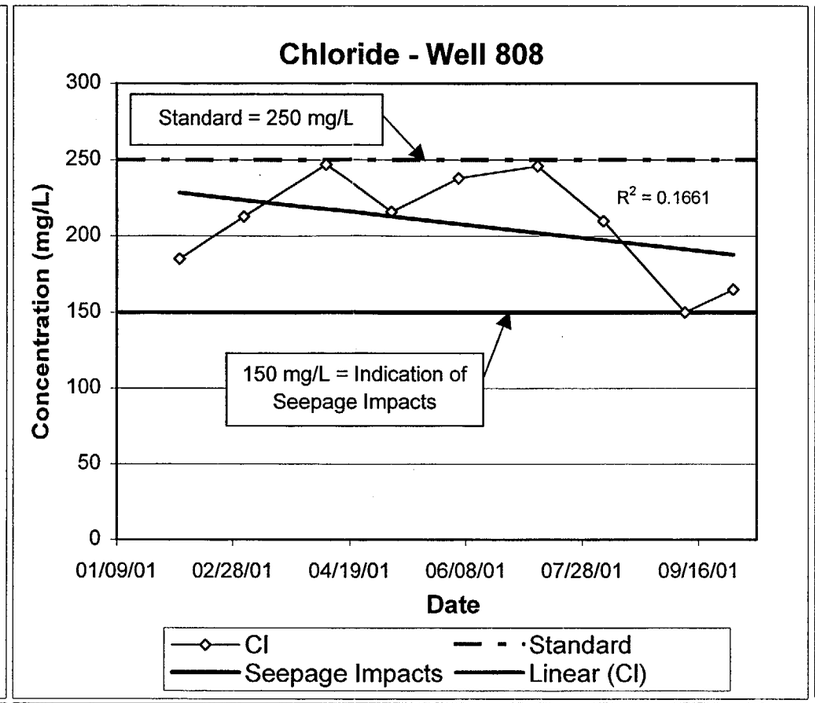
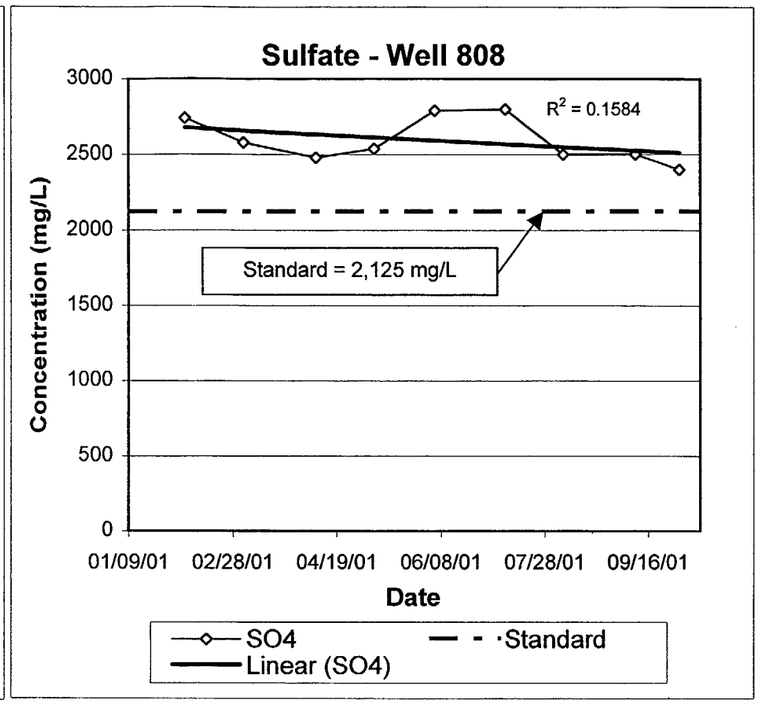
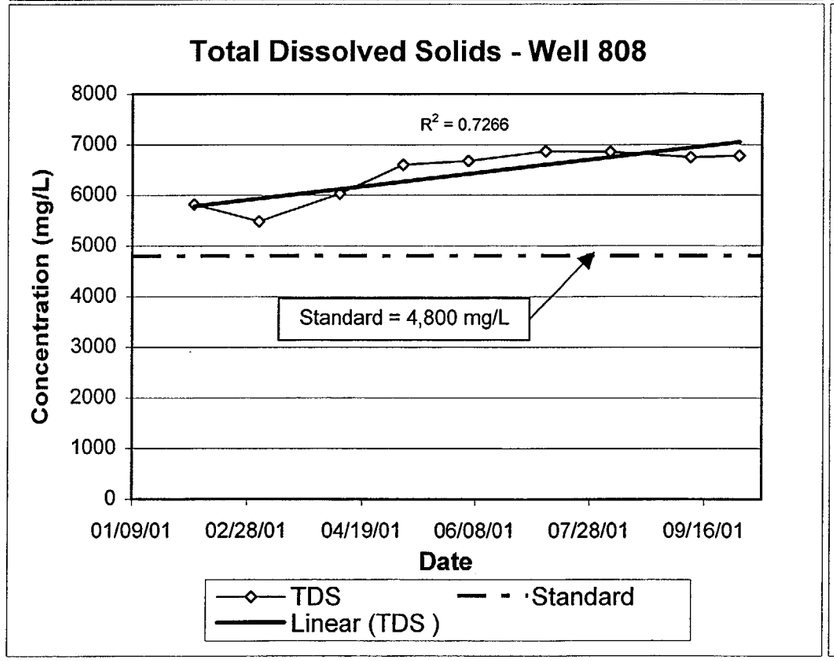


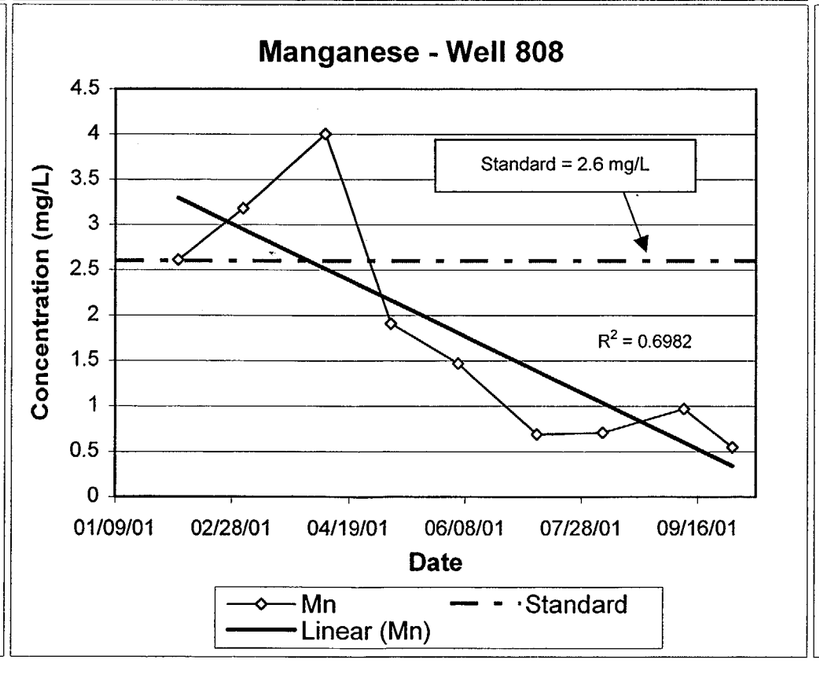
FIGURE A.8
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











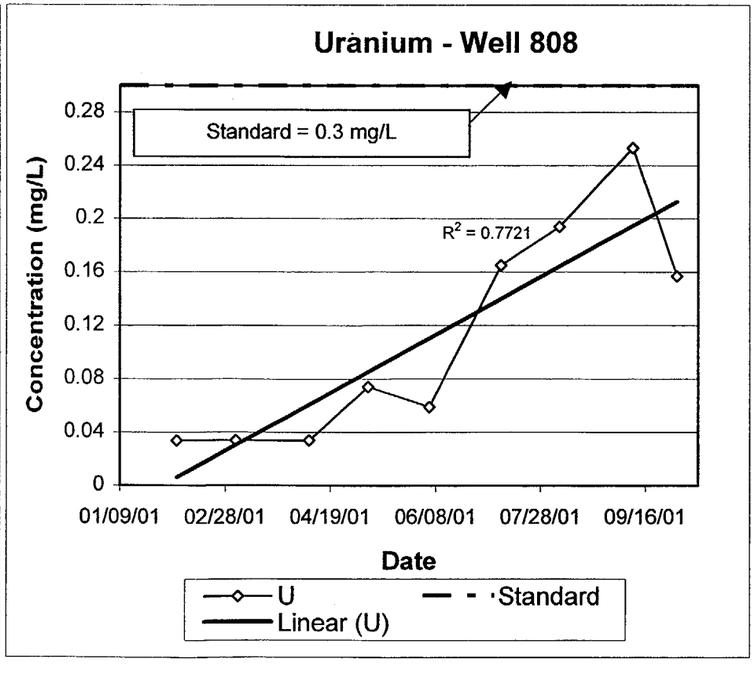
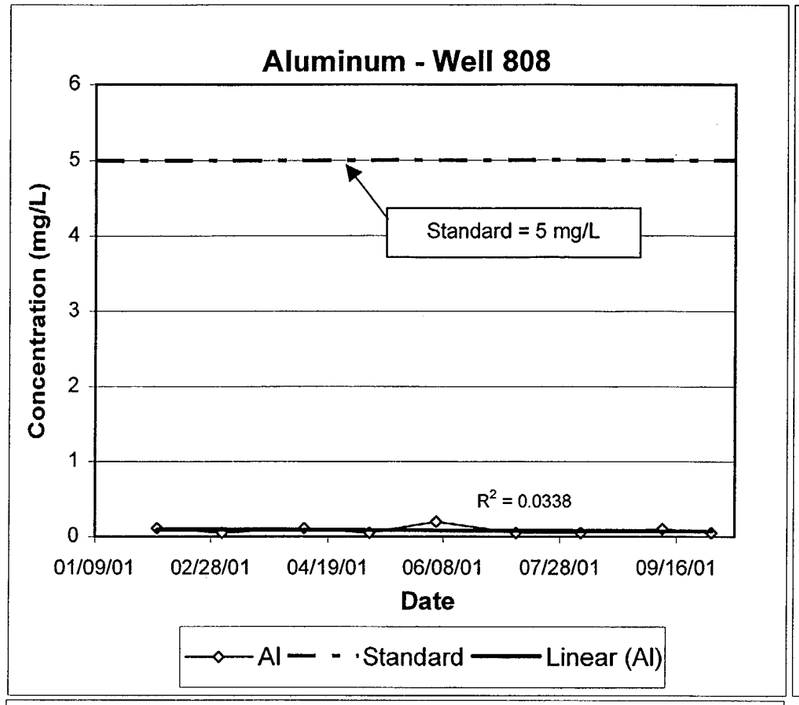
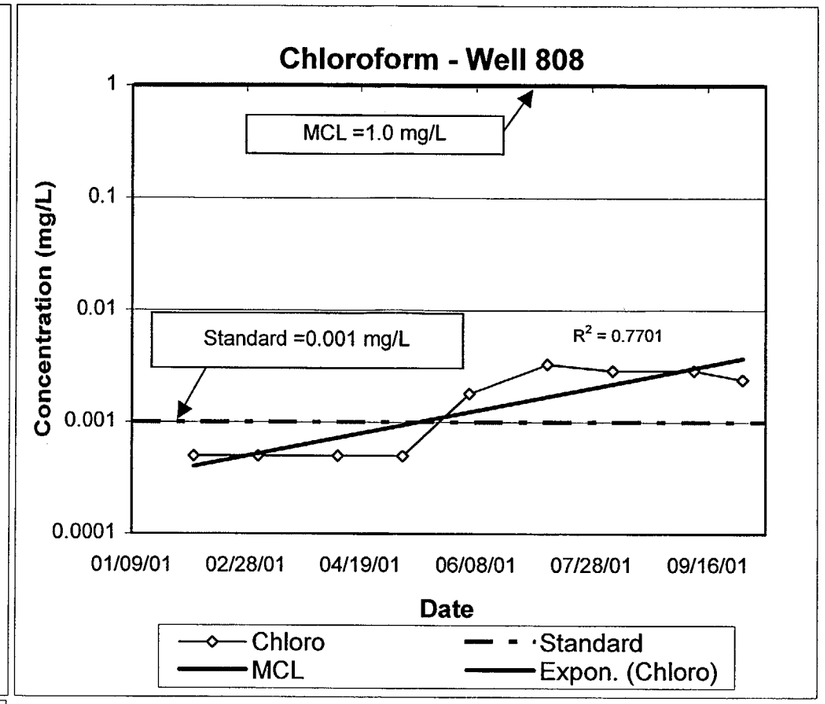


