APPENDIX L STATISTICAL SUMMARY OF METALS DATA FOR THE PGOU SOIL SITES RI/FS

INTRODUCTION

This appendix presents a statistical evaluation of soil metals data for the Perimeter Groundwater Operable Unit (PGOU) Soil Sites addressed in this RI/FS. The primary purpose of this evaluation is to identify metals with concentrations in PGOU soils that are significantly greater than background. This evaluation includes the following:

- A discussion of the source of the background soils data selected for comparison with PGOU site data;
- Descriptive statistics for the metals found in the PGOU site data set, focusing on those metals that exceed risk-based screening levels; and
- Comparison of the PGOU site metals data with background data using the appropriate statistical tests.

The risk-based screening levels used to identify constituents of concern are the United States Environmental Protection Agency (USEPA) Region 9 Preliminary Remediation Goals (PRGs) for human health, and a variety of benchmarks for screening ecological risk, as discussed in the human health (Section 7) and ecological risk assessment (Section 8) sections, respectively, of the RI/FS report.

SELECTION OF BACKGROUND DATA SET

The background data set ("Background") for this analysis was collected and analyzed for Aerojet in 1994 by Dr. Robert S. Borch in a report titled *Sitewide Background Levels of Soil Trace Elements, Aerojet Propulsion Systems Plant and Adjacent Subsidiary Sites, Rancho Cordova, California* ("1994 Report"), which was approved by USEPA Region 9, the Regional Water Quality Control Board – Central Valley Region, and California Department of Toxic Substances Control. Preliminary statistics for the Background data were presented in the 1994 Report. The predominant soil types in the Background soil data are Redding-Corning-Red Bluff (R-C-R), Auburn-Whiterock-Argonaut (A-W-A), and Xerorthents (Tailings). The Tailings, consisting of two series (coarse and fine) are observed in the northern and northwestern portion of the site as shown in Figure L-1 by map units of 245 (coarse tailings) and 246 (slickens-fine tailings) as characterized in the 1994 Report. The Tailings represent nearly 61 percent

of the total Background data. All the PGOU soil data collected for the RI/FS is located in the proximity of the Tailings as shown in Figure L-1. Therefore, in view of the proximity of the PGOU data to the Tailings and the relatively large sample size of the Tailings data, the Tailings are used to represent the Background soils as the basis for comparison with PGOU data in this analysis. The Background data set is presented in Table L-1.

DESCRIPTIVE STATISTICS

A total of 24 inorganic metals were analyzed for in samples collected at the soil sites addressed in the PGOU RI/FS. Out of these, 19 metals were observed to have maximum concentrations exceeding either the human health or ecological risk-based screening levels. A detailed statistical analysis of these 19 metals is described below. This is followed by a comparison of the PGOU and Background data on a metal-by-metal basis.

Statistical methods used in this analysis are consistent with USEPA guidance presented in documents such as USEPA (2002). The statistical packages used to conduct the analysis were Analyse-it ® (Version 1.71), and Pro-UCL (Version 3.0). Pro-UCL is a program developed by USEPA for purposes of calculating the Upper Confidence Level (UCL) on the mean (Singh et al., 2004).

The PGOU soil data set as a whole was assumed to be a homogenous population for this analysis. Consistent with standard practice, one-half the detection limit was used to account for nondetects.

The first step in the analysis was to determine whether or not the PGOU data are normally distributed, and to check for outliers through both graphical and numerical techniques. Frequency histograms were used to analyze the distribution shape, location, and spread of concentrations for each metal. The data were tested for normality through the use of the Shapiro-Wilk test and examination of coefficients representing the skewness and kurtosis of the data. The distribution of the data was also analyzed by using normal quantile plots and box plots.

The results of the statistical analysis of the PGOU site data are presented in Figures L-2 through L-20. As shown in each figure, for each metal, a Shapiro-Wilk p-value of less than 0.05 indicates a 95% or higher probability that the data are not normally distributed. Moreover, departure from normality is observed if the data deviate from a bell-shaped curve in the histograms, and if points lie above or below the line drawn in the normal quantile plots. Based on these results, all metals with the possible exception of nickel tend toward a non-normal distribution,

with varying degrees of skewness and kurtosis. In general, most metals display a long-tail and are skewed to the right.

In addition, as shown in the box plots, for most metals the PGOU site data contain outliers. For purposes of interpreting the box plot diagrams, "far" outliers are identified by open circles in the plots and represent values greater than 3.0 times the Inter Quartile Range (IQR). "Near" outliers are identified with a plus sign and represent values with 1.5 to 3.0 times the IQR. For example, the PGOU site data for aluminum, arsenic, cadmium, chromium, copper, lead, iron, mercury, molybdenum, silver, and zinc can be observed to contain far outliers.

The Background data were also evaluated for normality and outliers. In order to provide a 90% UCL for comparison with PGOU RI/FS site data, a statistical test of the best-fitting distribution was conducted using ProUCL. Table L-2 summarizes the basic statistics and the 90% UCL calculated according to the best-fitting distribution for each metal in the Tailings data. In general, a normal distribution provided the best fit for only a few metals in the Tailings data set.

COMPARISON OF SITE DATA (PGOU) WITH BACKGROUND

Since the PGOU site data and Background data for most metals are not normally distributed, a non-parametric two-sample test (Mann-Whitney U-test) was used to compare the PGOU site data to Background. A one-tailed Mann-Whitney U-test was conducted to evaluate if the PGOU mean is significantly greater ($p < 0.05$) than the Background mean for each metal. The results of the Mann-Whitney U test for all metals are shown in Figures L-2 through L-18. The results of the test show that the PGOU data are significantly higher than Background for eight metals: antimony, cadmium, copper, lead, mercury, molybdenum, silver, and zinc. The remaining 11 metals were not significantly higher than Background.

Outliers in the Background data were also identified from examination of the box plots in Figures L-2 through L-18, where the Tailings box plot (labeled "Background") is shown next to the PGOU box plot for each metal. Overall, fewer outliers appear in the Background data set compared with the PGOU. Because of the presence of outliers for some metals in the Background data set, however, outliers were removed and the Mann-Whitney U-test was repeated to ensure the validity of the results of the comparisons. No additional metals in the PGOU site data were found to be significantly greater than Background as a result of removing outliers from the Background data set.

SUMMARY AND CONCLUSIONS

The PGOU soils metals data exhibit several characteristics that can be observed from the statistical evaluation. The data are generally non-normal, with outlier values that deviate significantly from expectation for a normally distributed data set. This non-normality is also observed to a somewhat lesser degree in the Background data, which may indicate overall heterogeneity in the Tailings soil type. The 1994 Report attributed some of the heterogeneity in Background metals concentrations to the varying mineralogy of parent materials, differences in grain size and clay content, disturbance history, and other factors.

Eight metals in PGOU site data were identified as having concentrations significantly greater than Background based on this analysis: antimony, cadmium, copper, lead, mercury, molybdenum, silver, and zinc. The 10 remaining metals detected in PGOU site soil that exceed risk-based screening levels do not significantly exceed Background, and in some cases it appears that the converse is true; that is, mean Background concentrations exceed the PGOU site data concentrations (e.g., aluminum, barium, and vanadium). The data suggest that overall variation occurs between the PGOU site data and Background data in both positive and negative directions, depending on the metal. This difference may be related to methodological differences between the metals analysis conducted on soil collected for the 1994 Report and the metals analysis conducted for soil collected at the soil sites addressed in this RI/FS.

REFERENCES

Singh, A., Singh, A.K., and Maichle, R.W., 2004. *ProUCL Version 3.0 User Guide.* EPA/600/R04/079, April 2004.

United States Environmental Protection Agency (USEPA), 2002. *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites.* EPA 540-R-01-003. OSWER 9285.7-41, September 2002.

