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*EPA/NMED/LANL 1998 Water Quality
Results: Statistical Analysis and
Comparison to Regulatory Standards*

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EPA/NMED/LANL 1998 Water Quality Results: Statistical Analysis and Comparison to Regulatory Standards

by

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ABSTRACT

Four governmental agencies conducted a round of groundwater, surface water, and spring water sampling at the Los Alamos National Laboratory during 1998. Samples were split among the four parties and sent to independent analytical laboratories. Results from three of the agencies were available for this study. Comparisons of analytical results that were paired by location and date were made between the various analytical laboratories. The results for over 50 split samples analyzed for inorganic chemicals, metals, and radionuclides were compared. Statistical analyses included non-parametric (sign test and signed-ranks test) and parametric (paired t-test and linear regression) methods. The data pairs were tested for statistically significant differences, defined by an observed significance level, or p-value, less than 0.05. The main conclusion is that the laboratories' performances are similar across most of the analytes that were measured. In some 95% of the laboratory measurements there was agreement on whether contaminant levels exceeded regulatory limits. The most significant differences in performance were noted for the radioactive suite, particularly for gross alpha particle activity and Sr-90.

1. INTRODUCTION

During the autumn of 1998, the U.S. Environmental Protection Agency (EPA) led an extensive sampling of groundwater located within or adjacent to the Los Alamos National Laboratory (Laboratory, or LANL). In addition to the EPA, three other organizations participated in the sampling effort for added quality control purposes: the New Mexico Environment Department (NMED), the U.S. Geological Survey (USGS), and the Laboratory's Water Quality and Hydrology Group (ESH-18). Samples were split among the four parties and sent to independent laboratories. Samples of groundwater, effluent streams, and springs were collected and analyzed for a broad suite of potential contaminants, including radionuclides, metals, and synthetic organic chemicals. The EPA will use the sampling data to provide a "snapshot" of groundwater quality over a large portion of the watersheds draining the Laboratory and to evaluate the quality of the effluent discharges that may impact the groundwater quality within these watersheds.

The purpose of this study is to compare the analytical results from the various organizations participating in the sampling effort. [Results from the USGS were not available for inclusion in this statistical study.] Intra-laboratory comparisons of analytical results are an integral part of many organizations' quality control programs. Through such programs the general performance of an analytical laboratory may be assessed relative to other laboratories. Occasionally, an unrecognized analytical bias in a particular analytical laboratory's procedure may come to light when compared with results from other laboratories.

For this study, over 1200 analytical results obtained from the sampling effort have been assembled and paired by sampling location and date. The pairs of results are then subject to a variety of statistical comparisons to determine if the laboratories' results are statistically different. For example, EPA's reported mercury concentration for a particular sampling location and date is paired and compared with NMED's or the Laboratory's mercury result obtained for the same sampling location and date. This process is repeated for all other related data pairs, resulting in multiple comparisons for mercury. The statistical tests provide an indication if there is an overall agreement between the various parties' results for a given chemical.

The key findings and study design are presented in the body of this report. Section 2 of this report discusses the field sampling protocols. Sampling locations and methods are summarized. Section 3 of this report presents an overview of the statistical analyses of the analytical results. Section 4 summarizes the results from the statistical analyses. Section 5 evaluates whether there is agreement between each organization's results when compared against regulatory limits. Section 6 of this report summarizes key conclusions of this investigation and discusses the significance of the study findings. The Appendices provide assumptions and conventions used in the data set preparation (Appendix A) and

- a tabulation of the data and relative percent differences between pairs (Appendix B),
- a tabulation of paired data statistical analyses (Appendix C),
- scatter plots of data used in regression analysis (Appendix D),
- groundwater standards and guidelines and comparisons to these guidelines (Appendices E and F), and
- exploratory data presentations (Appendix G).

2. SAMPLING LOCATIONS AND METHODS

Sampling began in the middle of August and concluded toward the end of September 1998. The EPA and the NMED selected the sample locations, shown in Figures 1 and 2. Sampling was conducted both on the Laboratory and on adjacent San Ildefonso Pueblo lands. As a group, considerable emphasis was on sampling the shallow perched groundwater found in the floors of Los Alamos and Mortandad Canyons. A review of prior annual sampling results from the Laboratory's Environmental Surveillance Program helped the EPA and NMED target these sampling locations. A summary of the sample locations follows:

Groundwater

- Mortandad Canyon (12 locations)
- Los Alamos Canyon (11 locations)
- DP Canyon (2 locations)
- Pueblo Canyon (5 locations)
- San Ildefonso Pueblo Land (1 location)

Effluent

- TA-50 Radioactive Liquid Waste Treatment Facility
 - Outfall
 - Gaging Station 1 (Mortandad Canyon)

- Bayo Canyon Sanitary Wastewater Treatment Plant
 - Outfall
 - Intersection between stream channel and State Route 502

Springs

- DP Canyon
 - DP Spring
- San Ildefonso Pueblo Land
 - Basalt Spring
 - LA Spring
 - La Mesita Spring
 - Otowi Spring
 - Sacred Spring

EPA contractor (TechLaw) personnel sampled all of the above locations. After an initial inspection of the condition of a well, water level and well depth measurements were taken. All but three of the wells were sampled using dedicated pumps (Teflon™ bladder sampling pumps for shallow wells or impeller pumps for wells deeper than 100 feet). Portable peristaltic pumps were used with new sampling tubing at the remainder of the wells. Each well usually was pumped for 15 to 30 minutes before sampling commenced to remove any stagnant water in the well casing. (The equivalent of 3 well casing volumes of water was targeted for purging from a well before sampling.) During the purge cycle, field measurements of turbidity, pH, temperature, and specific electrical conductance were performed to assess the general water quality conditions at the well site.

Springs and effluent streams were usually sampled by lowering the intake of the peristaltic pump tubing into the streamflow and pumping the sample into appropriate pre-cleaned sample containers. Filtered samples were collected in pre-cleaned containers and then transferred to the appropriate sample containers using a peristaltic pump with a disposable in-line 0.45-micron filter. All sample containers were labeled with unique blind alphanumeric identification codes and transferred to the appropriate analytical laboratory using full chain-of-custody procedures. EPA and NMED samples were shipped to contract commercial analytical laboratories. USGS samples were shipped to its internal National Water Quality Center. Samples collected for the Laboratory by ESH-18 personnel were submitted to internal analytical laboratory groups within the Chemical Science and Technology (CST) Division.



Figure 1. Western locations of sampling sites.

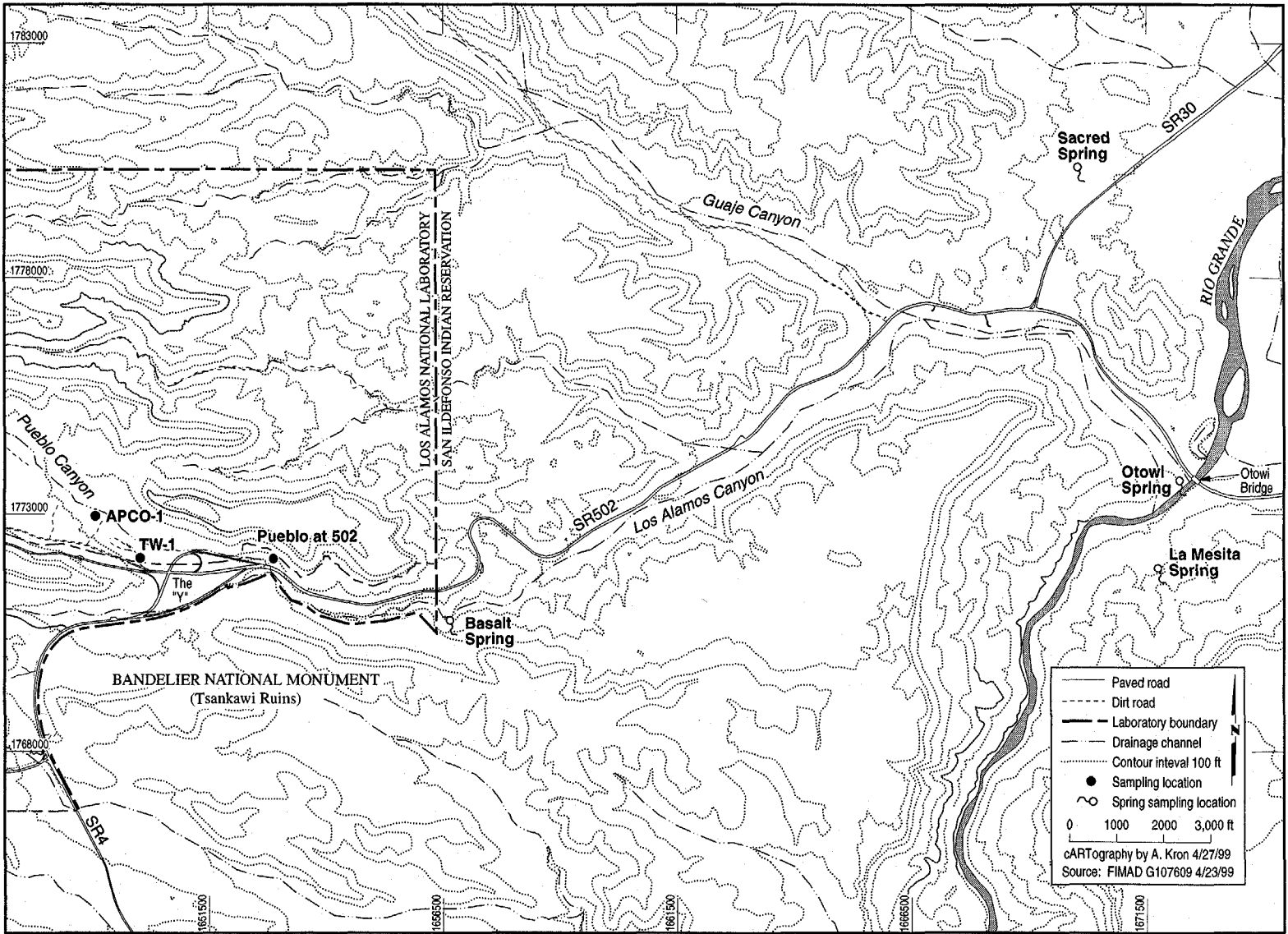


Figure 2. Eastern locations of sampling sites.

3. OVERVIEW OF STATISTICAL ANALYSES

Comparisons of analytical results were made between NMED and EPA, LANL and EPA, and LANL and NMED. Results were paired by location and sampling date¹. (If two parties sampled a location on different days, the results were still paired².) Prior to performing statistical tests, data tables and summaries of the data were prepared to gain an understanding of, and insights into, the data. The data summaries, including the calculations of relative percent differences, provided the first indications of potential differences in laboratory analytical performance. These summaries are presented in Appendix B. Statistical analyses included non-parametric (sign test and signed-ranks test) and parametric (paired t-test and linear regression) statistical tests, which were used to verify differences that were observed in the data and data summaries. The phrase "significant" is equivalent to "statistically significant" in the following presentation. For all tests, "statistically significant" is defined by an observed significance level, or p-value, less than 0.05.

The different statistical tests performed use different information contained in the data. The sign test considers only the sign of the differences between paired results (i.e., Does Lab 1 generally report higher results than Lab 2?). This test involves calculation of the ordered differences between paired data (Lab 1 minus Lab 2), followed by a count of the number of positive differences, and a statistical test to determine if this count is reasonable by random chance alone. Typically, the sign test will indicate a significant difference if there are substantially more positive differences than negative differences, or vice versa. The sign test also statistically evaluates the median difference.

Paired difference tests (paired t-test and signed-ranks test) consider the direction and magnitude of the differences between paired results (i.e., Is the average or median paired difference between Lab 1's results and Lab 2's results significantly different from zero?). The paired t-test involves calculation of the differences between paired data (Lab 1 minus Lab 2), calculation of the average paired difference, and a statistical test to determine if this average is large enough to suggest different performance of one laboratory compared to the other. The signed-ranks test involves ranking the absolute values of the differences between paired results and counting the number of ranks with positive signs. A statistical test determines if this sum is small enough to indicate a median difference unequal to zero. A paired t-test is run unless the assumption of normality is violated, in which case, a signed-ranks test is run. Data used in the paired difference tests are presented in Appendix C.

Regression analysis provides estimates of parameters describing the nature of the relationship between paired results. The regression evaluates the correlation between the paired data sets. The regression results are interpreted by considering the y-intercept and slope of the line fitted to plotted pairs of results. If paired labs produced identical results, the y-intercept would be indistinguishable from the origin ($x = 0, y = 0$) and the slope would be indistinguishable from one. Plots of paired data used in the regression analysis are presented in Appendix D.

¹ Note that data could not be grouped effectively across all three organizations because many samples were analyzed by only two organizations.

² The statistical tests performed require paired data and certain independence assumptions that are violated when including paired samples collected on different dates. The effect of this violation is expected to be small because sampling protocols were similar and the sample data are expected to be reasonably homogeneous. However, an evaluation of the effect of this violation of underlying assumptions has not been performed.

Analyses were not run unless there were at least five pairs of detected results. Thus, analytes that were rarely detected are not considered in this study. These include ammonia, total Kjeldahl nitrogen, arsenic, beryllium, chromium, copper, mercury, lead, and selenium. Analytes not included in the analyses due to lack of sufficient paired data include calcium, potassium, magnesium, sodium, strontium, uranium, organics, Am-241, Pu-238, and Pu-239. There were insufficient paired results for any comparisons to be made between NMED and LANL. Paired comparisons were possible for NMED vs. EPA and LANL vs. EPA. To date, results from the USGS have not been received and so the following assessment involves data from the remaining three parties only.

4. SUMMARY OF STATISTICAL TEST RESULTS

Statistical test results are tabulated in Table 1. Shown are the results of the various statistical comparisons for those analytes with 5 or more pairs of detected results. For the NMED vs. EPA comparisons, 10 analytes were evaluated. For the LANL vs. EPA comparisons, 23 analytes were evaluated.

Test results indicating statistically significant differences are noted in bold in Table 1. Tests that indicated no statistical difference are noted as "NSD" (no statistical difference). Discussion of the results for each analyte evaluated follows.

NMED vs. EPA:

Inorganic Chemical Results

- Cl: The sign test and paired t-test indicate that the median and average differences are not significantly different from zero. In addition the regression analysis indicates a significant relationship between paired results. The slope of the regression line is statistically less than one (0.89), indicating that as EPA's results increase, NMED's increase at a lower rate.
- F: The sign test and paired t-test indicate that the median and average differences are not significantly different from zero. Also, the regression analysis indicates a significant relationship between paired results. The intercept of the regression line is statistically greater than zero, indicating a slight high bias in the NMED results relative to EPA's.
- Nitrate/Nitrite: The sign test indicates that the median difference is not significantly different from zero. The regression analysis indicates a significant relationship between paired results. The slope of the regression line is statistically less than one (0.81), indicating that as EPA's results increase, NMED's increase at a lower rate. This observation is supported by the result of the paired t-test that indicates that on average the difference (the NMED result minus the EPA result) is significantly less than zero.
- SO4: The regression analysis indicates a significant relationship between paired results. The intercept of the regression line is statistically greater than zero and the slope is statistically less than one. This is supported by the sign test and the paired difference test, which indicate *median* differences not significantly different from zero.
- Total Dissolved Solids (TDS): All tests indicate good agreement between NMED and EPA results.

Radionuclides and Radioactivity Results

- H-3: All tests indicate good agreement between NMED and EPA results.
- Sr-90: While the sign test and paired t-test indicate that median and average differences are not significantly different from zero, the regression analysis does not indicate a significant relationship between NMED and EPA results.
- U-234: All tests indicate good agreement between NMED and EPA results.
- U-235: While the sign test and paired t-test indicate that median and average differences are not significantly different from zero, the regression analysis does not indicate that there is a significant relationship between NMED and EPA results.
- U-238: All tests indicate good agreement between NMED and EPA results.

LANL vs. EPA

Inorganic Chemical Results

- Alkalinity: All tests indicate good agreement between LANL and EPA results.
- Cl: The sign test and the paired difference test indicate that the median differences are not significantly different from zero. Also, the regression analysis indicates a significant relationship between paired results. The slope of the regression line is statistically less than one (0.84), indicating that as EPA's results increase, LANL's increase at a lower rate.
- F: All tests indicate good agreement between LANL and EPA results.
- Nitrate/Nitrite: All tests indicate good agreement between LANL and EPA results.
- SO₄: All tests indicate good agreement between LANL and EPA results.
- TDS: Although the sign test and paired t-test indicate that median and average differences are not significantly different from zero, the regression analysis does not indicate a significant relationship between LANL and EPA results.
- Total Suspended Solids (TSS): All tests indicate good agreement between LANL and EPA results.

Metals Results

- Al (filtered): Although the sign test and paired t-test indicate that median and average differences are not significantly different from zero, the regression analysis does not indicate that there is a significant relationship between LANL and EPA results.
- Al (unfiltered): Although the sign test and paired t-test indicate that median and average differences are not significantly different from zero, the regression analysis does not indicate that there is a significant relationship between LANL and EPA results. (Aluminum results can vary depending on the amount of suspended material in a sample and therefore the regression analysis result may be an indicator of split sample heterogeneity).
- B (filtered): Although the regression analysis indicates good agreement between LANL and EPA results, the sign test and paired t-test indicate median and average differences that are significantly less than zero. This indicates that on average EPA is reporting higher values than LANL. This is reflected in the slightly negative y-intercept.
- B (unfiltered): Although the regression analysis indicates good agreement between LANL and EPA results, the sign test and paired t-test indicate median and average

differences that are significantly less than zero. This indicates that on average EPA is reporting higher values than LANL. This is reflected in the slightly negative y-intercept.

- Ba (filtered): All tests indicate good agreement between LANL and EPA results.
- Ba (unfiltered): Although the regression analysis indicates good agreement between LANL and EPA results, the sign test and paired t-test indicate median and average differences that are significantly greater than zero. This indicates that on average LANL is reporting higher values than EPA. This is reflected in the slightly positive y-intercept.
- Fe (filtered): Although the sign test and paired t-test do not indicate that median and average differences are significantly different from zero, the regression analysis does not indicate that there is a significant relationship between LANL and EPA results.
- Fe (unfiltered): All tests indicate good agreement between LANL and EPA results.
- Mn (filtered): The sign test and paired t-test indicate that the median and average differences are not significantly different from zero. Also, the regression analysis indicates a significant relationship between paired results. The slope of the regression line is statistically greater than one (1.02), indicating that as EPA's results increase, LANL's increase at a slightly higher rate.
- Mn (unfiltered): The sign test and paired difference test indicate that the median differences are not significantly different from zero. Also, the regression analysis indicates a significant relationship between paired results. The slope of the regression line is statistically greater than one (1.08), indicating that as EPA's results increase, LANL's increase at a slightly higher rate.
- Mo (filtered): All tests indicate good agreement between LANL and EPA results.
- Mo (unfiltered): All tests indicate good agreement between LANL and EPA results.

Radionuclides and Radioactivity Results

- Gross Alpha: All tests indicate poor agreement between LANL and EPA results. The sign test and paired difference test indicate that EPA generally reports higher values.
- Gross Beta: Although the sign test indicates that the median difference is significantly less than zero (EPA generally reports higher values), the paired difference test indicates that the median difference is not significantly different from zero. Also, the regression analysis indicates a significant relationship between paired results with estimates of the y-intercept and slope not statistically different from zero and one, respectively.
- H-3: Although the regression analysis indicates good agreement between LANL and EPA results, the sign test and paired difference test indicate a median difference that is significantly greater than zero. This indicates that on average LANL is reporting higher values than EPA. This is reflected in the slightly positive y-intercept.
- Sr-90: The sign test and paired difference test indicate median difference that is significantly greater than zero (LANL generally reports higher values than EPA). The regression analysis indicates that there is a significant relationship between LANL and EPA results. The estimate of the slope is statistically greater than one (1.64) indicating that as EPA's results increase, LANL's increase at a higher rate. This supports the conclusions of the sign test and paired t-test.

Table 1. Summary of Statistical Test Results

ANALYTE*	F/T	NMED vs. EPA					LANL vs. EPA				
		Sign Test	Paired Difference Test	Regression			Sign Test	Paired Diff. Test	Regression		
		Median Difference = 0?	Average or Median Difference = 0?	Significant?	Intercept = 0?	Slope = 1?	Median Difference = 0?	Average or Median Difference = 0?	Significant?	Intercept = 0?	Slope = 1?
Inorganics											
Alkalinity							NSD	NSD	Yes	NSD 4856	NSD 0.84
Cl		NSD	NSD	Yes	NSD 1305	No 0.89	NSD	NSD	Yes	NSD 1771	No 0.84
F		NSD	NSD	Yes	No 553	NSD 0.69	NSD	NSD	Yes	NSD -64.9	NSD 1.28
Nitrate/Nitrite		NSD	No EPA> NMED	Yes	NSD 189	No 0.81	NSD	NSD	Yes	NSD -18.6	NSD 0.95
SO4		NSD	NSD	Yes	No 3034	No 0.76	NSD	NSD	Yes	NSD 855	NSD 0.89
TDS		NSD	NSD	Yes	NSD -96361	NSD 1.21	NSD	NSD	No		
TSS							NSD	NSD	Yes	NSD -459	NSD 0.84

Table 1 (cont'd)

ANALYTE	F/T	NMED vs. EPA					LANL vs. EPA					
		Sign Test	Paired Difference Test	Regression			Sign Test	Paired Difference Test	Regression			
		Median Difference = 0?	Average or Median Difference = 0?	Significant?	Intercept = 0?	Slope = 1?	Median Difference = 0?	Average or Median Difference = 0?	Significant?	Intercept = 0?	Slope = 1?	
Metals												
Al	F						NSD	NSD	No			
	T						NSD	NSD	No			
B	F						No EPA>LANL	No EPA>LANL	Yes	NSD -24.0	NSD 0.92	
	T						No EPA>LANL	No EPA>LANL	Yes	NSD -9.83	NSD 0.89	
Ba	F						NSD	NSD	Yes	NSD 0.88	NSD 1.01	
	T						No LANL>EPA	No LANL>EPA	Yes	NSD 3.97	NSD 1.00	
Fe	F						NSD	NSD	No			
	T						NSD	NSD	Yes	NSD 279	NSD 0.99	
Mn	F						NSD	NSD	Yes	NSD 2.63	No 1.02	
	T						NSD	NSD	Yes	NSD -0.07	No 1.08	
Mo	F						NSD	NSD	Yes	NSD 5.75	NSD 1.01	
	T						NSD	NSD	Yes	NSD -1.26	NSD 1.07	

Table 1 (cont'd)

ANALYTE	F/T	NMED vs. EPA					LANL vs. EPA				
		Sign Test	Paired Difference Test	Regression			Sign Test	Paired Difference Test	Regression		
		Median Difference = 0?	Average or Median Difference = 0?	Significant?	Intercept = 0?	Slope = 1?	Median Difference = 0?	Average or Median Difference = 0?	Significant?	Intercept = 0?	Slope = 1?
Rads											
Gross Alpha							No EPA>LANL	No EPA>LANL	No		
Gross Beta							No EPA>LANL	NSD	Yes	NSD -6.16	NSD 1.29
H-3		NSD	NSD	Yes	NSD -90.8	NSD 1.02	No LANL>EPA	No LANL>EPA	Yes	NSD 483	NSD 1.01
Sr-90		NSD	NSD	No			No LANL>EPA	No LANL>EPA	Yes	NSD 0.81	No 1.64
U-234		NSD	NSD	Yes	NSD 0.06	NSD 0.85					
U-235		NSD	NSD	No							
U-238		NSD	NSD	Yes	NSD -0.08	NSD 1.07					

***Explanation of Column Headers:**

Analyte:	Analyte under consideration
Blank entry:	Insufficient number of data pairs to statistically evaluate (i.e., <5 data pairs)
F/T:	F = Filtered; T = Unfiltered
NMED vs. EPA:	Comparison of NMED result (Lab 1) and EPA result (Lab 2)
LANL vs. EPA:	Comparison of LANL result (Lab 1) and EPA result (Lab 2)
Sign Test:	Median Difference = 0? Is the median difference (Lab 1 minus Lab 2) statistically significantly different from zero? (p = 0.05) NSD: Not statistically significantly different from zero Statistically significant results bolded
Paired Difference Test:	Average or median Difference = 0? Is the average or median difference (Lab 1 minus Lab 2) statistically significantly different from zero? (p = 0.05) NSD: Not statistically significantly different from zero Statistically significant results bolded
Regression:	Summary of regression analysis
Significant?	Is the relationship between paired Lab 1 and Lab 2 results statistically significant?
Intercept = 0?:	Is the intercept term statistically different from 0? NSD: Not statistically significantly different from zero Statistically significant results bolded
Slope = 1?:	Is the slope term statistically different from 1? NSD: Not statistically significantly different from one Statistically significant results bolded

5. AGREEMENT IN COMPARISONS OF DATA FROM DIFFERENT SOURCES TO REGULATORY LIMITS

An additional gauge of the analytical laboratories' performance is whether the same conclusion is reached about meeting regulatory limits, regardless of which laboratory performed the test. The issue concerns one of laboratory consistency in whether groundwater contamination is indicated (defined in this study as exceeding water quality standards).

Pairs of analytical results from NMED and EPA, LANL and EPA, and LANL and NMED were compared. Results were paired by location and sampling date. Each data pair was then compared against the most stringent groundwater quality standard or guideline for that particular analyte. (Does the Lab 1 result agree with Lab 2? Are the results concordant? That is, are both results above [or below] the regulatory limit?) Results for unfiltered and filtered water samples were pooled for this analysis. NMED's results for beryllium are not included in the comparisons because their laboratory's minimum analytical detection limit for this analyte is greater than the regulatory limit for that analyte. Selenium results are excluded because only LANL has a minimum analytical detection limit at or below the regulatory limit, and, thus, there were no results for comparison. Groundwater quality standards and guidelines set by the U.S. EPA, the State of New Mexico, and the U.S. Department of Energy are tabulated in Appendix E.

Table 2 summarizes the outcome of this comparison. There was total agreement between the NMED and LANL results and high agreement between NMED and EPA (96%) and between LANL and EPA (94%). In total, of the 597 pairs of data compared, approximately 95 percent of the results were concordant when compared against the regulatory standards. The table is a summation of comparisons of data pairs against the minimum groundwater quality standards and guidelines listed in Appendix E. Concordant pairs occur when both results are either above or below the respective regulatory standards.

Table 2. Agreement between Analytical Laboratories' Results when Compared Against Regulatory Limits.

	NMED vs. EPA	NMED vs. LANL	LANL vs. EPA
Number of data pairs evaluated	143	70	387
Number of concordant pairs above or below regulatory limit	139 (96%)	68 (100%)	363 (94%)

Of the 24 analytes evaluated, the laboratories agreed uniformly on all but eight (Appendix F). Table 3 lists the eight analytes with discordant data pairs not uniformly matching the other laboratory's result.

Of the 570 concordant pairs, 321 (56%) are for analytes whose values never exceed the regulatory standard: chloride, sulfate, arsenic, boron, barium, beryllium, chromium, copper, mercury, molybdenum, and tritium. In most cases, the regulatory standard far exceeds the observed value. For example, referring to the LANL vs. EPA scatter plot for barium (see Appendix D), the maximum value plotted is 147 $\mu\text{g/L}$ while the regulatory standard is almost an order of magnitude higher at 1000 $\mu\text{g/L}$.

Table 3. Analytes with Discordant Data Pairs.*

	NMED vs. EPA	NMED vs. LANL	LANL vs. EPA
F	1/7		
TDS			2/5
Al	1/10	1/4	7/26
Fe	1/10	1/5	6/26
Mn			2/26
Pb	1/10		4/28
Gross alpha			2/14
Sr-90	1/10		1/14

*Ratio shown = Number of data pairs not matching when compared against regulatory standards/Total number of data pairs evaluated for that analyte.

For all other analytes, those for which at least one result exceeds the regulatory standard, 89% of the pairs are concordant (249 of 279). The decrease in the percent of agreement between paired values is an indication that, as reported values approach the regulatory standard, more "disagreements" occur. Most of the discordant data pairs are aluminum, iron, and lead results. Examination of selected scatter plots in Appendix D helps to visualize the differences between these data pairs. Plots with vertical and horizontal reference lines are divided into four quadrants. Points falling into the lower left and upper right quadrants are concordant pairs, i.e., both values would lead to the same conclusion. Points plotted in the upper right quadrant indicate that both results would lead to the decision that a standard was exceeded, while those plotted in the lower left quadrant would indicate that both results were less than the standard. Points falling in the upper left and lower right quadrants indicate disagreement between results. Points plotted in the upper left quadrant indicate that while results reported by LANL would lead to the conclusion that a standard was exceeded, the paired results reported by EPA would lead to the opposite conclusion. The reverse situation occurs for points plotted in the lower right quadrant. For example, the plot comparing aluminum values reported by LANL and EPA reveals that there is poor agreement between paired results and that all discordant data pairs fall in the upper left quadrant, i.e., LANL reported values that exceeded the standard, while those reported by EPA did not.

6. CONCLUSIONS

The main conclusion is that the laboratories' performances are similar across most of the analytes that were measured. However, there are a few exceptions that warrant further investigation to understand why the differences occurred.

LANL vs. EPA

Overall, results of inorganics and metals analyses from LANL and EPA samples correspond nicely, but some differences should be noted.

- There is no statistically significant correlation between filtered aluminum results, unfiltered aluminum, or filtered iron results. An investigation of associated total dissolved solids and total suspended solids measurements may reveal that this discrepancy is due to a sampling

problem resulting in sample split heterogeneity caused by differing amounts of suspended and dissolved solids.

- Sign test and paired t-test results for both filtered and unfiltered boron results indicate a slight high relative bias in EPA's results. The mean differences for filtered and unfiltered results are 35 and 23 $\mu\text{g/L}$, respectively.
- Results of both the sign test and paired t-tests point to a tendency for LANL to report higher results for unfiltered barium. The mean difference is 3.9 $\mu\text{g/L}$.

Generally, there is less agreement between LANL and EPA radionuclide results.

- All tests indicate that there is disagreement between LANL and EPA gross alpha measurements. The median difference between LANL and EPA is -4.1 pCi/L, indicating the EPA generally reports higher results.
- Statistical tests also consistently point to a disparity between LANL and EPA Sr-90 results. The median difference between LANL and EPA is 0.63 pCi/L, indicating that LANL generally reports higher results.
- A similar situation occurs for tritium. Generally, LANL reports higher results than EPA. The median difference is 240 pCi/L.

NMED vs. EPA

Results of inorganic analysis from NMED and EPA generally seem to agree.

There seems to be less agreement between rad results reported by NMED and EPA. This is similar to the results reported above for LANL and EPA.

- There is no statistically significant correlation between paired Sr-90 results or between paired U-235 results reported from these two organizations. Lack of a statistical relationship between paired Sr-90 results is due in part to an outlier data point at the high end of the reported range of values.

Although there are statistically significant correlations between paired U-234 and paired U-238 results reported by NMED and EPA, both seem to be generated by one extreme value at the high range of reported results. This may mean that there is agreement between the labs at high activity levels, but less agreement at lower levels. U-234, U-235, and U-238 usually exist in equilibrium. Therefore, if a relationship between results exists for one isotope, there should be relationships between results for all isotopes. Since none exists for U-235, the relationships for U-234 and U-238 are called into question.

Some other statistical differences were observed, but those reported in this section appear to be the most significant, and exhibit general agreement across the statistical tests. The remaining sporadic statistically significant results do not provide evidence of a difference between paired results as strong as those presented above, and some such significant results can be expected considering the large number of statistical tests performed on the same data set. Approximately 100 tests were performed, of which 5% or so can be expected to indicate a significant result based on chance alone.