FIGURE A.8
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT





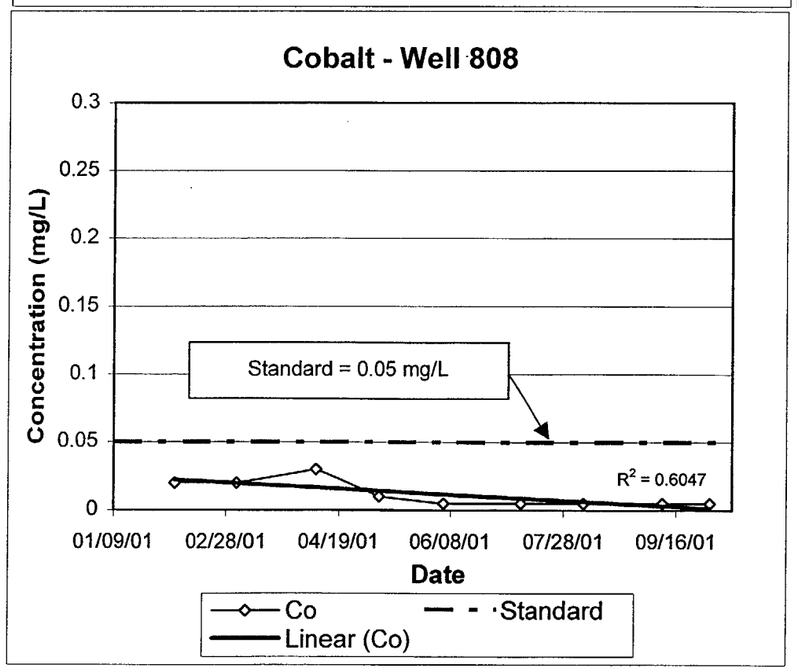
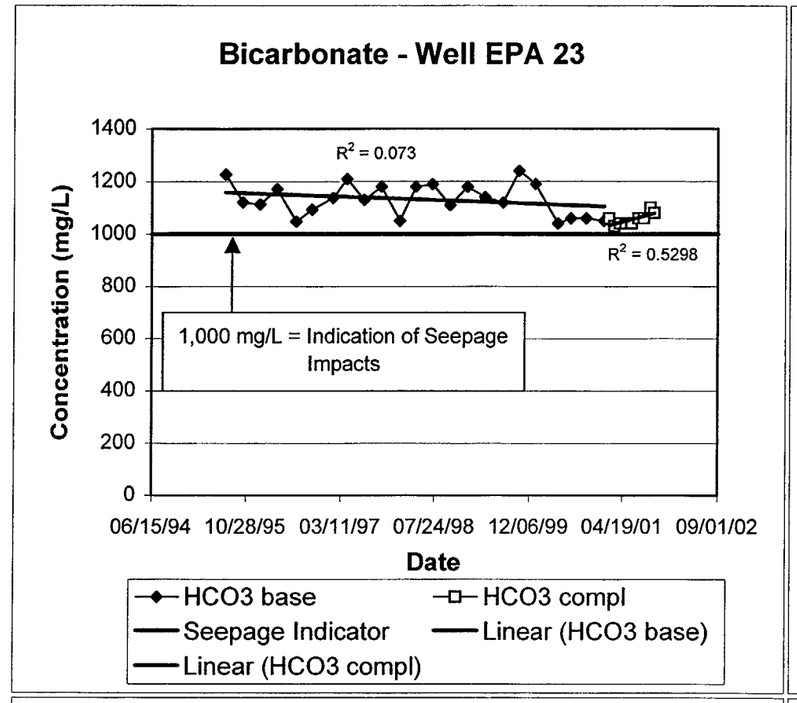
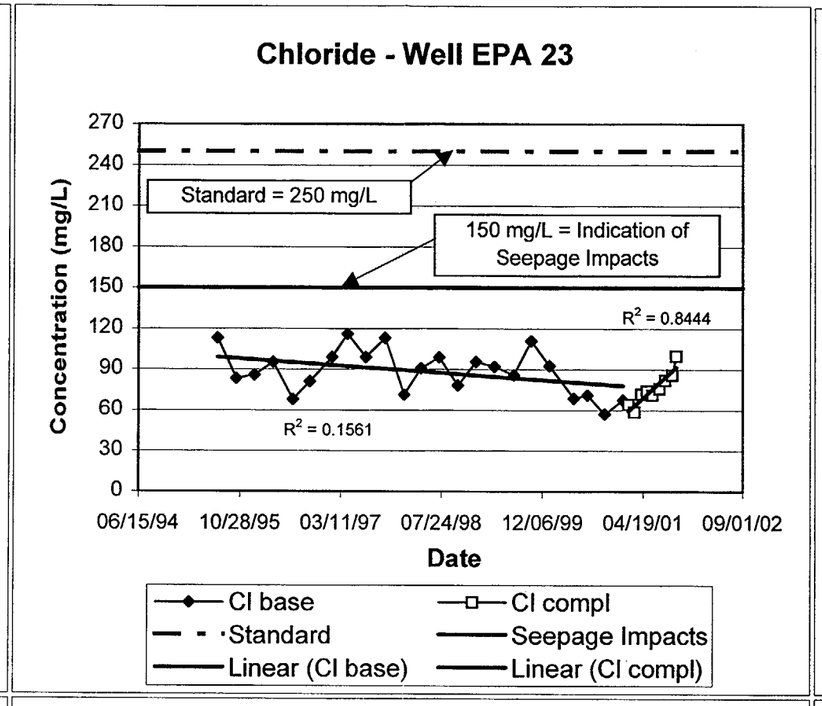
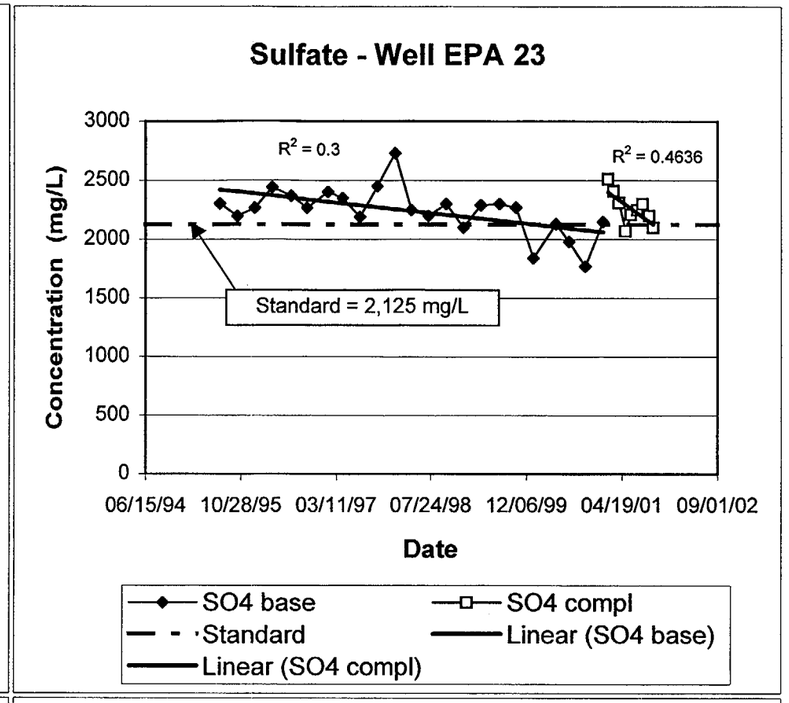
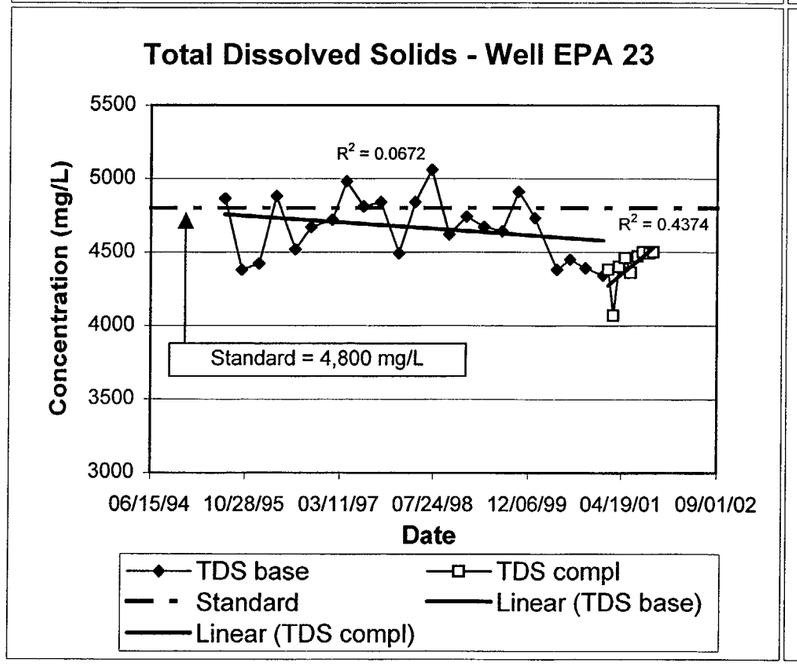


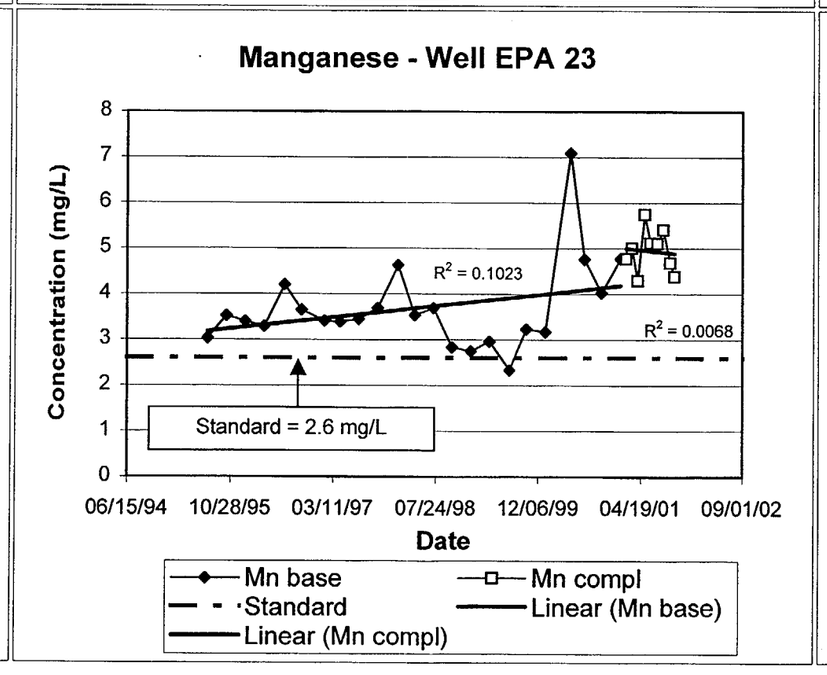
FIGURE A.9
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