Figure L-1. Location of Background and PGOU Data

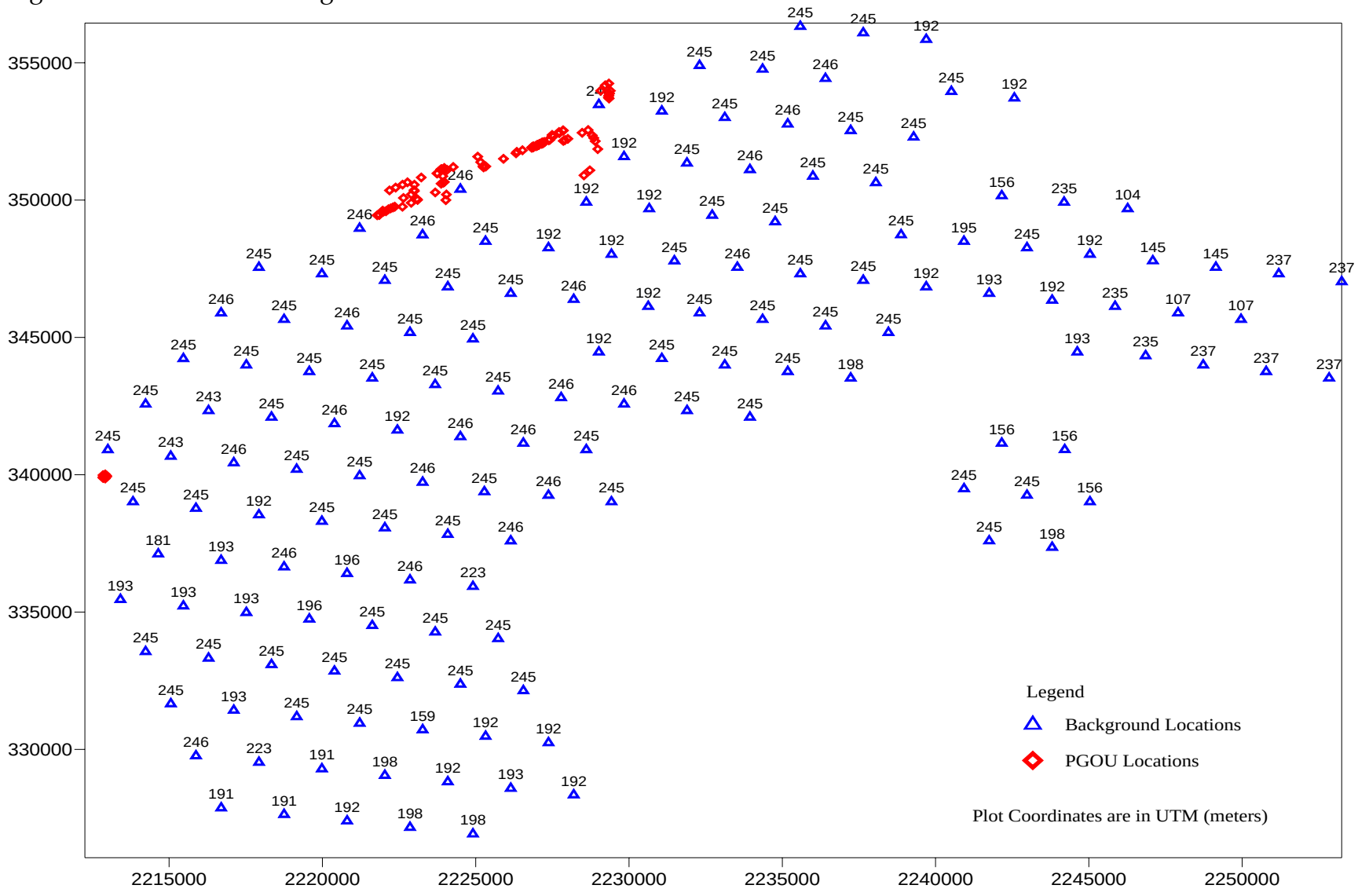
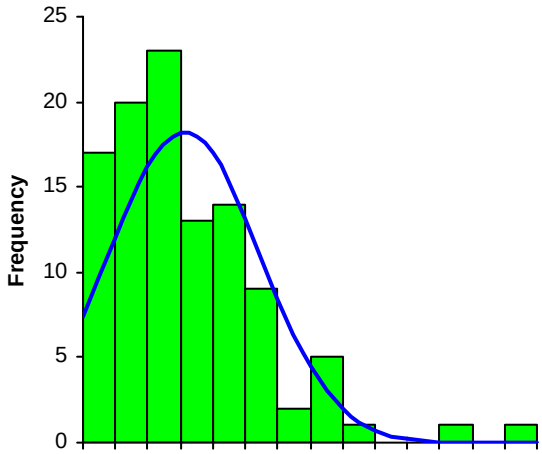
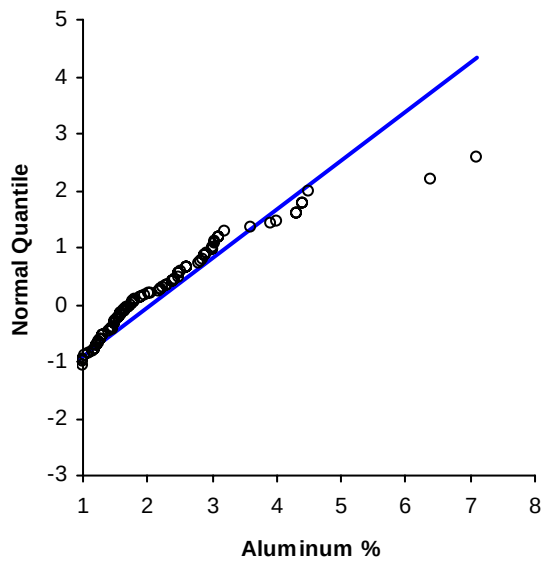


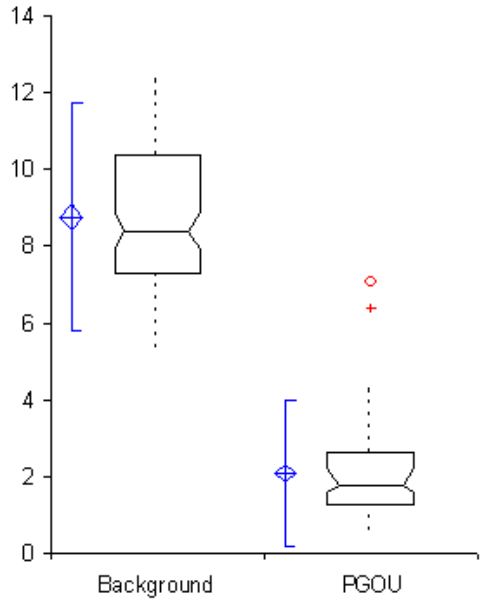
Figure L-2. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Aluminum (Al): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.8775	<0.0001
Skewness	1.5843	<0.0001
Kurtosis	3.8507	0.0001



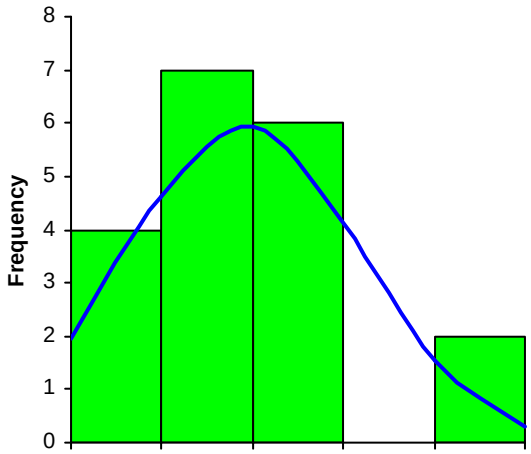


n	201			
Al by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	14926.0	152.31	19.0
PGOU	103	5375.0	52.18	10075.0
Difference between medians	6.500			
95.0% CI	−∞	to 6.890	(normal approximation)	
Mann-Whitney U statistic	19			
1-tailed p	1.0000	(normal approximation, corrected for ties)		

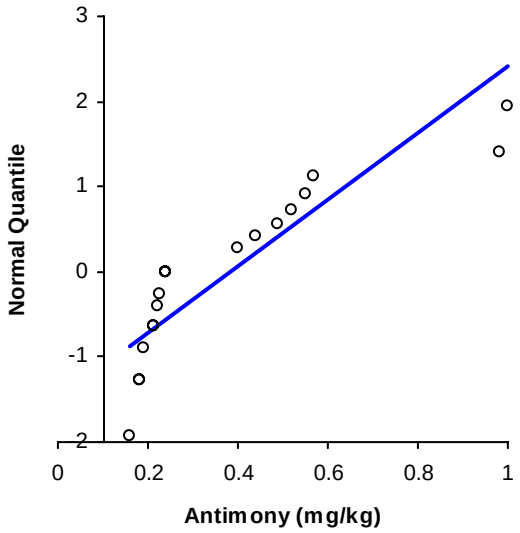
Al by Group	**n**	**Mean**	**SD**	**SE**	**95% CI of Mean**		**Median**
Background	98	8.781	1.8045	0.182	8.420	to 9.143	8.390
PGOU	103	2.083	1.1688	0.115	1.855	to 2.312	1.770

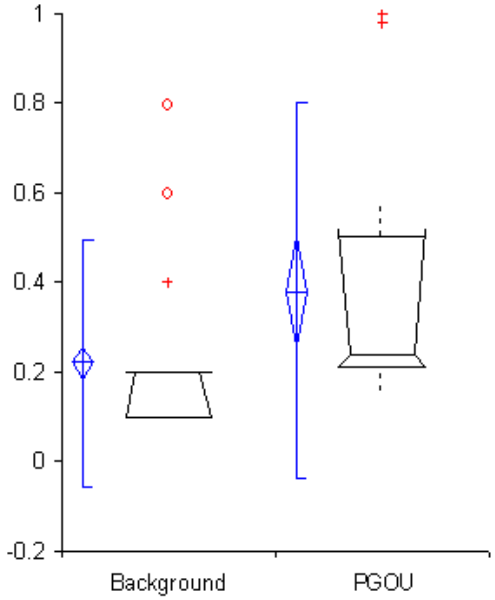
Figure L-3. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Antimony (Sb): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.7744	0.0005
Skewness	1.5142	0.0075
Kurtosis	1.6908	-