There is generally good agreement between paired results in the context of meeting regulatory standards. The regulatory standards for analytes with many of these concordant pairs far exceed the maximum reported value. For those analytes where the values bracket the standard, the rate of agreement is somewhat lower. The analytes with the poorest rate of agreement are those that tend to be highly influenced by sample collection procedures.

7. DISCUSSION

This study was intended to quantitatively compare the results from the various analytical laboratories. A variety of statistical tools were selected to efficiently diagnose significant differences in the analytical results. Although the differences noted in some of the data results are statistically significant, the differences are not likely to be important from a water quality assessment perspective, the intended purpose of EPA's survey. In other words, the same general conclusions regarding contamination probably would be indicated by each of the laboratories' results. At locations where water quality standards or limits are exceeded or approached, the data from any of the analytical laboratories would allow for identification of the contamination problem.

A caveat to the above paragraph comes in the area of water quality detection monitoring, where investigators are looking for subtle, gradual upward trends in contaminant concentrations. In such cases, the investigators should be keenly aware of the inherent uncertainties in analytical results at low concentrations. To minimize the uncertainty, routine use of the same analytical laboratory may be helpful, assuming that its quality control performance is acceptable.

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APPENDIX A
ASSUMPTIONS AND DATA SET CONVENTIONS USED IN REPORT

To allow for the computerized analyses performed in this study, some standardization of the data set was performed. For example, in several cases, the names of the sample stations or analytes differed slightly from those used by the other participating organizations. The following tabulation presents the assumed set of equivalents and standardized descriptors used in the analyses. It is presented to allow the EPA and NMED to track any changes to their original data records.

ASSUMED LOCATION EQUIVALENTS

- A. BAYO-1 (OUTFALL):
 - 1. BAYO SEWAGE OUTFALL
 - 2. BAYO-1
 - 3. BAYO-1(OUTFALL)
- B. MORTANDAD AT GS-1
 - 1. MORTANDAD @ GS-1
 - 2. MORTANDAD @ GS-1 (GAGE E200)
 - 3. MORTANDAD AT GS-1
- C. PUEBLO AT SR-502
 - 1. PUEBLO @ SR502 (GAGE 060)
 - 2. PUEBLO AT SR-502
- D. TA-50 OUTFALL
 - 1. TA-50 OUTFALL
 - 2. TA-502A
 - 3. TA-50-2A
- E. TW-1
 - 1. TEST WELL 1
 - 2. TW-1
- F. TW-2A
 - 1. TEST WELL 2A
 - 2. TW-2A
- G. TW-3
 - 1. TEST WELL 3
 - 2. TW-3
- H. TW-4
 - 1. TEST WELL 4
 - 2. TW-4
- I. TW-8
 - 1. TEST WELL 8
 - 2. TW-8
- J. LA MESITA SPRING
 - 1. LA MESITA SP.
 - 2. LA MESITA SPRING

ASSUMED ANALYTE EQUIVALENTS

- A. 540-59-0
 - 1. 1,2-DICHLOROETHENE
 - 2. 540-59-0
- B. ALKALINITY
 - 1. TALK
 - 2. ALKALINITY
- C. GROSS ALPHA
 - 1. ALPHA
 - 2. GROSS ALPHA
- D. GROSS BETA
 - 1. BETA
 - 2. GROSS BETA
- E. CR
 - 1. CHROMIUM
 - 2. CR
- F. CL
 - 1. CL(-1)
 - 2. CL
- G. F
 - 1. F(-1)
 - 2. F
- H. NITRATE/NITRITE
 - 1. NO₂/NO₃ AS N
 - 2. NITRATE/NITRITE
 - 3. NO₃-N
- I. PU-239
 - 1. PU-239+240
 - 2. PU-239
- J. SO₄
 - 1. SO₄(-2)
 - 2. SO₄
- K. TOT. KJELDAHL N
 - 1. TKN
 - 2. TOT. KJELDAHL N
- L. U-235
 - 1. URANIUM-235/236
 - 2. U-235
- M. URANIUM
 - 1. U
 - 2. URANIUM

GENERAL CONVENTIONS

<# and #U converted to
Symbol = '<'
Result = #

Results reported in mg/L converted to $\mu\text{g/L}$.

Units: Radioactivity: pCi/L
All other analytes: $\mu\text{g/L}$

Records uniquely identified (and matched) by:
Location
Sample type: Filtered/Unfiltered
Analyte

NOTE: Some sampling dates are different for some matched records.

DATA SET SPECIFIC CONVENTIONS

NMED

If there is no indication of sample type (Filtered/Unfiltered), it was assumed that the sample was unfiltered.

We used data even if it was qualified:

B: Analyte found in blank.
LT: Result is less than requested MDC, greater than sample specific MDC.
D: Compounds identified in an analysis at a secondary dilution factor.
§: Holding Times Broken.

EPA

If there is no indication of sample type (Filtered/Unfiltered), it was assumed that the sample was unfiltered.

It was assumed that sample type = 'UF' meant 'Unfiltered'

There are 23 records with no "date sampled" recorded. They were all associated with LAO-0.91. Some records for this station had "date sampled" recorded as 09/03/98. We have used all data for this station in the analysis, regardless of whether "date sampled" was recorded.

We used data even if it was qualified:
B or J

LANL

We only used data with:

1. Date greater than or equal to 01/01/98
2. Matrix not equal to:
 - a. 'QC' or
 - b. 'SED'
3. QC Type equal to:
 - a. 'CLIENT SAMPLE'
 - b. 'CUSTOMER SAMPLE'
 - c. 'SAMPLE'

Deleted "duplicates" as defined by records with identical location /analyte / p combinations:

1. 23 records for Am-241 where Techcode = 'GENERIC GAMMA'. The records where Techcode = 'AM RAS ENV' were retained.
2. 139 records were deleted because they looked like lab duplicates. The Sample IDs differed by 1 character:
 - a. MM98051G5CM
MM98052G5CM
 - b. MF98051G5CM
MF98052G5CM
 - c. MF98081G3TM
MM98081G3TM
 - d. MM98081G8WT
MM98082G8WT

We have assumed that:

1. F: filtered
2. UF, UK (*bolded and italicized* in RPD printout), UUF and IF: unfiltered

We used data even if it was qualified:

B

APPENDIX B DATA AND RELATIVE PERCENT DIFFERENCES (RPDs)

This appendix tabulates all the data pairs assembled for this study and the calculated relative percent differences (RPDs). The RPDs are shown under the columns headers "NMED vs. EPA," "NMED vs. LANL," and "LANL vs. EPA." The RPDs are calculated according to the formula:

$$\text{RPD} = ((\text{Result from Lab 1} - \text{Result from Lab 2}) / (\text{Result from Lab 1} + \text{Result from Lab 2}) / 2) \times 100$$

RPDs calculated are for all paired results, regardless of detection status.
RPDs calculated for pairs of detected results are noted by '*'.

Chemical concentrations are presented in the unit of $\mu\text{g/L}$ (micrograms per liter). Radionuclides or radioactivity are presented in the unit of pCi/L (picocuries per liter).

The Table is organized by:

- A. Sample Type:
 - 1. Unfiltered
 - 2. Filtered
- B. Analytical suite
 - 1. Inorganics
 - 2. Metals
 - 3. Organics
 - 4. Rads (Radionuclides and Radioactivity)
- C. Analyte
- D. Location

We have assumed the following correspondence from the data files:

- 1. F: filtered
- 2. UF, UK (*bolded and italicized* in RPD table), UUF and IF: unfiltered

Explanation of Column Headers:

Location:	Sampling location
NM Date:	NMED sampling date
EPA Date:	EPA sampling date
LANL Date:	ESH-18 sampling date
NMED Result:	Result reported by NMED
EPA Result:	Result reported by EPA
LANL Result:	Result reported to ESH-18 by LANL lab
NMED vs. EPA:	Calculated RPD where NMED = Lab 1 and EPA = Lab 2
NMED vs. LANL:	Calculated RPD where NMED = Lab 1 and LANL = Lab 2
LANL vs. EPA:	Calculated RPD where LANL = Lab 1 and EPA = Lab 2

-----SUITE = Inorganics Analyte = ALKALINITY Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
TW-1	.	09/01/98	05/28/98	.	111000.00	109000	.	.	-1.8182*
TW-2A	.	09/01/98	09/01/98	.	56600.00	57000	.	.	0.7042*
TW-3	.	09/01/98	09/01/98	.	103000.00	80000	.	.	-25.1366*
TW-4	.	09/01/98	09/01/98	.	72700.00	64000	.	.	-12.7286*
TW-8	.	09/02/98	09/02/98	.	74700.00	65000	.	.	-13.8869*

-----SUITE = Inorganics Analyte = AMMONIA Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
BAYO-1 (OUTFALL)	09/01/98	09/01/98	.	11000	11500	.	-4.444*	.	.
DP SPRING	09/02/98	09/02/98	.	60	<50	.	18.182	.	.
MCO-5	08/20/98	08/20/98	.	<500	<50	.	163.636	.	.
MCO-6	08/21/98	08/21/98	.	<500	<50	.	163.636	.	.
MCO-7	08/21/98	08/21/98	.	<500	<50	.	163.636	.	.
TW-1	09/01/98	09/01/98	.	340	<50	.	148.718	.	.
TW-8	09/02/98	09/02/98	.	<500	<50	.	163.636	.	.

-----SUITE = Inorganics Analyte = CL Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
BAYO-1 (OUTFALL)	09/01/98	09/01/98	.	36400	39800.00	.	-8.9239*	.	.
DP SPRING	09/02/98	09/02/98	.	25700	28600.00	.	-10.6814*	.	.
MCO-5	08/20/98	08/20/98	.	20000	18800.00	.	6.1856*	.	.
MCO-6	08/21/98	08/21/98	.	20000	21000.00	.	-4.8780*	.	.
MCO-7	08/21/98	08/21/98	.	18000	18700.00	.	-3.8147*	.	.
TA-50 OUTFALL	08/28/98	08/28/98	.	20000	20800.00	.	-3.9216*	.	.
TW-1	.	09/01/98	05/28/98	.	36300.00	34000.00	.	.	-6.5434*
TW-2A	.	09/01/98	09/01/98	.	69900.00	60000.00	.	.	-15.2425*
TW-3	.	09/01/98	09/01/98	.	3150.00	3900.00	.	.	21.2766*
TW-4	.	09/01/98	09/01/98	.	1980.00	3100.00	.	.	44.0945*
TW-8	09/02/98	09/02/98	09/02/98	2200	2070.00	3600.00	6.0890*	-48.2759*	53.9683*

-----SUITE = Inorganics Analyte = F Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
BAYO-1 (OUTFALL)	09/01/98	09/01/98	.	1080	350.00	.	102.098*	.	.
DP SPRING	09/02/98	09/02/98	.	1530	1060.00	.	36.293*	.	.
MCO-5	08/20/98	08/20/98	.	1400	1270.00	.	9.738*	.	.
MCO-6	08/21/98	08/21/98	.	1600	1460.00	.	9.150*	.	.
MCO-7	08/21/98	08/21/98	.	1800	1560.00	.	14.286*	.	.
TA-50 OUTFALL	08/28/98	08/28/98	.	2500	3090.00	.	-21.109*	.	.
TW-1	.	09/01/98	05/28/98	.	350.00	420.000	.	.	18.1818*
TW-2A	.	09/01/98	09/01/98	.	240.00	200.000	.	.	-18.1818*
TW-3	.	09/01/98	09/01/98	.	350.00	360.000	.	.	2.8169*
TW-4	.	09/01/98	09/01/98	.	180.00	180.000	.	.	0.0000*
TW-8	09/02/98	09/02/98	09/02/98	130	160.00	150.000	-20.690*	-14.2857*	-6.4516*

-----SUITE = Inorganics Analyte = NITRATE/NITRITE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
BAYO-1 (OUTFALL)	09/01/98	09/01/98	.	2600	3010	.	-14.6168*	.	.
DP SPRING	09/02/98	09/02/98	.	360	275	.	26.7717*	.	.
MCO-5	08/20/98	08/20/98	.	13000	15400	.	-16.9014*	.	.
MCO-6	08/21/98	08/21/98	.	14000	17500	.	-22.2222*	.	.
MCO-7	08/21/98	08/21/98	.	15000	18200	.	-19.2771*	.	.
TW-1	09/01/98	09/01/98	05/28/98	4900	5570	5270.00	-12.7985*	-7.27630*	-5.5351*
TW-2A	.	09/01/98	09/01/98	.	767	400.00	.	.	-62.8963*
TW-3	.	09/01/98	09/01/98	.	569	650.00	.	.	13.2896*
TW-4	.	09/01/98	09/01/98	.	285	320.00	.	.	11.5702*
TW-8	09/02/98	09/02/98	09/02/98	280	226	280.00	21.3439*	-0.00000*	21.3439*

-----SUITE = Inorganics Analyte = SO4 Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
BAYO-1 (OUTFALL)	09/01/98	09/01/98	.	24100	24600.00	.	-2.0534*	.	.
DP SPRING	09/02/98	09/02/98	.	6850	5770.00	.	17.1157*	.	.
MCO-5	08/20/98	08/20/98	.	16000	16400.00	.	-2.4691*	.	.
MCO-6	08/21/98	08/21/98	.	17000	17700.00	.	-4.0346*	.	.
MCO-7	08/21/98	08/21/98	.	16000	16300.00	.	-1.8576*	.	.
TA-50 OUTFALL	08/28/98	08/28/98	.	98000	125000.00	.	-24.2152*	.	.
TW-1	.	09/01/98	05/28/98	.	23200.00	22000	.	.	-5.3097*
TW-2A	.	09/01/98	09/01/98	.	8820.00	7000	.	.	-23.0088*
TW-3	.	09/01/98	09/01/98	.	2920.00	4000	.	.	31.2139*
TW-4	.	09/01/98	09/01/98	.	2090.00	3000	.	.	35.7564*
TW-8	09/02/98	09/02/98	09/02/98	2100	2030.00	3000	3.3898*	-35.2941*	38.5686*

Unfiltered

SUITE = Inorganics Analyte = TDS Unit = µG/L

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-2	08/19/98	08/19/98		400000	405000		-1.2422*		
MCO-3	08/20/98	08/20/98		560000	538000	4.0073*			
MCO-5	08/20/98	08/20/98		350000	404000		-14.3236*		
MCO-6	08/21/98	08/21/98		370000	374000		-1.0753*		
MCO-7	08/21/98	08/21/98		380000	381000		-0.2628*		
TW-1		09/01/98	05/28/98		777000	304000			-87.512*
TW-2A		09/01/98	09/01/98		220000	740000			108.333*
TW-3		09/01/98	09/01/98		162000	238000			38.000*
TW-4		09/01/98	09/01/98		125000	202000			47.095*
TW-8		09/02/98	09/02/98		127000	144000			12.546*

SUITE = Inorganics Analyte = TOT. KJELDAHL N Unit = µG/L

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
BAYO-1 (OUTFALL)	09/01/98	09/01/98		15000	225000.0		-175.000*		
DP SPRING	09/02/98	09/02/98		200	125.0		46.154*		
MCO-5	08/20/98	08/20/98		1400	<50.0		186.207		
MCO-6	08/21/98	08/21/98		1500	165.0		160.360*		
MCO-7	08/21/98	08/21/98		1100	57.5		180.130*		
TW-1	09/01/98	09/01/98		<100	113.0		-12.207		
TW-8	09/02/98	09/02/98		1700	<50.0		188.571		

SUITE = Inorganics Analyte = TSS Unit = µG/L

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		4000	2000			-66.667*
BASALT SPRING		09/09/98	06/04/98		1000	9000			160.000*
DP SPRING		09/02/98	09/02/98		4000	1000			-120.000*
LA MESITA SPRING		09/08/98	09/08/98		63000	49000			-25.000*
LAO-2		08/31/98	08/31/98		9000	<1000			-160.000
LAO-3A		08/31/98	08/31/98		6000	<1000			-142.857
LAO-4.5C		08/31/98	05/14/98		9000				0.000*
MCO-2	08/19/98	08/19/98		<20000	91000		-127.928		
MCO-3	08/20/98	08/20/98	08/20/98	<20000	4000	<1000	133.333	180.952	-120.000
MCO-4B		08/20/98	05/27/98		<1000	8000			155.556
MCO-5	08/20/98	08/20/98	05/27/98	<20000	10000	1000	66.667	180.952	-163.636*
MCO-6	08/21/98	08/21/98		<20000	14000		35.294		
MCO-7	08/21/98	08/21/98		59000	47000		22.642*		
MT-3		08/27/98	09/04/98		4000	1000			-120.000*
MT-4		08/26/98	05/14/98		9000	4000			-76.923*
OTOWI SPRING		09/08/98	09/08/98		10000	5000			-66.667*
SACRED SPRING		09/08/98	09/08/98		11000	5000			-75.000*
TW-1		09/01/98	05/28/98		3000	8000			90.909*
TW-2A		09/01/98	09/01/98		45000	45000			0.000*
TW-3		09/01/98	09/01/98		2000	<1000			-66.667
TW-4		09/01/98	09/01/98		6000	5000			-18.182*
TW-8		09/02/98	09/02/98		3000	<1000			-100.000

SUITE = Metals Analyte = AL Unit = µG/L

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		60.50	<50			-19.005
LAO-2		08/31/98	08/31/98		746.00	423			-55.261*
LAO-3A		08/31/98	08/31/98		247.00	394			45.866*
LAO-4.5C		08/31/98	05/14/98		361.00	1200			107.495*
MCO-2	08/19/98	08/19/98		8100	14900.00		-59.130*		
MCO-3	08/20/98	08/20/98	08/20/98	<200	65.80	359	100.978	-56.8873	138.041*
MCO-4B		08/20/98	05/27/98		152.00	305			66.958*
MCO-5	08/20/98	08/20/98	05/27/98	<200	152.00	180	27.273	10.5263	16.867*
MT-3		08/27/98	09/04/98		237.00	<50			-130.314
MT-4		08/26/98	05/14/98		623.00	330			-61.490*
TW-1		09/01/98	05/28/98		<23.60	612			185.148
TW-2A		09/01/98	09/01/98		36.00	<50			32.558
TW-3		09/01/98	09/01/98		<23.60	<50			71.739
TW-4		09/01/98	09/01/98		<23.60	85			113.076
TW-8		09/02/98	09/02/98		<23.60	<50			71.739

----- SUITE = Metals Analyte = AS Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	5.30000	7	.	.	27.6423*
LAO-2	.	08/31/98	08/31/98	.	<2.00000	2	.	.	0.0000
LAO-3A	.	08/31/98	08/31/98	.	<2.00000	2	.	.	0.0000
LAO-4.5C	.	08/31/98	05/14/98	.	<2.00000	<2	.	.	0.0000
MCO-2	08/19/98	08/19/98	.	<10	9.20000	.	8.333	.	.
MCO-3	08/20/98	08/20/98	08/20/98	<10	2.30000	<2	125.203	133.333	-13.9535
MCO-4B	.	08/20/98	05/27/98	.	<2.00000	<2	.	.	0.0000
MCO-5	08/20/98	08/20/98	05/27/98	<10	<2.00000	<2	133.333	133.333	0.0000
MT-3	.	08/27/98	09/04/98	.	<2.00000	<2	.	.	0.0000
MT-4	.	08/26/98	05/14/98	.	<2	<2	.	.	0
TW-1	.	09/01/98	05/28/98	.	<2	<2	.	.	0
TW-2A	.	09/01/98	09/01/98	.	<2	<2	.	.	0
TW-3	.	09/01/98	09/01/98	.	<2	2	.	.	0
TW-4	.	09/01/98	09/01/98	.	<2	<2	.	.	0
TW-8	.	09/02/98	09/02/98	.	<2	<2	.	.	0

Unfiltered

----- SUITE = Metals Analyte = B Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	334.000	290	.	.	-14.103*
LAO-2	.	08/31/98	08/31/98	.	64.500	58	.	.	-10.612*
LAO-3A	.	08/31/98	08/31/98	.	62.100	47	.	.	-27.681*
LAO-4.5C	.	08/31/98	05/14/98	.	61.800	<20	.	.	-102.200
MCO-2	08/19/98	08/19/98	.	<100	84.000	.	17.3913	.	.
MCO-3	08/20/98	08/20/98	08/20/98	100	179.000	173	-56.6308*	-53.4799*	-3.409*
MCO-4B	.	08/20/98	05/27/98	.	70.800	69	.	.	-2.575*
MCO-5	08/20/98	08/20/98	05/27/98	<100	111.000	73	-10.4265	31.2139	-41.304*
MT-3	.	08/27/98	09/04/98	.	109.000	82	.	.	-28.272*
MT-4	.	08/26/98	05/14/98	.	105.000	57	.	.	-59.259*
TW-1	.	09/01/98	05/28/98	.	112.000	62	.	.	-57.471*
TW-2A	.	09/01/98	09/01/98	.	114.000	85	.	.	-29.146*
TW-3	.	09/01/98	09/01/98	.	51.000	47	.	.	-8.163*
TW-4	.	09/01/98	09/01/98	.	40.200	<20	.	.	-67.110
TW-8	.	09/02/98	09/02/98	.	36.600	33	.	.	-10.345*

----- SUITE = Metals Analyte = BA Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	44.900	57	.	.	23.7488*
LAO-2	.	08/31/98	08/31/98	.	54.400	56	.	.	2.8985*
LAO-3A	.	08/31/98	08/31/98	.	47.300	54	.	.	13.2280*
LAO-4.5C	.	08/31/98	05/14/98	.	40.800	39	.	.	-4.5113*
MCO-2	08/19/98	08/19/98	.	200	173.000	.	14.4772*	.	.
MCO-3	08/20/98	08/20/98	08/20/98	<100	62.700	65	45.8513	42.4242	3.6022*
MCO-4B	.	08/20/98	05/27/98	.	77.000	88	.	.	13.3333*
MCO-5	08/20/98	08/20/98	05/27/98	<100	93.800	90	6.3983	10.5263	-4.1349*
MT-3	.	08/27/98	09/04/98	.	147.000	150	.	.	2.0202*
MT-4	.	08/26/98	05/14/98	.	109.000	110	.	.	0.9132*
TW-1	.	09/01/98	05/28/98	.	74.400	87	.	.	15.6134*
TW-2A	.	09/01/98	09/01/98	.	40.800	42	.	.	2.8986*
TW-3	.	09/01/98	09/01/98	.	23.400	26	.	.	10.5263*
TW-4	.	09/01/98	09/01/98	.	58.200	63	.	.	7.9208*
TW-8	.	09/02/98	09/02/98	.	7.000	8	.	.	13.3333*

----- SUITE = Metals Analyte = BE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	<0.60000	<3	.	.	133.333
LAO-2	.	08/31/98	08/31/98	.	<0.60000	<3	.	.	133.333
LAO-3A	.	08/31/98	08/31/98	.	<0.60000	<3	.	.	133.333
LAO-4.5C	.	08/31/98	05/14/98	.	0.64000	<3	.	.	129.670
MCO-2	08/19/98	08/19/98	.	<5	1.90000	.	89.855	.	.
MCO-3	08/20/98	08/20/98	08/20/98	<5	<0.60000	<3	157.143	50	133.333
MCO-4B	.	08/20/98	05/27/98	.	<0.60000	<3	.	.	133.333
MCO-5	08/20/98	08/20/98	05/27/98	<5	<0.60000	<3	157.143	50	133.333
MT-3	.	08/27/98	09/04/98	.	<0.60000	<3	.	.	133.333
MT-4	.	08/26/98	05/14/98	.	<0.60000	<3	.	.	133.333
TW-1	.	09/01/98	05/28/98	.	<0.60000	<3	.	.	133.333
TW-2A	.	09/01/98	09/01/98	.	<0.60000	<3	.	.	-66.667
TW-3	.	09/01/98	09/01/98	.	<0.60000	<3	.	.	133.333
TW-4	.	09/01/98	09/01/98	.	<0.60000	<3	.	.	133.333
TW-8	.	09/02/98	09/02/98	.	<0.60000	<3	.	.	133.333

----- SUITE = Metals Analyte = CA Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
TW-8	09/02/98		09/02/98	11000		11605.00			-5.35279*

----- SUITE = Metals Analyte = CR Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		<4.2000	<7			50.000
LAO-2		08/31/98	08/31/98		<4.2000	<7			50.000
LAO-3A		08/31/98	08/31/98		<4.2000	<7			50.000
LAO-4.5C		08/31/98	05/14/98		<4.2000	12			96.296
MCO-3		08/20/98	08/20/98		<4.2000	<7			50.000
MCO-4B		08/20/98	05/27/98		<4.2000	<7			50.000
MCO-5		08/20/98	05/27/98		<4.2000	21			133.333
MT-4		08/26/98	05/14/98		<4.2000	9			72.727
TW-1		09/01/98	05/28/98		<4.2000	<7			50.000
TW-2A		09/01/98	09/01/98		<4.2000	<7			50.000
TW-3		09/01/98	09/01/98		16.8000	<7			-82.353
TW-4		09/01/98	09/01/98		49.0000	<7			-150.000
TW-8		09/02/98	09/02/98		<4.2000	<7			50.000

Unfiltered

----- SUITE = Metals Analyte = CU Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		7.4000	<10			29.8851
LAO-2		08/31/98	08/31/98		<6.2000	<10			46.9136
LAO-3A		08/31/98	08/31/98		<6.2000	<10			46.9136
LAO-4.5C		08/31/98	05/14/98		8.2000	<10			19.7802
MCO-3		08/20/98	08/20/98		14.9000	18			18.8450*
MCO-4B		08/20/98	05/27/98		<6.2000	<10			46.9136
MCO-5		08/20/98	05/27/98		7.0000	<10			35.2941
MT-3		08/27/98	09/04/98		9.3000	<10			7.2539
MT-4		08/26/98	05/14/98		16.6000	<10			-49.6241
TW-1		09/01/98	05/28/98		<6.2000	<10			46.9136
TW-2A		09/01/98	09/01/98		<6.2000	<10			46.9136
TW-3		09/01/98	09/01/98		<6.2000	<10			46.9136
TW-4		09/01/98	09/01/98		13.0000	31			81.8182*
TW-8		09/02/98	09/02/98		<6.2000	<10			46.9136

----- SUITE = Metals Analyte = FE Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		460.00	735			46.025*
LAO-2		08/31/98	08/31/98		403.00	282			-35.328*
LAO-3A		08/31/98	08/31/98		141.00	187			28.049*
LAO-4.5C		08/31/98	05/14/98		204.00	420			69.231*
MCO-2	08/19/98	08/19/98		11000	14900.00		-30.1158*		
MCO-3	08/20/98	08/20/98	08/20/98	<100	58.10	<40	53.0044	85.7143	-36.901
MCO-4B		08/20/98	05/27/98		82.20	176			72.657*
MCO-5	08/20/98	08/20/98	05/27/98	<100	107.00	92	-6.7633	8.3333	-15.075*
MT-3		08/27/98	09/04/98		228.00	<40			-140.299
MT-4		08/26/98	05/14/98		385.00	73			-136.245*
TW-1		09/01/98	05/28/98		44.10	1902			190.936*
TW-2A		09/01/98	09/01/98		21300.00	21405			0.492*
TW-3		09/01/98	09/01/98		221.00	384			53.884*
TW-4		09/01/98	09/01/98		659.00	1520			79.027*
TW-8		09/02/98	09/02/98		141.00	117			-18.605*

----- SUITE = Metals Analyte = HG Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		<0.10000	<0.20000			66.6667
BASALT SPRING		09/09/98	06/04/98		<0.10000	<0.20000			66.6667
DP SPRING		09/02/98	09/02/98		<0.10000	<0.20000			66.6667
LAO-2		08/31/98	08/31/98		<0.10000	<0.20000			66.6667
LAO-3A		08/31/98	08/31/98		<0.10000	<0.20000			66.6667
LAO-4.5C		08/31/98	05/14/98		<0.10000	<0.20000			66.6667
MCO-3		08/20/98	08/20/98		<0.10000	<0.20000			66.6667
MCO-4B		08/20/98	05/27/98		<0.10000	<0.20000			66.6667
MCO-5		08/20/98	05/27/98		<0.10000	<0.20000			66.6667
MT-3		08/27/98	09/04/98		<0.10000	<0.20000			66.6667
MT-4		08/26/98	05/14/98		<0.10000	<0.20000			66.6667
OTOWI SPRING		09/08/98	09/08/98		<0.10000	<0.20000			66.6667
TW-1		09/01/98	05/28/98		<0.10000	<0.20000			66.6667
TW-2A		09/01/98	09/01/98		<0.10000	<0.20000			66.6667
TW-3		09/01/98	09/01/98		<0.10000	<0.20000			66.6667
TW-4		09/01/98	09/01/98		<0.10000	<0.20000			66.6667
TW-8		09/02/98	09/02/98		<0.10000	<0.20000			66.6667

----- SUITE = Metals Analyte = K Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
TW-8	09/02/98		09/02/98	2000		1532.00		26.5006*	

----- SUITE = Metals Analyte = MG Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
TW-8	09/02/98		09/02/98	4000		3939.00		1.53672*	

----- SUITE = Metals Analyte = MN Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		925.00	1008			8.5877*
LAO-2		08/31/98	08/31/98		3.80	2			-62.0690*
LAO-3A		08/31/98	08/31/98		1.30	<2			42.4242
LAO-4.5C		08/31/98	05/14/98		3.40	3			-12.5000*
MCO-2	08/19/98	08/19/98		1300	13200.00		-164.138*		
MCO-3	08/20/98	08/20/98	08/20/98	<10	5.40	<2	59.740	133.333	-91.8919
MCO-4B		08/20/98	05/27/98		2.40	2			-18.1818*
MCO-5	08/20/98	08/20/98	05/27/98	<10	2.50	<2	120.000	133.333	-22.2222
MT-3		08/27/98	09/04/98		3.50	<2			-54.5455
MT-4		08/26/98	05/14/98		6.50	3			-73.6842*
TW-1		09/01/98	05/28/98		41.30	65			44.5908*
TW-2A		09/01/98	09/01/98		377.00	370			-1.8742*
TW-3		09/01/98	09/01/98		8.70	13			39.6313*
TW-4		09/01/98	09/01/98		37.70	45			17.6542*
TW-8		09/02/98	09/02/98		3.60	4			10.5263*

Unfiltered

----- SUITE = Metals Analyte = MO Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		8.000	<30.000			115.789
LAO-2		08/31/98	08/31/98		151.000	166.000			9.464*
LAO-3A		08/31/98	08/31/98		315.000	335.000			6.154*
LAO-4.5C		08/31/98	05/14/98		11.000	<30.000			92.683
MCO-3		08/20/98	08/20/98		153.000	158.000			3.215*
MCO-4B		08/20/98	05/27/98		124.000	121.000			-2.449*
MCO-5		08/20/98	05/27/98		113.000	127.000			11.667*
MT-4		08/26/98	05/14/98		33.000	<30.000			-9.524
TW-1		09/01/98	05/28/98		<7.300	<30.000			121.716
TW-2A		09/01/98	09/01/98		<7.300	<30.000			121.716
TW-3		09/01/98	09/01/98		<7.300	<30.000			121.716
TW-4		09/01/98	09/01/98		<7.300	<30.000			121.716
TW-8		09/02/98	09/02/98		<7.300	<30.000			121.716

----- SUITE = Metals Analyte = NA Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
TW-8	09/02/98		09/02/98	9000		10569.00		-16.0356*	