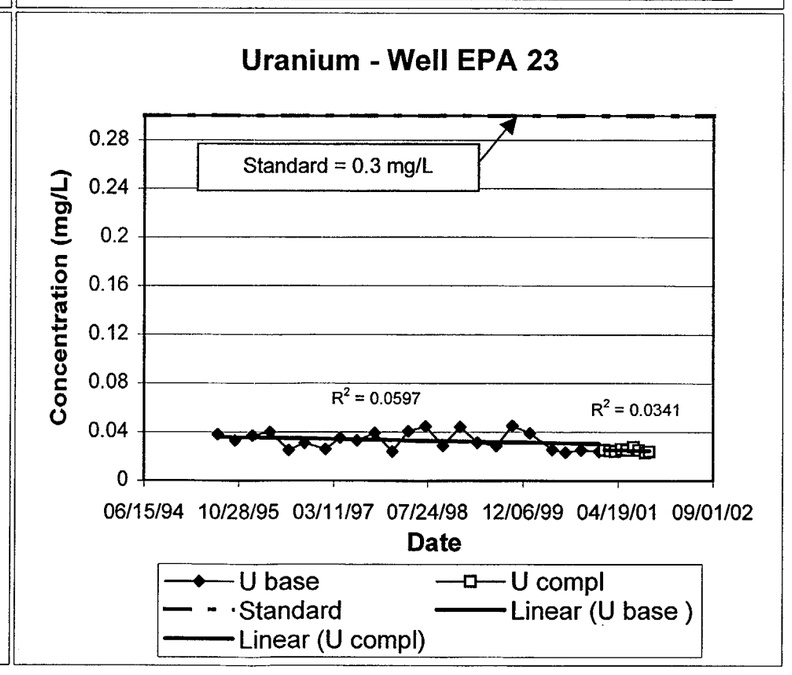
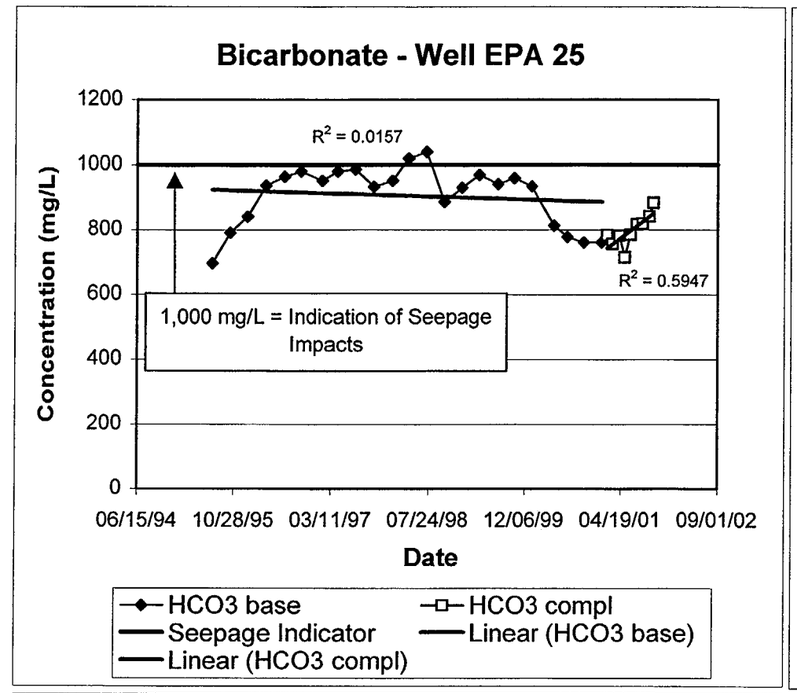
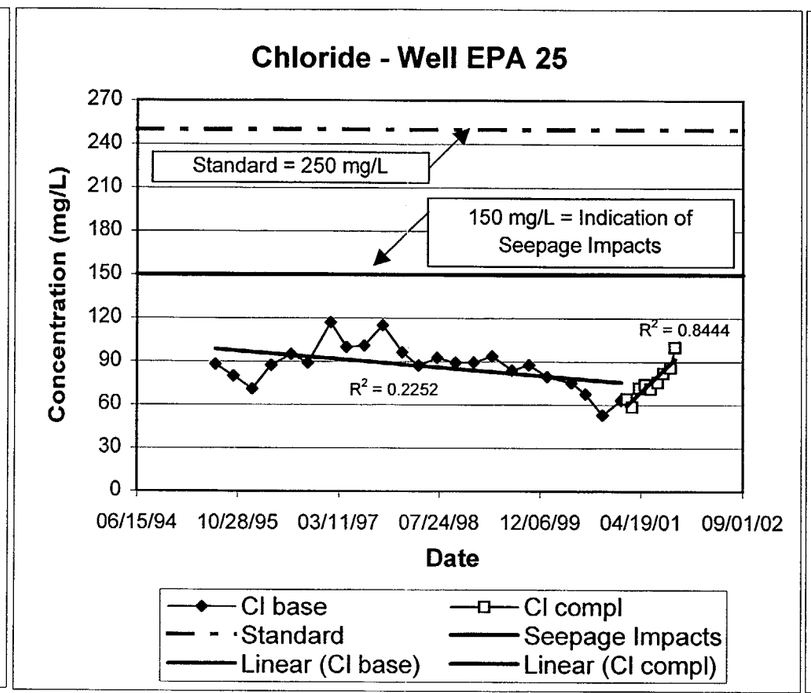
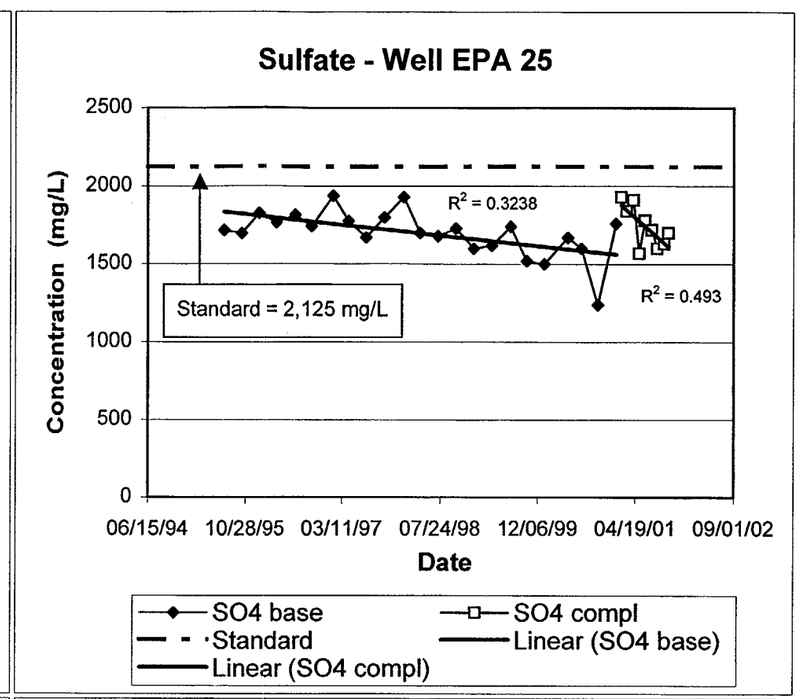
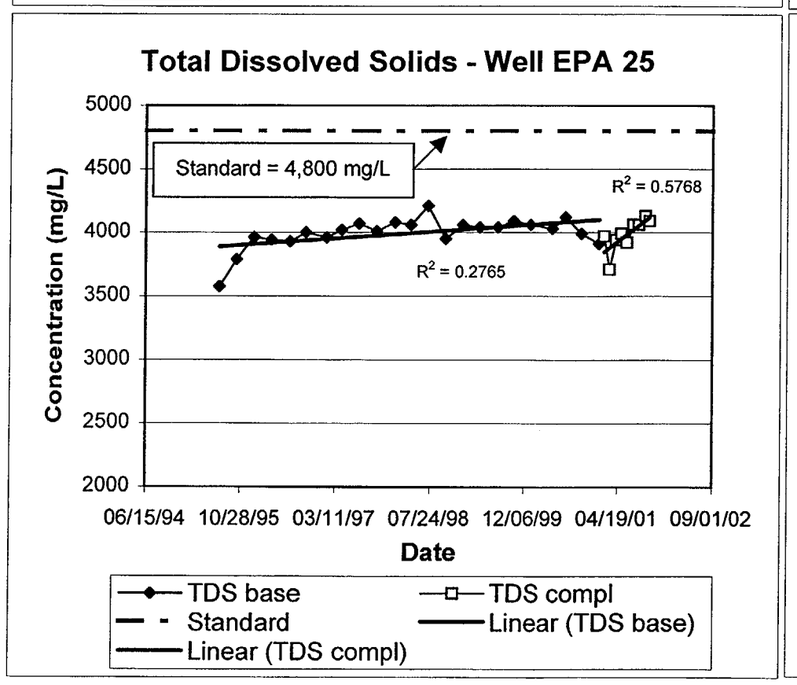


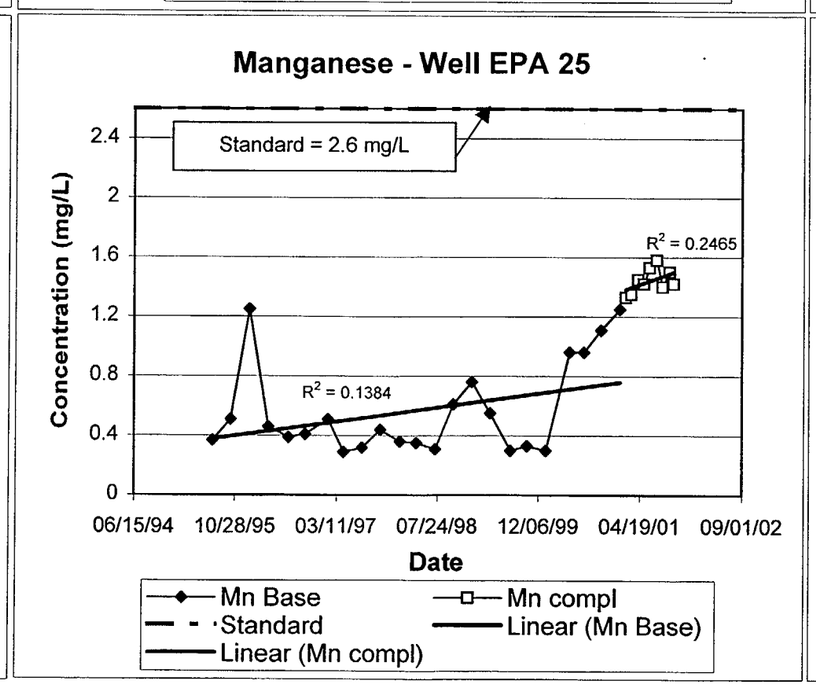
FIGURE A.10
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