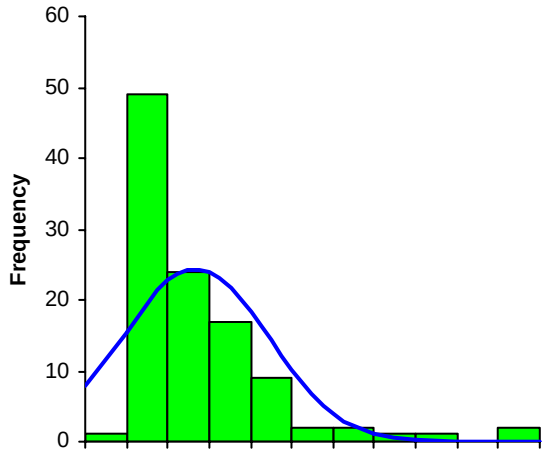


n	117			
Sb by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	5279.0	53.87	1434.0
PGOU	19	1624.0	85.47	428.0
Difference between medians	-0.115			
95.0% CI	$-\infty$	to -0.080	(normal approximation)	
Mann-Whitney U statistic	1434			
1-tailed p	<0.0001	(normal approximation, corrected for ties)		

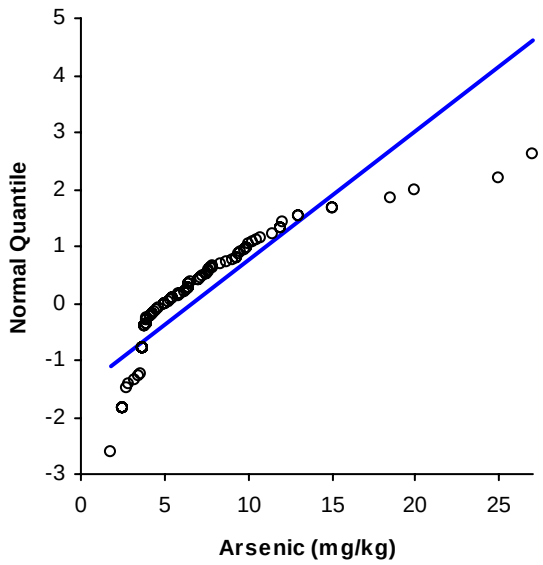
Sb by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	0.221	0.1682	0.0170	0.188	to 0.255	0.200
PGOU	19	0.382	0.2552	0.0585	0.259	to 0.505	0.240

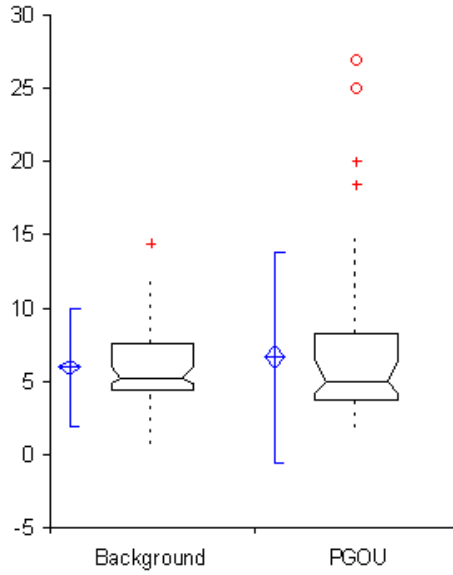
Figure L-4. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Arsenic (As): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.774	<0.0001
Skewness	2.217	<0.0001
Kurtosis	6.404	<0.0001



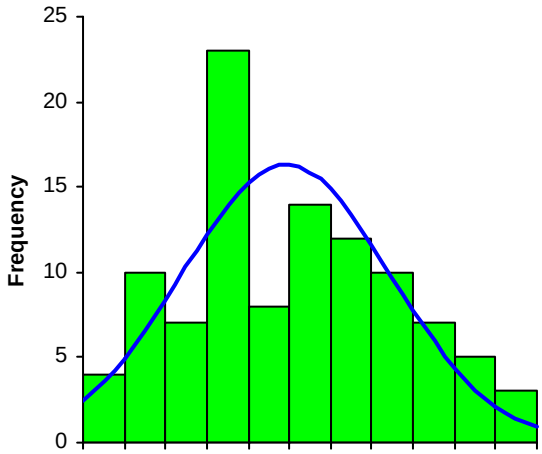


n	206			
As by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	10226.0	104.35	5209.0
PGOU	108	11095.0	102.73	5375.0
Difference between medians	0.050			
95.0% CI	–∞	to 0.650	(normal approximation)	
Mann-Whitney U statistic	5209			
1-tailed p	0.5771	(normal approximation, corrected for ties)		

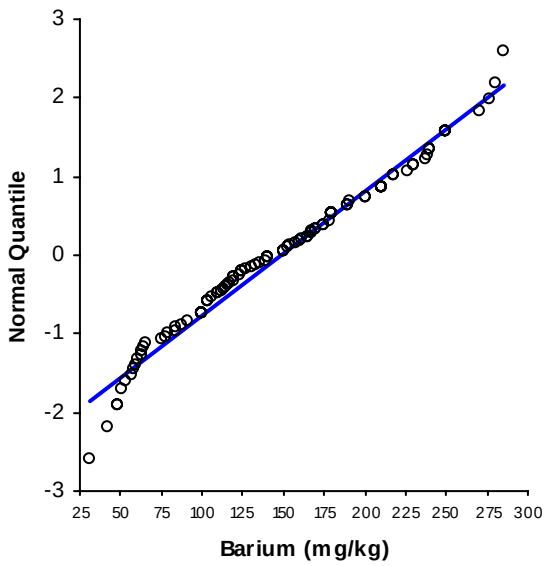
As by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	5.961	2.435	0.246	5.473	to 6.449	5.200
PGOU	108	6.668	4.397	0.423	5.829	to 7.506	5.000

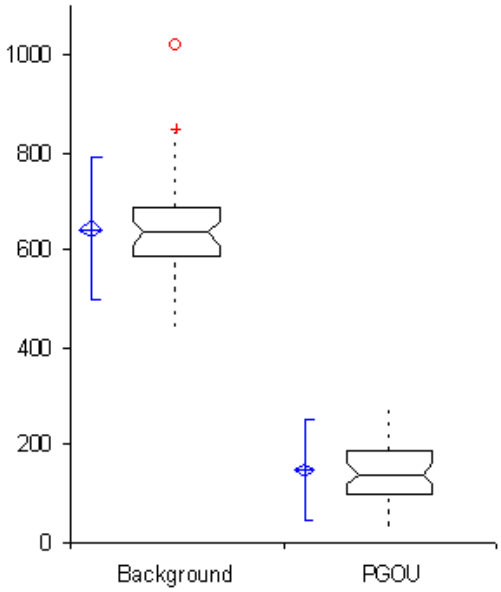
Figure L-5. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Barium (Ba): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.9747	0.0456
Skewness	0.2187	0.3472
Kurtosis	-0.8002	0.0101



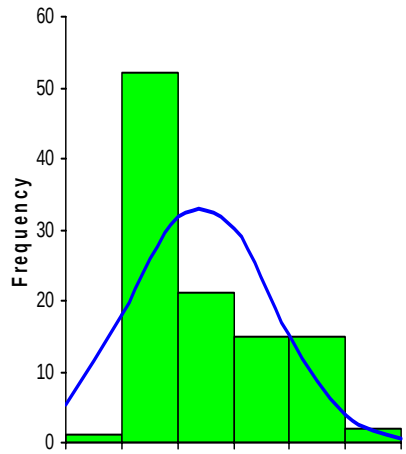


n	204			
Ba by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	15239.0	155.50	0.0
PGOU	106	5671.0	53.50	10388.0
Difference between medians	491.800			
95.0% CI	–∞	to 510.000	(normal approximation)	
Mann-Whitney U statistic	0			
1-tailed p	1.0000	(normal approximation, corrected for ties)		

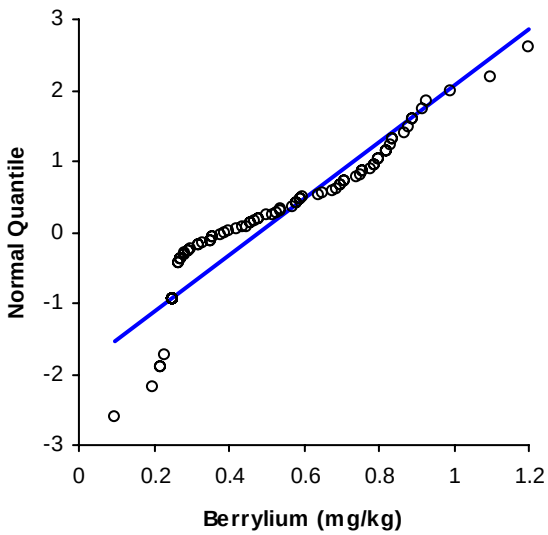
Ba by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	643.776	89.172	9.008	625.898	to 661.653	640.000
PGOU	106	147.180	62.824	6.102	135.081	to 159.279	140.000