----- SUITE = Metals Analyte = PB Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		<1.60000	<3			60.8696
<i>LA MESITA SPRING</i>		<i>09/08/98</i>	<i>09/08/98</i>		<i>2.00000</i>	<i><3</i>			<i>40.0000</i>
LAO-2		08/31/98	08/31/98		<1.6000	<3			60.870
LAO-3A		08/31/98	08/31/98		<1.6000	16			163.636
LAO-4.5C		08/31/98	05/14/98		<1.6000	<3			60.870
MCO-2	08/19/98	08/19/98		3	5.6000		-60.4651*		
MCO-3	08/20/98	08/20/98	08/20/98	<3	<1.6000	<3	60.8696	0	60.870
MCO-4B		08/20/98	05/27/98		<1.6000	<3			60.870
MCO-5	08/20/98	08/20/98	05/27/98	<3	<1.6000	<3	60.8696	0	60.870
MT-3		08/27/98	09/04/98		<1.6000	<3			60.870
MT-4		08/26/98	05/14/98		3.5000	<3			-15.385
<i>SACRED SPRING</i>		<i>09/08/98</i>	<i>09/08/98</i>		<i><0.9000</i>	<i><3</i>			<i>107.692</i>
TW-1		09/01/98	05/28/98		4.0000	97			184.158*
TW-2A		09/01/98	09/01/98		28.4000	53			60.442*
TW-3		09/01/98	09/01/98		<1.6000	3			60.870
TW-4		09/01/98	09/01/98		19.4000	46			81.346*
TW-8		09/02/98	09/02/98		4.1000	5			19.780*

-----SUITE = Metals Analyte = SE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		<2.60000	<2			-26.0870
BASALT SPRING		09/09/98	06/04/98		<2.20000	<2			-9.5238
DP SPRING		09/02/98	09/02/98		<2.60000	<2			-26.0870
LAO-2		08/31/98	08/31/98		<2.60000	<2			-26.0870
LAO-3A		08/31/98	08/31/98		<2.60000	<2			-26.0870
LAO-4.5C		08/31/98	05/14/98		<2.60000	<2			-26.0870
MCO-3		08/20/98	08/20/98		<2.60000	<2			-26.0870
MCO-4B		08/20/98	05/27/98		<2.60000	<2			-26.0870
MCO-5		08/20/98	05/27/98		<2.60000	<2			-26.0870
MT-3		08/27/98	09/04/98		<2.60000	<2			-26.0870
MT-4		08/26/98	05/14/98		<2.60000	<2			-26.0870
OTOWI SPRING		09/08/98	09/08/98		<2.20000	2			-9.5238
TW-1		09/01/98	05/28/98		<2.60000	<2			-26.0870
TW-2A		09/01/98	09/01/98		<2.60000	<2			-26.0870
TW-3		09/01/98	09/01/98		<2.60000	<2			-26.0870
TW-4		09/01/98	09/01/98		<2.60000	<2			-26.0870
TW-8		09/02/98	09/02/98		<2.60000	<2			-26.0870

-----SUITE = Metals Analyte = SR Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-3	08/20/98		08/20/98	120		123			-2.46914*
MCO-5	08/20/98		05/27/98	120		114			5.12821*

-----SUITE = Metals Analyte = URANIUM Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-5	08/20/98		05/27/98	1.26		0.85125			38.7211*

Unfiltered

-----SUITE = Organics Analyte = 1,1,1-TRICHLOROETHANE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

-----SUITE = Organics Analyte = 1,1,2,2-TETRACHLOROETHANE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

-----SUITE = Organics Analyte = 1,1,2-TRICHLOROETHANE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

-----SUITE = Organics Analyte = 1,1-DICHLOROETHANE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

-----SUITE = Organics Analyte = 1,1-DICHLOROETHENE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

-----SUITE = Organics Analyte = 1,2-DICHLOROETHANE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = 1,2-DICHLOROETHENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<5	<5	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<5	<5	.	.	0

----- SUITE = Organics Analyte = 1,2-DICHLOROPROPANE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<5	<5	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<5	<5	.	.	0

----- SUITE = Organics Analyte = 2-BUTANONE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<20	<20	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<20	<20	.	.	0

----- SUITE = Organics Analyte = 2-HEXANONE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<20	<20	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<20	<20	.	.	0

----- SUITE = Organics Analyte = 4-METHYL-2-PENTANONE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<20	<20	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<20	<20	.	.	0

----- SUITE = Organics Analyte = ACETONE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	12	86	.	.	151.020*
MCO-5	.	08/20/98	05/27/98	.	<20	146	.	.	151.807

Unfiltered

----- SUITE = Organics Analyte = BENZENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<5	<5	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<5	<5	.	.	0

----- SUITE = Organics Analyte = BROMODICHLOROMETHANE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<5	<5	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<5	<5	.	.	0

----- SUITE = Organics Analyte = BROMOFORM Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<5	<5	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<5	<5	.	.	0

----- SUITE = Organics Analyte = BROMOMETHANE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<10	<10	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<10	<10	.	.	0

----- SUITE = Organics Analyte = CARBON DISULFIDE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<5	<5	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<5	<5	.	.	0

----- SUITE = Organics Analyte = CHLOROBENZENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = CHLORODIBROMOMETHANE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = CHLOROETHANE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<10	<10			0
MCO-5		08/20/98	05/27/98		<10	<10			0

----- SUITE = Organics Analyte = CHLOROFORM Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = CHLOROMETHANE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<10	<10			0
MCO-5		08/20/98	05/27/98		<10	<10			0

----- SUITE = Organics Analyte = CIS-1,3-DICHLOROPROPENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = METHYLENE CHLORIDE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

Unfiltered

----- SUITE = Organics Analyte = STYRENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = TETRACHLOROETHENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = TOLUENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = TRICHLOROETHENE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B		08/20/98	05/27/98		<5	<5			0
MCO-5		08/20/98	05/27/98		<5	<5			0

----- SUITE = Organics Analyte = VINYL CHLORIDE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-4B	.	08/20/98	05/27/98	.	<10	<10	.	.	0
MCO-5	.	08/20/98	05/27/98	.	<10	<10	.	.	0

----- SUITE = Rads Analyte = AM-241 Unit = PCIL -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-3	08/20/98	.	08/20/98	0.425	.	0.4980	.	-15.818*	.
MCO-5	08/20/98	.	05/27/98	1.100	.	0.9067	.	19.265*	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	4.200	.	24.9014	.	-142.271*	.
TW-8	09/02/98	.	09/02/98	0.028	.	0.0215	.	26.263*	.

----- SUITE = Rads Analyte = GROSS ALPHA Unit = PCIL -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	4.200	0.723	.	.	-141.273*
BAYO-1 (OUTFALL)	09/01/98	09/01/98	.	<2.2	3.390	.	-42.5760	.	.
LAO-2	.	08/31/98	08/31/98	.	3.420	-0.327	.	.	-242.325*
LAO-3A	.	08/31/98	08/31/98	.	11.200	-0.717	.	.	-227.369*
LAO-4.5C	.	08/31/98	05/14/98	.	2.860	0.613	.	.	-129.422*
MCO-3	.	08/20/98	08/20/98	.	19.700	8.093	.	.	-83.527*
MCO-4B	.	08/20/98	05/27/98	.	12.700	-5.027	.	.	-462.083*
MCO-5	.	08/20/98	05/27/98	.	15.100	-1.567	.	.	-246.325*
MORTANDAD AT GS-1	08/28/98	.	08/28/98	20.9	.	200.413	.	-162.225*	.
MT-3	.	08/27/98	09/04/98	.	5.520	1.483	.	.	-115.305*
MT-4	.	08/26/98	05/14/98	.	4.620	-0.747	.	.	-277.180*
TA-50 OUTFALL	08/28/98	08/28/98	.	160.0	133.000	.	18.4300*	.	.
TW-1	.	09/01/98	05/28/98	.	6.160	1.973	.	.	-102.973*
TW-2A	.	09/01/98	09/01/98	.	7.960	-0.837	.	.	-247.018*
TW-3	.	09/01/98	09/01/98	.	1.620	0.073	.	.	-182.809*
TW-4	.	09/01/98	09/01/98	.	1.840	0.323	.	.	-140.307*
TW-8	.	09/02/98	09/02/98	.	1.070	0.573	.	.	-60.539*

----- SUITE = Rads Analyte = GROSS BETA Unit = PCIL -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	12.000	9.007	.	.	-28.490*
BAYO-1 (OUTFALL)	09/01/98	09/01/98	.	14.2	13.200	.	7.2993*	.	.
LAO-2	.	08/31/98	08/31/98	.	37.100	30.517	.	.	-19.470*
LAO-3A	.	08/31/98	08/31/98	.	80.400	72.517	.	.	-10.309*
LAO-4.5C	.	08/31/98	05/14/98	.	9.710	5.807	.	.	-50.298*
MCO-3	.	08/20/98	08/20/98	.	148.000	89.417	.	.	-49.350*
MCO-4B	.	08/20/98	05/27/98	.	118.000	264.318	.	.	76.542*
MCO-5	.	08/20/98	05/27/98	.	104.000	162.318	.	.	43.795*
MORTANDAD AT GS-1	08/28/98	.	08/28/98	479.0	.	294.318	.	47.7637*	.
MT-3	.	08/27/98	09/04/98	.	32.700	27.217	.	.	-18.300*
MT-4	.	08/26/98	05/14/98	.	35.800	25.617	.	.	-33.158*
TA-50 OUTFALL	08/28/98	08/28/98	.	391.0	489.000	.	-22.2727*	.	.
TW-1	.	09/01/98	05/28/98	.	13.900	4.328	.	.	-105.034*
TW-2A	.	09/01/98	09/01/98	.	4.720	1.288	.	.	-114.274*
TW-3	.	09/01/98	09/01/98	.	4.600	2.148	.	.	-72.694*
TW-4	.	09/01/98	09/01/98	.	4.020	2.008	.	.	-66.777*
TW-8	.	09/02/98	09/02/98	.	2.28000	1.70750	.	.	-28.7147*

Unfiltered

----- SUITE = Rads Analyte = H-3 Unit = PCIL -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	31.20	521.25	.	.	177.410*
BASALT SPRING	.	09/09/98	06/04/98	.	42.10	21.25	.	.	-65.825*
DP SPRING	.	09/02/98	09/02/98	.	156.00	361.25	.	.	79.362*
LA MESITA SPRING	.	09/08/98	09/08/98	.	54.50	21.25	.	.	-87.789*
LAO-2	.	08/31/98	08/31/98	.	134.00	461.25	.	.	109.954*
LAO-3A	.	08/31/98	08/31/98	.	99.80	351.25	.	.	111.495*
LAO-4.5C	.	08/31/98	05/14/98	.	169.00	221.25	.	.	26.778*
MCO-2	08/19/98	08/19/98	.	11	105.00	.	-162.069*	.	.
MCO-3	08/20/98	08/20/98	08/20/98	19900	19200.00	19211.25	3.581*	3.5220*	0.059*
MCO-4B	.	08/20/98	05/27/98	.	8720.00	12711.25	.	.	37.247*
MCO-5	08/20/98	08/20/98	05/27/98	11800	11600.00	14011.25	1.709*	-17.1340*	18.830*
MCO-6	08/21/98	08/21/98	.	13600	13300.00	.	2.230*	.	.
MCO-7	08/21/98	08/21/98	.	16800	17200.00	.	-2.353*	.	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	4640	.	3501.25	.	27.9748*	.
MT-3	.	08/27/98	09/04/98	.	17500.00	18511.25	.	.	5.616*
MT-4	.	08/26/98	05/14/98	.	19200.00	17811.25	.	.	-7.504*
SACRED SPRING	.	09/08/98	09/08/98	.	34.10	-98.75	.	.	410.982*
TW-1	.	09/01/98	05/28/98	.	191.00	11.25	.	.	-177.750*
TW-2A	.	09/01/98	09/01/98	.	1380.00	3301.25	.	.	82.083*
TW-3	.	09/01/98	09/01/98	.	3.14	441.25	.	.	197.174*
TW-4	.	09/01/98	09/01/98	.	2.07	231.25	.	.	196.451*
TW-8	.	09/02/98	09/02/98	.	18.50	311.25	.	.	177.559*

-----SUITE = Rads Analyte = PU-238 Unit = PCI/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-3	08/20/98	.	08/20/98	0.700	.	0.8479	.	-19.111*	.
MCO-5	08/20/98	.	05/27/98	0.006	.	0.0226	.	-116.121*	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	10.700	.	52.0198	.	-131.760*	.
TW-8	09/02/98	.	09/02/98	0.004	.	-0.0292	.	-263.524*	.

-----SUITE = Rads Analyte = PU-239 Unit = PCI/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-3	08/20/98	.	08/20/98	0.145	.	0.2054	.	-34.457*	.
MCO-5	08/20/98	.	05/27/98	0.034	.	0.0169	.	67.388*	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	2.960	.	16.9102	.	-140.413*	.
TW-8	09/02/98	.	09/02/98	0.004	.	-0.0064	.	-856.410*	.

-----SUITE = Rads Analyte = SR-90 Unit = PCI/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	0.0600	0.0650	.	.	8.000*
LAO-2	.	08/31/98	08/31/98	.	7.2100	13.5750	.	.	61.246*
LAO-3A	.	08/31/98	08/31/98	.	15.2000	33.8850	.	.	76.133*
LAO-4.5C	.	08/31/98	05/14/98	.	0.9100	2.0150	.	.	75.556*
MCO-2	08/19/98	08/19/98	.	0.79	0.4400	.	56.911*	.	.
MCO-3	08/20/98	08/20/98	08/20/98	47.20	28.1000	45.9250	50.730*	2.738*	48.159*
MCO-4B	.	08/20/98	05/27/98	.	32.4000	48.3850	.	.	39.574*
MCO-5	08/20/98	08/20/98	05/27/98	35.10	19.0000	35.9550	59.519*	-2.407*	61.705*
MCO-6	08/21/98	08/21/98	.	31.70	63.5000	.	-66.807*	.	.
MCO-7	08/21/98	08/21/98	.	0.89	0.5800	.	42.177*	.	.
MCWB-7.7B	08/26/98	08/26/98	.	<0.50	0.1200	.	122.581	.	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	12.00	.	10.9850	.	8.832*	.
MT-3	08/27/98	08/27/98	09/04/98	<0.55	0.0100	0.4650	192.857	16.749	191.579*
MT-4	.	08/26/98	05/14/98	.	-0.0500	0.4390	.	.	251.414*
TA-50 OUTFALL	08/28/98	08/28/98	.	14.70	0.3900	.	189.662*	.	.
TW-1	.	09/01/98	05/28/98	.	0.8100	-0.0250	.	.	-212.739*
TW-2A	09/01/98	09/01/98	09/01/98	1.20	0.0200	0.2950	193.443*	121.070*	174.603*
TW-3	.	09/01/98	09/01/98	.	0.2500	0.4650	.	.	60.140*
TW-4	.	09/01/98	09/01/98	.	0.4400	0.0650	.	.	-148.515*
TW-8	09/02/98	09/02/98	09/02/98	<0.58	-0.1500	0.6150	339.535	-5.858	329.032*

-----SUITE = Rads Analyte = U-234 Unit = PCI/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-2	08/19/98	08/19/98	.	0.35	0.75000	.	-72.7273*	.	.
MCO-3	08/20/98	08/20/98	.	5.67	5.62000	.	0.8857*	.	.
MCO-5	08/20/98	08/20/98	.	1.18	0.59000	.	66.6667*	.	.
MCO-6	08/21/98	08/21/98	.	1.46	3.23000	.	-75.4797*	.	.
MCWB-7.7B	08/26/98	08/26/98	.	0.90	0.65000	.	32.2581*	.	.
MT-3	08/27/98	08/27/98	.	0.83	0.60000	.	32.1678*	.	.
TA-50 OUTFALL	08/28/98	08/28/98	.	1.03	0.95000	.	8.0808*	.	.
TW-1	09/01/98	09/01/98	.	1.70	2.31000	.	-30.4239*	.	.
TW-8	09/02/98	09/02/98	.	0.50	0.66000	.	-27.5862*	.	.

Unfiltered

-----SUITE = Rads Analyte = U-235 Unit = PCI/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-2	08/19/98	08/19/98	.	0.046	0.17000	.	-114.815*	.	.
MCO-3	08/20/98	08/20/98	.	0.177	0.34000	.	-63.056*	.	.
MCO-5	08/20/98	08/20/98	.	0.030	0.15000	.	-133.333*	.	.
MCO-6	08/21/98	08/21/98	.	0.059	0.08000	.	-30.216*	.	.
MCWB-7.7B	08/26/98	08/26/98	.	0.023	0.08000	.	-110.680*	.	.
MT-3	08/27/98	08/27/98	.	0.053	0.10000	.	-61.438*	.	.
TA-50 OUTFALL	08/28/98	08/28/98	.	0.034	<0.72000	.	-181.963	.	.
TW-1	09/01/98	09/01/98	.	0.100	0.01000	.	163.636*	.	.
TW-8	09/02/98	09/02/98	.	0.020	0.07000	.	-111.111*	.	.

-----SUITE = Rads Analyte = U-238 Unit = PCI/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
MCO-2	08/19/98	08/19/98	.	0.36	0.67000	.	-60.1942*	.	.
MCO-3	08/20/98	08/20/98	.	2.250	2.07000	.	8.3333*	.	.
MCO-5	08/20/98	08/20/98	.	0.480	0.37000	.	25.8824*	.	.
MCO-6	08/21/98	08/21/98	.	0.400	0.93000	.	-79.6992*	.	.
MCWB-7.7B	08/26/98	08/26/98	.	0.740	0.44000	.	50.8475*	.	.
MT-3	08/27/98	08/27/98	.	0.850	0.83000	.	2.3810*	.	.
TA-50 OUTFALL	08/28/98	08/28/98	.	1.100	0.79000	.	32.8042*	.	.
TW-1	09/01/98	09/01/98	.	0.900	0.92000	.	-2.1978*	.	.
TW-8	09/02/98	09/02/98	.	0.175	0.47000	.	-91.4729*	.	.

Filtered

----- SUITE = Metals Analyte = AG Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98	.	09/02/98	<0.5	.	<10	.	-180.952	.
PUEBLO AT SR-502	09/03/98	.	09/03/98	<0.5	.	<10	.	-180.952	.

----- SUITE = Metals Analyte = AL Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	33.800	<50	.	.	38.663
BASALT SPRING	.	09/09/98	06/04/98	.	31.200	<50	.	.	46.305
DP SPRING	09/02/98	09/02/98	09/02/98	1600	707.000	272	77.417*	141.880*	-88.866*
LAO-0.91	09/03/98	.	.	500	612.000	.	-20.144*	.	145.536*
LAO-1.2	08/31/98	08/31/98	.	200	152.000	.	27.273*	.	.
LAO-2	.	08/31/98	08/31/98	.	577.000	495	.	.	-15.299*
LAO-3A	.	08/31/98	08/31/98	.	195.000	250	.	.	24.719*
LAO-4.5C	.	08/31/98	05/14/98	.	248.000	270	.	.	8.494*
MCO-3	.	08/20/98	08/20/98	.	61.000	387	.	.	145.536*
MCO-4B	.	08/20/98	05/27/98	.	150.000	<50	.	.	-100.000
MCO-5	.	08/20/98	05/27/98	.	121.000	61	.	.	-65.934*
MCO-6	08/21/98	08/21/98	.	<200	96.800	.	69.542	.	.
MCO-7	08/21/98	08/21/98	.	<200	365.000	.	-58.407	.	.
MT-3	.	08/27/98	09/04/98	.	87.800	66	.	.	-28.349*
MT-4	.	08/26/98	05/14/98	.	85.200	250	.	.	98.329*
OTOWI SPRING	.	09/08/98	09/08/98	.	26.000	<50	.	.	63.158
PUEBLO AT SR-502	09/03/98	.	09/03/98	200	.	<50	.	120.000	.
TA-50 OUTFALL	08/28/98	08/28/98	.	200	312.000	.	-43.750*	.	.
TW-8	09/02/98	09/02/98	.	<200	<23.600	.	157.782	.	.

----- SUITE = Metals Analyte = AS Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	6.60000	7	.	.	5.88235*
BASALT SPRING	.	09/09/98	06/04/98	.	3.70000	4	.	.	7.79221*
DP SPRING	09/02/98	09/02/98	09/02/98	<10	2.00000	2	133.333	133.333	0.00000*
LAO-0.91	09/03/98	.	.	20	2.30000	.	158.744*	.	.
LAO-1.2	08/31/98	08/31/98	.	<10	<2.00000	.	133.333	.	.
LAO-2	.	08/31/98	08/31/98	.	<2.00000	<2	.	.	0.00000
LAO-3A	.	08/31/98	08/31/98	.	<2.00000	2	.	.	0.00000
LAO-4.5C	.	08/31/98	05/14/98	.	<2.00000	<2	.	.	0.00000
MCO-3	.	08/20/98	08/20/98	.	2.00000	<2	.	.	0.00000
MCO-4B	.	08/20/98	05/27/98	.	<2.00000	<2	.	.	0.00000
MCO-5	.	08/20/98	05/27/98	.	<2.00000	<2	.	.	0.00000
MCO-6	08/21/98	08/21/98	.	<10	<2.00000	.	133.333	.	.
MCO-7	08/21/98	08/21/98	.	<10	<2.00000	.	133.333	.	.
MT-3	.	08/27/98	09/04/98	.	<2.00000	<2	.	.	0.00000
MT-4	.	08/26/98	05/14/98	.	<2.00000	<2	.	.	0.00000
OTOWI SPRING	.	09/08/98	09/08/98	.	3.20000	3	.	.	-6.45161*
PUEBLO AT SR-502	09/03/98	.	09/03/98	20	.	8	.	85.714*	.
TA-50 OUTFALL	08/28/98	08/28/98	.	<10	<2.00000	.	133.333	.	.
TW-8	09/02/98	09/02/98	.	<10	<2.00000	.	133.333	.	.

Filtered

----- SUITE = Metals Analyte = B Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	314.000	273	.	.	-13.969*
BASALT SPRING	.	09/09/98	06/04/98	.	262.000	228	.	.	-13.878*
DP SPRING	09/02/98	09/02/98	09/02/98	<50	62.900	43	-22.852	15.0538	-37.583*
LAO-0.91	09/03/98	.	.	<50	40.300	.	21.484	.	.
LAO-1.2	08/31/98	08/31/98	.	190	31.900	.	142.497*	.	.
LAO-2	.	08/31/98	08/31/98	.	103.000	59	.	.	-54.321*
LAO-3A	.	08/31/98	08/31/98	.	57.000	60	.	.	5.128*
LAO-4.5C	.	08/31/98	05/14/98	.	77.300	<20	.	.	-117.780
MCO-3	.	08/20/98	08/20/98	.	220.000	170	.	.	-25.641*
MCO-4B	.	08/20/98	05/27/98	.	113.000	64	.	.	-55.367*
MCO-5	.	08/20/98	05/27/98	.	114.000	77	.	.	-38.743*
MCO-6	08/21/98	08/21/98	.	<100	90.900	.	9.534	.	.
MCO-7	08/21/98	08/21/98	.	<100	107.000	.	-6.763	.	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	<100	.	66	.	40.9639	.
MT-3	.	08/27/98	09/04/98	.	102.000	86	.	.	-17.021*
MT-4	.	08/26/98	05/14/98	.	125.000	81	.	.	-42.718*
OTOWI SPRING	.	09/08/98	09/08/98	.	119.000	57	.	.	-70.455*
PUEBLO AT SR-502	09/03/98	.	09/03/98	360	.	303	.	17.1946*	.
TA-50 OUTFALL	08/28/98	08/28/98	.	<100	106.000	.	-5.825	.	.
TW-8	09/02/98	09/02/98	.	<100	36.000	.	94.118	.	.

----- SUITE = Metals Analyte = BA Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
AFCO-1		09/03/98	09/03/98		43.300	45			3.8505*
BASALT SPRING		09/09/98	06/04/98		62.600	70			11.1614*
DP SPRING	09/02/98	09/02/98	09/02/98	51	40.800	41	22.222*	21.739*	0.4890*
LAO-0.91	09/03/98			48	36.000		28.571*		
LAO-1.2	08/31/98	08/31/98		45	39.000		14.286*		
LAO-2		08/31/98	08/31/98		52.600	53			0.7576*
LAO-3A		08/31/98	08/31/98		47.100	49			3.9542*
LAO-4.5C		08/31/98	05/14/98		40.200	35			-13.8298*
MCO-3		08/20/98	08/20/98		62.400	65			4.0816*
MCO-4B		08/20/98	05/27/98		78.800	87			9.8914*
MCO-5		08/20/98	05/27/98		91.600	87			-5.1512*
MCO-6	08/21/98	08/21/98		<100	88.400		12.314		
MCO-7	08/21/98	08/21/98		200	187.000		6.718*		
MORTANDAD AT GS-1	08/28/98		08/28/98	<100		30		107.692	
MT-3		08/27/98	09/04/98		146.000	148			1.3605*
MT-4		08/26/98	05/14/98		105.000	110			4.6512*
OTOWI SPRING		09/08/98	09/08/98		144.000	144			0.0000*
PUEBLO AT SR-502	09/03/98		09/03/98	28		20		33.333*	
TA-50 OUTFALL	08/28/98	08/28/98		<100	9.100		166.636		
TW-8	09/02/98	09/02/98		<100	6.800		174.532		

----- SUITE = Metals Analyte = BE Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
AFCO-1		09/03/98	09/03/98		<0.60000	<3			133.333
BASALT SPRING		09/09/98	06/04/98		<0.50000	<3			142.857
DP SPRING	09/02/98	09/02/98	09/02/98	<1	<0.60000	<3	50.0000	-100	133.333
LAO-0.91	09/03/98			<1	<0.60000		50.0000		
LAO-1.2	08/31/98	08/31/98		<1	<0.60000		50.0000		
LAO-2		08/31/98	08/31/98		<0.60000	<3			33.333
LAO-3A		08/31/98	08/31/98		<0.60000	<3			133.333
LAO-4.5C		08/31/98	05/14/98		<0.60000	<3			133.333
MCO-3		08/20/98	08/20/98		<0.60000	<3			133.333
MCO-4B		08/20/98	05/27/98		<0.60000	<3			133.333
MCO-5		08/20/98	05/27/98		<0.60000	<3			133.333
MCO-6	08/21/98	08/21/98		<5	<0.60000		157.143		
MCO-7	08/21/98	08/21/98		<5	<0.60000		157.143		
MORTANDAD AT GS-1	08/28/98		08/28/98	<5		<3		50	
MT-3		08/27/98	09/04/98		<0.60000	<3			133.333
MT-4		08/26/98	05/14/98		<0.60000	<3			133.333
OTOWI SPRING		09/08/98	09/08/98		<0.50000	<3			142.857
PUEBLO AT SR-502	09/03/98		09/03/98	<1		<3		-100	
TA-50 OUTFALL	08/28/98	08/28/98		<5	0.64000		154.610		
TW-8	09/02/98	09/02/98		<5	<0.60000		157.143		

----- SUITE = Metals Analyte = CD Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98		09/02/98	<1		<7		-150	
PUEBLO AT SR-502	09/03/98		09/03/98	<1		<7		-150	

----- SUITE = Metals Analyte = CO Unit = µG/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98		09/02/98	<1		<8		-155.556	
MORTANDAD AT GS-1	08/28/98		08/28/98	<10		<8		22.222	
PUEBLO AT SR-502	09/03/98		09/03/98	7		<8		-13.333	

-----SUITE = Metals Analyte = CR Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	<4.2000	<7	.	.	50.0000
BASALT SPRING	.	09/09/98	06/04/98	.	<2.7000	<7	.	.	88.6598
DP SPRING	09/02/98	09/02/98	09/02/98	<50	<4.2000	<7	169.004	150.877	50.0000
LAO-0.91	09/03/98	.	.	<50	<4.2000	.	169.004	.	.
LAO-1.2	08/31/98	08/31/98	.	<50	12.0000	.	122.581	.	.
LAO-2	.	08/31/98	08/31/98	.	<4.2000	<7	.	.	50.0000
LAO-3A	.	08/31/98	08/31/98	.	<4.2000	<7	.	.	50.0000
LAO-4.5C	.	08/31/98	05/14/98	.	<4.2000	8	.	.	62.2951
MCO-3	.	08/20/98	08/20/98	.	<4.2000	<7	.	.	50.0000
MCO-4B	.	08/20/98	05/27/98	.	<4.2000	<7	.	.	50.0000
MCO-5	.	08/20/98	05/27/98	.	<4.2000	<7	.	.	50.0000
MCO-6	08/21/98	08/21/98	.	<10	<4.2000	.	81.690	.	.
MCO-7	08/21/98	08/21/98	.	<10	<4.2000	.	81.690	.	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	<10	.	<7	.	35.294	.
MT-3	.	08/27/98	09/04/98	.	<4.2000	<7	.	.	50.0000
MT-4	.	08/26/98	05/14/98	.	4.5000	<7	.	.	43.4783
OTOWI SPRING	.	09/08/98	09/08/98	.	<2.7000	<7	.	.	88.6598
PUEBLO AT SR-502	09/03/98	.	09/03/98	<50	.	<7	.	150.877	.
TA-50 OUTFALL	08/28/98	08/28/98	.	<10	5.2000	.	63.158	.	.
TW-8	09/02/98	09/02/98	.	<10	<4.20000	.	81.6901	.	.

-----SUITE = Metals Analyte = CU Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	<6.200	<10	.	.	46.914
BASALT SPRING	.	09/09/98	06/04/98	.	14.800	<10	.	.	-38.710
DP SPRING	09/02/98	09/02/98	09/02/98	<20	<6.200	<10	105.344	66.6667	46.914
LAO-0.91	09/03/98	.	.	<20	<6.200	.	105.344	.	.
LAO-1.2	08/31/98	08/31/98	.	<20	<6.200	.	105.344	.	.
LAO-2	.	08/31/98	08/31/98	.	<6.200	<10	.	.	46.914
LAO-3A	.	08/31/98	08/31/98	.	<6.200	<10	.	.	46.914
LAO-4.5C	.	08/31/98	05/14/98	.	<6.200	<10	.	.	46.914
MCO-3	.	08/20/98	08/20/98	.	17.000	15	.	.	-12.500*
MCO-4B	.	08/20/98	05/27/98	.	<6.200	<10	.	.	46.914
MCO-5	.	08/20/98	05/27/98	.	9.000	<10	.	.	10.526
MCO-6	08/21/98	08/21/98	.	<10	<6.200	.	46.914	.	.
MCO-7	08/21/98	08/21/98	.	<10	<6.200	.	46.914	.	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	100	.	101	.	-0.9950*	.
MT-3	.	08/27/98	09/04/98	.	<6.200	<10	.	.	46.914
MT-4	.	08/26/98	05/14/98	.	8.200	<10	.	.	19.780
OTOWI SPRING	.	09/08/98	09/08/98	.	<2.900	<10	.	.	110.078
PUEBLO AT SR-502	09/03/98	.	09/03/98	<20	.	<10	.	66.6667	.
TA-50 OUTFALL	08/28/98	08/28/98	.	110	155.000	.	-33.962*	.	.
TW-8	09/02/98	09/02/98	.	<10	<6.200	.	46.914	.	.

-----SUITE = Metals Analyte = FE Unit = µG/L-----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1	.	09/03/98	09/03/98	.	452.000	455	.	.	0.662*
BASALT SPRING	.	09/09/98	06/04/98	.	38.100	130	.	.	109.340*
DP SPRING	09/02/98	09/02/98	09/02/98	600	376.000	177	45.902*	108.880*	-71.971*
LAO-0.91	09/03/98	.	.	100	329.000	.	-106.760*	.	.
LAO-1.2	08/31/98	08/31/98	.	<100	72.900	.	31.348	.	.
LAO-2	.	08/31/98	08/31/98	.	5.000	250	.	.	192.157*
LAO-3A	.	08/31/98	08/31/98	.	111.000	112	.	.	0.897*
LAO-4.5C	.	08/31/98	05/14/98	.	139.000	54	.	.	-88.083*
MCO-3	.	08/20/98	08/20/98	.	34.700	<40	.	.	14.190
MCO-4B	.	08/20/98	05/27/98	.	71.500	<40	.	.	-56.502
MCO-5	.	08/20/98	05/27/98	.	56.600	<40	.	.	-34.369
MCO-6	08/21/98	08/21/98	.	<100	63.300	.	44.948	.	.
MCO-7	08/21/98	08/21/98	.	<100	213.000	.	-72.204	.	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	<100	.	<40	.	85.714	.
MT-3	.	08/27/98	09/04/98	.	60.300	250	.	.	122.269*
MT-4	.	08/26/98	05/14/98	.	277.000	74	.	.	-115.670*
OTOWI SPRING	.	09/08/98	09/08/98	.	33.800	<40	.	.	16.802
PUEBLO AT SR-502	09/03/98	.	09/03/98	800	.	593	.	29.720*	.
TA-50 OUTFALL	08/28/98	08/28/98	.	100	123.000	.	-20.628*	.	.
TW-8	09/02/98	09/02/98	.	<100	57.800	.	53.485	.	.