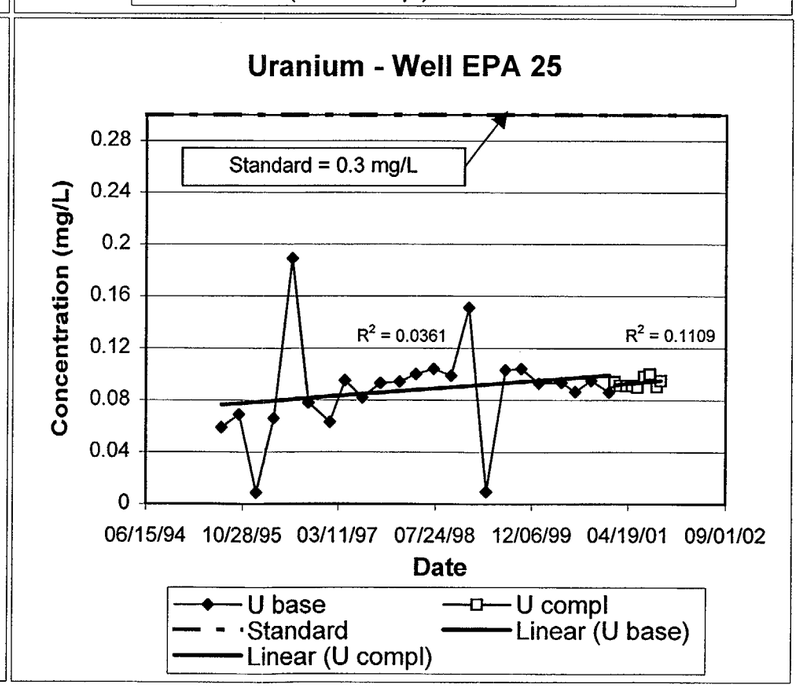
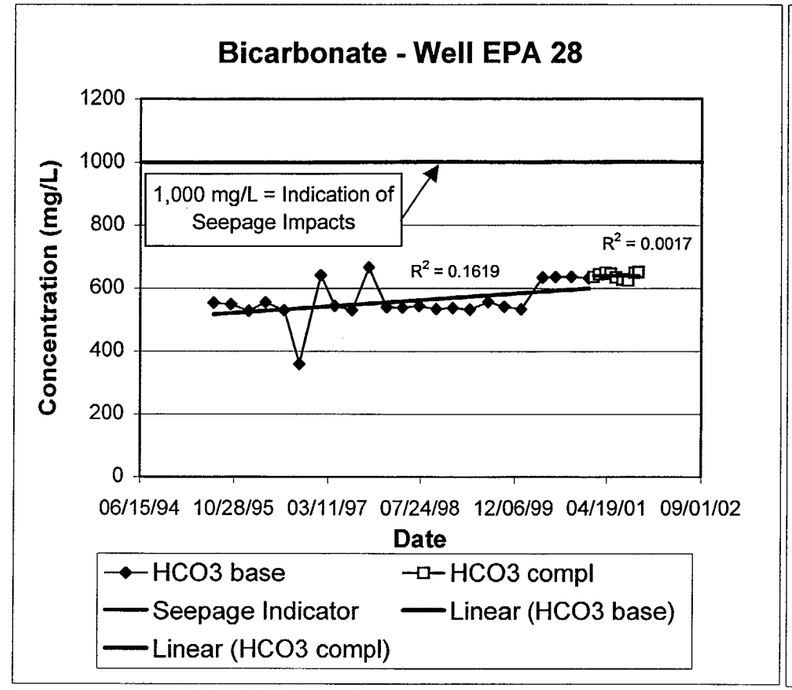
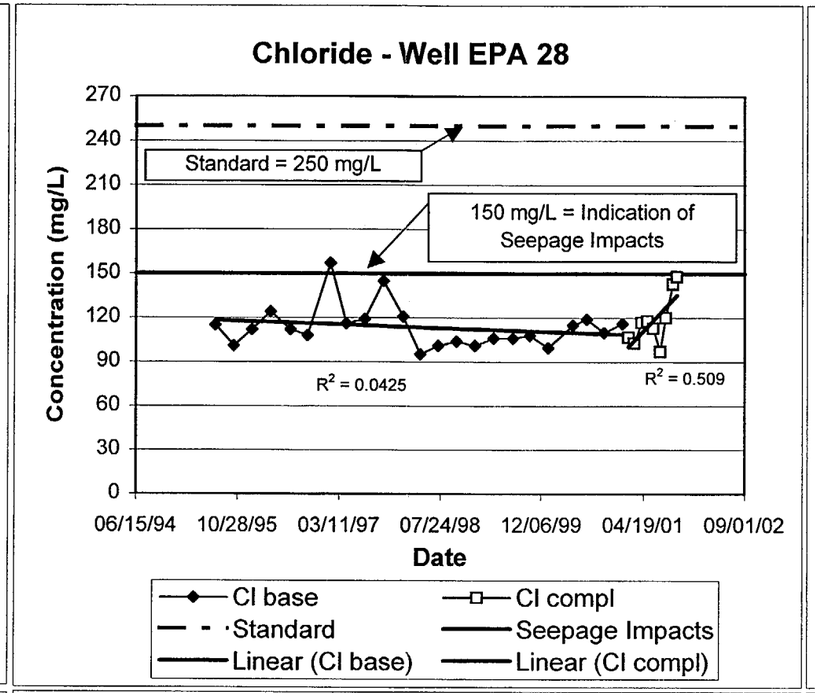
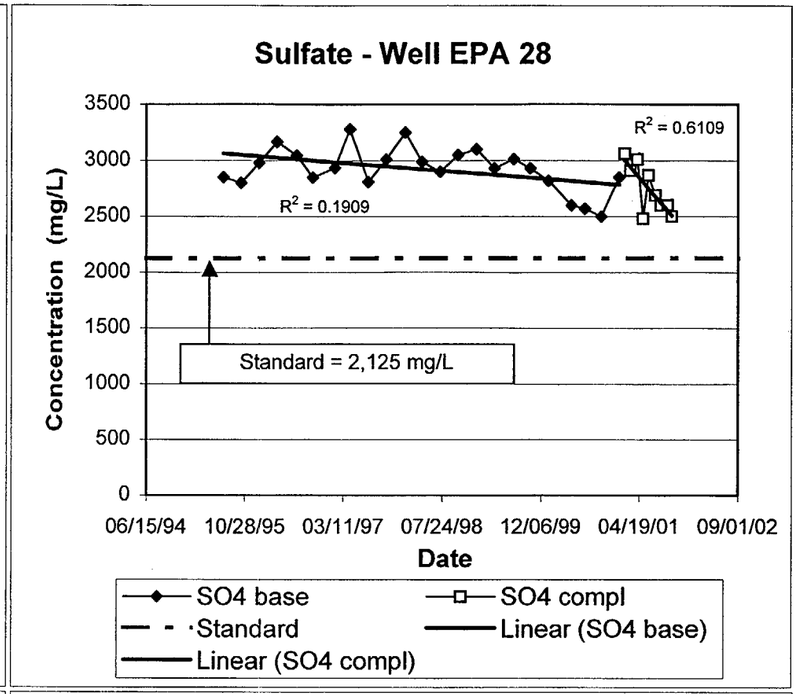
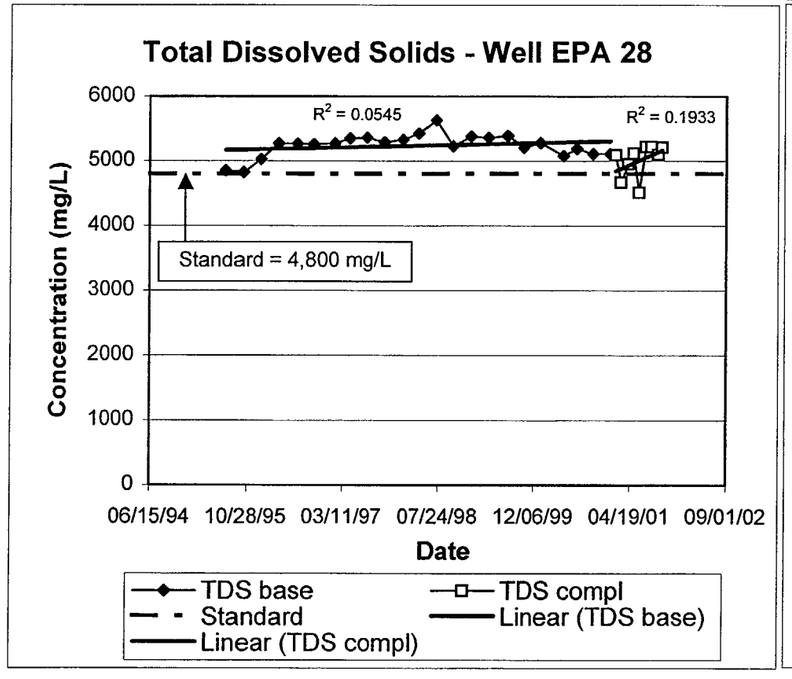


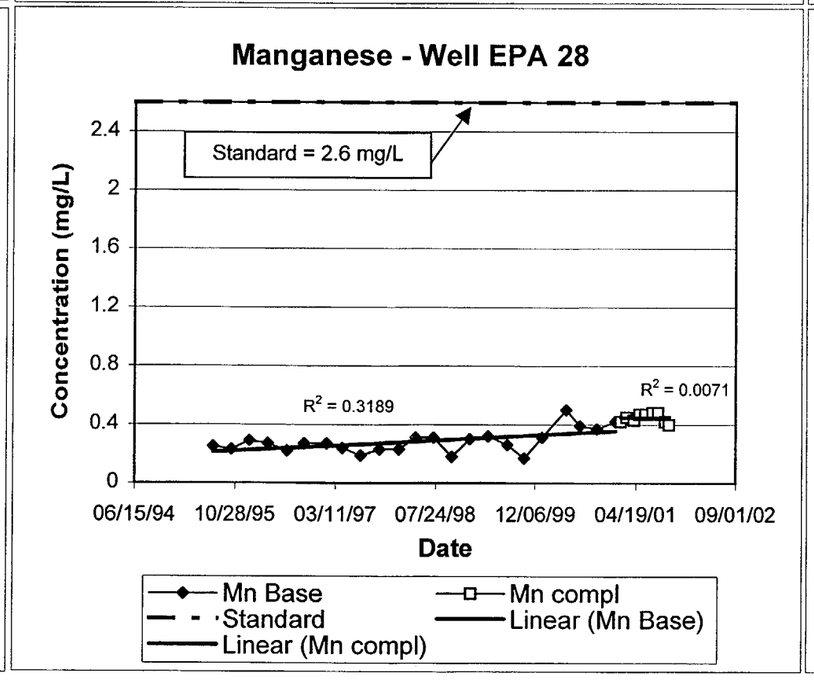
FIGURE A.11
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











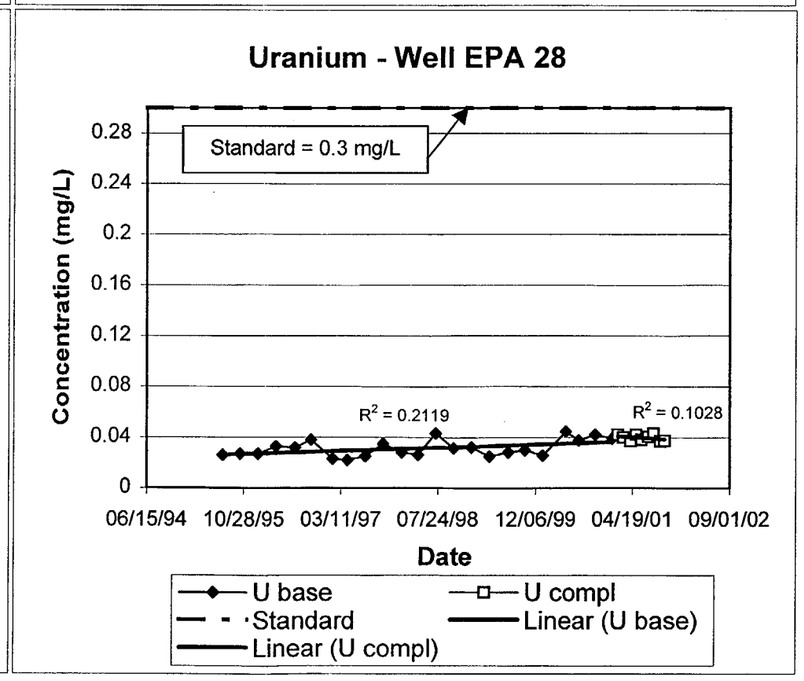
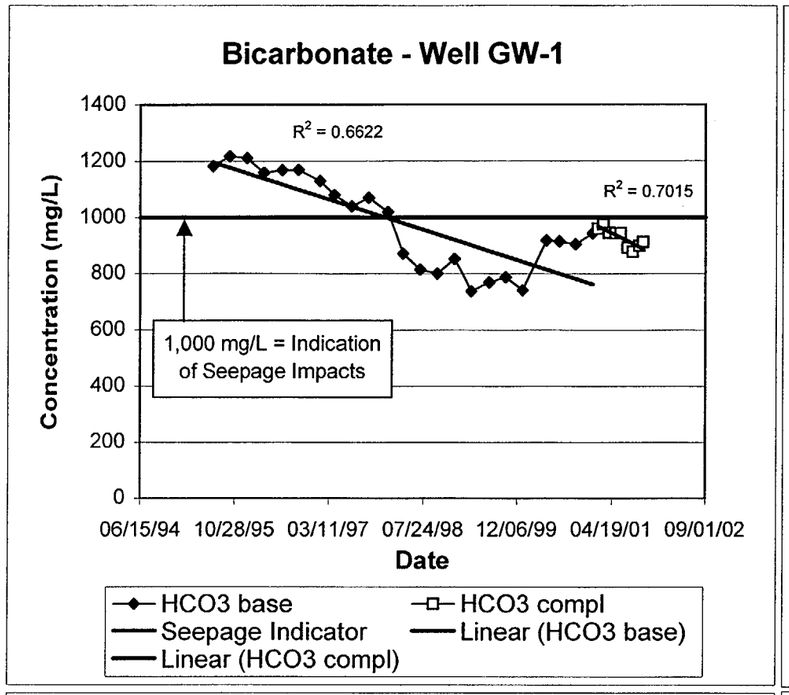
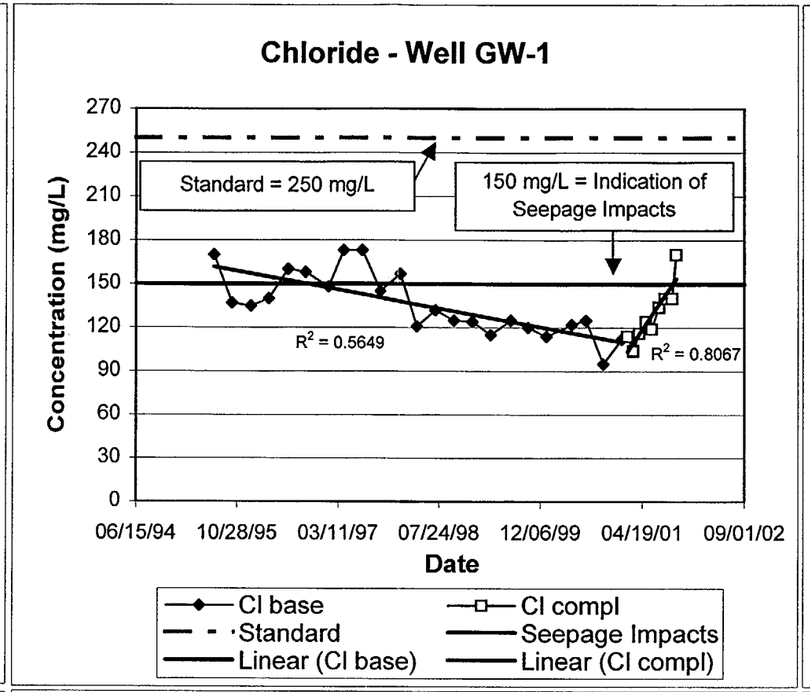
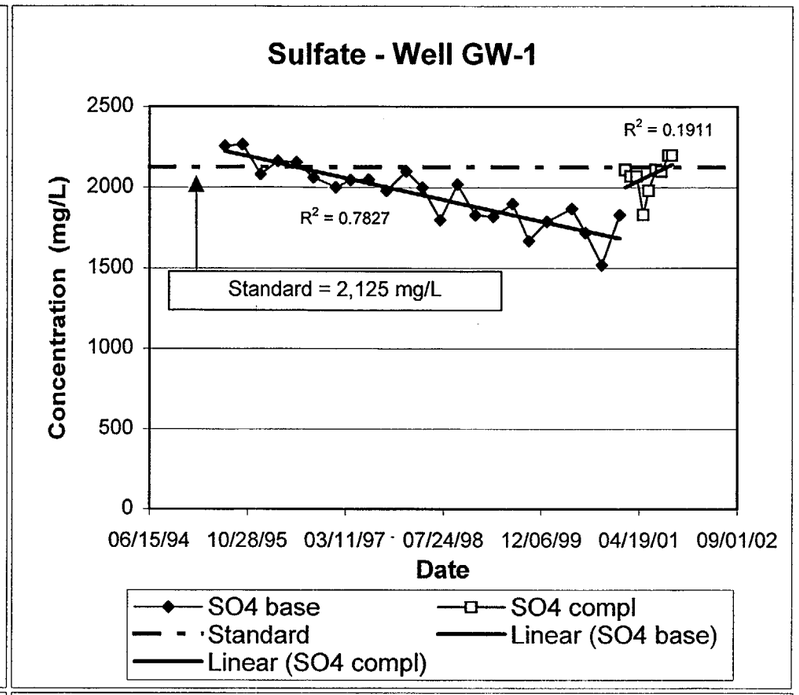
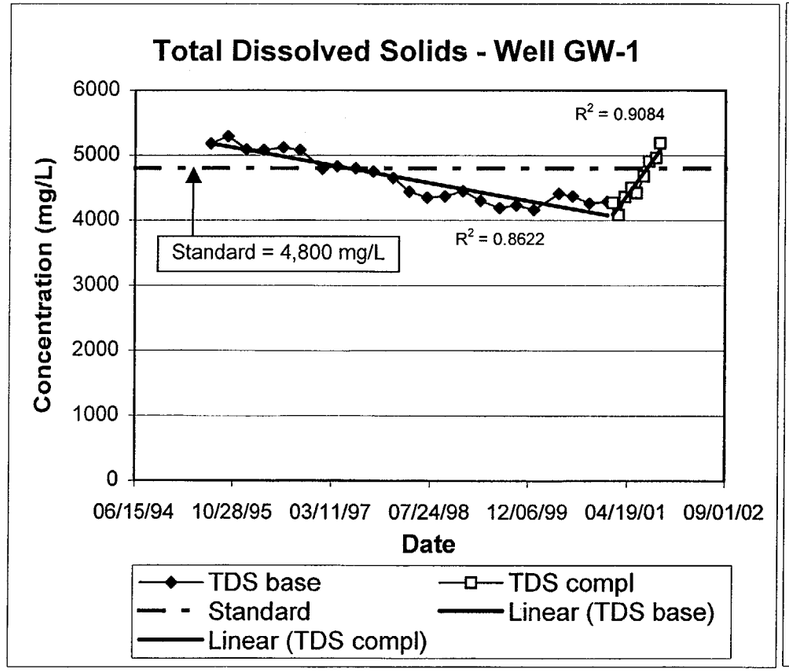