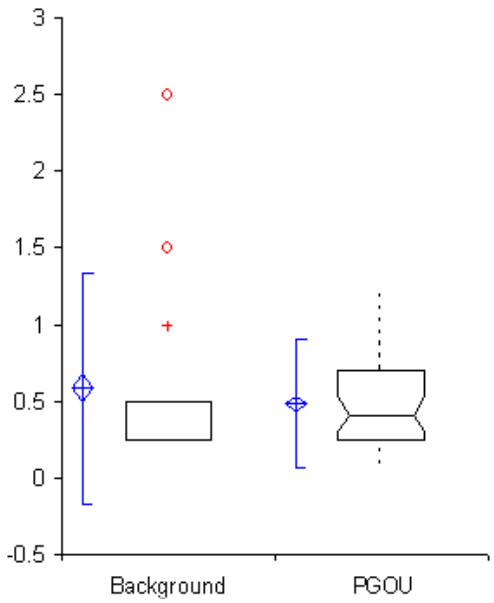
Figure L-6. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Berrylium (Be): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.8792	<0.0001
Skewness	0.6863	0.0053
Kurtosis	-0.6514	0.0611



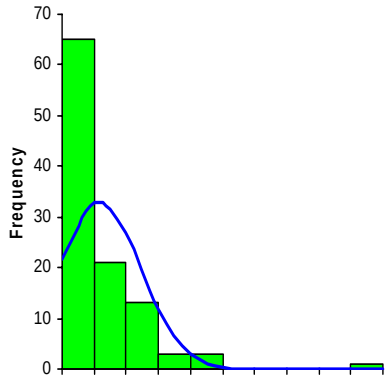


n	202			
Be by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	10254.5	104.64	4788.5
PGOU	104	10248.5	98.54	5403.5
Difference between medians	0.000			
95.0% CI	–∞	to 0.080	(normal approximation)	
Mann-Whitney U statistic	4788.5			
1-tailed p	0.7751	(normal approximation, corrected for ties)		

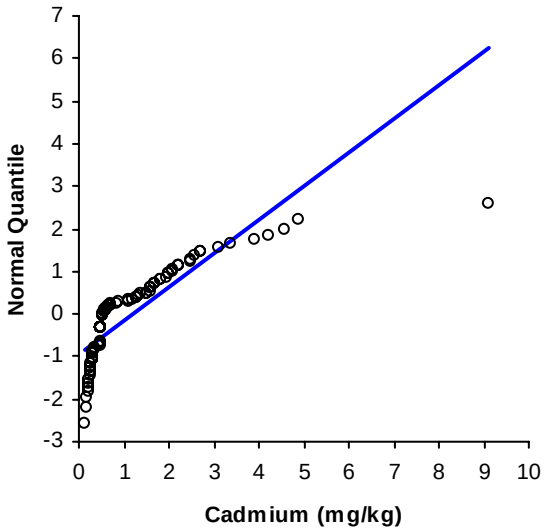
Be by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	0.582	0.4580	0.0463	0.490	to 0.673	0.500
PGOU	104	0.486	0.2527	0.0248	0.437	to 0.535	0.410

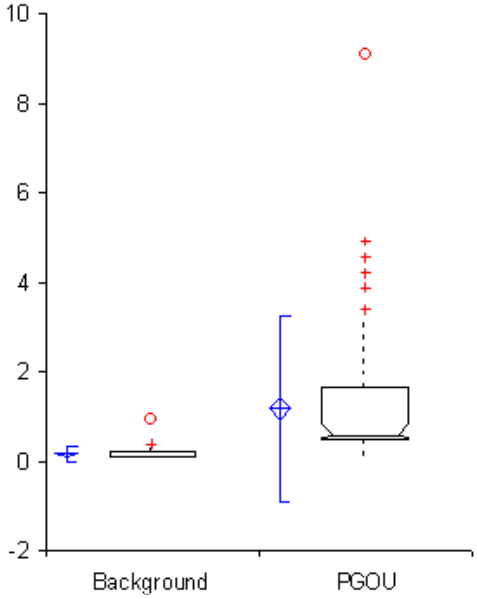
Figure L-7. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Cadmium (Cd): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.6882	<0.0001
Skewness	3.0646	<0.0001
Kurtosis	14.2324	<0.0001



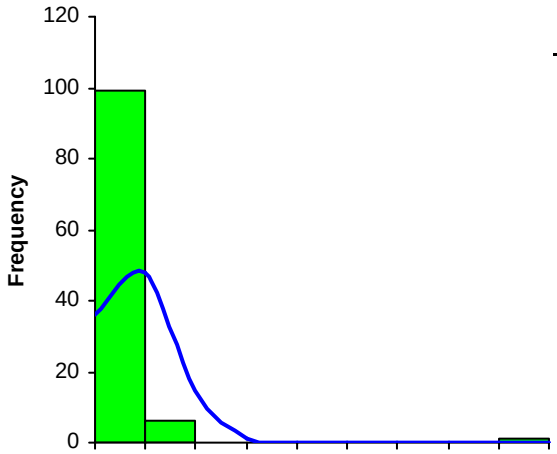


n	204			
Cd by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	5182.5	52.88	10056.5
PGOU	106	15727.5	148.37	331.5
Difference between medians	-0.450			
95.0% CI	–∞	to -0.400	(normal approximation)	
Mann-Whitney U statistic	10056.5			
1-tailed p	<0.0001	(normal approximation, corrected for ties)		

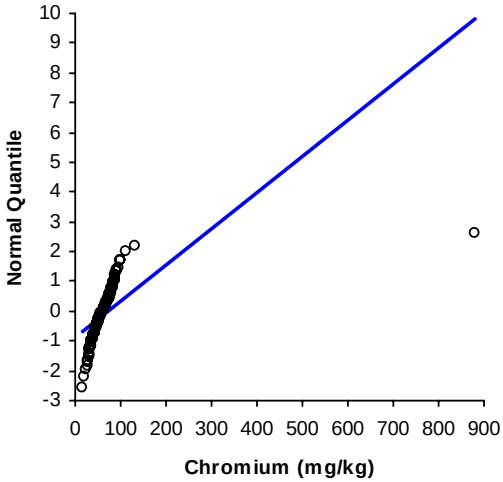
Cd by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	0.147	0.1091	0.0110	0.125	to 0.169	0.100
PGOU	106	1.169	1.2732	0.1237	0.924	to 1.414	0.540

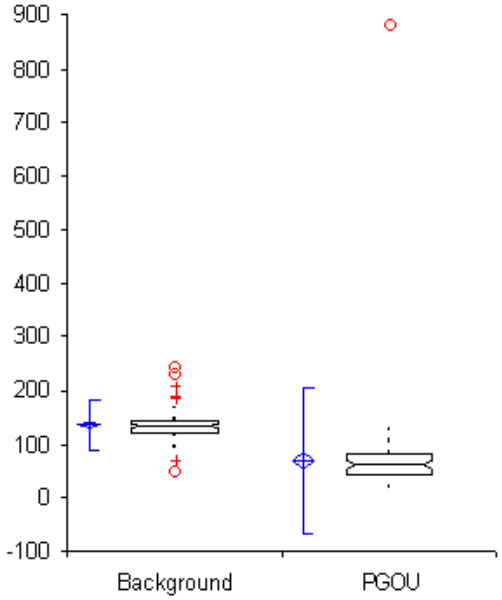
Figure L-8. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Chromium (Cr): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.2663	<0.0001
Skewness	9.1684	<0.0001
Kurtosis	90.6017	<0.0001



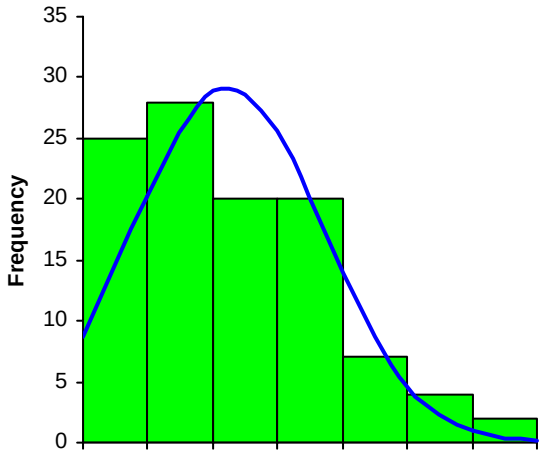


n	207			
Cr by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	15225.5	155.36	307.5
PGOU	109	6302.5	57.82	10374.5
Difference between medians	72.000			
95.0% CI	–∞	to 78.000	(normal approximation)	
Mann-Whitney U statistic	307.5			
1-tailed p	1.0000	(normal approximation, corrected for ties)		

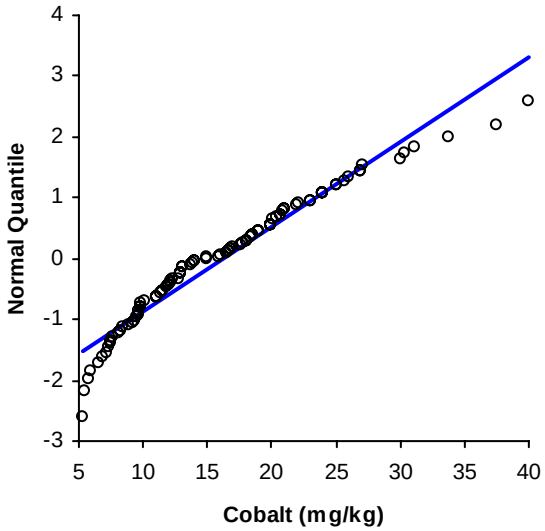
Cr by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	134.704	28.703	2.899	128.950	to 140.459	132.000
PGOU	109	68.751	81.551	7.811	53.268	to 84.234	61.300