----- SUITE = Metals Analyte = MN Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		942.000	967			2.619*
BASALT SPRING		09/09/98	06/04/98		0.910	4			125.866*
DP SPRING	09/02/98	09/02/98	09/02/98	4	8.300	5	-69.919*	-22.2222*	-49.624*
LAO-0.91	09/03/98			<3	2.400		22.222		
LAO-1.2	08/31/98	08/31/98		<3	0.940		104.569		
LAO-2		08/31/98	08/31/98		149.000	<2			-194.702
LAO-3A		08/31/98	08/31/98		2.000	<3			40.000
LAO-4.5C		08/31/98	05/14/98		13.700	<2			-149.045
MCO-3		08/20/98	08/20/98		3.900	<2			-64.407
MCO-4B		08/20/98	05/27/98		2.500	<2			-22.222
MCO-5		08/20/98	05/27/98		2.900	<2			-36.735
MCO-6	08/21/98	08/21/98		<10	2.400		122.581		
MCO-7	08/21/98	08/21/98		<10	2.900		110.078		
MORTANDAD AT GS-1	08/28/98		08/28/98	<10		8		22.2222	
MT-3		08/27/98	09/04/98		1.000	12			169.231*
MT-4		08/26/98	05/14/98		3.000	3			0.000*
OTOWI SPRING		09/08/98	09/08/98		1.700	<2			16.216
PUEBLO AT SR-502	09/03/98		09/03/98	330		299		9.8569*	
TA-50 OUTFALL	08/28/98	08/28/98		<10	6.400		43.902		
TW-8	09/02/98	09/02/98		<10	3.700		91.971		

----- SUITE = Metals Analyte = MO Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		<7.300	<30			121.716
BASALT SPRING		09/09/98	06/04/98		<8.400	<30			112.500
DP SPRING	09/02/98	09/02/98	09/02/98	<10	<7.300	<30	31.2139	-100	121.716
LAO-0.91	09/03/98			<10	9.200		8.3333		
LAO-1.2	08/31/98	08/31/98		<10	8.500		16.2162		
LAO-2		08/31/98	08/31/98		149.000	153			2.649*
LAO-3A		08/31/98	08/31/98		317.000	328			3.411*
LAO-4.5C		08/31/98	05/14/98		16.200	<30			59.740
MCO-3		08/20/98	08/20/98		156.000	157			0.639*
MCO-4B		08/20/98	05/27/98		127.000	122			-4.016*
MCO-5		08/20/98	05/27/98		110.000	129			15.900*
MCO-6	08/21/98	08/21/98		120	126.000		-4.8780*		
MCO-7	08/21/98	08/21/98		100	117.000		-15.6682*		
MT-3		08/27/98	09/04/98		58.500	68			15.020*
MT-4		08/26/98	05/14/98		33.900	<30			-12.207
OTOWI SPRING		09/08/98	09/08/98		<8.400	<30			112.500
PUEBLO AT SR-502	09/03/98		09/03/98	<10		<30		-100	
TA-50 OUTFALL	08/28/98	08/28/98		80	118.000		-38.3838*		
TW-8	09/02/98	09/02/98		<10	<7.300		31.2139		

----- SUITE = Metals Analyte = NI Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98		09/02/98	<5		<20		-120.000	
PUEBLO AT SR-502	09/03/98		09/03/98	10		20		-66.667*	

----- SUITE = Metals Analyte = PB Unit = µg/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
APCO-1		09/03/98	09/03/98		7.1000	<3			-81.188
BASALT SPRING		09/09/98	06/04/98		5.1000	<3			-51.852
DP SPRING	09/02/98	09/02/98	09/02/98	<5	7.2000	<3	-36.066	50.0000	-82.353
LAO-0.91	09/03/98			<5	5.9000		-16.514		
LAO-1.2	08/31/98	08/31/98		5	4.0000		22.222*		
LAO-2		08/31/98	08/31/98		2.6000	<3			14.286
LAO-3A		08/31/98	08/31/98		3.2000	61			180.0620*
LAO-4.5C		08/31/98	05/14/98		5.7000	<3			-62.069
MCO-3		08/20/98	08/20/98		<1.6000	<3			60.870
MCO-4B		08/20/98	05/27/98		<1.6000	<3			60.870
MCO-5		08/20/98	05/27/98		<1.6000	<3			60.870
MCO-6	08/21/98	08/21/98		<3	43.3000		-174.082		
MCO-7	08/21/98	08/21/98		<3	11.1000		-114.894		
MORTANDAD AT GS-1	08/28/98		08/28/98	<3		4		-28.5714	
MT-3		08/27/98	09/04/98		15.2000	<3			-134.066
MT-4		08/26/98	05/14/98		10.5000	<3			-111.111
OTOWI SPRING		09/08/98	09/08/98		4.5000	<3			-40.000
PUEBLO AT SR-502	09/03/98		09/03/98	<5		3		50.0000	
TA-50 OUTFALL	08/28/98	08/28/98		<3	6.1000		-68.132		
TW-8	09/02/98	09/02/98		<3	4.8000		-46.154		

----- SUITE = Metals Analyte = SB Unit = $\mu\text{G/L}$ -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98	.	09/02/98	<10	.	<3	.	107.692	.
PUEBLO AT SR-502	09/03/98	.	09/03/98	<10	.	<3	.	107.692	.

----- SUITE = Metals Analyte = SN Unit = $\mu\text{G/L}$ -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98	.	09/02/98	<300	.	<30	.	163.636	.
PUEBLO AT SR-502	09/03/98	.	09/03/98	<300	.	<163	.	59.179	.

Filtered

----- SUITE = Metals Analyte = SR Unit = $\mu\text{G/L}$ -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98	.	09/02/98	100	.	97	.	3.04569*	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	70	.	75	.	-6.89655*	.
PUEBLO AT SR-502	09/03/98	.	09/03/98	90	.	87	.	3.38983*	.

----- SUITE = Metals Analyte = V Unit = $\mu\text{G/L}$ -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98	.	09/02/98	<10	.	<8	.	22.2222	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	<10	.	<8	.	22.2222	.
PUEBLO AT SR-502	09/03/98	.	09/03/98	10	.	<8	.	22.2222	.

----- SUITE = Metals Analyte = ZN Unit = $\mu\text{G/L}$ -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98	.	09/02/98	<20	.	<50	.	-85.7143	.
MORTANDAD AT GS-1	08/28/98	.	08/28/98	<20	.	<50	.	-85.7143	.
PUEBLO AT SR-502	09/03/98	.	09/03/98	20	.	<50	.	-85.7143	.

----- SUITE = Rads Analyte = SR-90 Unit = PCI/L -----

Location	NM Date	EPA Date	LANL Date	NMED Result	EPA Result	LANL Result	NMED vs EPA	NMED vs LANL	LANL vs EPA
DP SPRING	09/02/98	.	09/02/98	51.6	.	68.7850	.	-28.5501*	.

APPENDIX C DATA USED IN PAIRED TESTS

This appendix tabulates the results of the paired difference tests. Paired difference tests (paired t-test and signed-ranks test) consider the direction and magnitude of the differences between paired results (i.e., Is the average, or median, paired difference between Lab 1's results and Lab 2's results significantly different from zero?). The paired t-test involves calculation of the differences between paired data (Lab 1 minus Lab 2), calculation of the average paired difference, and a statistical test to determine if this average is large enough to suggest different performance of one laboratory compared to the other. The signed-ranks test involves ranking the absolute values of the differences between paired results and counting the number of ranks with positive signs. A statistical test determines if this sum is small enough to indicate a median difference unequal to zero. A paired t-test is run unless the assumption of normality is violated, in which case, a signed ranks test is run.

Results were paired by location and date and differences were calculated only for pairs of detected results.

$$\text{Difference} = \text{Result from Lab 1} - \text{Result from Lab 2}$$

Chemical concentrations are presented in the unit of $\mu\text{g/L}$ (micrograms per liter). Radionuclides or radioactivity are presented in the unit of pCi/L (picocuries per liter).

The table is organized by:

- A. Labs being compared:
 - 1. NMED (Lab 1) vs. EPA (Lab 2)
 - 2. NMED (Lab 1) vs. LANL (Lab 2)
 - 3. NMED (Lab 1) vs. EPA (Lab 2)
- B. Sample Size:
 - 1. $N \geq 5$
 - 2. $N < 5$
- C. Analytical Suite
 - 1. Inorganics
 - 2. Metals
 - 3. Organics
 - 4. Rads (Radionuclides and Radioactivity)
- D. Sample Type
 - 1. T = Unfiltered
 - 2. F = Filtered
- E. Analyte

A 2-sided paired t-test was used if data were normally distributed (denoted (1) in table), otherwise a signed ranks test was used (denoted (2) in table). Statistically significant results (defined by $p < 0.05$) are ***bolded and italicized***.

Explanation of Column Headers:

Analyte:	Analyte under consideration
Min.-NMED:	Minimum result reported for the analyte by NMED
Max.-NMED:	Maximum result reported for the analyte by NMED
Min.-EPA:	Minimum result reported for the analyte by EPA
Max.-EPA:	Maximum result reported for the analyte by EPA
Min.-LANL:	Minimum result reported for the analyte by LANL
Max.-LANL:	Maximum result reported for the analyte by LANL
Median-NMED:	Median result reported for the analyte by NMED
Median-EPA:	Median result reported for the analyte by EPA
Median-LANL:	Median result reported for the analyte by LANL
N-Diff.:	Number of differences between paired results from Lab 1 and Lab 2, which was calculated for that analyte
Min.-Diff:	Minimum difference between paired results from Lab 1 and Lab 2, which was calculated for that analyte
Max.-Diff:	Maximum difference between paired results from Lab 1 and Lab 2, which was calculated for that analyte
Mean.-Diff:	Mean difference between paired results from Lab 1 and Lab 2, which was calculated for that analyte
Median-Diff:	Median difference between paired results from Lab 1 and Lab 2, which was calculated for that analyte

Difference = NMED result - EPA result (Sample Size >= 5)

----- Suite = Inorganics Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
CL	2200	36400	2070.00	39800.00	20000	20800.00	7	-3400.00	1200.00	-1067.14	-800.00
F	130	2500	160.00	3090.00	1530	1270.00	7	-590.00	730.00	155.71	140.00
NITRATE/NITRITE (1)	280	15000	226.00	18200.00	4900	5570.00	7	-3500.00	85.00	-1434.43	-670.00
SO4	2100	98000	2030.00	125000.00	16000	16400.00	7	-27000.00	1080.00	-3964.29	-400.00
TDS	350000	560000	374000.00	538000.00	380000	404000.00	5	-54000.00	22000.00	-8400.00	-4000.00

----- Suite = Rads Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
H-3	11.000	19900.00	105.000	19200.00	13600.00	13300.00	5	-400.000	700.000	141.200	200.000
SR-90	0.790	47.20	0.020	63.50	14.70	0.58	7	-31.800	19.100	2.793	1.180
U-234	0.350	5.67	0.590	5.62	1.03	0.75	9	-1.770	0.590	-0.193	0.050
U-235	0.020	0.18	0.010	0.34	0.05	0.09	8	-0.163	0.090	-0.062	-0.053
U-238	0.175	2.25	0.370	2.07	0.74	0.79	9	-0.530	0.310	-0.026	0.020

Difference = NMED result - EPA result (Sample Size <5)

----- Suite = Inorganics Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AMMONIA	11000	11000	11500.0	11500	11000	11500	1	-500	-500	-500.00	-500.00
TOT. KJELDAHL N	200	15000	57.5	225000	1300	145	4	-210000	1335	-51886.88	558.75
TSS	59000	59000	47000.0	47000	59000	47000	1	12000	12000	12000.00	12000.00

----- Suite = Metals Type = F -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	200	1600	152.000	707.000	350.0	462.000	4	-112.000	893.000	179.250	-32.000
AS	20	20	2.300	2.300	20.0	2.300	1	17.700	17.700	17.700	17.700
B	190	190	31.900	31.900	190.0	31.900	1	158.100	158.100	158.100	158.100
BA (1)	45	200	36.000	187.000	49.5	39.900	4	6.000	13.000	10.300	11.100
CU	110	110	155.000	155.000	110.0	155.000	1	-45.000	-45.000	-45.000	-45.000
FE	100	600	123.000	376.000	100.0	329.000	3	-229.000	224.000	-9.333	-23.000
MN	4	4	8.300	8.300	4.0	8.300	1	-4.300	-4.300	-4.300	-4.300
MO	80	120	117.000	126.000	100.0	118.000	3	-38.000	-6.000	-20.333	-17.000
PB	5	5	4.000	4.000	5.0	4.000	1	1.000	1.000	1.000	1.000

----- Suite = Metals Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	8100	8100	14900.00	14900.00	8100	14900.00	1	-6800.00	-6800.00	-6800.00	-6800.00
B	100	100	179.00	179.00	100	179.00	1	-79.00	-79.00	-79.00	-79.00
BA	200	200	173.00	173.00	200	173.00	1	27.00	27.00	27.00	27.00
FE	11000	11000	14900.00	14900.00	11000	14900.00	1	-3900.00	-3900.00	-3900.00	-3900.00
MN	1300	1300	13200.00	13200.00	1300	13200.00	1	-11900.00	-11900.00	-11900.00	-11900.00
PB	3	3	5.60	5.60	3	5.60	1	-2.60	-2.60	-2.60	-2.60

----- Suite = Rads Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
GROSS ALPHA	160.0	160	133.000	133	160.0	133.000	1	27	27.0000	27.0000	27.0000
GROSS BETA	14.2	391	13.200	489	202.6	251.100	2	-98	1.0000	-48.5000	-48.5000

Difference = NMED result - LANL result (Sample Size <5)

----- Suite = Inorganics Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
CL	2200	2200	3600.00	3600.00	2200	3600.00	1	-1400.00	-1400.00	-1400.00	-1400.00
F	130	130	150.00	150.00	130	150.00	1	-20.00	-20.00	-20.00	-20.00
SO4	2100	2100	3000.00	3000.00	2100	3000.00	1	-900.00	-900.00	-900.00	-900.00

----- Suite = Metals Type = F -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	1600	1600	272	272	1600.0	272.0	1	1328	1328	1328.00	1328
AS	20	20	8	8	20.0	8.0	1	12	12	12.00	12
B	360	360	303	303	360.0	303.0	1	57	57	57.00	57
BA	28	51	20	41	39.5	30.5	2	8	10	9.00	9
CU	100	100	101	101	100.0	101.0	1	-1	-1	-1.00	-1
FE	600	800	177	593	700.0	385.0	2	207	423	315.00	315
MN	4	330	5	299	167.0	152.0	2	-1	31	15.00	15
NI	10	10	20	20	10.0	20.0	1	-10	-10	-10.00	-10
SR	70	100	75	97	90.0	87.0	3	-5	3	0.33	3

----- Suite = Metals Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
B	100.00	100.00	173.00	173.00	100.00	173.00	1	-73.00	-73.00	-73.00	-73.00
CA	11000.00	11000.00	11605.00	11605.00	11000.00	11605.00	1	-605.00	-605.00	-605.00	-605.00
K	2000.00	2000.00	1532.00	1532.00	2000.00	1532.00	1	468.00	468.00	468.00	468.00
MG	4000.00	4000.00	3939.00	3939.00	4000.00	3939.00	1	61.00	61.00	61.00	61.00
NA	9000.00	9000.00	10569.00	10569.00	9000.00	10569.00	1	-1569.00	-1569.00	-1569.00	-1569.00
SR	120.00	120.00	114.00	123.00	120.00	118.50	2	-3.00	6.00	1.50	1.50
URANIUM	1.26	1.26	0.85	0.85	1.26	0.85	1	0.41	0.41	0.41	0.41

----- Suite = Rads Type = F -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
SR-90	51.6	51.6	68.7850	68.7850	51.6	68.7850	1	-17.1850	-17.1850	-17.1850	-17.1850

Difference = NMED result - LANL result (Sample Size <5)

Suite = Rads Type = T

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AM-241	0.03	4.20	0.02	24.90	0.76	0.70	4	-20.70	0.19	-5.144	-0.033
GROSS ALPHA	20.90	20.90	200.41	200.41	20.90	200.41	1	-179.51	-179.51	-179.513	-179.513
GROSS BETA	479.00	479.00	294.32	294.32	479.00	294.32	1	184.68	184.68	184.682	184.682
H-3	4640.00	19900.00	3501.25	19211.25	11800.00	14011.25	3	-2211.25	1138.75	-127.917	688.750
PU-238	0.00	10.70	-0.03	52.02	0.35	0.44	4	-41.32	0.03	-10.363	-0.082
PU-239	0.00	2.96	-0.01	16.91	0.09	0.11	4	-13.95	0.02	-3.496	-0.025
SR-90	1.20	47.20	0.29	45.92	23.55	23.47	4	-0.85	1.28	0.585	0.960

Difference = LANL result - EPA result (Sample Size >=5)

Suite = Inorganics Type = T

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
ALKALINITY	57000.00	109000.00	56600.00	111000.00	65000.00	74700.00	5	-23000.00	400.00	-8600.00	-8700.00
CL	3100.00	60000.00	1980.00	69900.00	3900.00	3150.00	5	-9900.00	1530.00	-1760.00	750.00
F	150.00	420.00	160.00	350.00	200.00	240.00	5	-40.00	70.00	6.00	0.00
NO3/NO2	280.00	5270.00	226.00	5570.00	400.00	569.00	5	-367.00	81.00	-99.40	35.00
SO4	3000.00	22000.00	2030.00	23200.00	4000.00	2920.00	5	-1820.00	1080.00	-12.00	910.00
TDS	144000.00	740000.00	125000.00	777000.00	238000.00	162000.00	5	-473000.00	520000.00	43400.00	76000.00
TSS	1000.00	49000.00	1000.00	63000.00	5000.00	9000.00	13	-14000.00	8000.00	-2692.31	-3000.00

Suite = Metals Type = F

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	61	495	61.0000	707	260.0	158.0	8	-435.000	326.000	-3.8750	0.1000
B (I)	43	273	57.0000	314	77.0	114.0	11	-62.000	3.000	-35.8091	-41.0000
BA	35	148	40.2000	146	67.5	62.5	12	-5.200	8.200	1.6333	1.8000
FE	54	455	5.0000	452	153.5	125.0	8	-203.000	245.000	5.4500	2.0000
MN	3	967	0.9100	942	5.0	3.0	5	-3.300	25.000	7.1580	3.0900
MO	68	328	58.5000	317	141.0	138.0	6	-5.000	19.000	6.5833	6.7500

Suite = Metals Type = T

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	180	1200	65.800	746	359.0	247.000	7	-323.000	839.00	120.600	147.000
B (I)	33	290	36.600	334	65.5	107.000	12	-50.000	-1.80	-22.750	-21.050
BA (I)	8	150	7.000	147	60.0	56.300	14	-3.800	12.60	3.879	2.450
FE	73	21405	44.100	21300	333.0	212.500	12	-312.000	1857.90	262.142	99.400
MN	2	1008	2.400	925	8.5	7.600	10	-7.000	83.00	10.560	0.000
MO	121	335	113.000	315	158.0	151.000	5	-3.000	20.00	10.200	14.000

Suite = Rads Type = T

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
GROSS ALPHA(2)	-5.0272	8.09	1.07000	19.70	0.198	5.070	14	-17.73	-0.50	-6.667	-4.112
GROSS BETA	1.2875	264.32	2.28000	148.00	17.312	23.300	14	-58.58	146.32	6.499	-3.667
H-3 (2)	-98.7500	19211.25	2.07000	19200.00	401.250	145.000	18	-1388.75	3991.25	548.727	240.315
SR-90 (2)	-0.0250	48.38	-0.15000	32.40	0.540	0.625	14	-0.84	18.68	5.565	0.627

Difference = LANL result - EPA result (Sample Size <5)

----- Suite = Metals Type = F -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AS	2	7	2.0000	6.6000	3.5	3.4500	4	-0.2000	0.4000	0.1250	0.1500
CU	15	15	17.0000	17.0000	15.0	17.0000	1	-2.0000	-2.0000	-2.0000	-2.0000
PB	61	61	3.2000	3.2000	61.0	3.2000	1	57.8000	57.8000	57.8000	57.8000

----- Suite = Metals Type = T -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AS	7	7	5.3000	5.3000	7.0	5.3000	1	1.70000	1.7000	1.7000	1.7000
CU	18	31	13.0000	14.9000	24.5	13.9500	2	3.10000	18.0000	10.5500	10.5500
PB	5	97	4.0000	28.4000	49.5	11.7500	4	0.90000	93.0000	36.2750	25.6000

----- Suite = Organics Type = T -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
ACETONE	86	86	12	12	86	12	1	74	74	74	74

Difference = NMED result - EPA result (Sample Size >= 5)

----- Suite = Inorganics Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
CL	2200	36400	2070.00	39800.00	20000	20800.00	7	-3400.00	1200.00	-1067.14	-800.00
F	130	2500	160.00	3090.00	1530	1270.00	7	-590.00	730.00	155.71	140.00
NITRATE/NITRITE (I)	280	15000	226.00	18200.00	4900	5570.00	7	-3500.00	85.00	-1434.43	-670.00
SO4	2100	98000	2030.00	125000.00	16000	16400.00	7	-27000.00	1080.00	-3964.29	-400.00
TDS	350000	560000	374000.00	538000.00	380000	404000.00	5	-54000.00	22000.00	-8400.00	-4000.00

----- Suite = Rads Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
H-3	11.000	19900.00	105.0000	19200.00	13600.00	13300.00	5	-400.000	700.000	141.200	200.000
SR-90	0.790	47.20	0.020	63.50	14.70	0.58	7	-31.800	19.100	2.793	1.180
U-234	0.350	5.67	0.590	5.62	1.03	0.75	9	-1.770	0.590	-0.193	0.050
U-235	0.020	0.18	0.010	0.34	0.05	0.09	8	-0.163	0.090	-0.062	-0.053
U-238	0.175	2.25	0.370	2.07	0.74	0.79	9	-0.530	0.310	-0.026	0.020

Difference = NMED result - EPA result (Sample Size <5)

----- Suite = Inorganics Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AMMONIA	11000	11000	11500.0	11500	11000	11500	1	-500	-500	-500.00	-500.00
TOT. KJELDAHL N	200	15000	57.5	225000	1300	145	4	-210000	1335	-51886.88	558.75
TSS	59000	59000	47000.0	47000	59000	47000	1	12000	12000	12000.00	12000.00

----- Suite = Metals Type = F -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	200	1600	152.000	707.000	350.0	462.000	4	-112.000	893.000	179.250	-32.000
AS	20	20	2.300	2.300	20.0	2.300	1	17.700	17.700	17.700	17.700
B	190	190	31.900	31.900	190.0	31.900	1	158.100	158.100	158.100	158.100
BA (I)	45	200	36.000	187.000	49.5	39.900	4	6.000	13.000	10.300	11.100
CU	110	110	155.000	155.000	110.0	155.000	1	-45.000	-45.000	-45.000	-45.000
FE	100	600	123.000	376.000	100.0	329.000	3	-229.000	224.000	-9.333	-23.000
MN	4	4	8.300	8.300	4.0	8.300	1	-4.300	-4.300	-4.300	-4.300
MO	80	120	117.000	126.000	100.0	118.000	3	-38.000	-6.000	-20.333	-17.000
PB	5	5	4.000	4.000	5.0	4.000	1	1.000	1.000	1.000	1.000

----- Suite = Metals Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	8100	8100	14900.00	14900.00	8100	14900.00	1	-6800.00	-6800.00	-6800.00	-6800.00
B	100	100	179.00	179.00	100	179.00	1	-79.00	-79.00	-79.00	-79.00
BA	200	200	173.00	173.00	200	173.00	1	27.00	27.00	27.00	27.00
FE	11000	11000	14900.00	14900.00	11000	14900.00	1	-3900.00	-3900.00	-3900.00	-3900.00
MN	1300	1300	13200.00	13200.00	1300	13200.00	1	-11900.00	-11900.00	-11900.00	-11900.00
PB	3	3	5.60	5.60	3	5.60	1	-2.60	-2.60	-2.60	-2.60

----- Suite = Rads Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-EPA	Max.-EPA	Median-NMED	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
GROSS ALPHA	160.0	160	133.000	133	160.0	133.000	1	27	27.0000	27.0000	27.0000
GROSS BETA	14.2	391	13.200	489	202.6	251.100	2	-98	1.0000	-48.5000	-48.5000

Difference = NMED result - LANL result (Sample Size <5)

----- Suite = Inorganics Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
CL	2200	2200	3600.00	3600.00	2200	3600.00	1	-1400.00	-1400.00	-1400.00	-1400.00
F	130	130	150.00	150.00	130	150.00	1	-20.00	-20.00	-20.00	-20.00
SO4	2100	2100	3000.00	3000.00	2100	3000.00	1	-900.00	-900.00	-900.00	-900.00

----- Suite = Metals Type = F -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	1600	1600	272	272	1600.0	272.0	1	1328	1328	1328.00	1328
AS	20	20	8	8	20.0	8.0	1	12	12	12.00	12
B	360	360	303	303	360.0	303.0	1	57	57	57.00	57
BA	28	51	20	41	39.5	30.5	2	8	10	9.00	9
CU	100	100	101	101	100.0	101.0	1	-1	-1	-1.00	-1
FE	600	800	177	593	700.0	385.0	2	207	423	315.00	315
MN	4	330	5	299	167.0	152.0	2	-1	31	15.00	15
NI	10	10	20	20	10.0	20.0	1	-10	-10	-10.00	-10
SR	70	100	75	97	90.0	87.0	3	-5	3	0.33	3

----- Suite = Metals Type = T -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
B	100.00	100.00	173.00	173.00	100.00	173.00	1	-73.00	-73.00	-73.00	-73.00
CA	11000.00	11000.00	11605.00	11605.00	11000.00	11605.00	1	-605.00	-605.00	-605.00	-605.00
K	2000.00	2000.00	1532.00	1532.00	2000.00	1532.00	1	468.00	468.00	468.00	468.00
MG	4000.00	4000.00	3939.00	3939.00	4000.00	3939.00	1	61.00	61.00	61.00	61.00
NA	9000.00	9000.00	10569.00	10569.00	9000.00	10569.00	1	-1569.00	-1569.00	-1569.00	-1569.00
SR	120.00	120.00	114.00	123.00	120.00	118.50	2	-3.00	6.00	1.50	1.50
URANIUM	1.26	1.26	0.85	0.85	1.26	0.85	1	0.41	0.41	0.41	0.41

----- Suite = Rads Type = F -----

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
SR-90	51.6	51.6	68.7850	68.7850	51.6	68.7850	1	-17.1850	-17.1850	-17.1850	-17.1850

Difference = NMED result - LANL result (Sample Size <5)

Analyte	Min.-NMED	Max.-NMED	Min.-LANL	Max.-LANL	Median-NMED	Median-LANL	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AM-241	0.03	4.20	0.02	24.90	0.76	0.70	4	-20.70	0.19	-5.144	-0.033
GROSS ALPHA	20.90	20.90	200.41	200.41	20.90	200.41	1	-179.51	-179.51	-179.513	-179.513
GROSS BETA	479.00	479.00	294.32	294.32	479.00	294.32	1	184.68	184.68	184.682	184.682
H-3	4640.00	19900.00	3501.25	19211.25	11800.00	14011.25	3	-2211.25	1138.75	-127.917	688.750
PU-238	0.00	10.70	-0.03	52.02	0.35	0.44	4	-41.32	0.03	-10.363	-0.082
PU-239	0.00	2.96	-0.01	16.91	0.09	0.11	4	-13.95	0.02	-3.496	-0.025
SR-90	1.20	47.20	0.29	45.92	23.55	23.47	4	-0.85	1.28	0.585	0.960

Difference = LANL result - EPA result (Sample Size >=5)

----- Suite = Inorganics Type = T -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
ALKALINITY	57000.00	109000.00	56600.00	111000.00	65000.00	74700.00	5	-23000.00	400.00	-8600.00	-8700.00
CL	3100.00	60000.00	1980.00	69900.00	3900.00	3150.00	5	-9900.00	1530.00	-1760.00	750.00
F	150.00	420.00	160.00	350.00	200.00	240.00	5	-40.00	70.00	6.00	0.00
NO3/NO2	280.00	5270.00	226.00	5570.00	400.00	569.00	5	-367.00	81.00	-99.40	35.00
SO4	3000.00	22000.00	2030.00	23200.00	4000.00	2920.00	5	-1820.00	1080.00	-12.00	910.00
TDS	144000.00	740000.00	125000.00	777000.00	238000.00	162000.00	5	-473000.00	520000.00	43400.00	76000.00
TSS	1000.00	49000.00	1000.00	63000.00	5000.00	9000.00	13	-14000.00	8000.00	-2692.31	-3000.00

----- Suite = Metals Type = F -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	61	495	61.0000	707	260.0	158.0	8	-435.000	326.000	-3.8750	0.1000
B (I)	43	273	57.0000	314	77.0	114.0	11	-62.000	3.000	-35.8091	-41.0000
BA	35	148	40.2000	146	67.5	62.5	12	-5.200	8.200	1.6333	1.8000
FE	54	455	5.0000	452	153.5	125.0	8	-203.000	245.000	5.4500	2.0000
MN	3	967	0.9100	942	5.0	3.0	5	-3.300	25.000	7.1580	3.0900
MO	68	328	58.5000	317	141.0	138.0	6	-5.000	19.000	6.5833	6.7500

----- Suite = Metals Type = T -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AL	180	1200	65.800	746	359.0	247.000	7	-323.000	839.00	120.600	147.000
B (1)	33	290	36.600	334	65.5	107.000	12	-50.000	-1.80	-22.750	-21.050
BA (1)	8	150	7.000	147	60.0	56.300	14	-3.800	12.60	3.879	2.450
FE	73	21405	44.100	21300	333.0	212.500	12	-312.000	1857.90	262.142	99.400
MN	2	1008	2.400	925	8.5	7.600	10	-7.000	83.00	10.560	0.000
MO	121	335	113.000	315	158.0	151.000	5	-3.000	20.00	10.200	14.000

----- Suite = Rads Type = T -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
GROSS ALPHA(2)	-5.0272	8.09	1.07000	19.70	0.198	5.070	14	-17.73	-0.50	-6.667	-4.112
GROSS BETA	1.2875	264.32	2.28000	148.00	17.312	23.300	14	-58.58	146.32	6.499	-3.667
H-3 (2)	-98.7500	19211.25	2.07000	19200.00	401.250	145.000	18	-1388.75	3991.25	548.727	240.315
SR-90 (2)	-0.0250	48.38	-0.15000	32.40	0.540	0.625	14	-0.84	18.68	5.565	0.627

Difference = LANL result - EPA result (Sample Size <5)

----- Suite = Metals Type = F -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AS	2	7	2.0000	6.6000	3.5	3.4500	4	-0.2000	0.4000	0.1250	0.1500
CU	15	15	17.0000	17.0000	15.0	17.0000	1	-2.0000	-2.0000	-2.0000	-2.0000
PB	61	61	3.2000	3.2000	61.0	3.2000	1	57.8000	57.8000	57.8000	57.8000

----- Suite = Metals Type = T -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
AS	7	7	5.3000	5.3000	7.0	5.3000	1	1.70000	1.7000	1.7000	1.7000
CU	18	31	13.0000	14.9000	24.5	13.9500	2	3.10000	18.0000	10.5500	10.5500
PB	5	97	4.0000	28.4000	49.5	11.7500	4	0.90000	93.0000	36.2750	25.6000