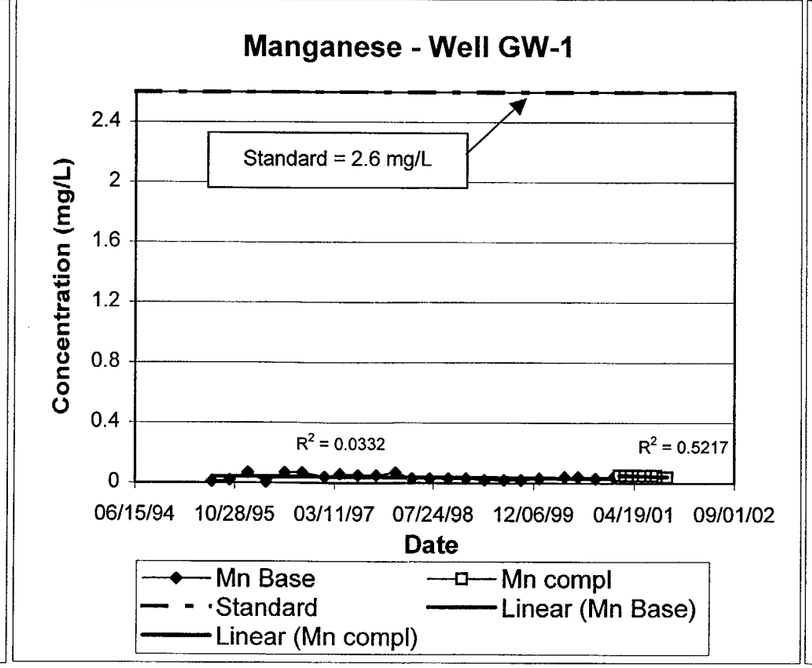
FIGURE A.12
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











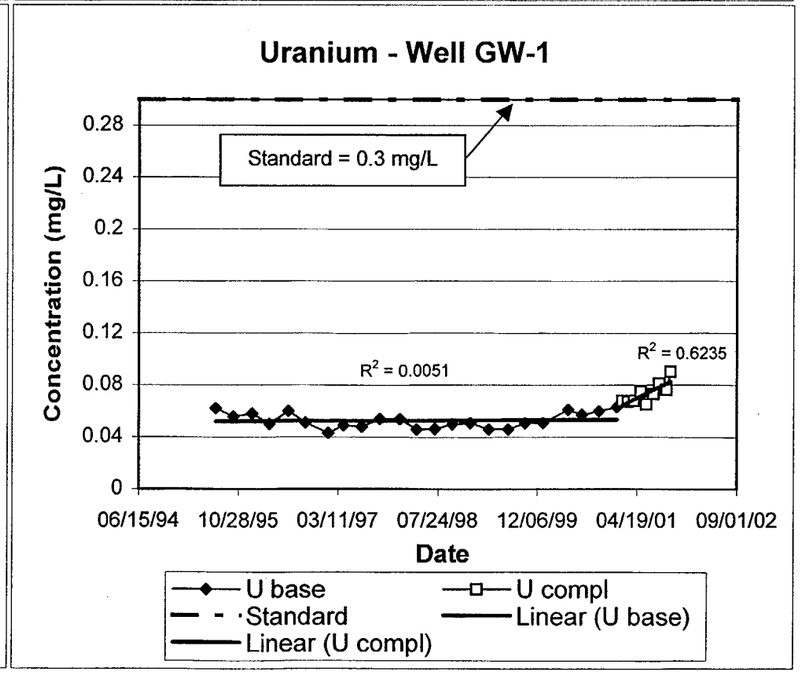
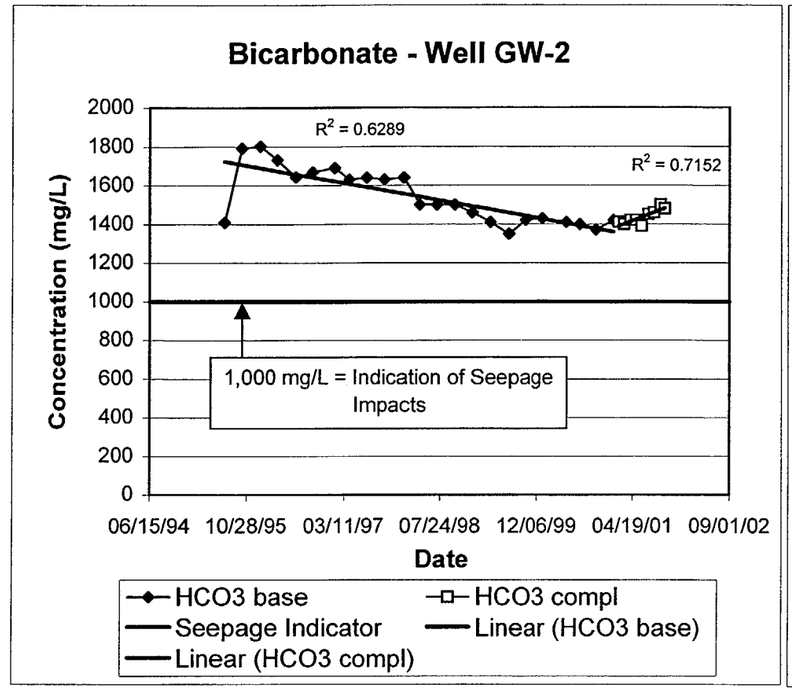
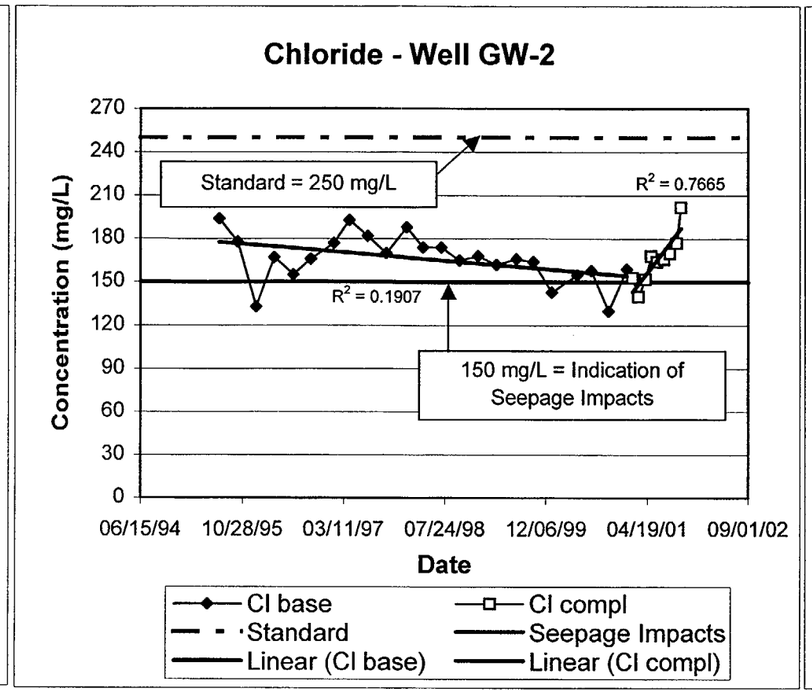
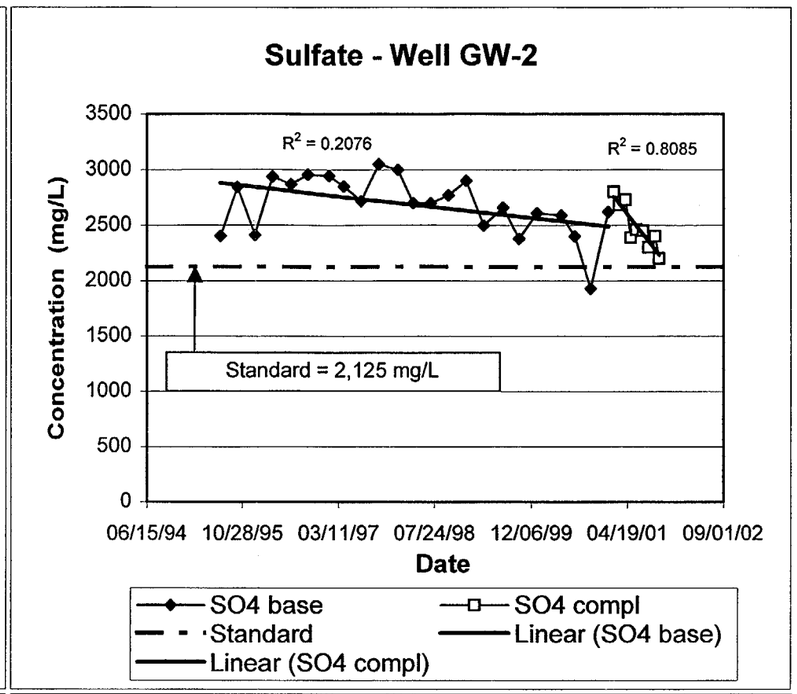
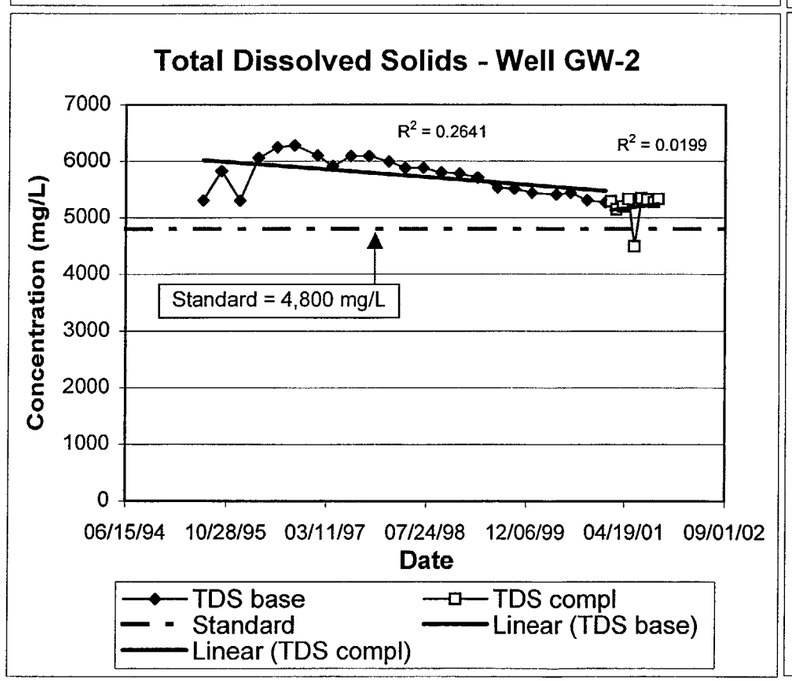