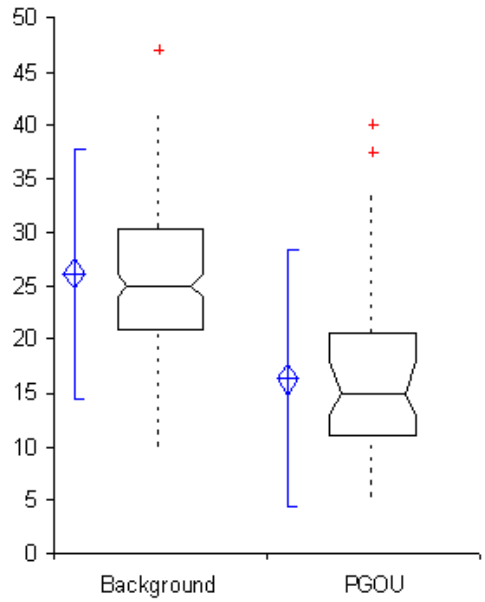
Figure L-9. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Cobalt (Co): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.9480	0.0004
Skewness	0.8329	0.0010
Kurtosis	0.6229	0.1886



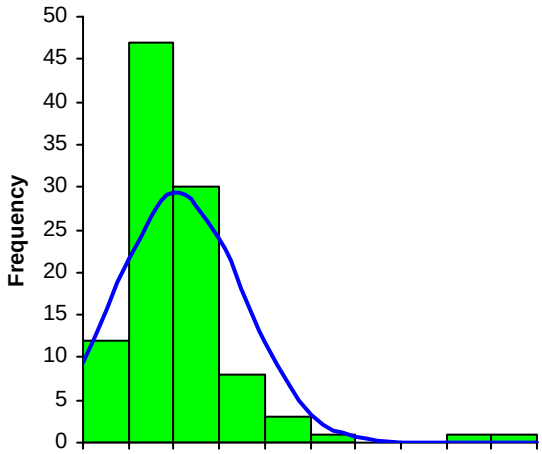


n	201			
Co by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	13289.0	135.60	1656.0
PGOU	103	7012.0	68.08	8438.0
Difference between medians	10.000			
95.0% CI	–∞	to 11.800	(normal approximation)	
Mann-Whitney U statistic	1656			
1-tailed p	1.0000	(normal approximation, corrected for ties)		

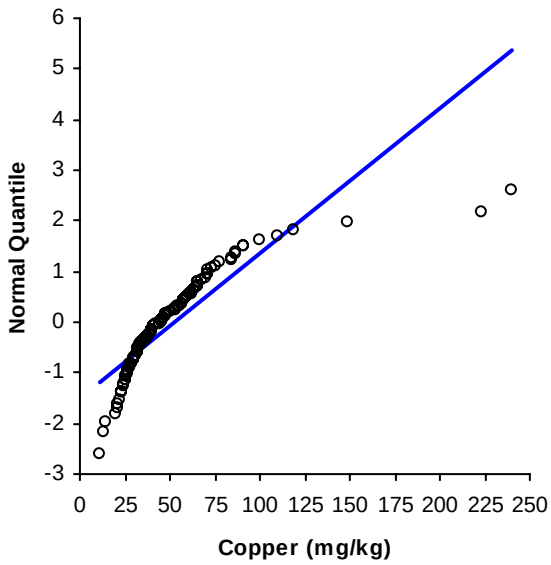
Co by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	26.082	7.119	0.719	24.654	to 27.509	25.000
PGOU	103	16.267	7.266	0.716	14.847	to 17.687	15.000

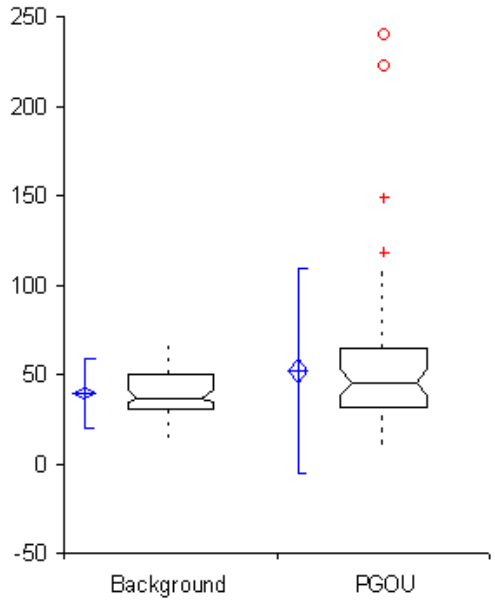
Figure L-10. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Copper (Cu): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.7345	<0.0001
Skewness	2.9821	<0.0001
Kurtosis	12.6497	<0.0001



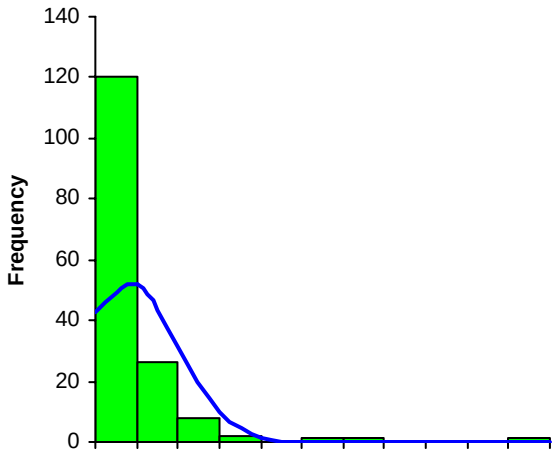


n	201			
Cu by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	8805.5	89.85	6139.5
PGOU	103	11495.5	111.61	3954.5
Difference between medians	-6.800			
95.0% CI	–∞	to -2.200	(normal approximation)	
Mann-Whitney U statistic	6139.5			
1-tailed p	0.0040	(normal approximation, corrected for ties)		

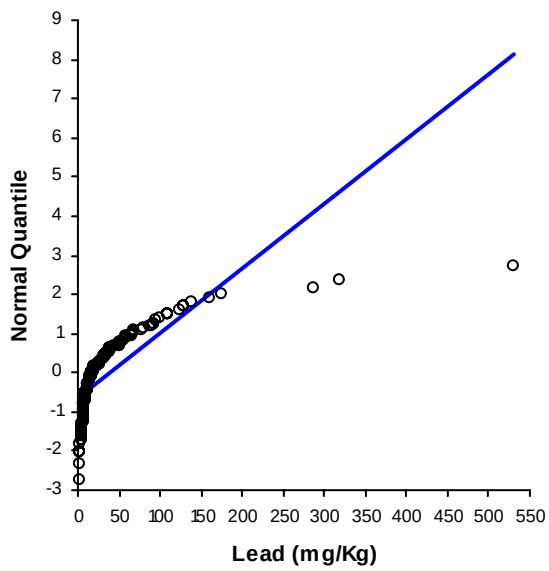
Cu by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	39.418	11.9526	1.2074	37.022	to 41.815	37.000
PGOU	103	52.488	34.8656	3.4354	45.674	to 59.302	45.000

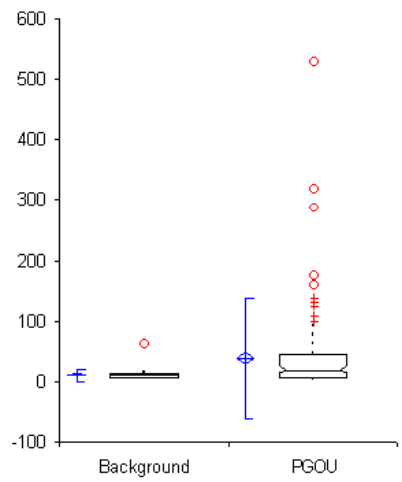
Figure L-11. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Lead(Pb): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.537	<0.0001
Skewness	4.774	<0.0001
Kurtosis	31.197	<0.0001



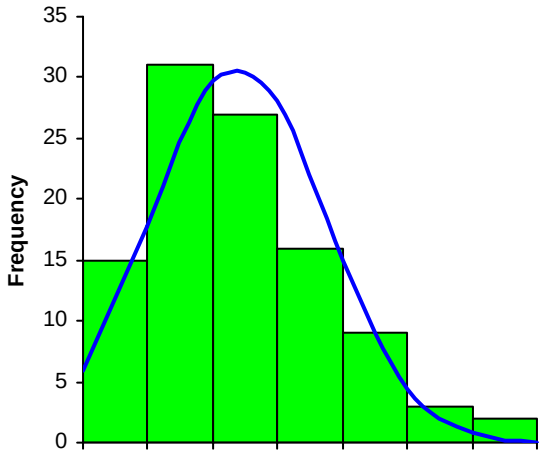


n	256			
Pb by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	9623.5	98.20	10711.5
PGOU	158	23272.5	147.29	4772.5
Difference between medians	-7.500			
Mann-Whitney U statistic	10711.5			
1-tailed p	<0.0001	(normal approximation, corrected for ties)		