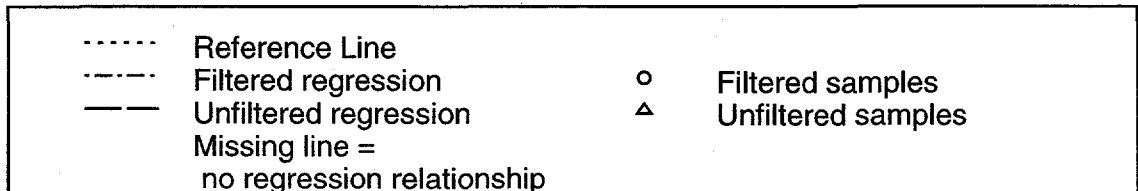
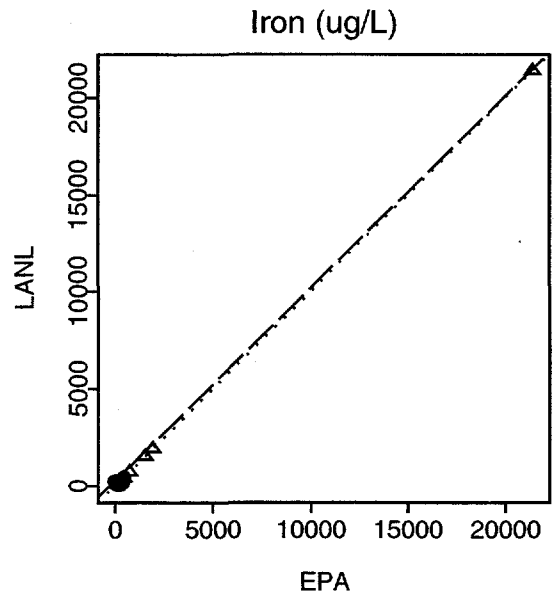
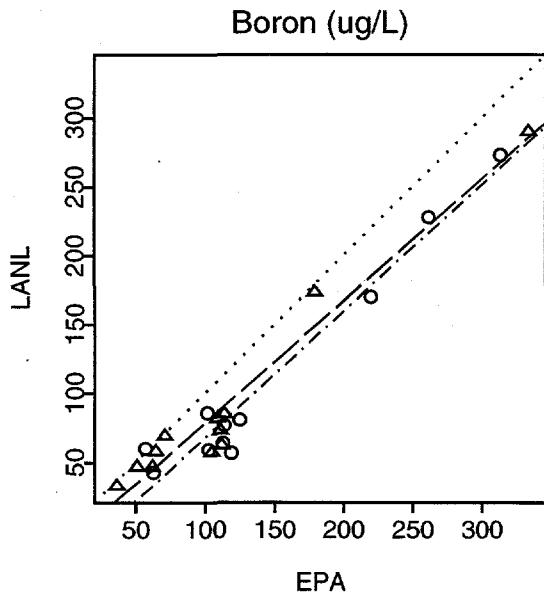
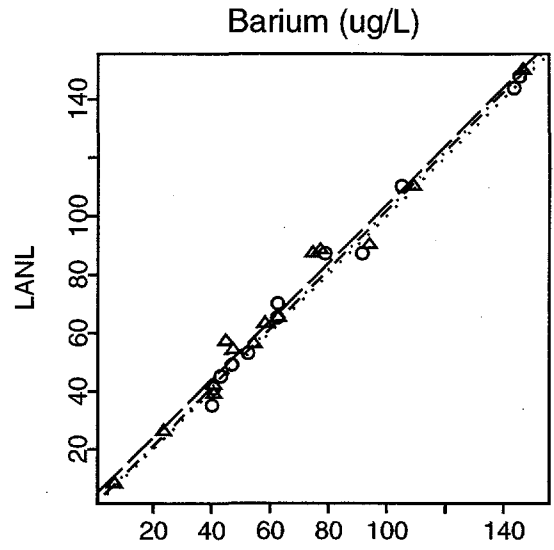
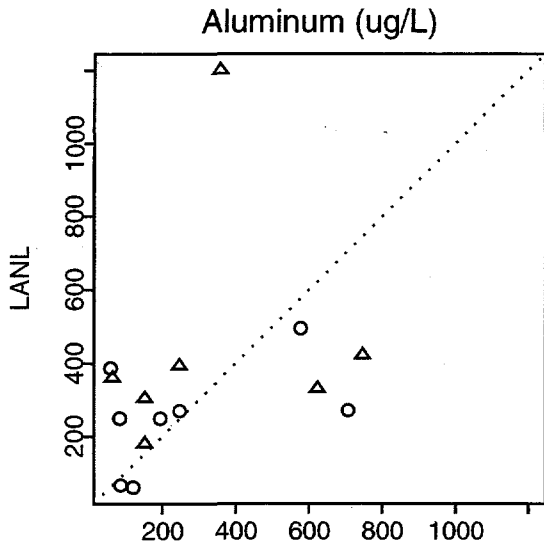
----- Suite = Organics Type = T -----

Analyte	Min.-LANL	Max.-LANL	Min.-EPA	Max.-EPA	Median-LANL	Median-EPA	N-Diff.	Min.-Diff.	Max.-Diff.	Mean-Diff.	Median-Diff.
ACETONE	86	86	12	12	86	12	1	74	74	74	74

APPENDIX D
PLOTS OF DATA USED IN REGRESSION ANALYSES

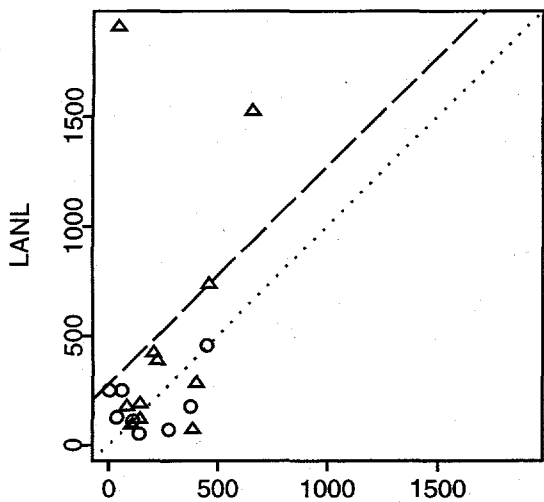
Plots of paired data used in the regression analyses are presented in this Appendix. A reference line is provided to show the line which has a slope of 1 and an intercept of (0,0). Points falling on this line indicate perfect agreement between paired results. Actual data pairs are plotted with symbols indicating whether the results came from filtered or unfiltered samples. If the regression analysis showed a statistically significant relationship between filtered and/or unfiltered results, these lines are also shown on the plot.

Inorganics: LANL vs. EPA

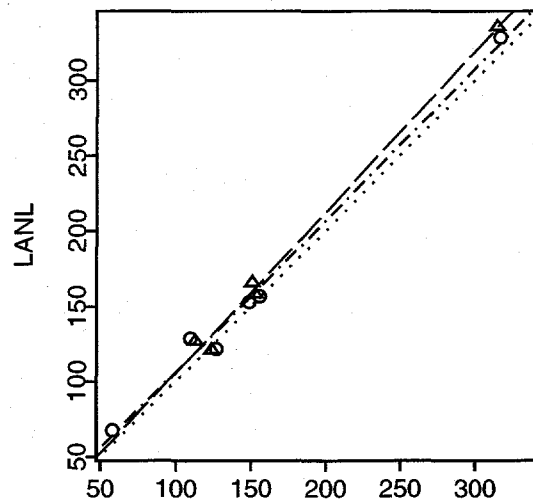


Inorganics: LANL vs. EPA

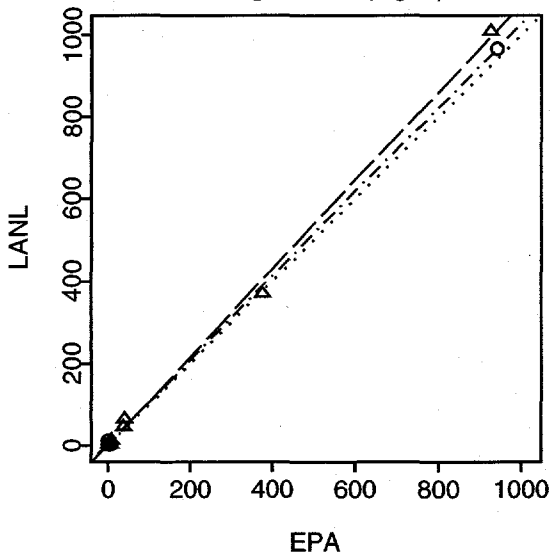
Iron (ug/L) (Influential pt not plotted)



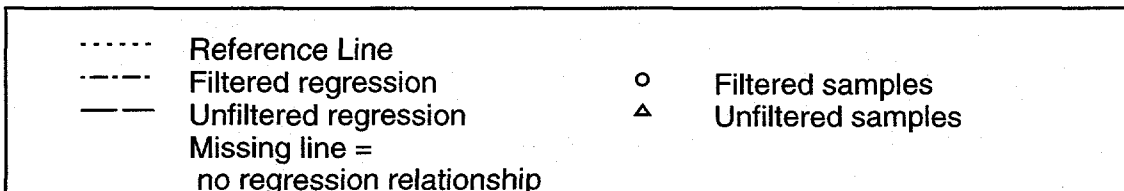
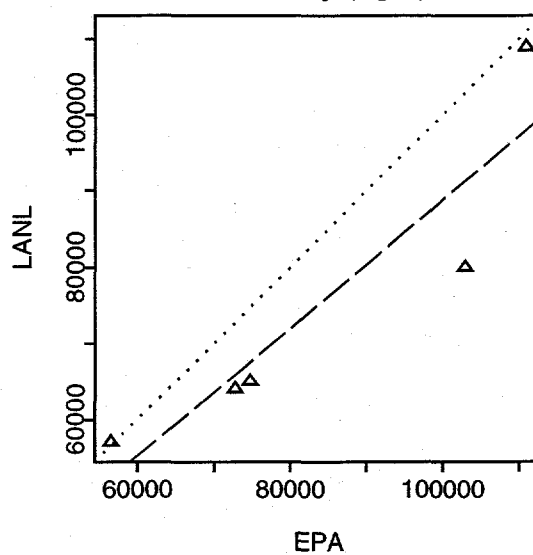
Molybdenum (ug/L)



Manganese (ug/L)

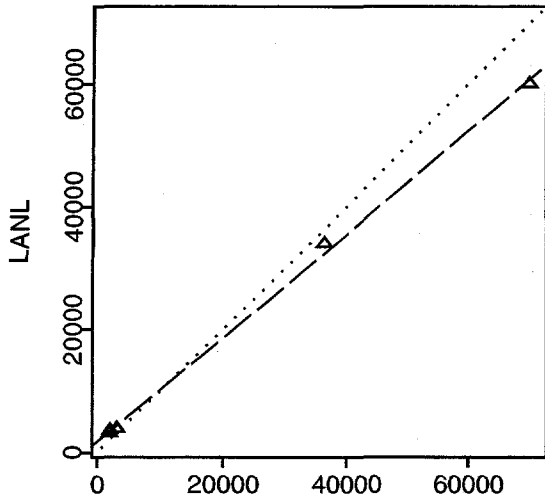


Alkalinity (ug/L)

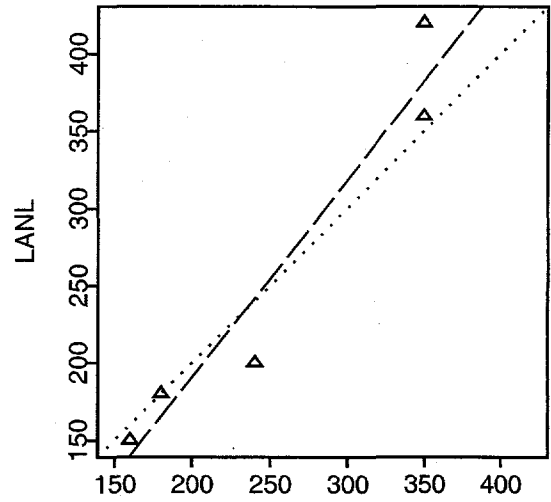


Inorganics: LANL vs. EPA

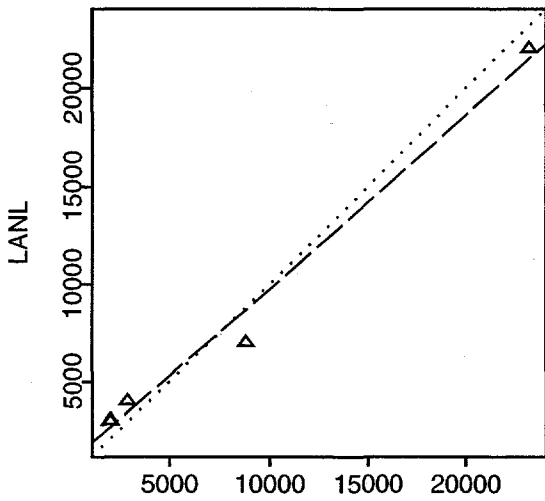
Chloride (ug/L)



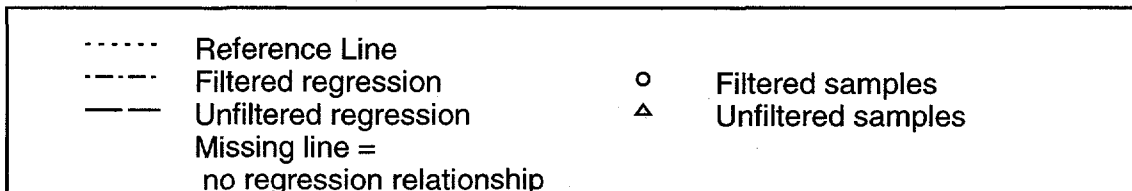
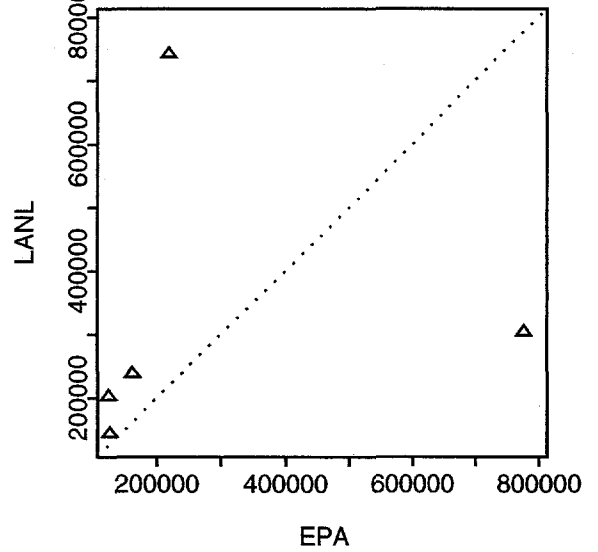
Fluoride (ug/L)



SO4 (ug/L)

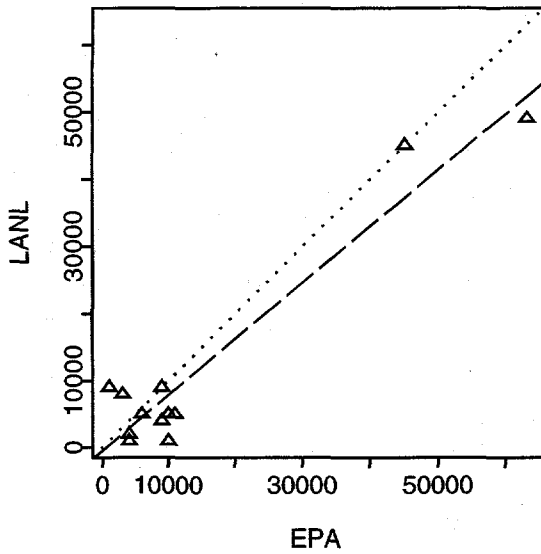


Total Dissolved Solids (TDS) (ug/L)

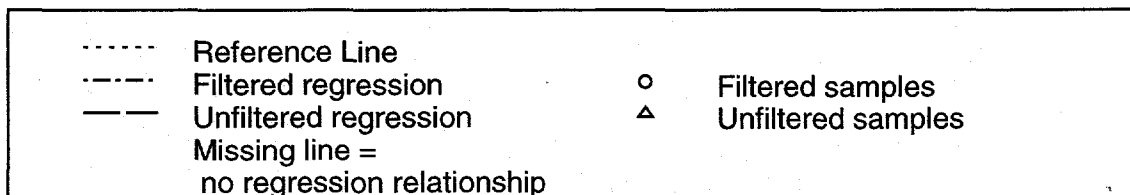
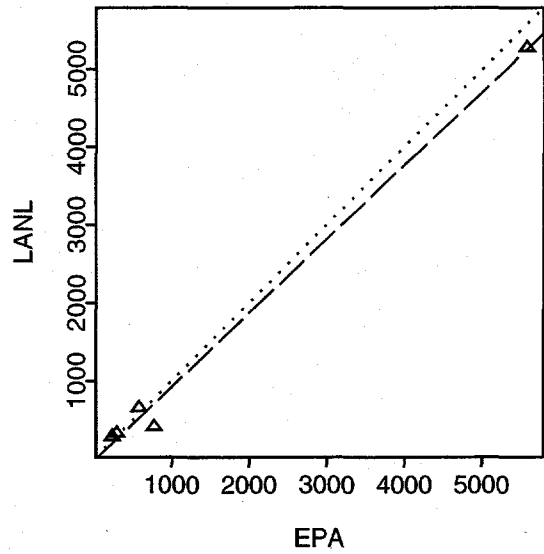


Inorganics: LANL vs. EPA

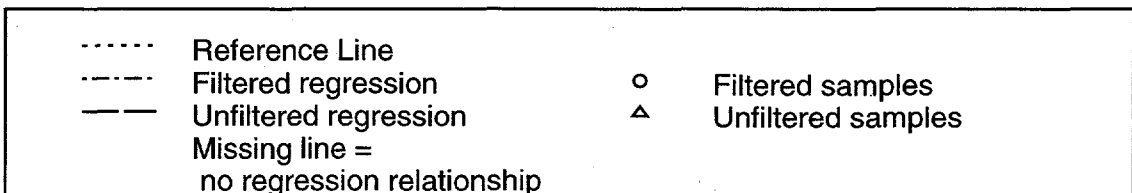
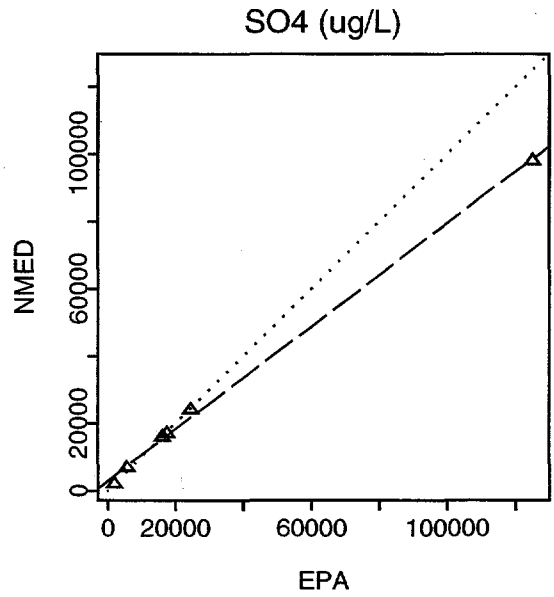
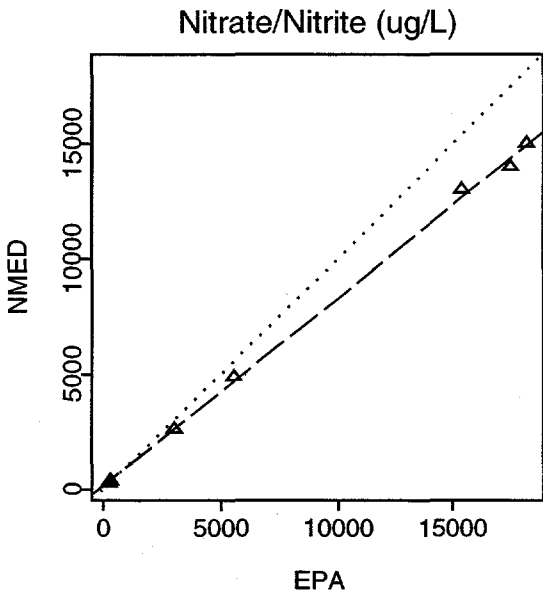
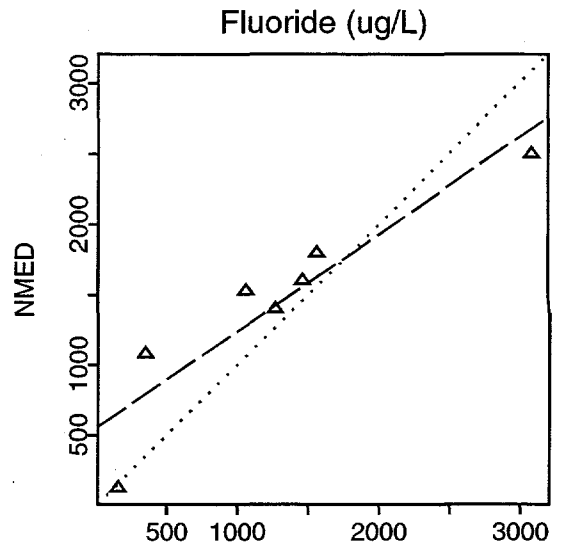
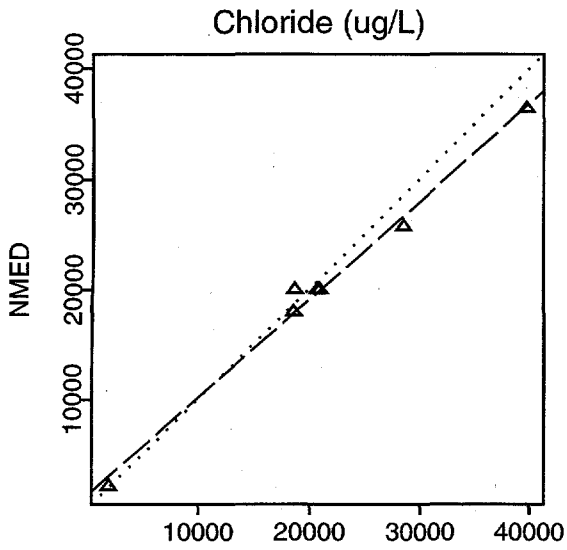
Total Suspended Solids (TSS) (ug/L)



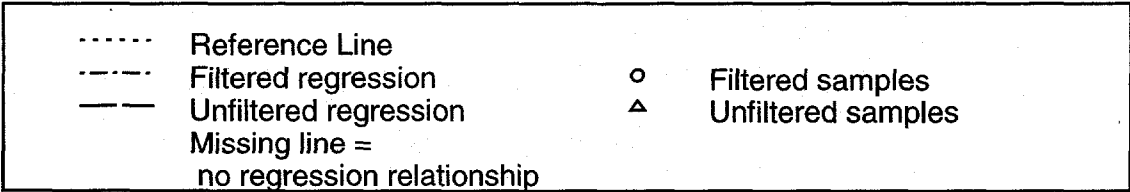
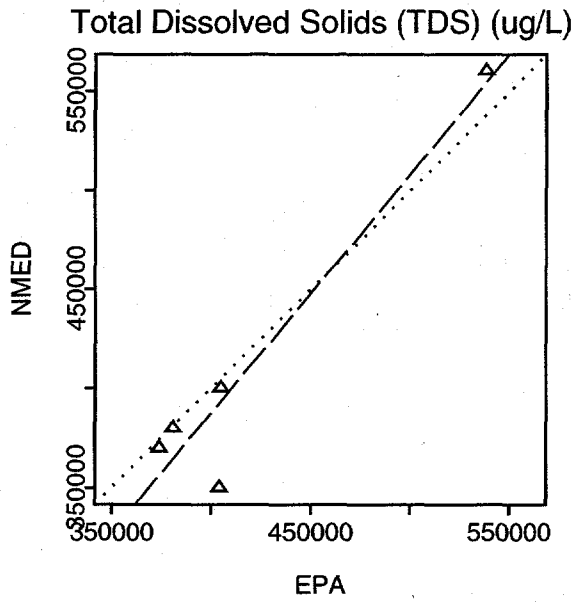
Nitrate/Nitrite (ug/L)



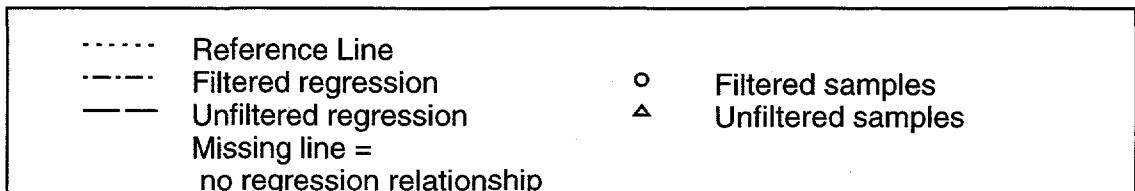
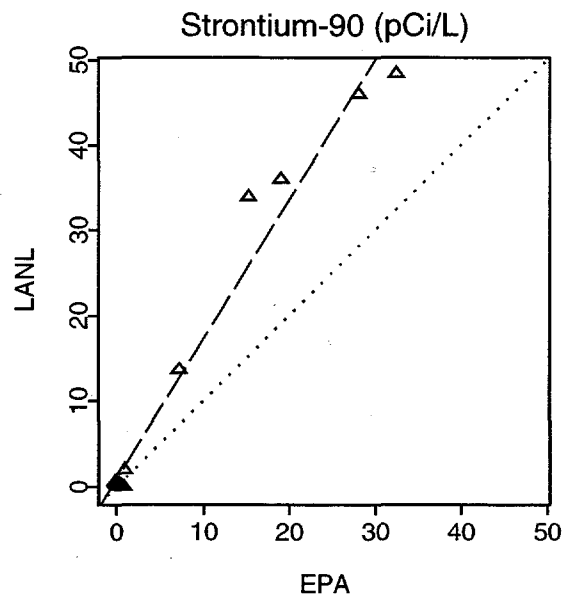
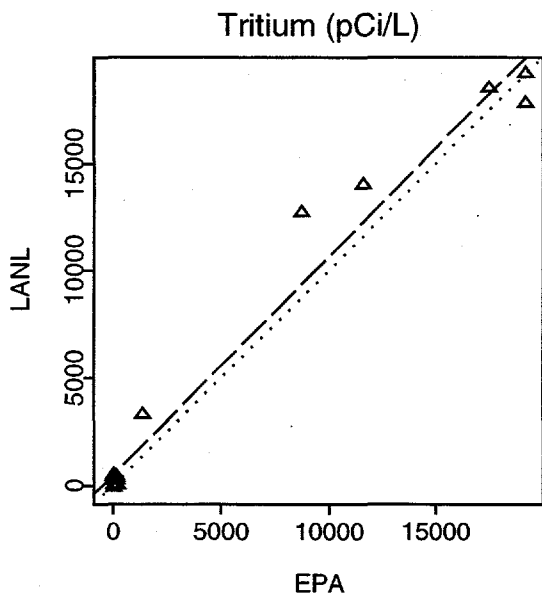
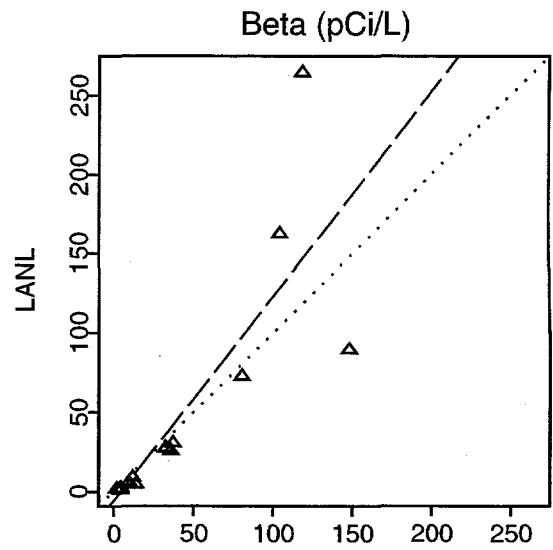
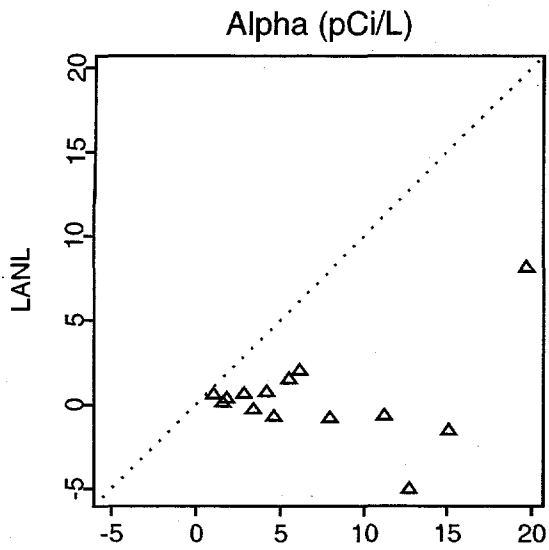
Inorganics: NMED vs. EPA



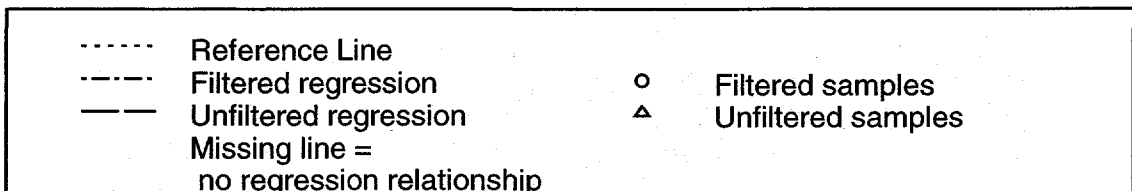
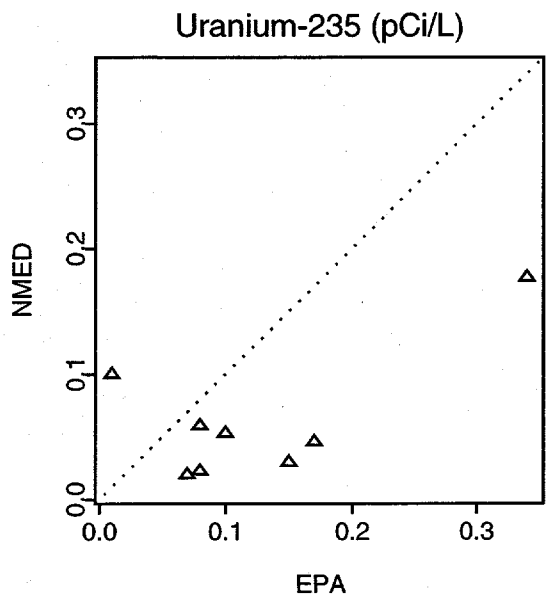
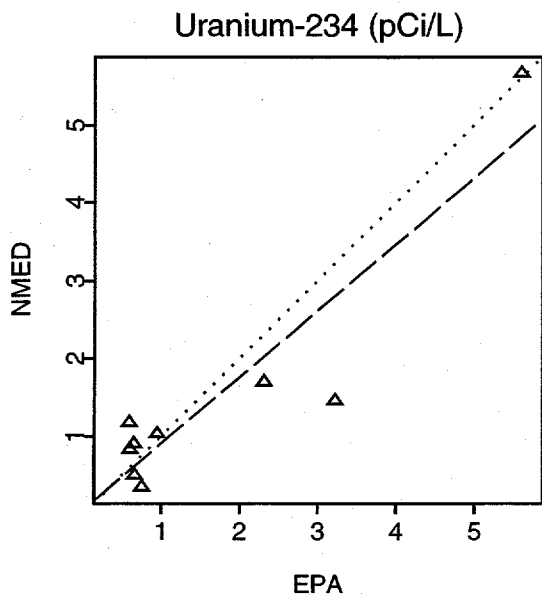
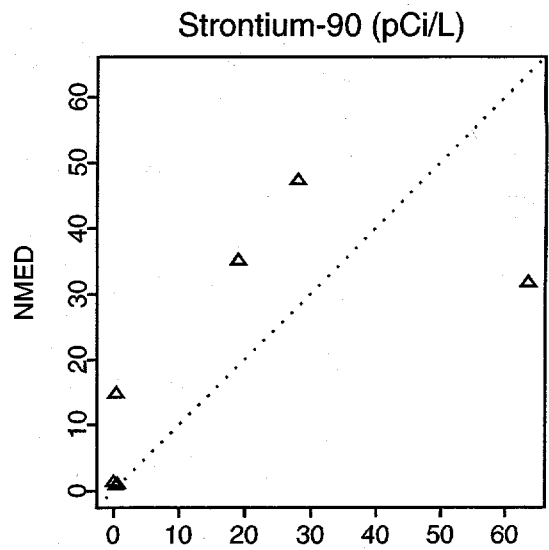
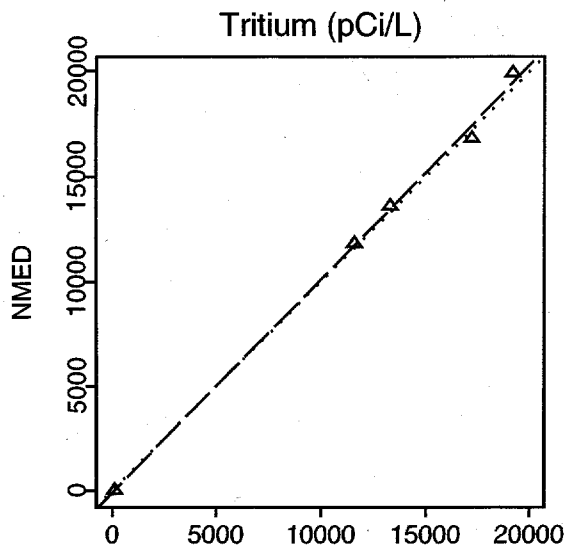
Inorganics: NMED vs. EPA