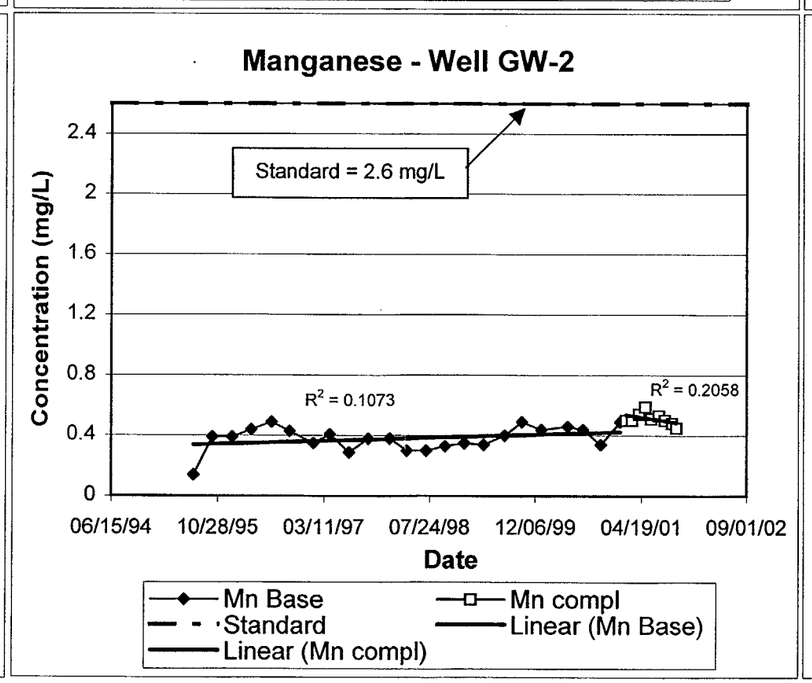
FIGURE A.13
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT











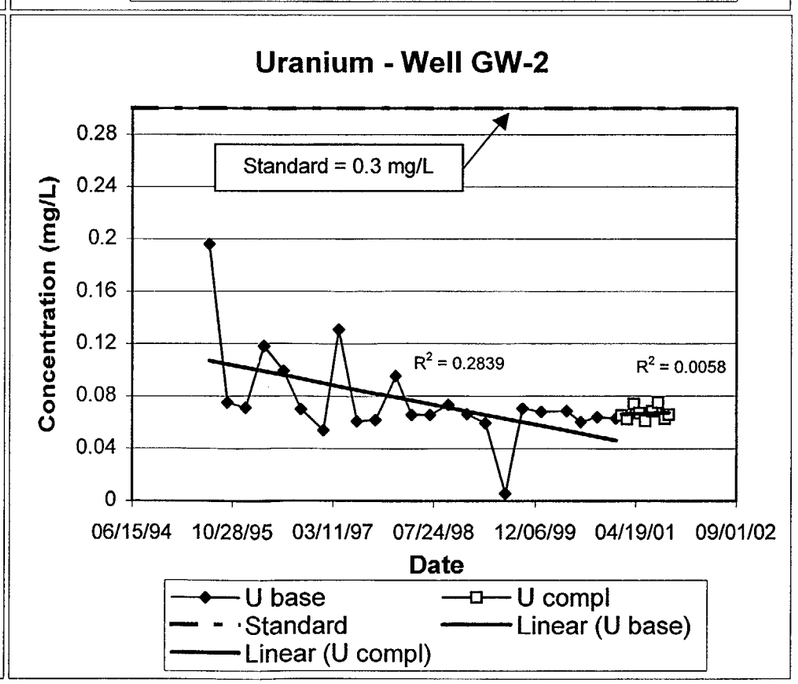
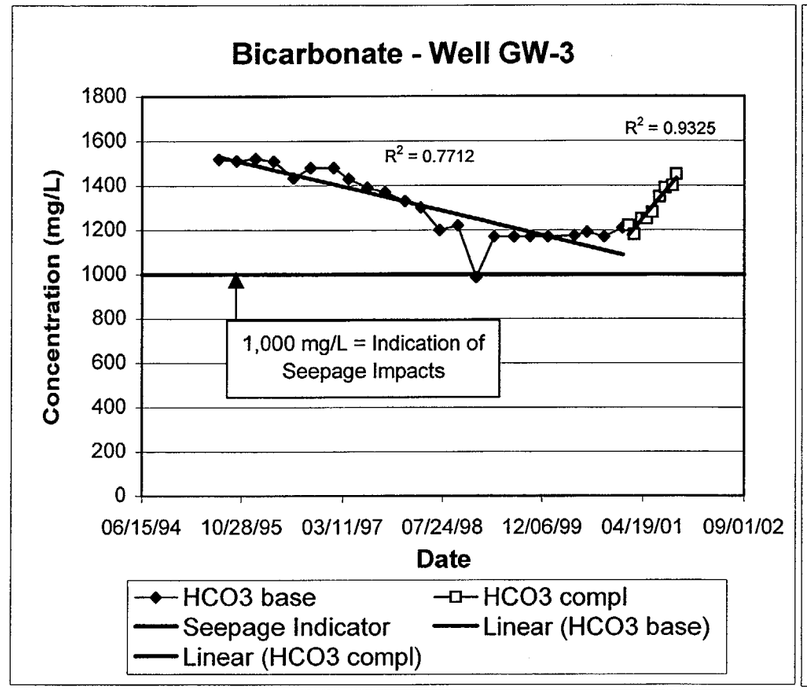
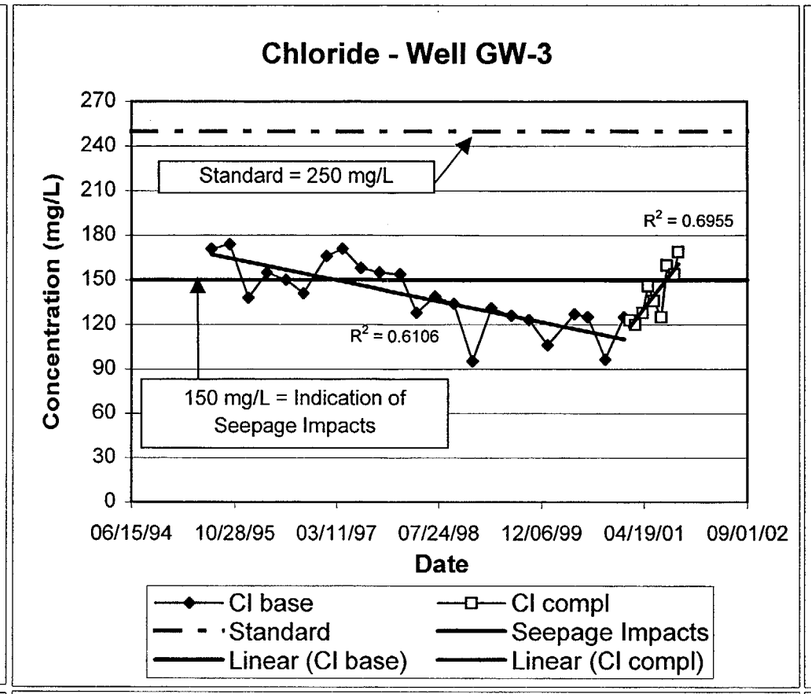
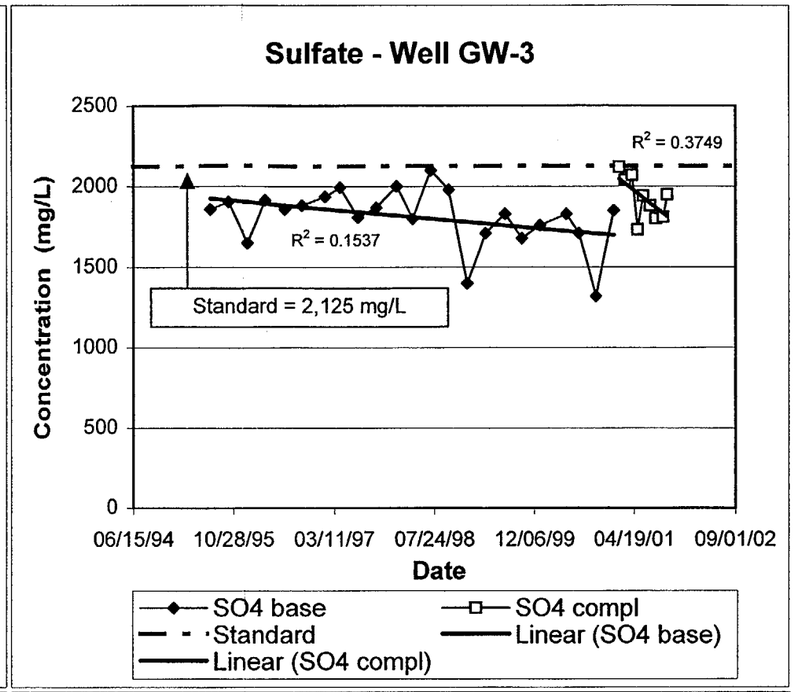
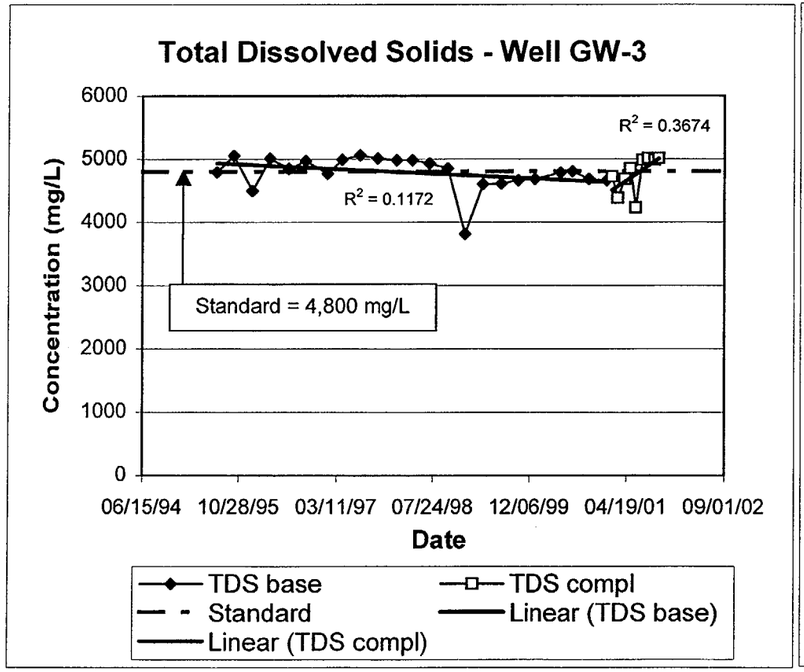