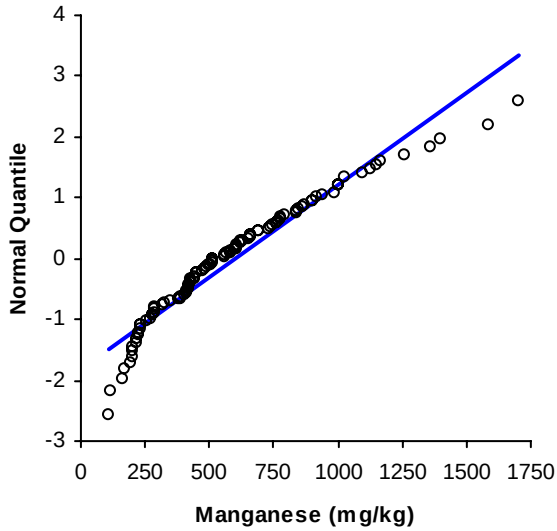
Pb by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	11.321	6.318	0.638	10.055	to 12.588	11.000
PGOU	158	39.098	60.572	4.819	29.580	to 48.616	18.000

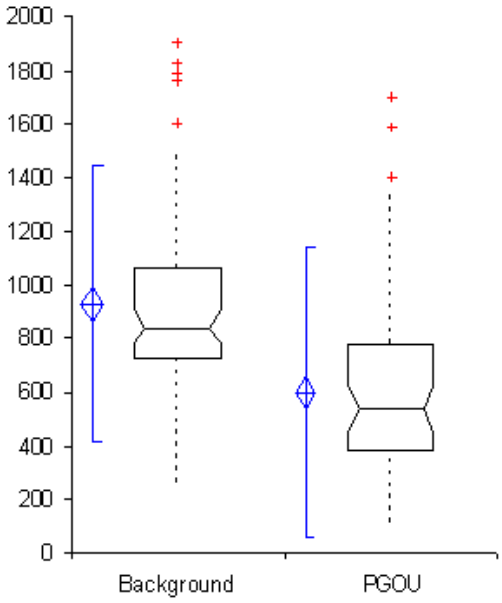
Figure L-12. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Manganese (Mn): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.9379	0.0001
Skewness	0.9502	0.0003
Kurtosis	0.8598	0.1043



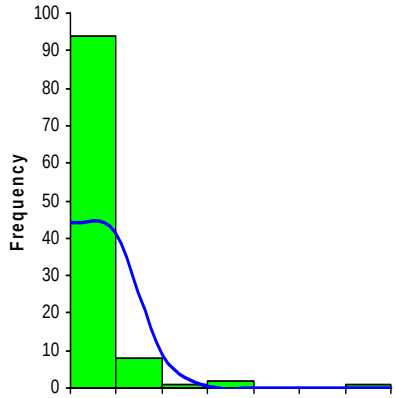


n	204			
Mn by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	12990.0	132.55	2249.0
PGOU	106	7920.0	74.72	8139.0
Difference between medians	333.000			
95.0% CI	$-\infty$	to 397.000	(normal approximation)	
Mann-Whitney U statistic	2249			
1-tailed p	1.0000	(normal approximation, corrected for ties)		

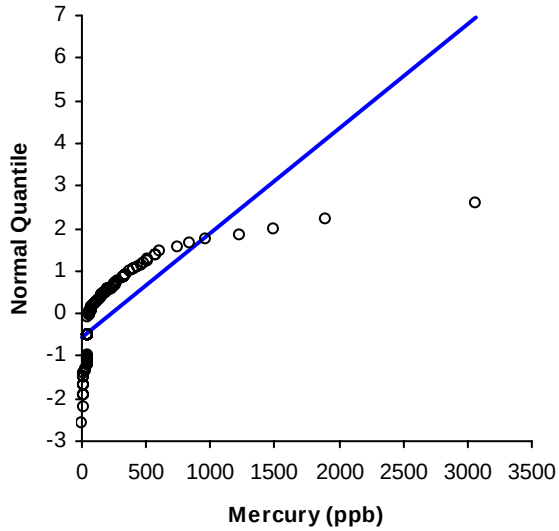
Mn by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	926.633	313.633	31.682	863.753	to 989.512	842.500
PGOU	106	598.962	326.281	31.691	536.124	to 661.800	538.500

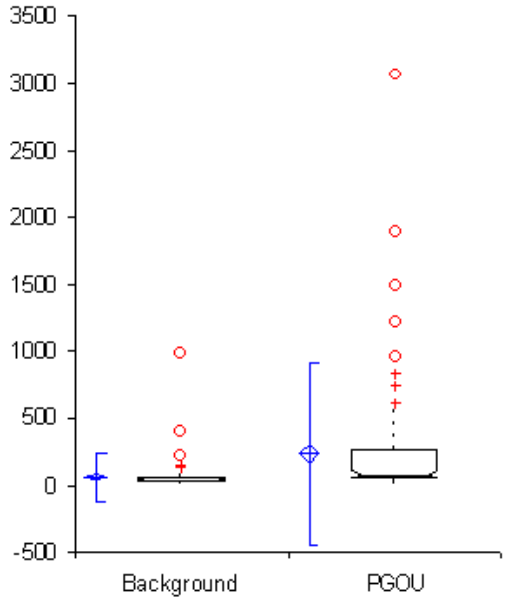
Figure L-13. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Mercury (Hg): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.5034	<0.0001
Skewness	4.4130	<0.0001
Kurtosis	24.5327	<0.0001



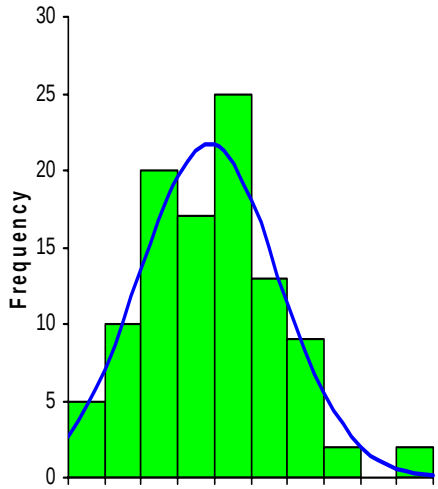


n	201			
Hg by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	7136.0	72.82	7809.0
PGOU	103	13165.0	127.82	2285.0
Difference between medians	-40.000			
95.0% CI	$-\infty$	to -30.000	(normal approximation)	
Mann-Whitney U statistic	7809			
1-tailed p	<0.0001	(normal approximation, corrected for ties)		

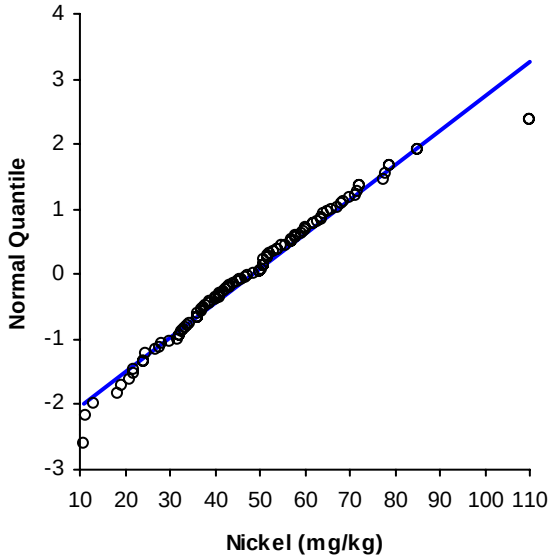
Hg by Group	**n**	**Mean**	**SD**	**SE**	**95% CI of Mean**		**Median**
Background	98	57.143	108.590	10.969	35.372	to 78.914	30.000
PGOU	103	233.403	414.746	40.866	152.345	to 314.461	67.000

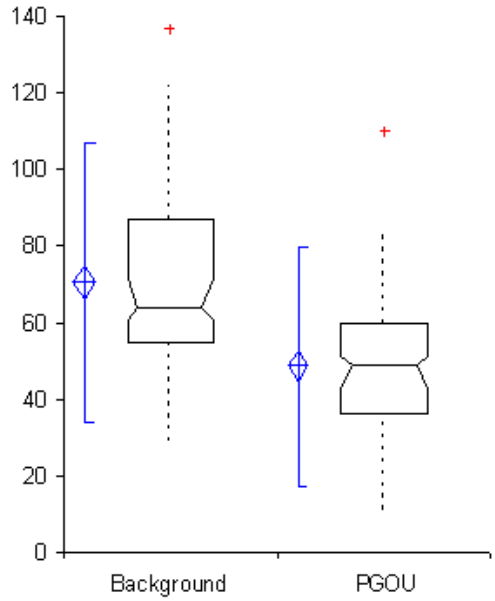
Figure L-14. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Nickel (Ni): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.9754	0.0517
Skewness	0.5751	0.0185
Kurtosis	0.8894	0.0966