Radionuclides: LANL vs. EPA



Radionuclides: NMED vs. EPA



APPENDIX E

GROUNDWATER QUALITY STANDARDS AND GUIDELINES

Groundwater quality standards and guidelines set by the U.S. Department of Energy (DOE) and the State of New Mexico are included in this table for comparison and reference. DOE guidelines included for reference are the DOE Derived Concentration Guides for drinking water systems and for water ingestion in uncontrolled areas. The drinking water guidelines are included for comparison, as these guidelines are only directly applicable to the public water supply and not to monitoring wells. The New Mexico Environmental Improvement Board Maximum Contaminant Levels (MCLs) for inorganic chemicals and radioactivity in drinking water systems are provided. Other New Mexico standards included for reference and comparison are the New Mexico Water Quality Control Commission standards for groundwater of less than 10,000 mg/L total dissolved solids concentration or less; and the New Mexico Standards for Interstate and Intrastate Streams for Livestock Watering Limits

Suite	Analyte	UNITS	DOE DCG	DOE DW DCG	NM Primary DW	NM Sec/HA/ Act DW	NM Livestock	NM GW	Min Std
Rad	Am-241	PCI/L	30	1.2					1.2
Rad	Cs-137	PCI/L	3000	120					120
Rad	ALPHA	PCI/L	30		15		15		15
Rad	BETA	PCI/L	1000			50			50
Rad	GAMMA	PCI/L							--
Rad	H-3	PCI/L	2000000	80000	20000		20000		20000
Rad	Pu-238	PCI/L	40	1.6					1.6
Rad	Pu-239,240	PCI/L	30	1.2					1.2
Rad	Sr-90	PCI/L	1000	40	8		8		8
Rad	U	UG/L	800	30	20			5000	20
Metals	Ag	UG/L						50	50
Metals	Al	UG/L				200	5000	5000	200
Metals	As	UG/L			50		200	100	50
Metals	B	UG/L					5000	750	750
Metals	Ba	UG/L			2000			1000	1000
Metals	Be	UG/L			4				4
Metals	Cd	UG/L			5		50	10	5
Metals	Co	UG/L					1000	50	50
Metals	Cr	UG/L			100		1000	50	50
Metals	Cu	UG/L				1300	500	1000	500
Metals	Fe	UG/L				300		1000	300
Metals	Hg	UG/L			2		10	2	2
Metals	Mn	UG/L				50		200	50
Metals	Mo	UG/L						1000	1000
Metals	Ni	UG/L			100			200	100
Metals	Pb	UG/L				15	100	50	15
Metals	Sb	UG/L			6				6
Metals	Se	UG/L			50		2	50	2
Metals	Sr	UG/L				25000			25000
Metals	Tl	UG/L			2				2
Metals	V	UG/L				80	100		80
Metals	Zn	UG/L				5000	25000	10000	5000
General Inorg.	Cl	MG/L				250		250	250
General Inorg.	CN	MG/L			0.2			0.2	0.2
General Inorg.	F	MG/L			4			1.6	1.6
General Inorg.	Na	MG/L				20			20
General Inorg.	NO3-N	MG/L			10			10	10
General Inorg.	PH					8.5		9	8.5
General Inorg.	SO4	MG/L			500	250		600	250
General Inorg.	TDS	MG/L				500		1000	500

* EPA proposed drinking water standard for uranium.

DOE DCG (Derived Concentration Guidelines for water ingestion in uncontrolled areas): US Department of Energy, "Radiation Protection of the Public and the Environment," US Department of Energy Order 5400.5 (February 1990).

DOE DW DCG (Derived Concentration Guidelines for drinking water systems): US Department of Energy, "Radiation Protection of the Public and the Environment," US Department of Energy Order 5400.5 (February 1990).

NM Primary DW (Primary Drinking Water Standards adopted by NMEIB and equivalent to EPA MCLs): New Mexico Environmental Improvement Board, State of New Mexico, "New Mexico Drinking Water Regulations" (as amended through January 1995).

NM Sec/HA/Act DW (Secondary/Health Advisory/Action Levels standards adopted by NMEIB and equivalent to EPA MCLs): New Mexico Environmental Improvement Board, State of New Mexico, "New Mexico Drinking Water Regulations" (as amended through January 1995).

NM Livestock (Stream standards to protect livestock watering): New Mexico Water Quality Control Commission, "Water Quality Standards for Interstate and Intrastate Streams in New Mexico," (as amended through January 25, 1995).

NM GW (New Mexico Ground Water Standards): New Mexico Water Quality Control Commission, "New Mexico Water Quality Control Commission Regulations" (as amended through January 23, 1995).

**APPENDIX F
COMPARISON OF DATA PAIRS AGAINST STANDARDS**

This appendix tabulates the proportion of data pairs that are in agreement on whether contaminant levels exceed regulatory standards. The table does not show the number of results exceeding a regulatory limit. Rather, the table shows the proportion of analytical results from Lab 1 that agrees with Lab 2's when compared against the regulatory limit (concordant results). If one result from the pair is above the regulatory standard and the second result is below, the pairs are not in agreement and are discordant. The proportion in agreement is:

$$\frac{\text{Number of concordant pairs that are both above (or below) the regulatory limit/}}{\text{Total number of data pairs for a specific analyte.}}$$

Data pairs for this comparison were selected from Appendix B. The minimum groundwater quality standards and guidelines used in this analysis are taken from Appendix E. Results from unfiltered and filtered waters were pooled.

ANALYTE	NMED vs. EPA	NMED vs. LANL	LANL vs. EPA
Cl	6/6	1/1	5/5
F	5/6	1/1	5/5
NO3/NO2	6/6	1/1	5/5
SO4	6/6	1/1	5/5
TDS	5/5	---	3/5
Al	10/10	4/4	19/26
As	10/10	4/4	26/26
B	10/10	4/4	26/26
Ba	10/10	5/5	26/26
Be	---	---	26/26
Cr	6/6	3/3	25/25
Cu	7/7	3/3	26/26
Fe	9/10	5/5	20/26
Hg	---	---	17/17
Mn	10/10	5/5	24/26
Mo	7/7	2/2	25/25
Pb	6/7	3/3	23/26
Am-241	---	---	4/4
Gross alpha	2/2	1/1	10/14
Gross beta	2/2	1/1	14/14
H-3	5/5	3/3	18/18
Pu-238	4/4	4/4	---
Pu-239,240	4/4	4/4	---
Sr-90	9/10	6/6	13/14

APPENDIX G EXPLORATORY GRAPHICAL ANALYSIS

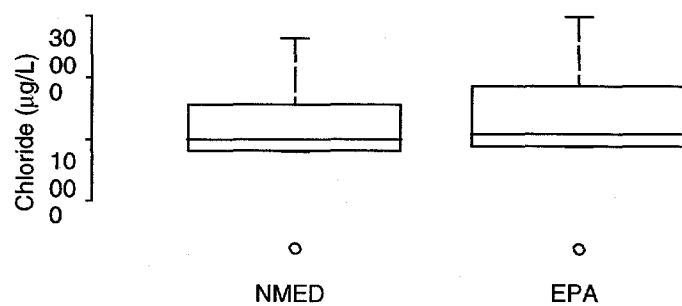
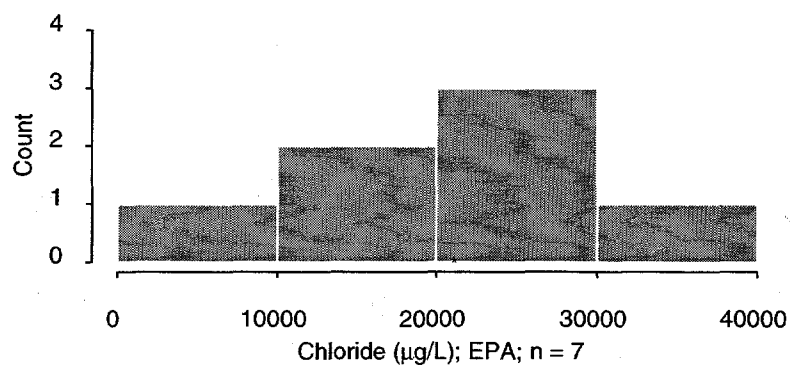
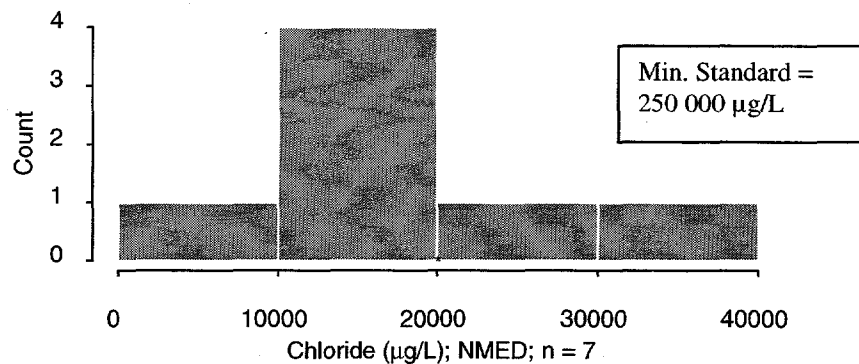
These exploratory graphical analyses depict the available data. The graphical analyses include box plots and histograms. These analyses are performed to provide a visual representation of the data, to determine the presence of outliers or other anomalous data that might affect statistical results and interpretations, and to gain a general understanding of the data. The plots allow a visual comparison between distributions of concentrations for results from pairs of laboratories. The differences of interest may include an overall shift in concentration (shift of central location), or when the centers are nearly equal, a difference in the tail of one distribution (numerous larger concentrations).

Histograms: The horizontal axis provides the concentrations in pCi/L for radionuclides, or $\mu\text{g/L}$ for metals and general inorganic analytes, and the vertical axis provides the counts or number of observations in each concentration class. Concentration units are provided with each histogram, and the total number of observations included is also presented. An indication of the center of the distribution (the average value) is plotted as a dot. A vertical line represents the minimum regulatory standard or guideline for the analyte, taken from Appendix E.

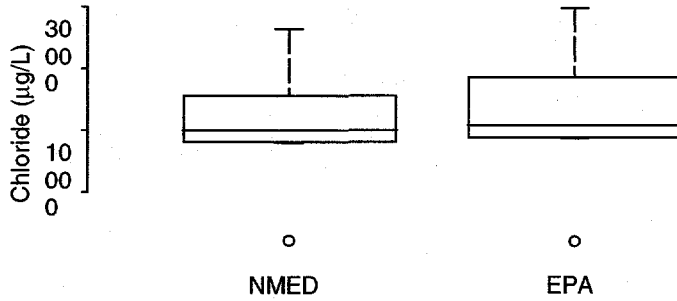
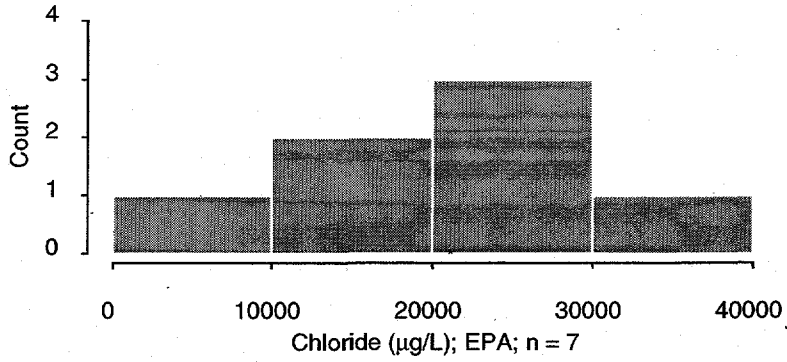
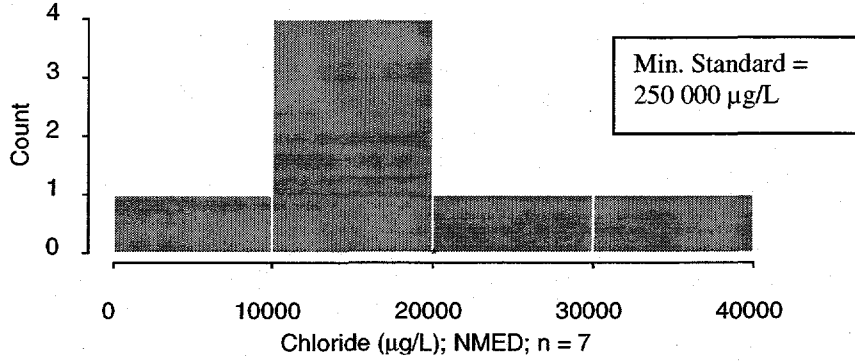
Box Plots: Box plots can consist of a box, a line across the box, line brackets outside the box, and points outside the line brackets. The box area of the plot is the region between the 25th percentile and the 75th percentile of the data, or the interquartile range. The line in the box represents the median of the data. The line brackets give an interval of 1.5 times the interquartile range, outside of which data may be evaluated for their potential to be outliers.

Distributional Comparisons: Some care should be taken when interpreting these graphs with respect to the statistical analyses summarized in the main text and presented in earlier appendices. The statistical analyses performed evaluate the distribution of differences between pairs of results (e.g., paired t-tests to assess if the mean of the differences is zero), rather than evaluating the differences between distributions of each of two data sets (e.g., unpaired t-tests to assess if the means for two distributions are the same). The paired statistical analyses performed are warranted under an assumption that the data are reasonably paired. Although the distinction might appear subtle, direct comparison of the pairs of histograms or box plots can potentially be misleading. If differences are seen between the plots, then paired statistical analyses can be expected to provide confirmation. For example, uranium-235 results from NMED and EPA and gross alpha results from LANL and EPA appear to differ significantly. However, if a difference is not seen in a pair of plots, it is still reasonable for the corresponding paired difference tests to indicate a difference (because the paired data might not match the implicit ordering of the data in the plots).

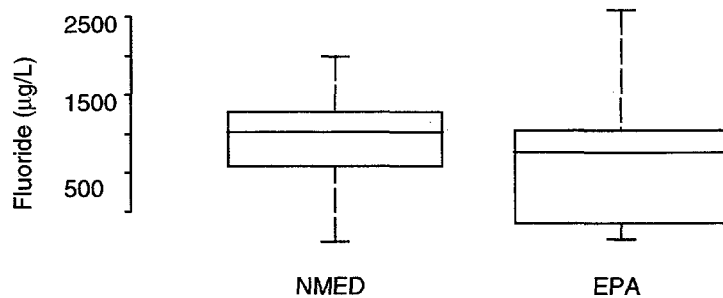
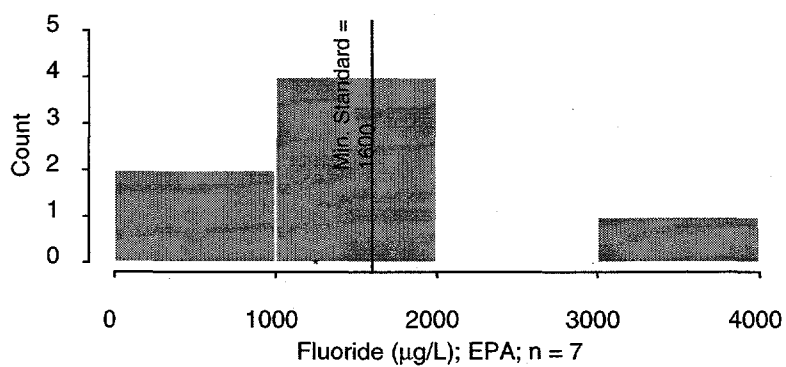
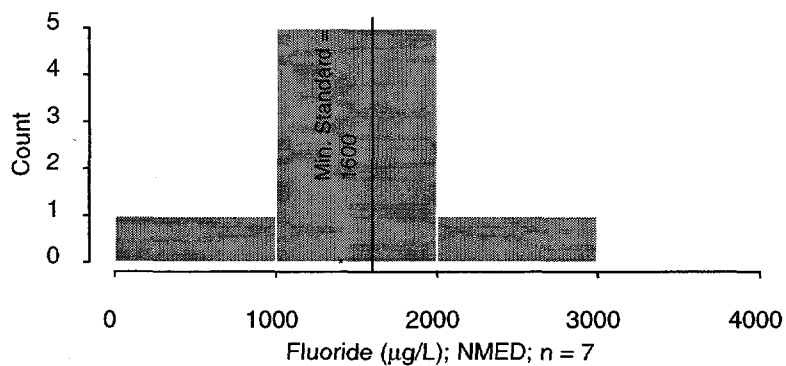
Comparison of Chloride ($\mu\text{g/L}$) : NMED vs. EPA



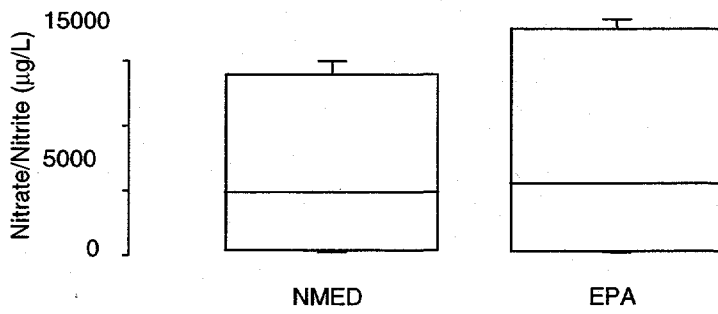
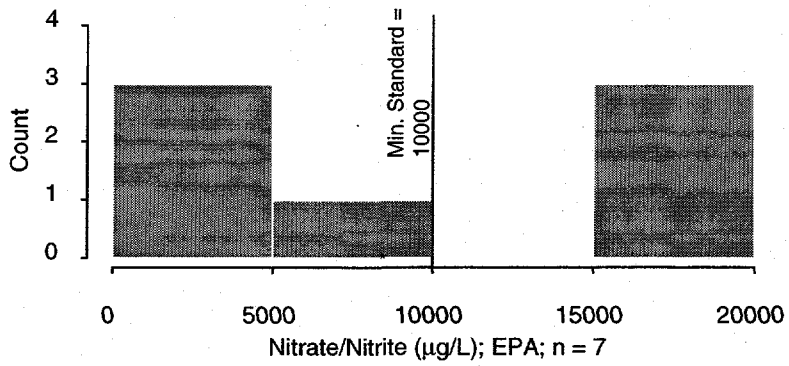
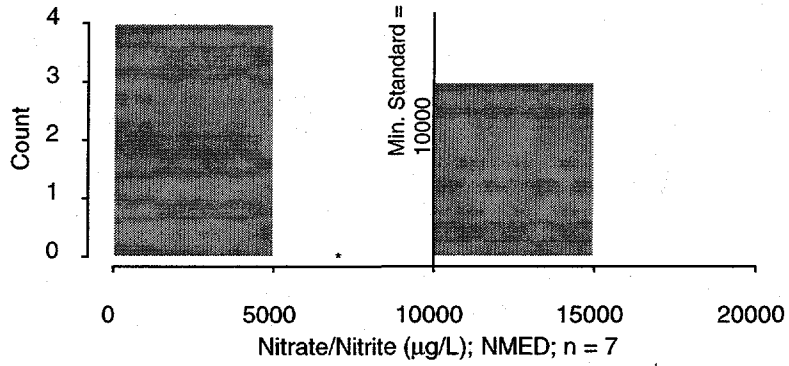
Comparison of Chloride ($\mu\text{g/L}$) : NMED vs. EPA



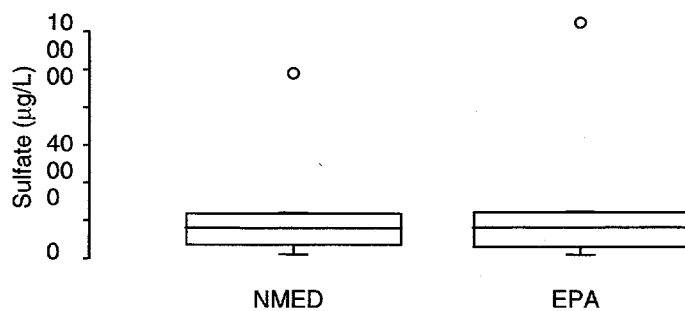
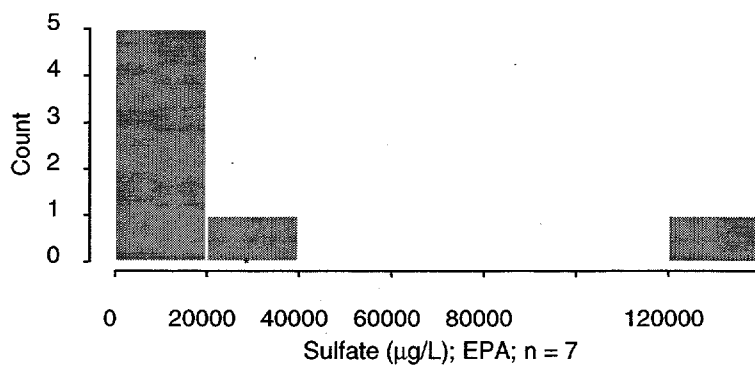
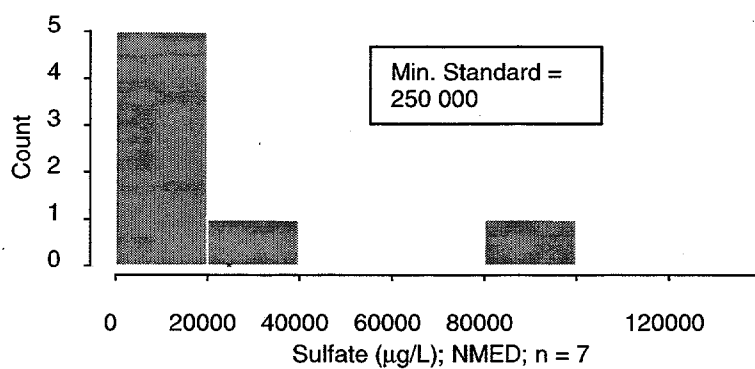
Comparison of Fluoride ($\mu\text{g/L}$): NMED vs. EPA



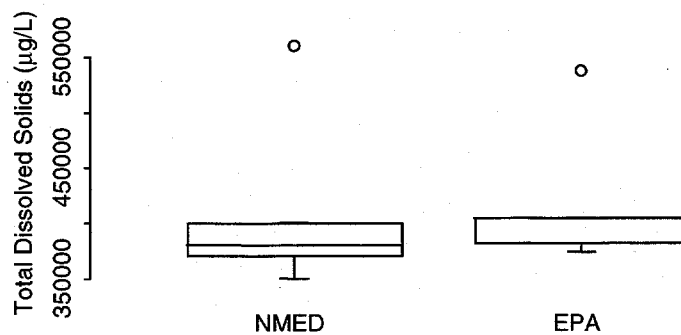
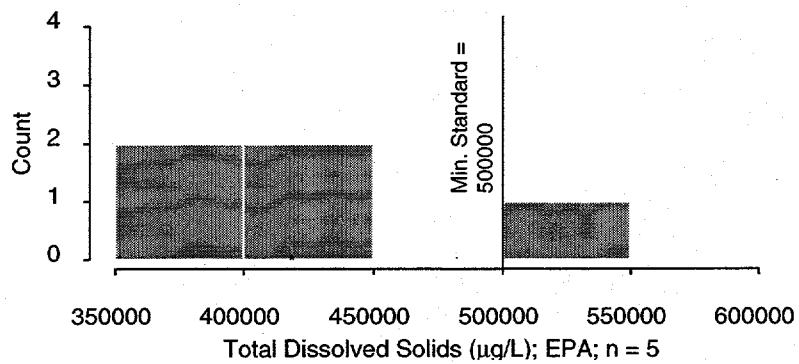
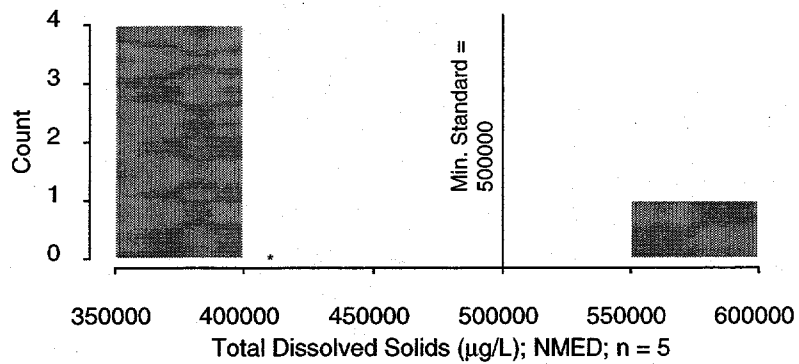
Comparison of Nitrate/Nitrite-N ($\mu\text{g/L}$): NMED vs. EPA



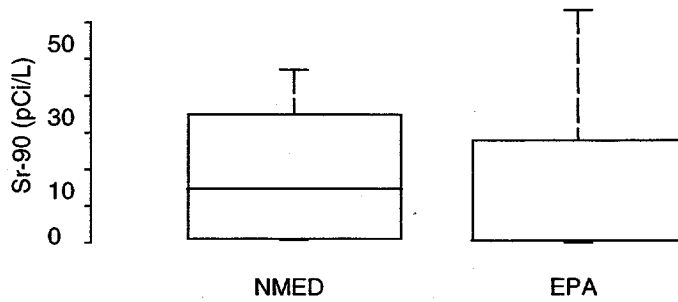
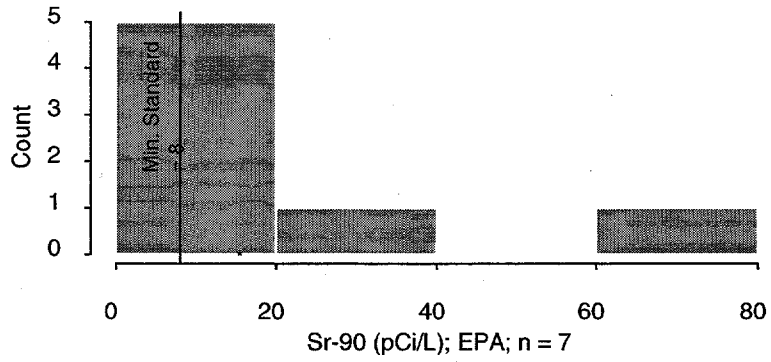
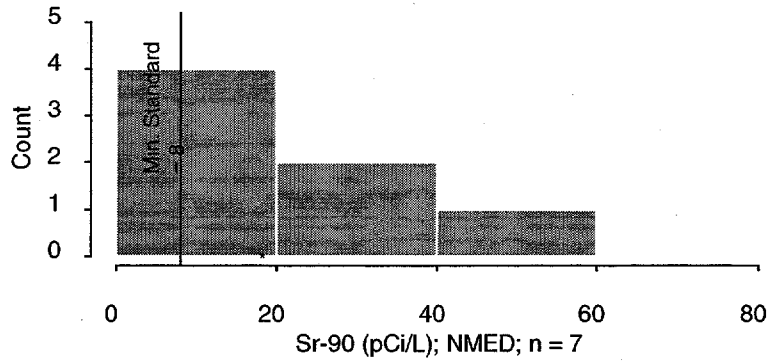
Comparison of Sulfate ($\mu\text{g/L}$) : NMED vs. EPA



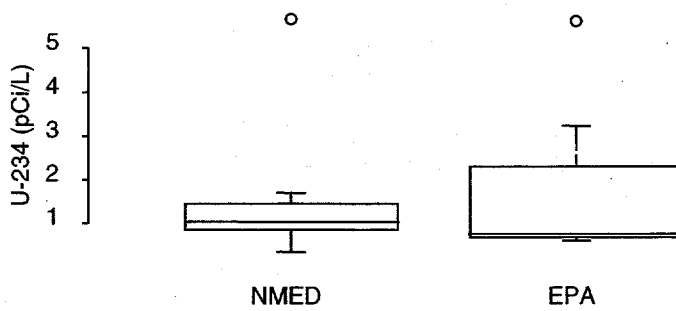
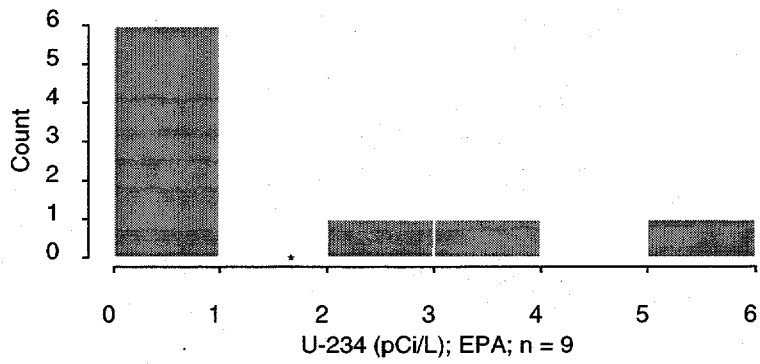
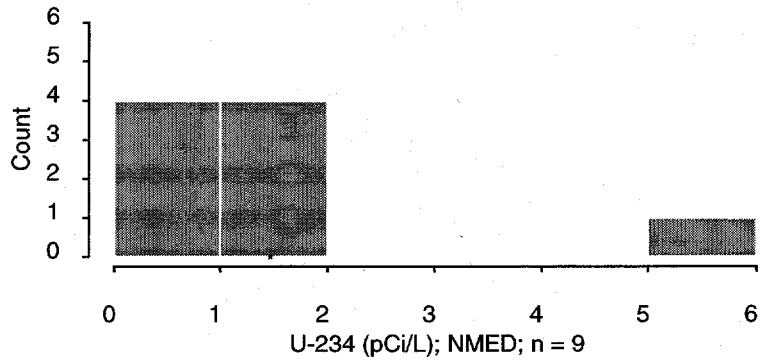
Comparison of Total Dissolved Solids ($\mu\text{g/L}$): NMED vs. EPA