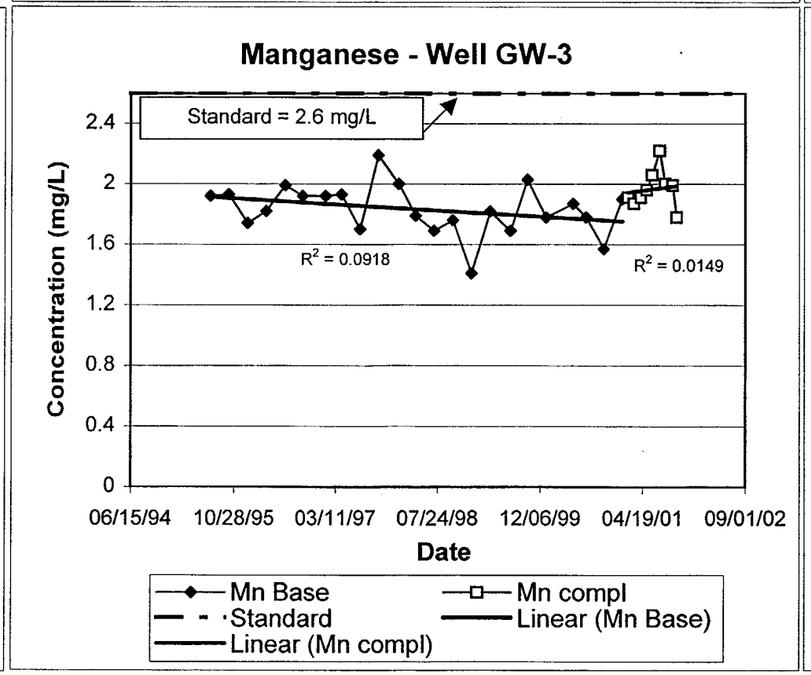
FIGURE A.14
TREND ANALYSIS COMPARING BACKGROUND AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3rd QUARTER REPORT

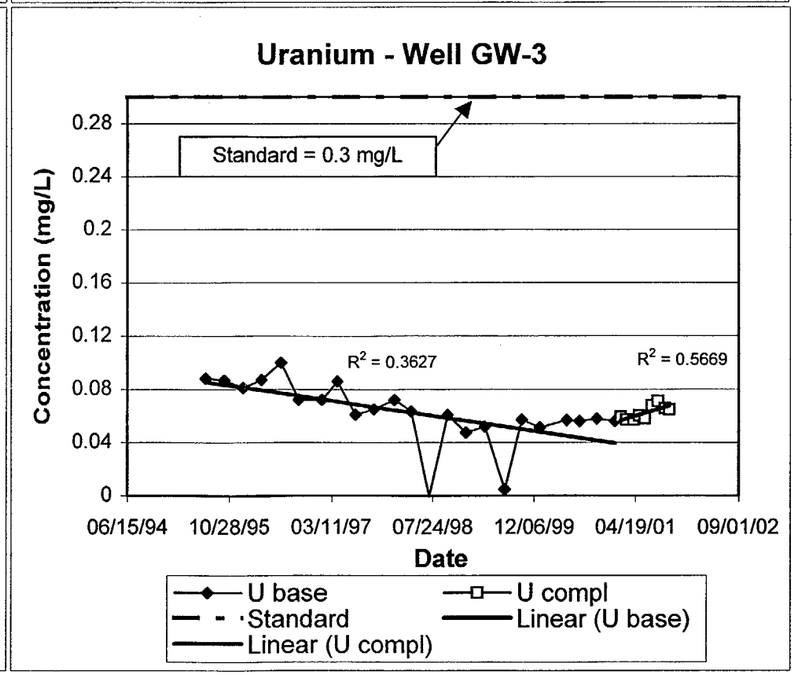












APPENDIX B

TREND ANALYSIS

APPENDIX B

DESCRIPTION OF STATISTICAL PROCEDURES

The methodology for calculating Mann-Kendall's test for trend and Sen's estimate of slope is described in this appendix. Example calculations are presented in Tables B.1, B.2 and B.3. The table of probabilities is included as Table B.4.

Mann-Kendall's Nonparametric Test for Trend

Table B.1 lists the concentrations for sulfate collected during the test period at Well 627 for this example. Table B.2 presents the data layout for calculating the trend. For each new concentration value, the difference is taken with the previous values, for example:

C1	C2	C3	C4	C_n
	C2-C1	C3-C1	C4-C1	C_n-C1
		C3-C2	C4-C2	C_n-C2
			C4-C3	C_n-C3
				C_n-C4

This process is illustrated in Table B.2

Once this process has been completed for known concentration values, the quantity of positive and negative values or the variations between the concentrations are totaled for each row:

C1	C2	C3	C4	+ Signs	- Signs
	+	+	-	2	1
		-	+	1	1
			+	1	0
			Totals:	4	2

The positive and negative sign columns are then added to get totals. The total number of negative values is then subtracted from the total number of positive values to get the calculated S value. This process is illustrated on the right side of Table B.2. For this example, S is calculated as:

S= 4-11
S= -7

Using the probabilities table (Table B.4), the probability is attained by the intersection of the absolute value of S and the number of concentration values (n). The resultant number is then multiplied by 2 because it is a two-tailed test. The probability is then compared with the (1-α) value equal to 0.1. Values less than 0.1 indicate that a trend exists. The example in Table B.2 shows that the two-tailed probability is 0.272. Because this value is greater than 0.1, Mann-

Kendall's determines that no statistically significant trend is present in the sulfate concentrations for the test data.

Sen's Nonparametric Estimate of Slope

Table B.3 presents the example calculations for the Sen's estimate of slope. Using the sample dates and constituent concentrations listed in Table B.1, for each new concentration value, a differential slope is calculated using concentration (C) and date (D), as follows:

D1	D2	D3	D4
C1	C2	C3	C4
	(C2-C1)/(D2-D1)	(C2-C1)/(D2-D1)	(C2-C1)/(D2-D1)
		(C3-C2)/(D3-D2)	(C3-C2)/(D3-D2)
			(C4-C3)/(D4-D3)

Once each individual slope is calculated, the median slope value is considered Sen's Nonparametric slope. For this example the calculated median slope is –2.14 milligrams per liter per day (mg/L/day).

EXAMPLE CALCULATION
MANN-KENDALL TEST FOR TREND
AND
SEN ESTIMATE OF SLOPE

Well 627 **Sulfate** Count = 6

Table B.1: Time Series Charts for Trend

2/6/2001	3/6/2001	4/10/2001	5/8/2001	6/5/2001	7/10/2001
2780	2680	2840	2320	2660	2450

Table B.2: Well 627, Sulfate, Nonparametric Mann-Kendall Test for Trend

2/6/2001 2780	3/6/2001 2680	4/10/2001 2840	5/8/2001 2320	6/5/2001 2660	7/10/2001 2450	+ Signs	- Signs
	-100	60	-460	-120	-330	1	4
		160	-360	-20	-230	1	3
			-520	-180	-390	0	3
				340	130	2	0
					-210	0	1
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
					Sums =	4	11
						Calculated S =	-7
						Two Tailed Probability =<	0.272
						Critical Value <0.1?	No Trend

Table B.3: Well 627, Sulfate, Sen's Nonparametric Estimate of Slope

2/6/2001	3/6/2001	4/10/2001	5/8/2001	6/5/2001	7/10/2001
2780	2680	2840	2320	2660	2450
	-3.57	0.95	-5.05	-1.01	-2.14
		4.57	-5.71	-0.22	-1.83
			-18.57	-3.21	-4.29
				12.14	2.06
					-6.00

Median Slope = -2.14 mg/L/day

TABLE B.4
PROBABILITIES TABLE FOR MANN-KENDALL'S TEST

S \ n	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	22
0	0.625	0.592			0.548	0.54			0.527	0.524								
1			0.5	0.5			0.5	0.5			0.5	0.5						
2	0.375	0.408			0.425	0.46			0.473	0.476								
3			0.36	0.386			0.431	0.44			0.457	0.461						
4	0.167	0.242			0.36	0.381			0.42	0.429								
5			0.235	0.281			0.364	0.381			0.415	0.423						
6	0.042	0.117			0.274	0.306			0.369	0.383								
7			0.136	0.191			0.3	0.324			0.374	0.385						
8		0.042			0.199	0.238			0.319	0.338								
9			0.068	0.119			0.242	0.271			0.334	0.349						
10		0.0083			0.138	0.179			0.273	0.295								
11			0.028	0.068			0.19	0.223			0.295	0.313						
12					0.089	0.13			0.23	0.255								
13			0.0083	0.035			0.146	0.179			0.259	0.279						
14					0.054	0.09			0.19	0.218								
15			0.0014	0.015			0.108	0.141			0.225	0.248						
16					0.031	0.06			0.155	0.184								
17				0.0054			0.078	0.109			0.194	0.218						
18					0.016	0.038			0.125	0.153								
19				0.0014			0.054	0.082			0.165	0.19						
20					0.0071	0.022			0.098	0.126								
21				0.0002			0.036	0.06			0.14	0.164						
22					0.0028	0.012			0.076	0.102								
23							0.023	0.043			0.117	0.141						
24					0.00087	0.0063			0.058	0.082								
25							0.014	0.03			0.096	0.12						
26					0.00019	0.0029			0.043	0.064								
27							0.0083	0.02			0.079	0.101						
28					0.000025	0.0012			0.031	0.05								
29							0.0046	0.013			0.063	0.084						
30						0.00043			0.022	0.038								
31							0.0023	0.008			0.05	0.07						
32						0.00012			0.016	0.029								
33							0.0011	0.005			0.04	0.057						
34						0.000025			0.01	0.021								
35							0.00047	0.003			0.031	0.046						
36						0.0000028			0.007	0.015								
37							0.00018	0.002			0.024	0.037						
38									0.004	0.011								
39							0.000058	0.001			0.018	0.029						
40									0.003	0.007								
41							0.000015	0.000			0.013	0.023						
42									0.002	0.005								
43							0.0000028				0.001	0.018						
44									0.001	0.003								
45							0.00000028				0.007	0.014						
46									0.000	0.002								
47											0.005	0.01						
48										0.001								
49											0.003	0.008						
50										0.001								
51											0.002	0.006						
52										0.000								
53											0.002	0.004						
54																		
55											0.001	0.003						
56																		
57											0.001	0.002						
58																		
59											0.000	0.001						
60																		
61												0.001						
62																		
63												0.001						
64																		
65												0.000						

TABLE B.5
COMPARISON OF SLOPE CALCULATED USING LINEAR REGRESSION AND SEN'S ESTIMATE
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3RD QUARTER REPORT

Well 509 D

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	0.084	0.650	0.089	0.610
Chloride	0.014	0.190	0.009	0.211
Sulfate	-0.382	-1.354	-0.093	-1.260
TDS	-0.592	0.341	-0.340	0.384
Manganese	4.000E-04	0.001	2.564E-04	0.001
Uranium	5.000E-05	2.000E-04	2.717E-05	1.364E-04
Chloroform	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Well 632

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.214	0.374	-0.237	0.317
Chloride	-0.021	0.373	-0.025	0.348
Sulfate	0.050	-1.876	0.028	-1.901
TDS	-0.079	3.269	-0.099	2.437
Manganese	2.000E-04	3.000E-04	1.714E-04	3.342E-04
Uranium	-1.000E-05	8.000E-07	-1.024E-05	-2.500E-06
Chloroform	1.000E-06	-3.000E-06	1.096E-06	-4.020E-06

Well 803

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	0.046	0.393	0.022	0.437
Chloride	-0.010	0.281	-0.007	0.329
Sulfate	0.082	-2.015	0.110	-2.115
TDS	0.497	0.746	0.444	0.574
Manganese	4.000E-04	-0.004	3.867E-04	-3.876E-03
Uranium	3.000E-05	3.000E-04	1.271E-05	2.439E-04
Chloroform	1.000E-07	0.000E+00	0.000E+00	0.000E+00

Well 624

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	0.220	0.125	0.218	0.162
Chloride	0.013	0.248	0.014	0.245
Sulfate	-0.210	-1.728	-0.198	-1.830
TDS	0.177	1.417	0.125	1.247
Manganese	3.000E-06	2.000E-05	0.000E+00	0.000E+00
Uranium	2.000E-07	7.000E-07	0.000E+00	-2.695E-06
Chloroform	0.000E+00	0.000E+00	0.000E+00	0.000E+00

Well 801

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.165	0.139	-0.152	0.116
Chloride	-0.004	0.167	-0.005	0.210
Sulfate	-0.176	-2.463	-0.214	-2.215
TDS	-0.046	-0.034	-0.066	-0.315
Manganese	-0.003	-0.003	-0.002	-0.005
Uranium	-6.000E-06	-1.000E-04	-3.305E-06	-1.033E-04
Chloroform	-1.000E-07	3.000E-06	5.537E-09	3.159E-06