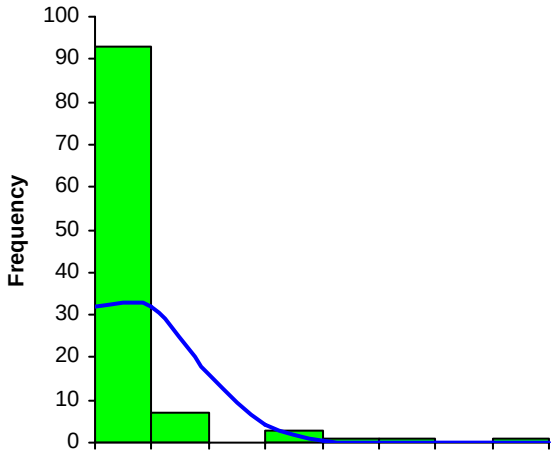


n	201			
Ni by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	12688.5	129.47	2256.5
PGOU	103	7612.5	73.91	7837.5
Difference between medians	20.900			
95.0% CI	–∞	to 25.400	(normal approximation)	
Mann-Whitney U statistic	2256.5			
1-tailed p	1.0000	(normal approximation, corrected for ties)		

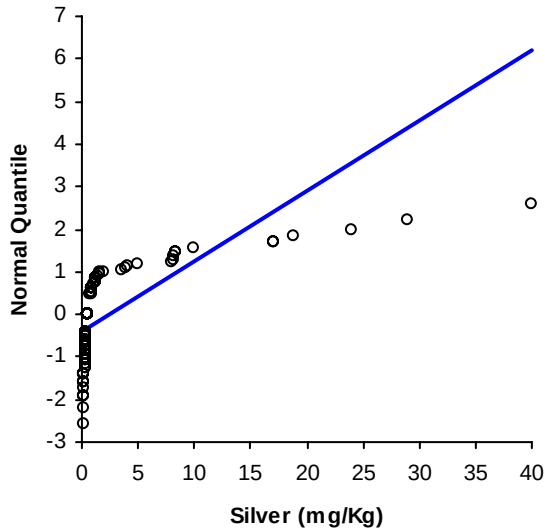
Ni by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	70.551	22.1737	2.2399	66.105	to 74.997	64.000
PGOU	103	48.513	18.9238	1.8646	44.814	to 52.211	48.600

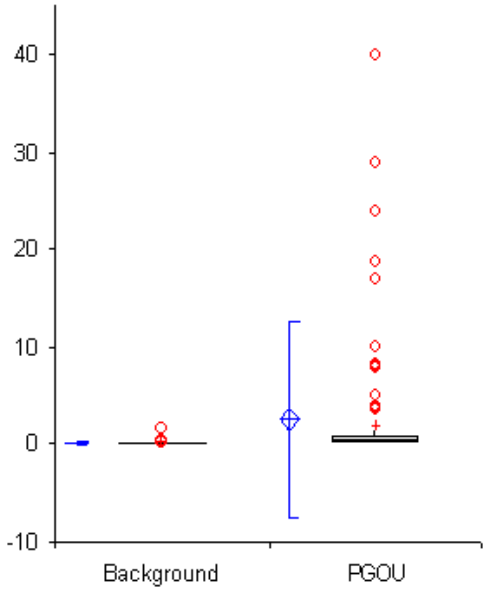
Figure L-15. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Silver (Ag): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.4094	<0.0001
Skewness	4.0609	<0.0001
Kurtosis	18.4622	<0.0001



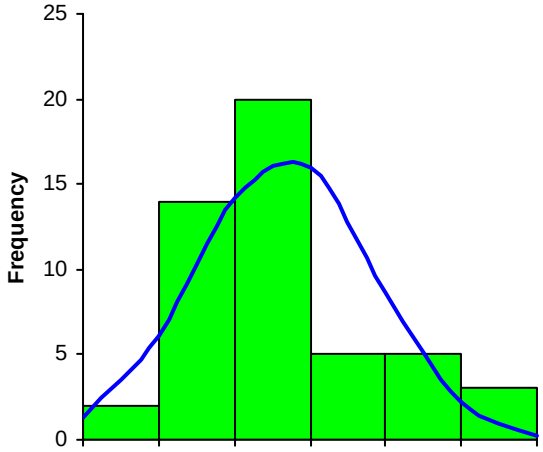


n	201			
Ag by Group	**n**	**Rank sum**	**Mean rank**	**U**
Background	98	4995.0	50.97	9950.0
PGOU	103	15306.0	148.60	144.0
Difference between medians	-0.460			
95.0% CI	–∞	to -0.440	(normal approximation)	
Mann-Whitney U statistic	9950			
1-tailed p	<0.0001	(normal approximation, corrected for ties)		

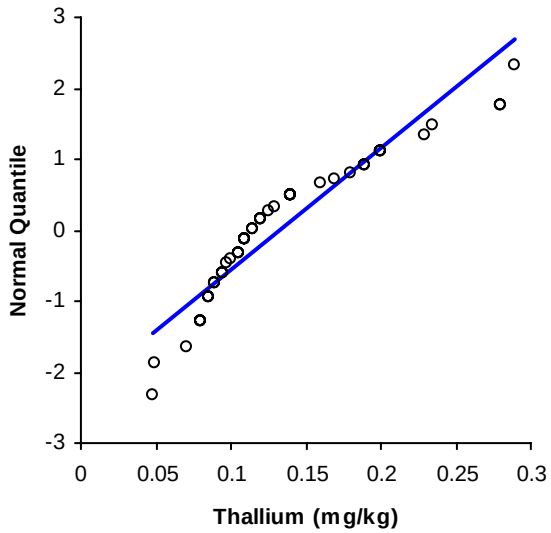
Ag by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	0.075	0.1696	0.017	0.041	to 0.109	0.040
PGOU	103	2.539	6.1265	0.604	1.341	to 3.736	0.500

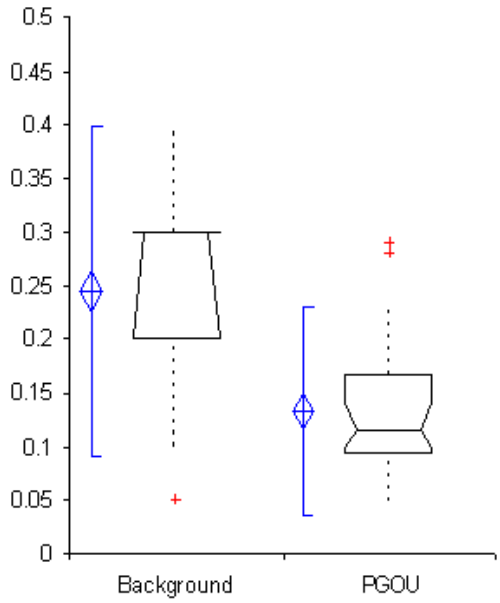
Figure L-16. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Thallium (Tl): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.884	0.0002
Skewness	1.169	0.0019
Kurtosis	0.853	0.197

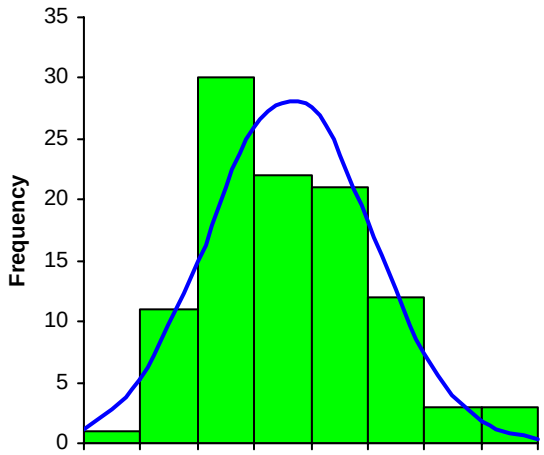




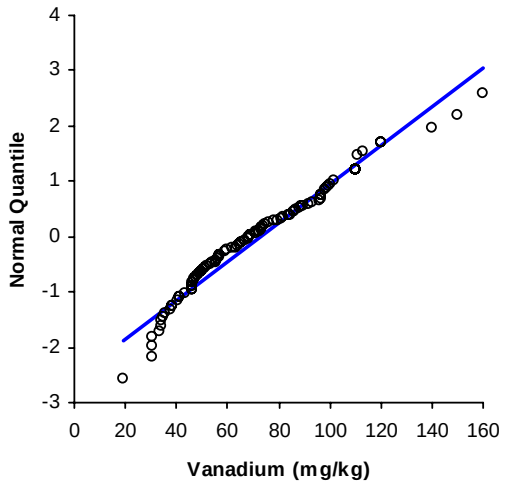
n	146						
Tl by Group	**n**	**Rank sum**	**Mean rank**	**U**			
Background	98	8766.5	89.45	788.5			
PGOU	48	1964.5	40.93	3915.5			
Difference between medians	0.110						
95.0% CI	−∞	to 0.151	(normal approximation)				
Mann-Whitney U statistic	788.5						
1-tailed p	1.0000	(normal approximation, corrected for ties)					
Tl by Group	**n**	**Mean**	**SD**	**SE**	**95% CI of Mean**		**Median**
Background	98	0.244	0.094	0.0095	0.226	to 0.263	0.300
PGOU	48	0.133	0.059	0.0085	0.116	to 0.151	0.115