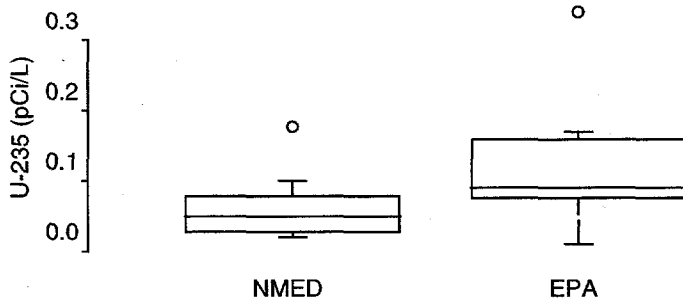
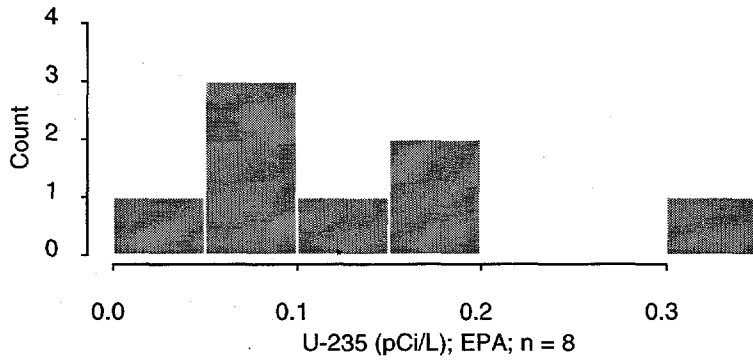
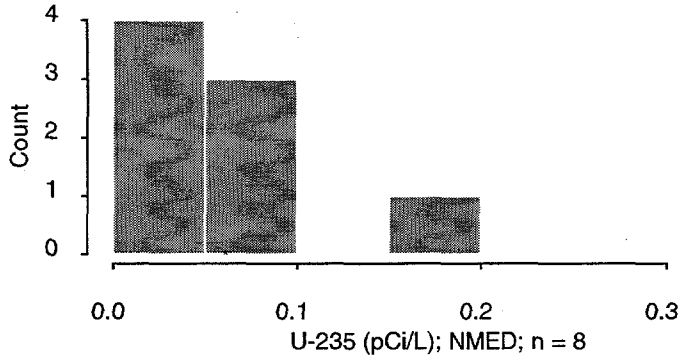
Comparison of Sr-90 (pCi/L): NMED vs. EPA



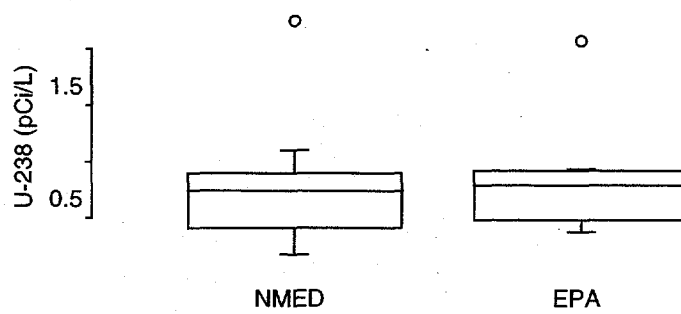
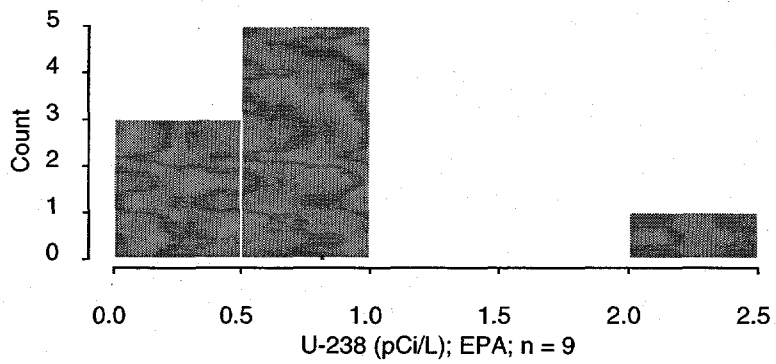
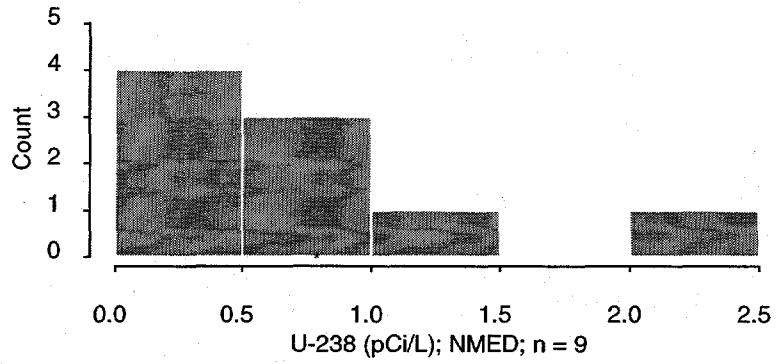
Comparison of U-234 (pCi/L) : NMED vs. EPA



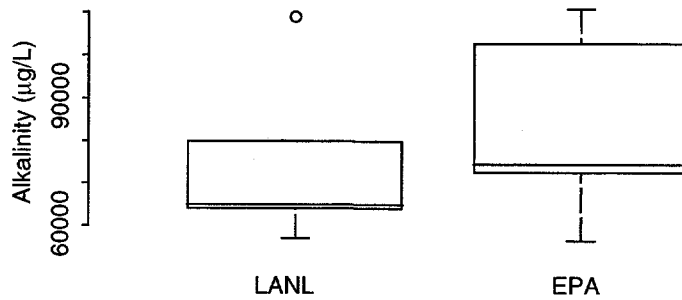
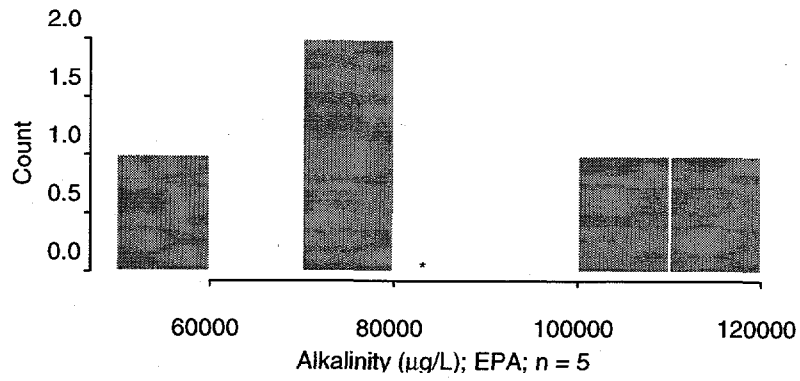
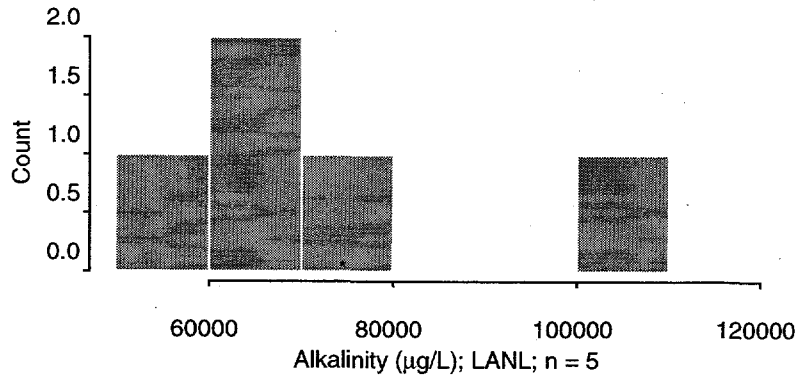
Comparison of U-235 (pCi/L) : NMED vs. EPA



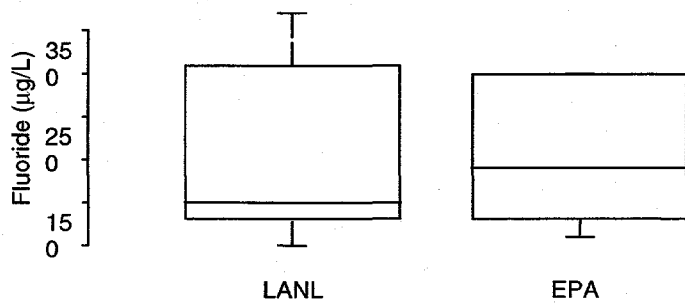
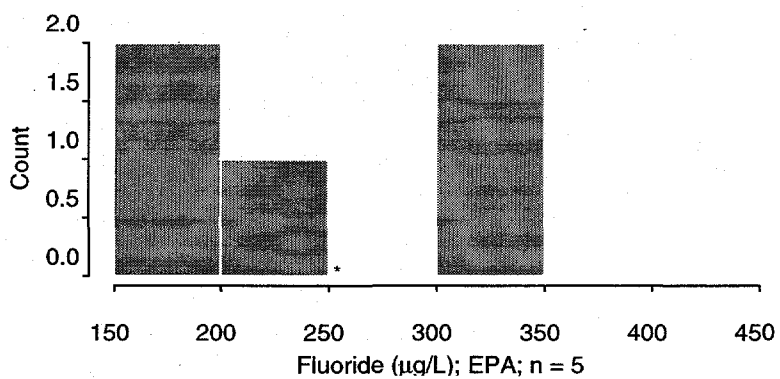
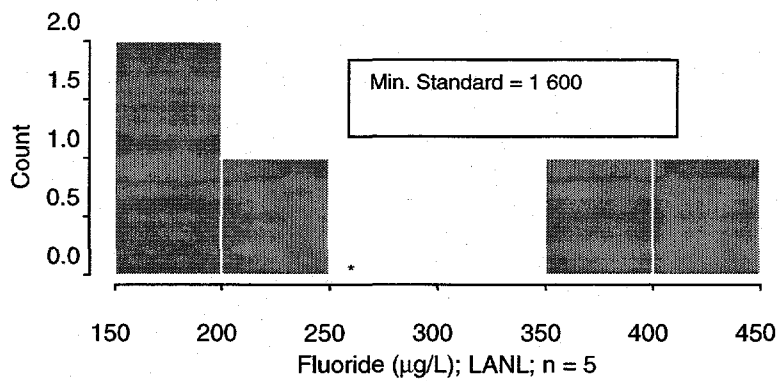
Comparison of U-238 (pCi/L) : NMED vs. EPA



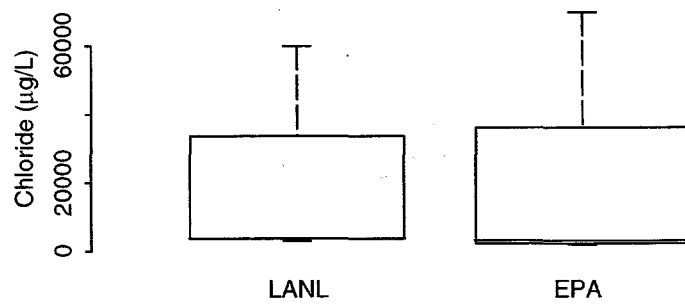
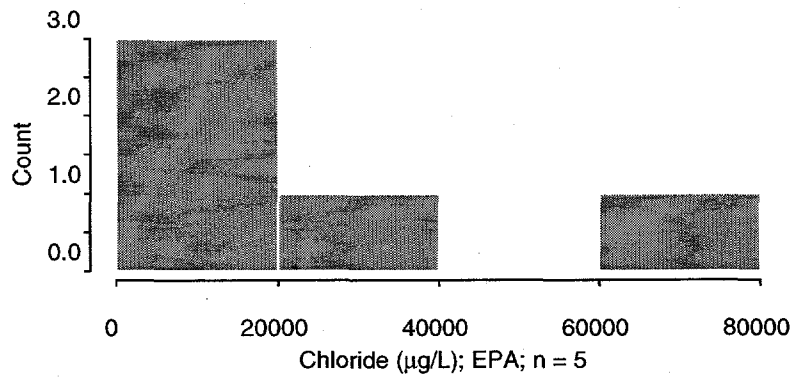
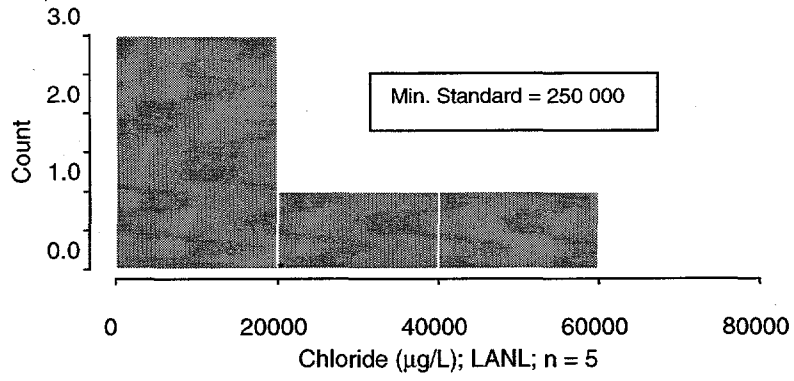
Comparison of Alkalinity ($\mu\text{g/L}$): LANL vs. EPA



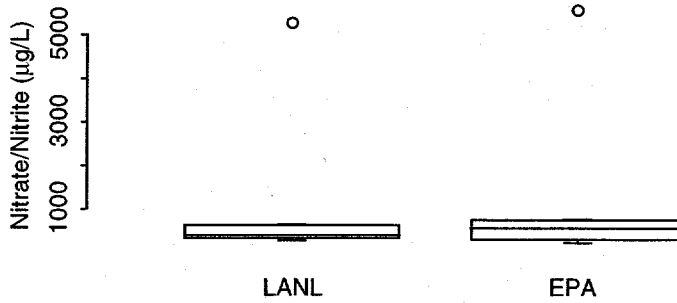
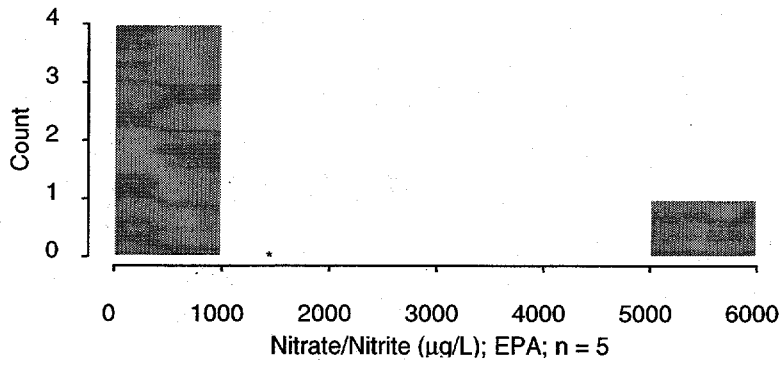
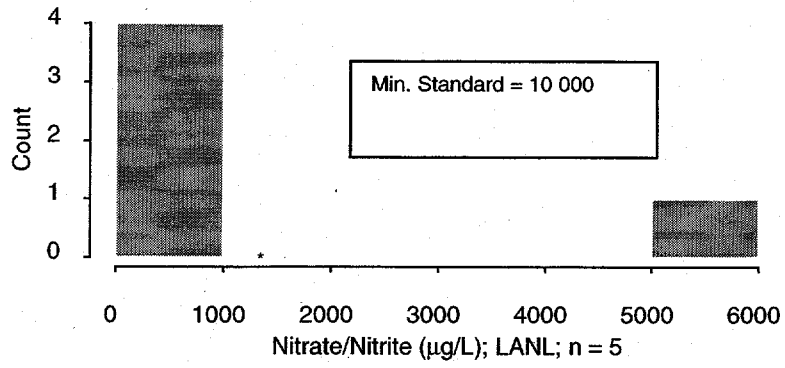
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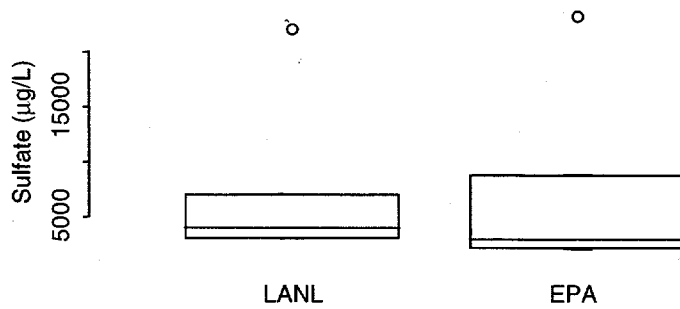
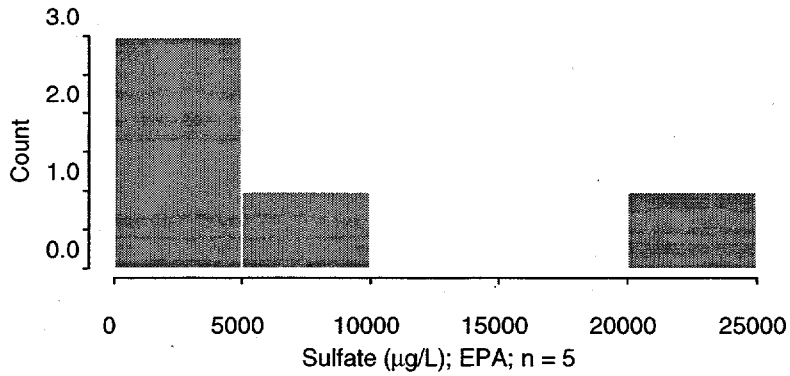
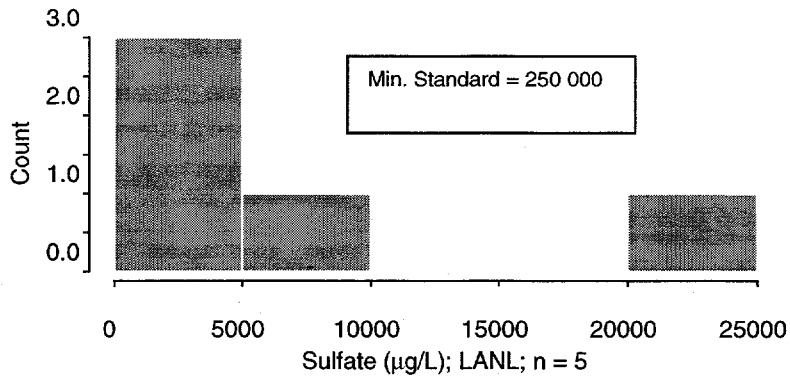
Comparison of Chloride ($\mu\text{g/L}$): LANL vs. EPA



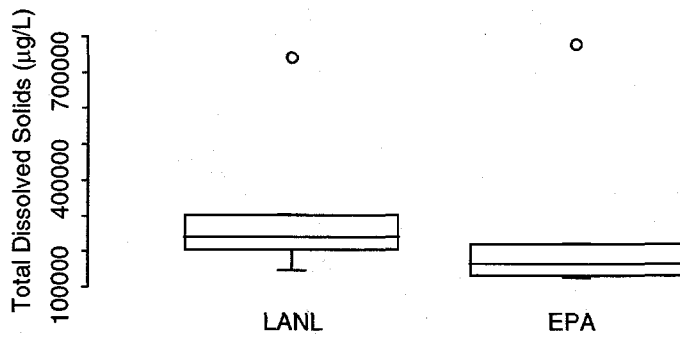
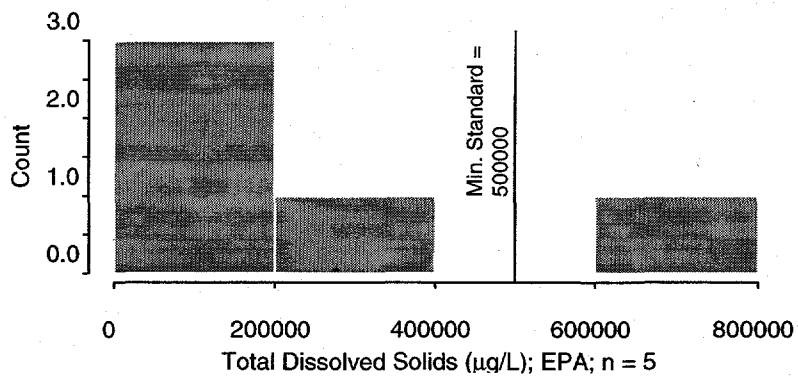
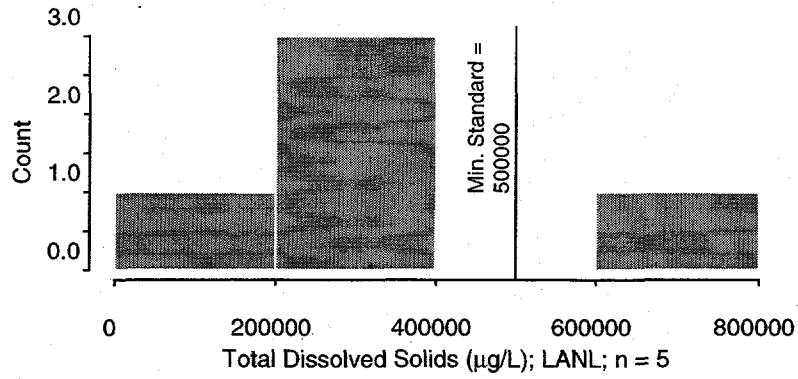
Comparison of Nitrate/Nitrite-N ($\mu\text{g/L}$): LANL vs. EPA



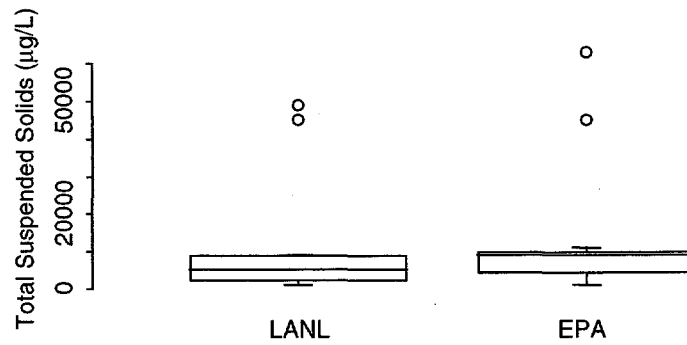
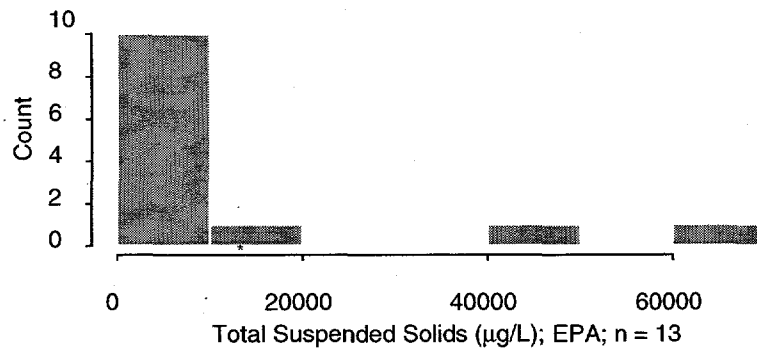
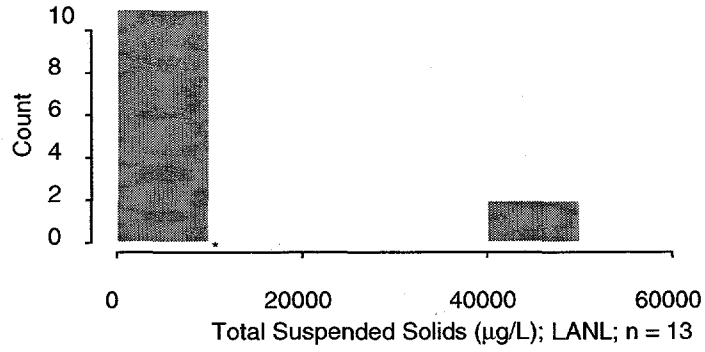
Comparison of Sulfate ($\mu\text{g/L}$): LANL vs. EPA



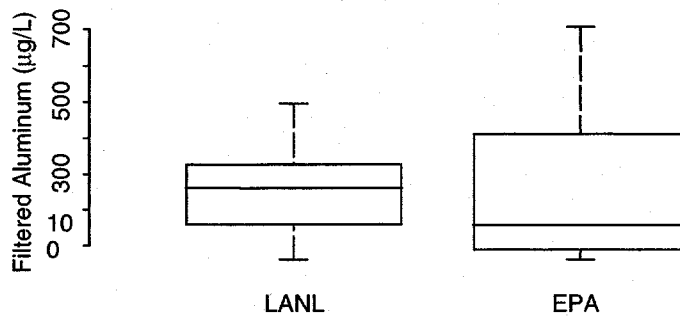
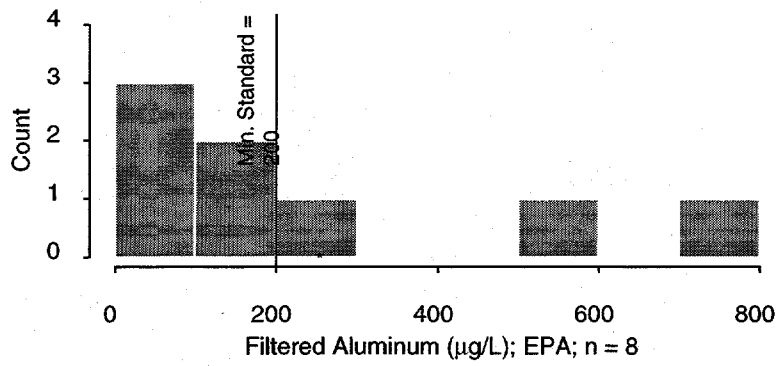
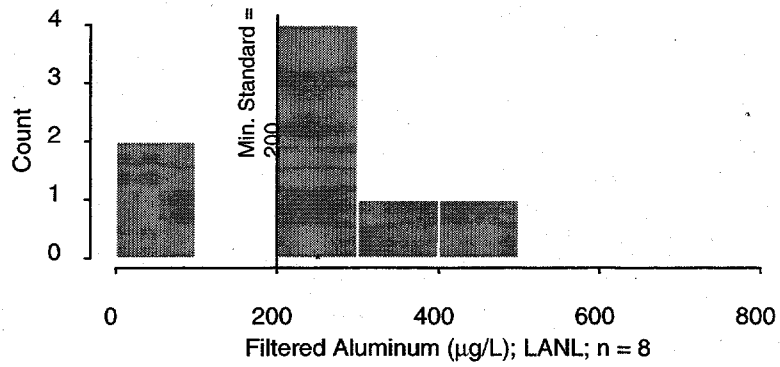
Comparison of Total Dissolved Solids ($\mu\text{g/L}$): LANL vs. EPA



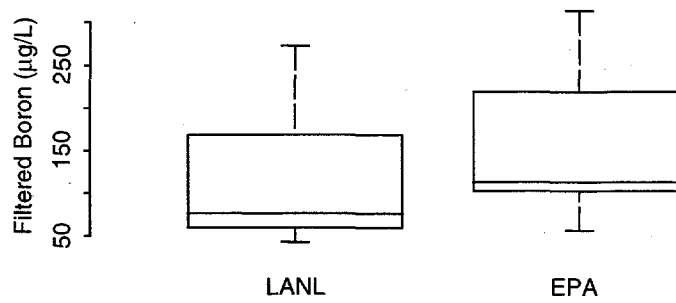
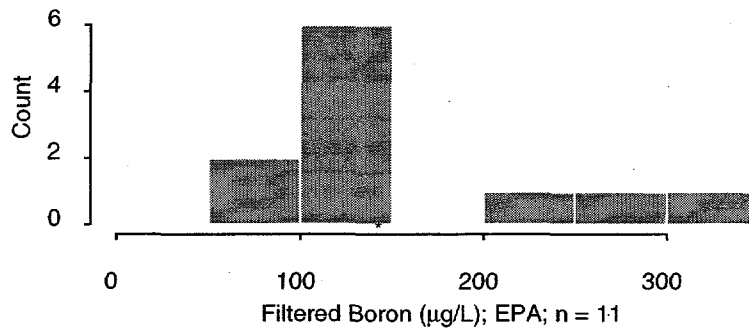
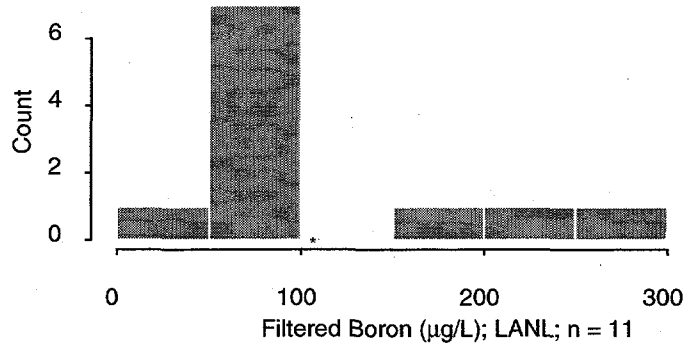
Comparison of Total Suspended Solids ($\mu\text{g/L}$): LANL vs. EPA



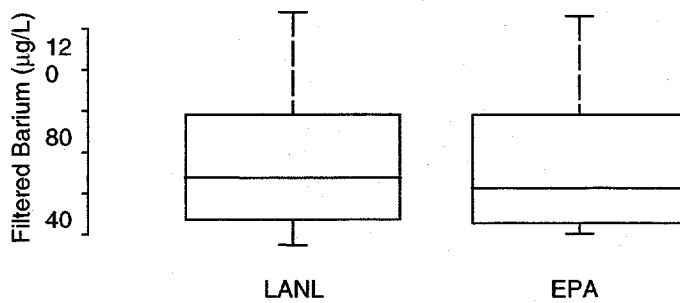
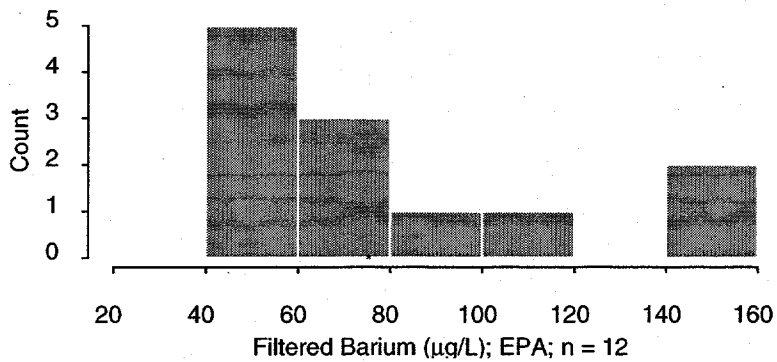
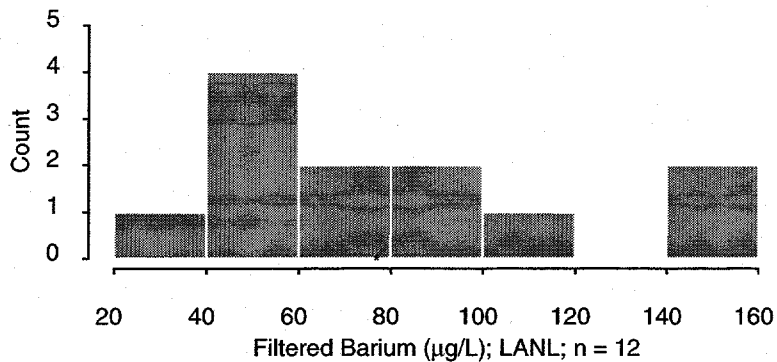
Comparison of Filtered Aluminum ($\mu\text{g/L}$): LANL vs. EPA