Well 808*

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	N/A	-0.740	N/A	-0.432
Chloride	N/A	-0.171	N/A	-0.121
Sulfate	N/A	-0.705	N/A	-0.577
TDS	N/A	5.291	N/A	4.286
Manganese	N/A	-0.012	N/A	-0.012
Uranium	N/A	9.000E-04	N/A	8.661E-04
Chloroform	N/A	1.000E-05	N/A	1.120E-05

Well 627

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	0.022	0.080	0.021	0.091
Chloride	-0.003	0.070	-0.003	0.067
Sulfate	-0.188	-2.064	-0.193	-2.080
TDS	0.028	-0.333	0.016	0.891
Manganese	1.000E-04	-7.000E-05	2.413E-05	-6.700E-05
Uranium	-4.000E-07	-8.000E-06	2.490E-06	-1.050E-06
Chloroform	-3.000E-20	0.000E+00	0.000E+00	0.000E+00

Well 802

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.073	0.261	-0.079	0.278
Chloride	-0.026	0.230	-0.025	0.261
Sulfate	-0.174	-2.728	-0.182	-2.448
TDS	-0.068	0.042	-0.085	0.238
Manganese	0.001	-0.007	0.001	-0.001
Uranium	1.000E-05	4.000E-04	1.493E-05	4.110E-04
Chloroform	5.000E-07	-6.000E-06	6.211E-07	-5.622E-06

Well EPA 23

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.027	0.196	-0.029	0.214
Chloride	-0.010	0.079	-0.010	0.088
Sulfate	-0.177	-1.146	-0.147	-1.223
TDS	-0.089	1.078	-0.097	0.577
Manganese	0.001	-5.000E-04	2.765E-04	-3.512E-04
Uranium	-3.000E-06	-3.000E-06	-4.104E-06	-3.756E-06
Chloroform	-2.000E-20	0.000E+00	0.000E+00	0.000E+00

TABLE B.5
COMPARISON OF SLOPE CALCULATED USING LINEAR REGRESSION AND SEN'S ESTIMATE
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3RD QUARTER REPORT

Well EPA 25

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.019	0.453	-0.020	0.432
Chloride	-0.011	0.135	-0.013	0.134
Sulfate	-0.135	-1.114	-0.120	-1.230
TDS	0.105	1.144	0.082	1.060
Manganese	2.000E-04	0.001	1.116E-04	0.001
Uranium	1.000E-05	1.000E-05	1.429E-05	1.891E-06
Chloroform	-2.000E-20	0.000E+00	0.000E+00	0.000E+00

Well GW 2

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.181	0.382	-0.215	0.360
Chloride	-0.012	0.184	-0.015	0.168
Sulfate	-0.193	-2.193	-0.217	-2.270
TDS	-0.269	0.450	-0.492	0.251
Manganese	4.000E-05	-2.000E-04	3.420E-05	-2.238E-04
Uranium	-3.000E-05	5.000E-06	-1.099E-05	6.042E-06
Chloroform	3.000E-06	0.000E+00	0.000E+00	0.000E+00

Well EPA 28

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	0.041	0.005	0.013	0.014
Chloride	-0.005	0.147	-0.002	0.161
Sulfate	-0.138	-2.066	-0.126	-2.321
TDS	0.068	1.351	0.040	0.906
Manganese	7.000E-05	-3.000E-05	6.211E-05	5.495E-05
Uranium	5.000E-06	-9.000E-06	4.630E-06	-1.059E-05
Chloroform	-2.000E-20	0.000E+00	0.000E+00	0.000E+00

Well GW 3

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.219	1.079	-0.217	1.130
Chloride	-0.028	0.179	-0.030	0.178
Sulfate	-0.113	-0.984	-0.079	-1.243
TDS	-0.148	2.104	-0.153	1.641
Manganese	-8.000E-05	2.000E-04	-6.543E-05	4.670E-04
Uranium	-2.000E-05	5.000E-05	-1.834E-05	4.366E-05
Chloroform	1.000E-07	0.000E+00	0.000E+00	0.000E+00

Well GW 1

Water Quality Parameter	Linear Regression Slope		Sen's Estimate of Slope	
	Baseline mg/L/day	Test mg/L/day	Baseline mg/L/day	Test mg/L/day
Bicarbonate	-0.216	-0.334	-0.213	-0.294
Chloride	-0.026	0.211	-0.026	0.191
Sulfate	-0.268	0.593	-0.265	0.413
TDS	-0.548	4.138	-0.571	4.422
Manganese	-6.000E-06	-4.000E-05	0.000E+00	0.000E+00
Uranium	7.000E-07	8.000E-05	3.477E-07	6.849E-05
Chloroform	-4.000E-08	0.000E+00	0.000E+00	0.000E+00

TABLE B.6
RESULTS OF MANN-KENDALL TEST FOR TREND FOR BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3RD QUARTER REPORT

Well 509 D

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	0.089	0.610	↑	↑
Chloride	No Trend	No Trend	N/A	N/A	--	--
Sulfate	No Trend	Trend	N/A	-1.260	--	↓
TDS	No Trend	No Trend	N/A	N/A	--	--
Manganese	Trend	No Trend	2.564E-04	N/A	↔	--
Uranium	Trend	Trend	2.717E-05	1.364E-04	↔	↔
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well 632

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	-0.237	0.317	↓	↑
Chloride	Trend	Trend	-0.025	0.348	↓	↑
Sulfate	No Trend	Trend	N/A	-1.901	--	↓
TDS	Trend	Trend	-0.099	2.437	↓	↑
Manganese	Trend	Trend	1.714E-04	3.342E-04	↔	↔
Uranium	Trend	Trend	-1.024E-05	-2.500E-06	↔	↔
Chloroform	Trend	No Trend	1.096E-06	N/A	↔	--

Well 803

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	No Trend	No Trend	N/A	N/A	--	--
Chloride	No Trend	Trend	N/A	0.329	--	↑
Sulfate	Trend	Trend	0.110	-2.115	↑	↓
TDS	Trend	No Trend	0.444	N/A	↑	--
Manganese	Trend	Trend	3.867E-04	-3.876E-03	↔	↔
Uranium	Trend	No Trend	1.271E-05	N/A	↔	--
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well 624

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	0.218	0.162	↑	↑
Chloride	Trend	Trend	0.014	0.245	↑	↑
Sulfate	Trend	Trend	-0.198	-1.830	↓	↓
TDS	Trend	Trend	0.125	1.247	↑	↑
Manganese	No Trend	No Trend	N/A	N/A	--	--
Uranium	No Trend	No Trend	N/A	N/A	--	--
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well 801

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	No Trend	-0.152	N/A	↓	--
Chloride	No Trend	Trend	N/A	0.210	--	↑
Sulfate	Trend	Trend	-0.214	-2.215	↓	↓
TDS	No Trend	No Trend	N/A	N/A	--	--
Manganese	No Trend	No Trend	N/A	N/A	--	--
Uranium	No Trend	Trend	N/A	-1.033E-04	--	↔
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well 808*

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	N/A	No Trend	N/A	N/A	--	--
Chloride	N/A	No Trend	N/A	N/A	--	--
Sulfate	N/A	No Trend	N/A	N/A	--	--
TDS	N/A	Trend	N/A	4.286	--	↑
Manganese	NA	Trend	N/A	-0.012	--	↓
Uranium	N/A	Trend	N/A	8.661E-04	--	↔
Chloroform	N/A	Trend	N/A	1.120E-05	--	↔

Well 627

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	0.021	0.091	↑	↑
Chloride	No Trend	Trend	N/A	0.067	--	↑
Sulfate	Trend	Trend	-0.193	-2.080	↓	↓
TDS	No Trend	No Trend	N/A	N/A	--	--
Manganese	Trend	No Trend	2.413E-05	N/A	↔	--
Uranium	Trend	No Trend	2.490E-06	N/A	↔	--
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well 802

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	-0.079	0.278	↓	↑
Chloride	Trend	Trend	-0.025	0.261	↓	↑
Sulfate	Trend	Trend	-0.182	-2.448	↓	↓
TDS	No Trend	Trend	N/A	0.238	--	↑
Manganese	Trend	Trend	0.001	-0.001	↔	↔
Uranium	Trend	Trend	1.493E-05	4.110E-04	↔	↔
Chloroform	Trend	Trend	6.211E-07	-5.622E-06	↔	↔

Well EPA 23

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	No Trend	Trend	N/A	0.214	--	↑
Chloride	Trend	Trend	-0.010	0.088	↓	↑
Sulfate	Trend	Trend	-0.147	-1.223	↓	↓
TDS	No Trend	Trend	N/A	0.577	--	↑
Manganese	No Trend	No Trend	N/A	N/A	--	--
Uranium	No Trend	No Trend	N/A	N/A	--	--
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Notes:

Trend direction was determined based on Sen's slope estimates and are interpreted as follows:

↑	Indicates an increasing trend
↓	Indicates a decreasing trend
↔	Indicates that the trend is flat
N/A	Not Applicable
--	Kendall's Test for Trend determined that no trend was evident

*Statistical evaluation could not be applied to Well 808 due to lack of baseline data

TABLE B.6
RESULTS OF MANN-KENDALL TEST FOR TREND FOR BASELINE AND TEST DATA
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3RD QUARTER REPORT

Well EPA 25

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	No Trend	Trend	N/A	0.432	--	↑
Chloride	Trend	Trend	-0.013	0.134	↓	↑
Sulfate	Trend	Trend	-0.120	-1.230	↓	↓
TDS	Trend	Trend	0.082	1.060	↑	↑
Manganese	No Trend	No Trend	N/A	N/A	--	--
Uranium	Trend	No Trend	1.429E-05	N/A	↔	--
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well GW 2

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	-0.215	0.360	↓	↑
Chloride	Trend	Trend	-0.015	0.168	↓	↑
Sulfate	Trend	Trend	-0.217	-2.270	↓	↓
TDS	Trend	No Trend	-0.492	N/A	↓	--
Manganese	No Trend	No Trend	N/A	N/A	--	--
Uranium	Trend	No Trend	-1.099E-05	N/A	↔	--
Chloroform	Trend	No Trend	0.000E+00	N/A	↔	--

Well EPA 28

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	No Trend	No Trend	N/A	N/A	--	--
Chloride	No Trend	Trend	N/A	0.161	--	↑
Sulfate	No Trend	Trend	N/A	-2.321	--	↓
TDS	No Trend	No Trend	N/A	N/A	--	--
Manganese	Trend	No Trend	6.211E-05	N/A	↔	--
Uranium	Trend	No Trend	4.630E-06	N/A	↔	--
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well GW 3

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	-0.217	1.130	↓	↑
Chloride	Trend	Trend	-0.030	0.178	↓	↑
Sulfate	No Trend	No Trend	N/A	N/A	--	--
TDS	Trend	Trend	-0.153	1.641	↓	↑
Manganese	No Trend	No Trend	N/A	N/A	--	--
Uranium	Trend	Trend	-1.834E-05	4.366E-05	↔	↔
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Well GW 1

Water Quality Parameter	Kendall's Test for Trend		Sen's Estimate of Slope		Trend Direction	
	Baseline	Test	Baseline mg/L/day	Test mg/L/day	Base line	Test
Bicarbonate	Trend	Trend	-0.213	-0.294	↓	↓
Chloride	Trend	Trend	-0.026	0.191	↓	↑
Sulfate	Trend	No Trend	-0.265	N/A	↓	--
TDS	Trend	Trend	-0.571	4.422	↓	↑
Manganese	No Trend	No Trend	N/A	N/A	--	--
Uranium	No Trend	Trend	N/A	6.849E-05	--	↔
Chloroform	No Trend	No Trend	N/A	N/A	--	--

Notes:

Trend direction was determined based on Sen's slope estimates and are interpreted as follows:

↑	Indicates an increasing trend
↓	Indicates a decreasing trend
↔	Indicates that the trend is flat
N/A	Not Applicable
--	Kendall's Test for Trend determined that no trend was evident

TABLE B.7
CONSTITUENT TREND ANALYSIS SUMMARY
SOUTHWEST ALLUVIUM NATURAL ATTENUATION TEST
3RD QUARTER REPORT

	Baseline Trend						Test Trend				
Constituent	Up	Down	Flat	None	Total	Constituent	Up	Down	Flat	None	Total
Bicarbonate	3	6		4	13	Bicarbonate	9	1		3	13
Chloride	1	7		5	13	Chloride	12			1	13
Sulfate	1	8		4	13	Sulfate		11		2	13
TDS	3	4		6	13	TDS	7			6	13
Manganese			6	7	13	Manganese			3	10	13
Uranium			9	4	13	Uranium			6	7	13
Chloroform			3	10	13	Chloroform			1	12	13
Total	8	25	18	40	91		28	12	10	41	91
Difference							20	-13	-8	1	