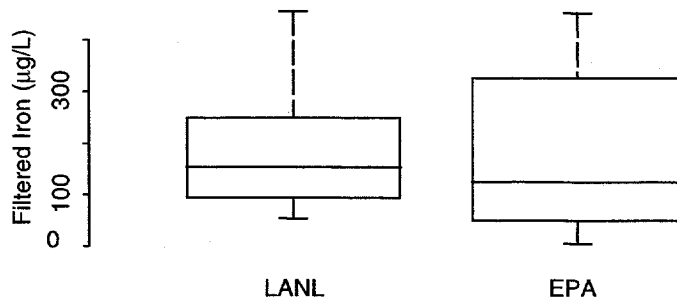
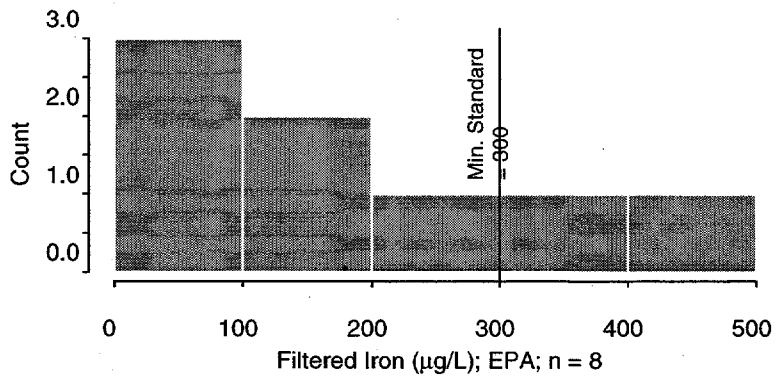
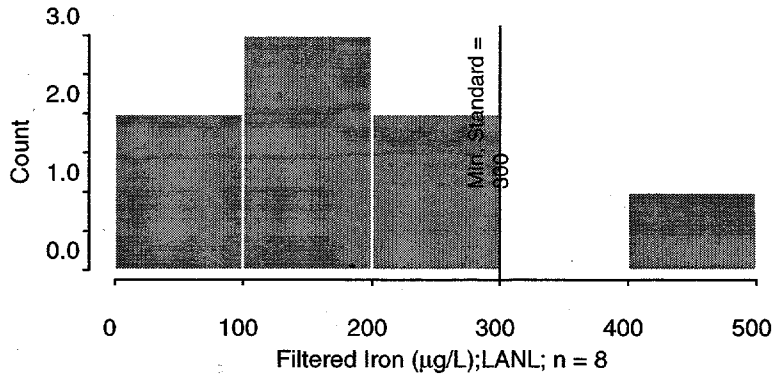
Comparison of Filtered Boron ($\mu\text{g/L}$): LANL vs. EPA



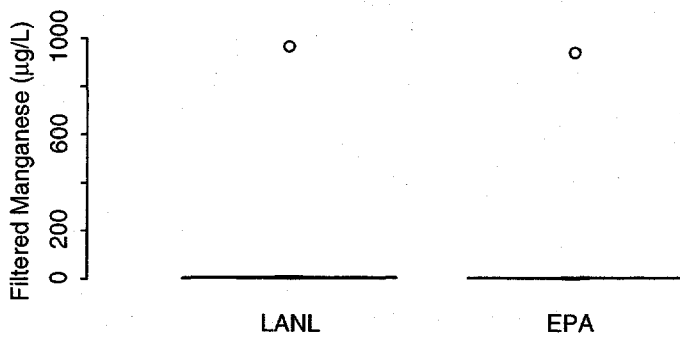
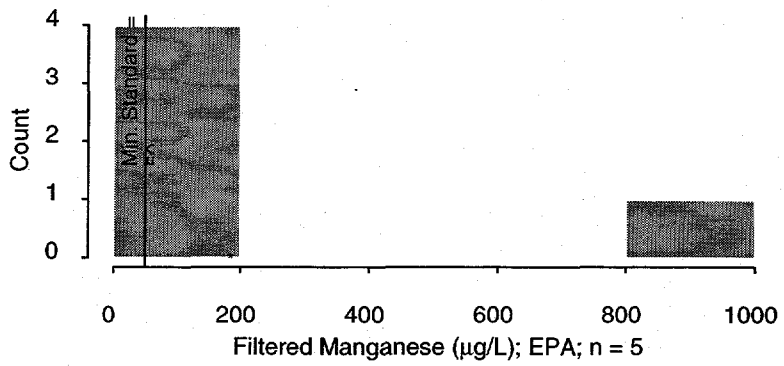
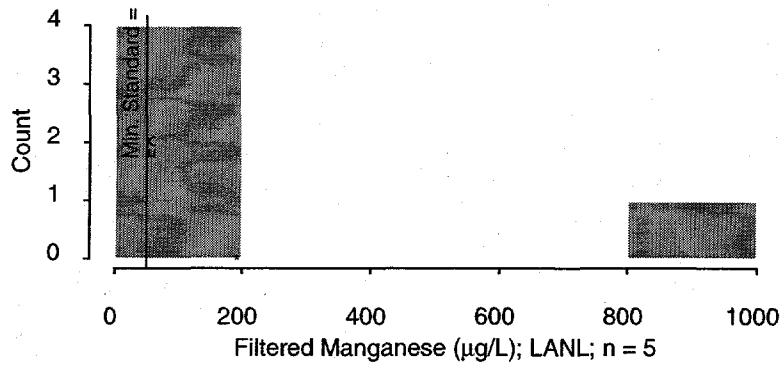
Comparison of Filtered Barium ($\mu\text{g/L}$): LANL vs. EPA



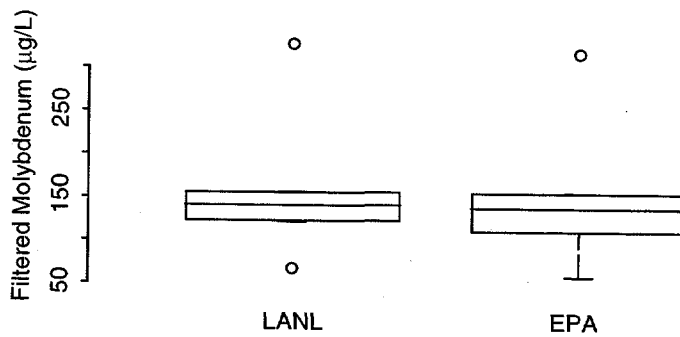
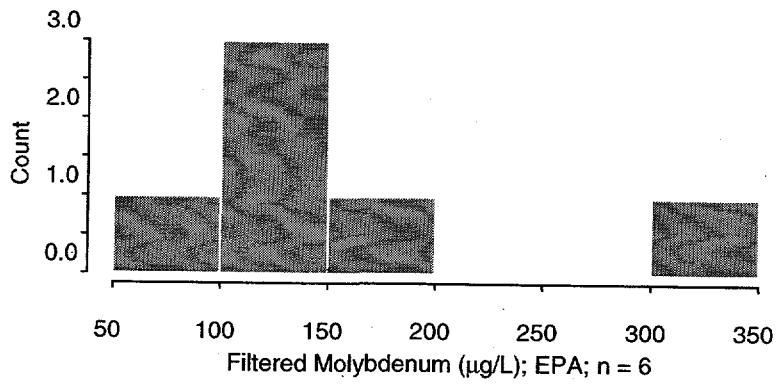
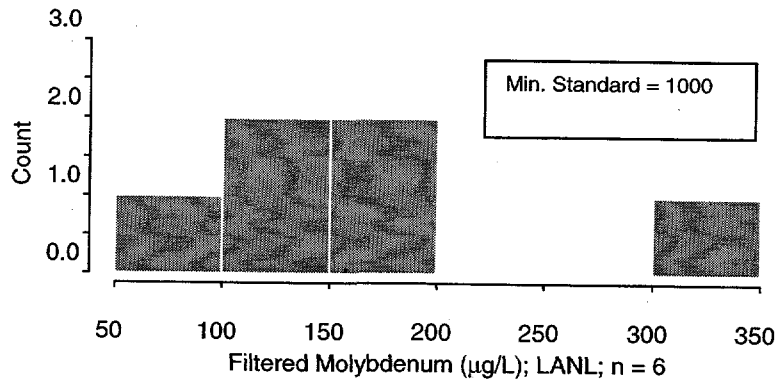
Comparison of Filtered Iron ($\mu\text{g/L}$): LANL vs. EPA



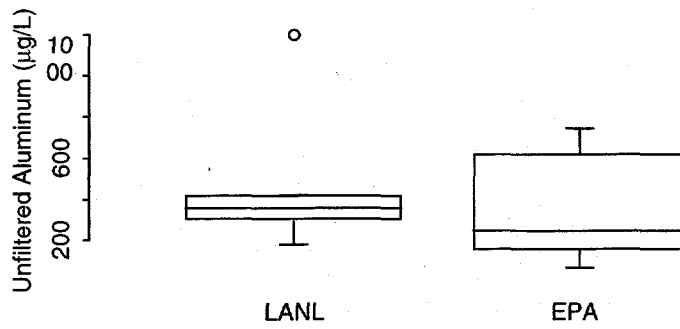
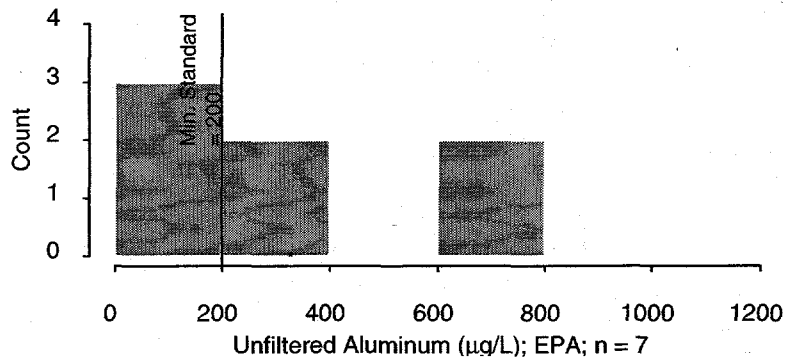
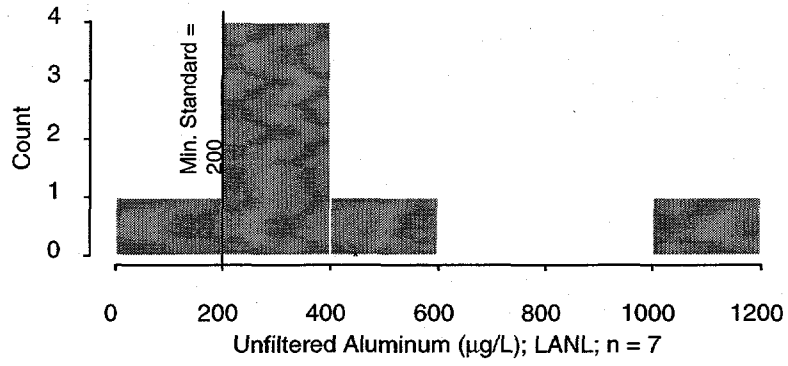
Comparison of Filtered Manganese ($\mu\text{g/L}$): LANL vs. EPA



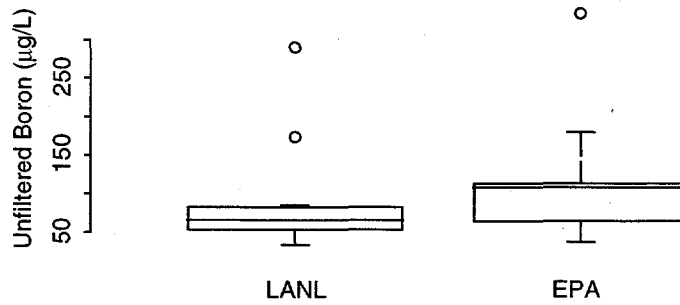
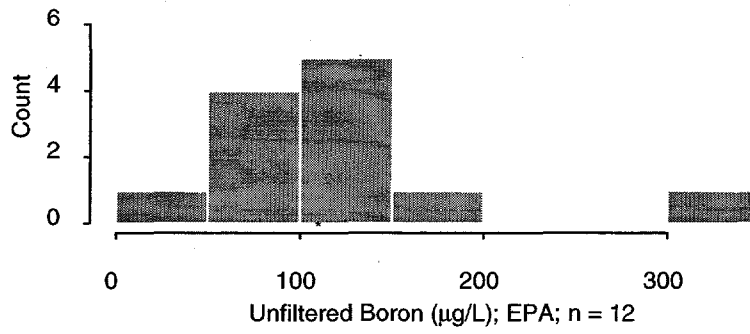
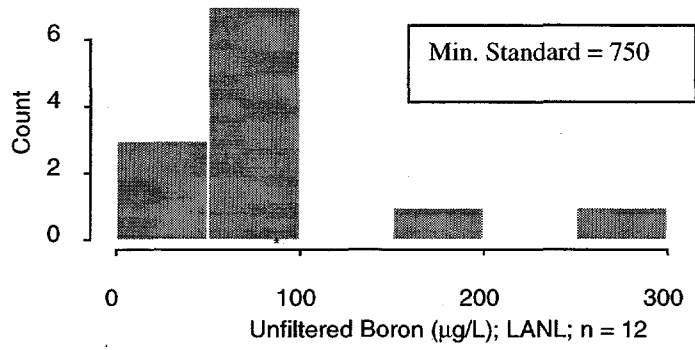
Comparison of Filtered Molybdenum ($\mu\text{g/L}$): LANL vs. EPA



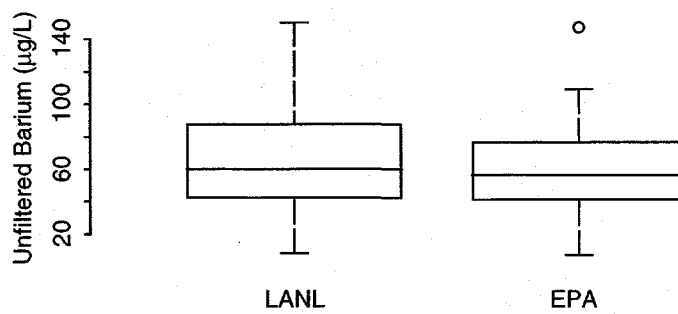
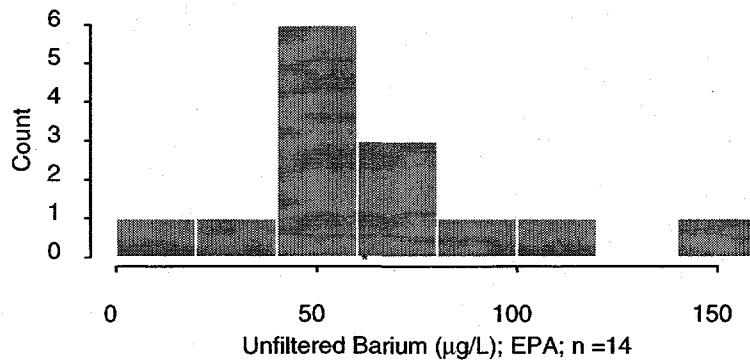
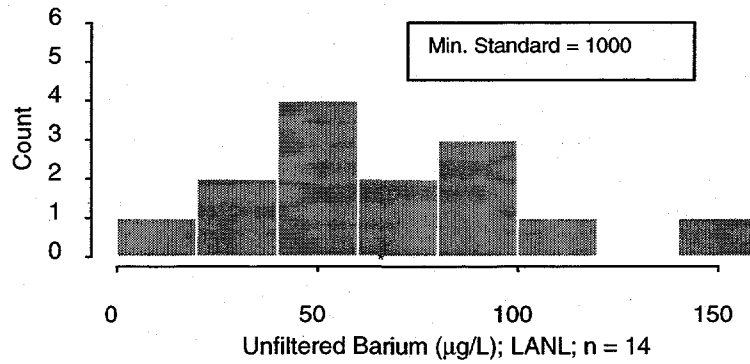
Comparison of Unfiltered Aluminum ($\mu\text{g/L}$): LANL vs. EPA



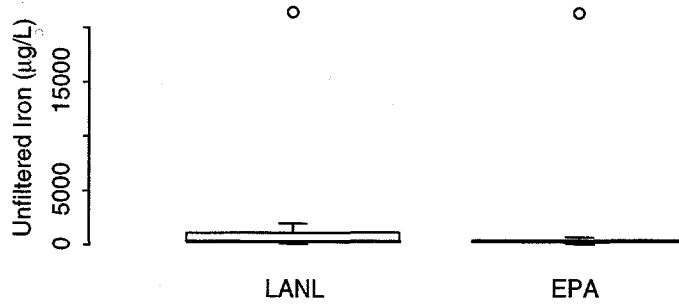
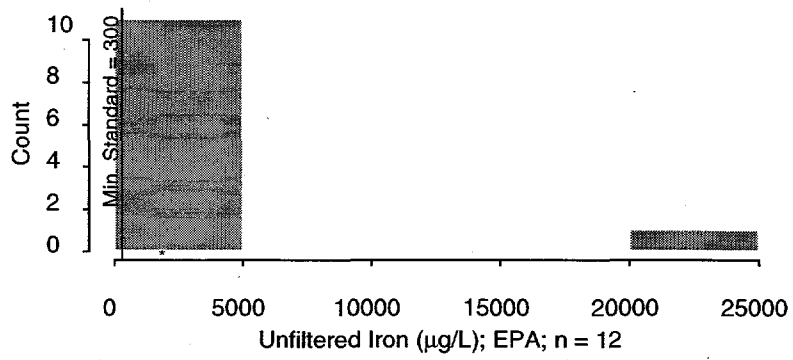
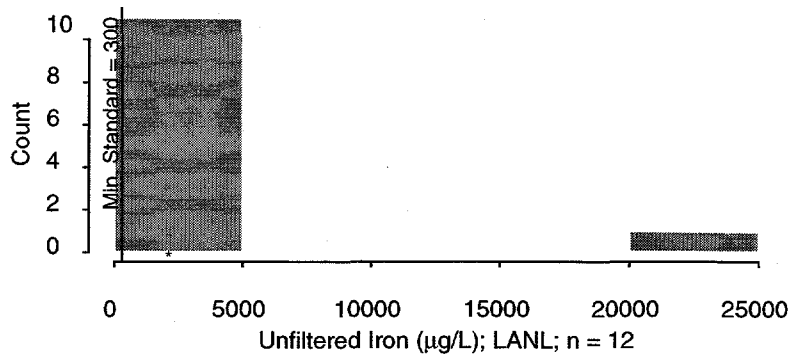
Comparison of Unfiltered Boron ($\mu\text{g/L}$): LANL vs. EPA



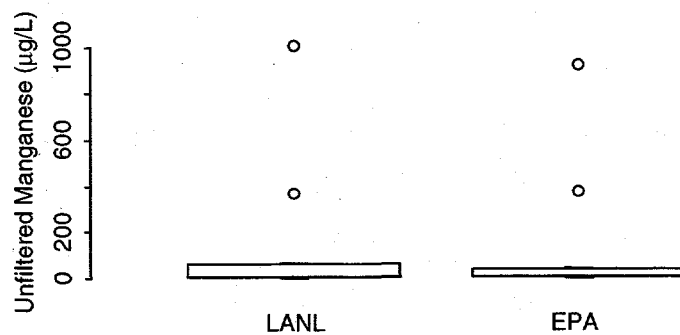
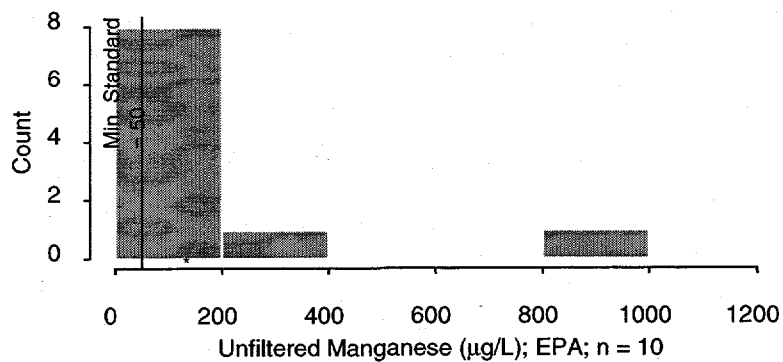
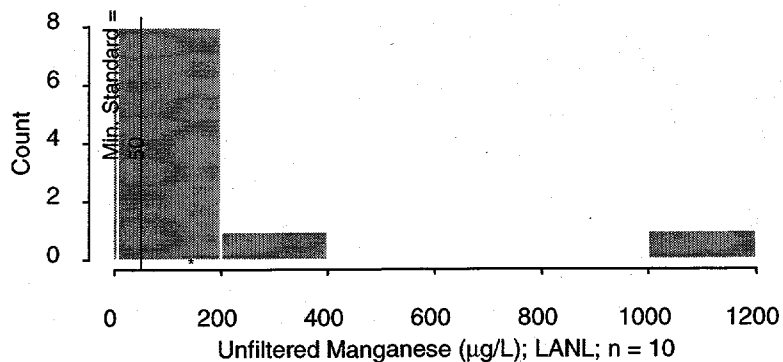
Comparison of Unfiltered Barium ($\mu\text{g/L}$): LANL vs. EPA



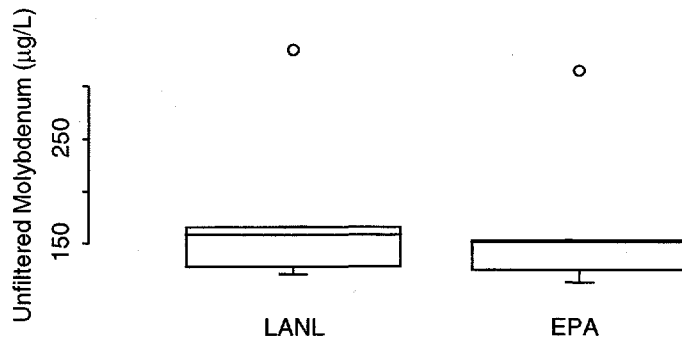
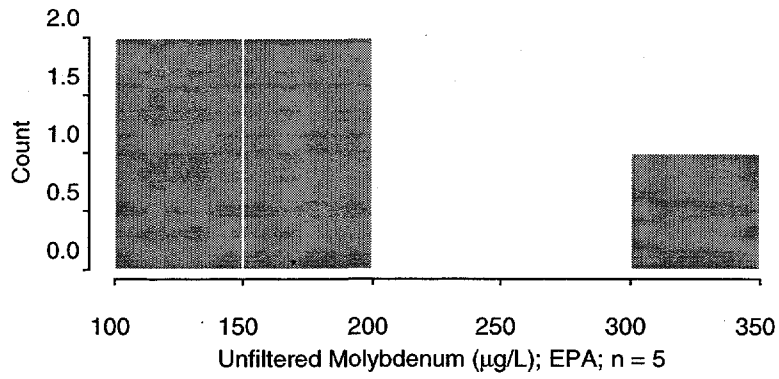
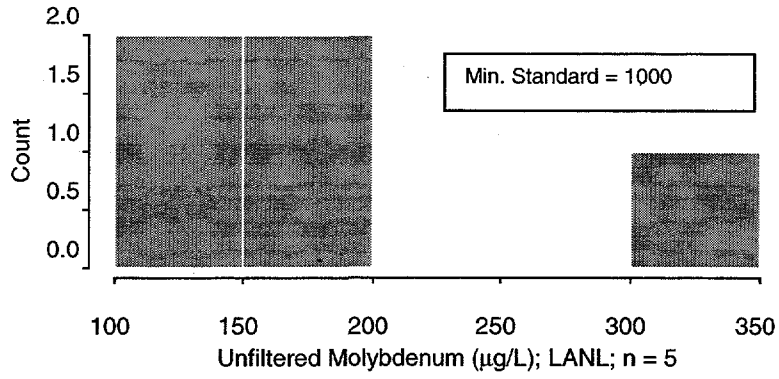
Comparison of Unfiltered Iron ($\mu\text{g/L}$) : LANL vs. EPA



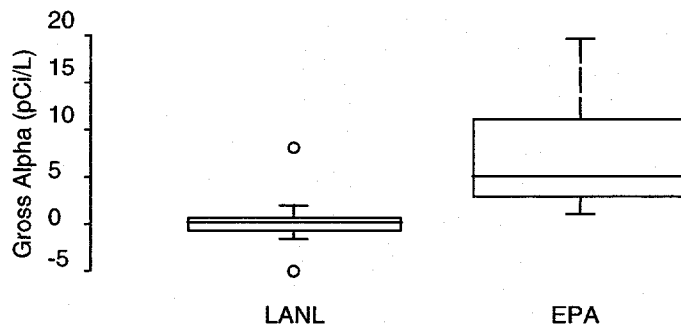
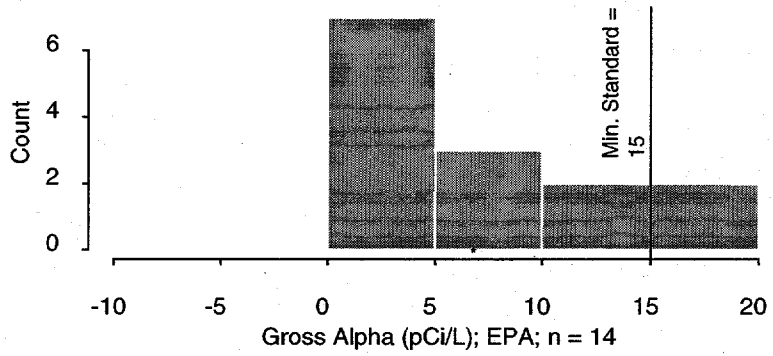
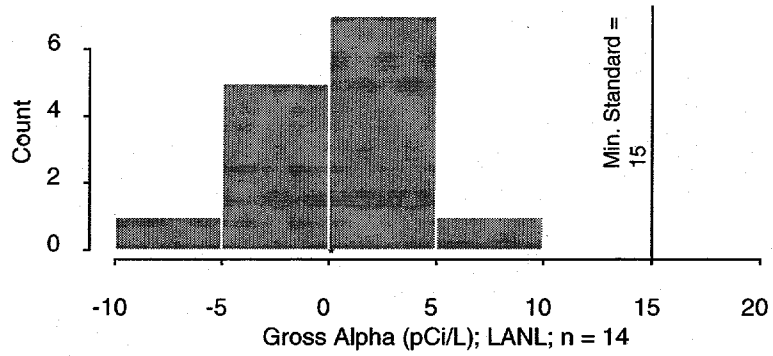
Comparison of Unfiltered Manganese ($\mu\text{g/L}$): LANL vs. EPA



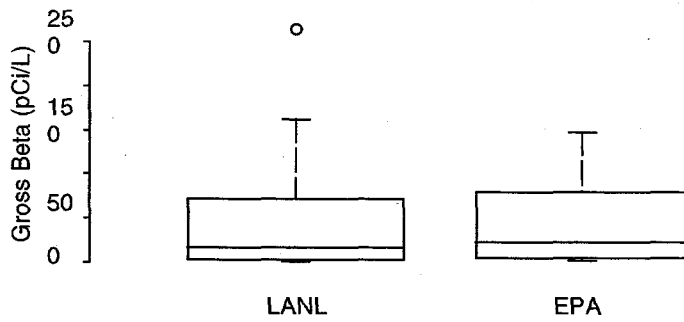
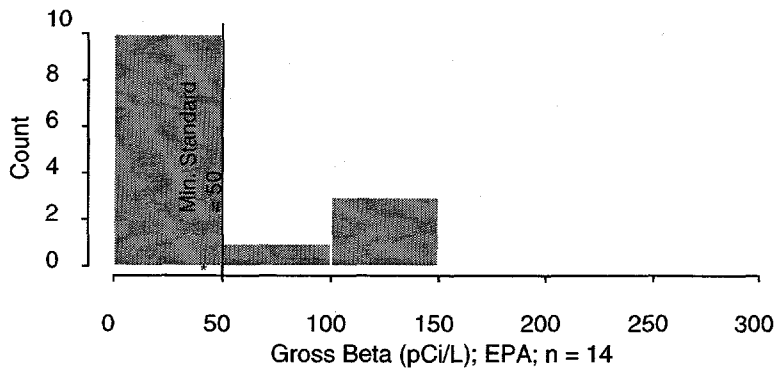
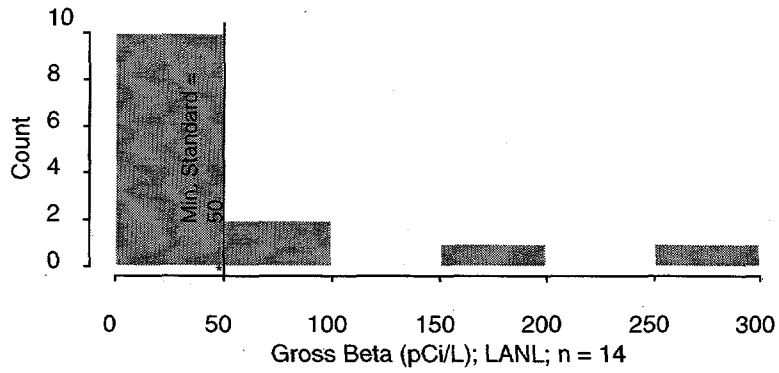
Comparison of Unfiltered Molybdenum ($\mu\text{g/L}$): LANL vs. EPA



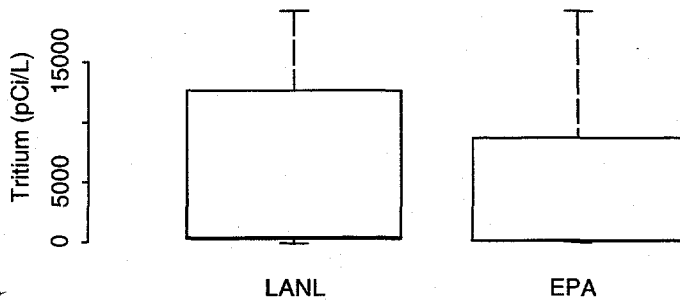
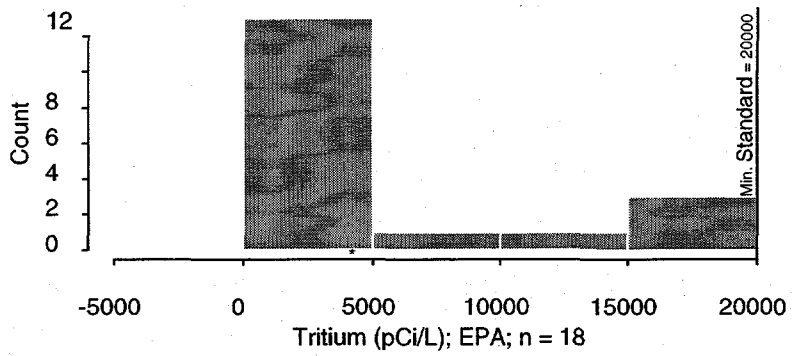
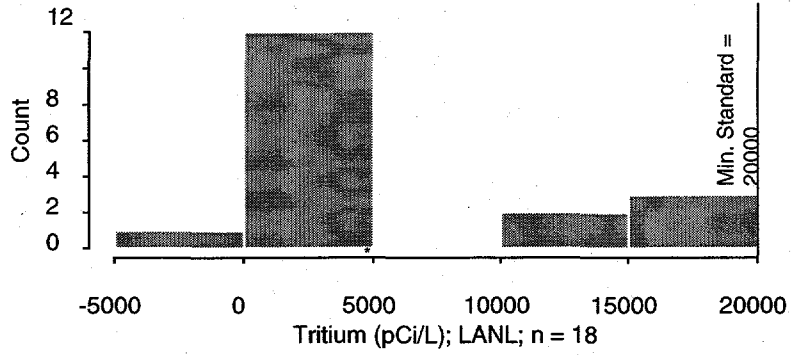
Comparison of Gross Alpha (pCi/L): LANL vs. EPA



Comparison of Gross Beta (pCi/L): LANL vs. EPA



Comparison of Tritium (pCi/L): LANL vs. EPA



Comparison of Sr-90 (pCi/L): LANL vs. EPA