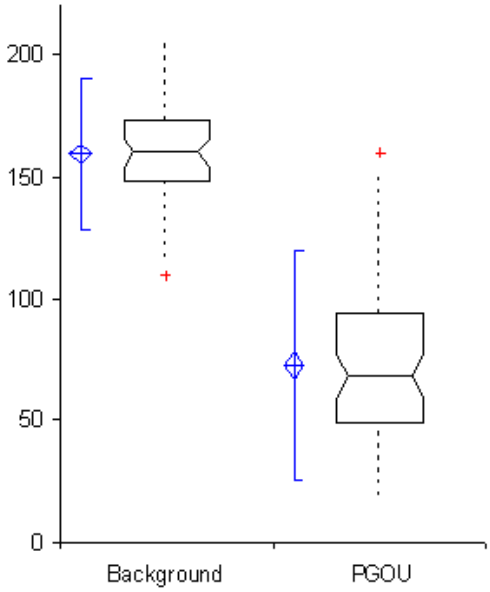
Figure L-17. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Vanadium (V): PGOU Data versus Background



	Coefficient	p
apiro-Wilk	0.964	0.006
Skewness	0.562	0.021
Kurtosis	-0.079	0.999



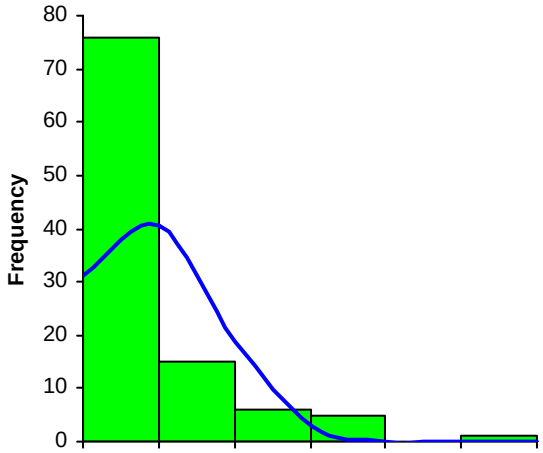


n	204			
V by Group	n	Rank sum	Mean rank	U
Background	98	15138.0	154.47	101.0
PGOU	106	5772.0	54.45	10287.0
Difference between medians	89.700			
95.0% CI	–∞	to 95.200	(normal approximation)	
Mann-Whitney U statistic	101			
1-tailed p	1.0000	(normal approximation, corrected for ties)		

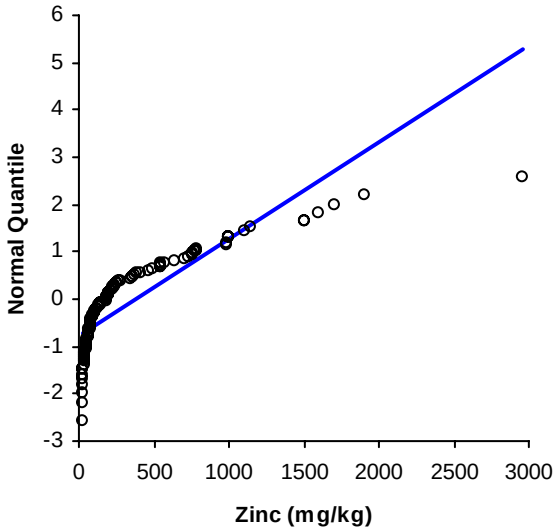
V by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	159.490	18.878	1.9070	155.705	to 163.275	160.500
PGOU	106	72.529	28.431	2.7615	67.054	to 78.005	68.650

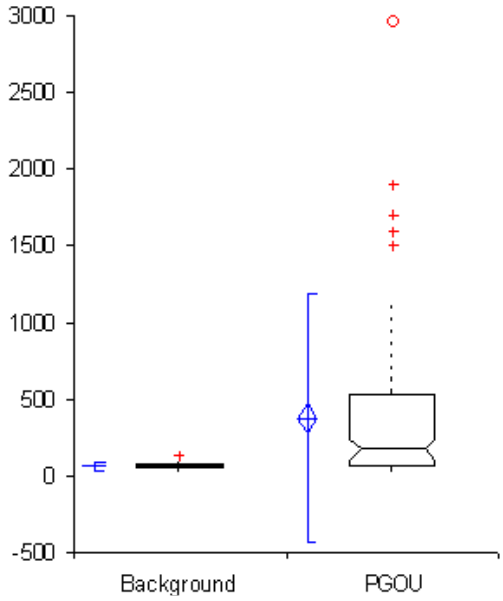
Figure L-18. RI/FS for PGOU Soil Sites in Areas 20, 21, and 49

Statistics for Zinc (Zn): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.7063	<0.0001
Skewness	2.4426	<0.0001
Kurtosis	7.7533	<0.0001

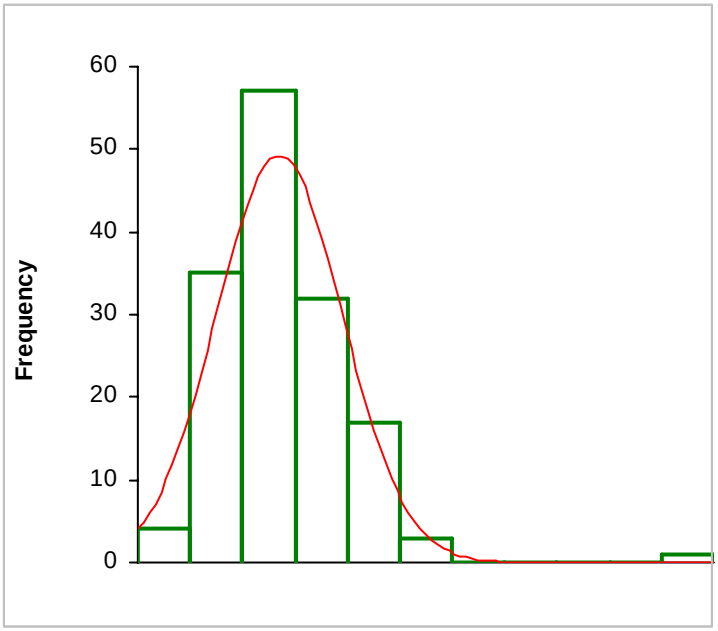




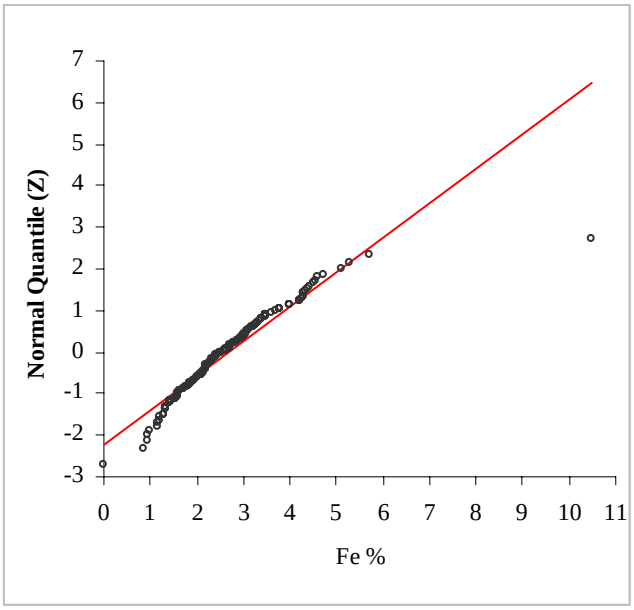
n	204			
Zinc by Group	n	Rank sum	Mean rank	U
Background	98	7248.5	73.96	7990.5
PGOU	106	13661.5	128.88	2397.5
Difference between medians	-109.0			
95.0% CI	–∞	to -63.0	(normal approximation)	
Mann-Whitney U statistic	7990.5			
1-tailed p	<0.0001	(normal approximation, corrected for ties)		

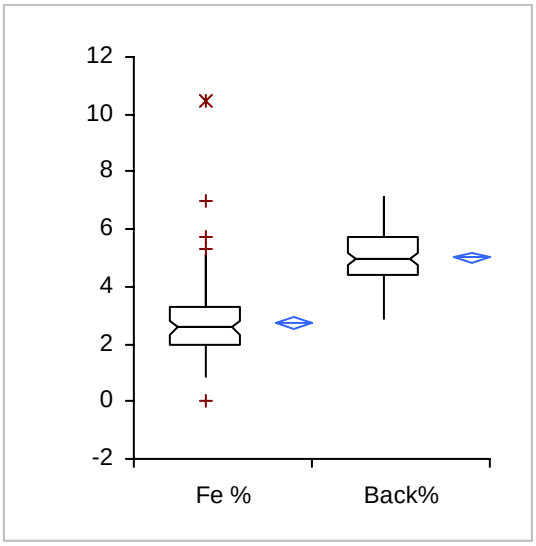
Zinc by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	63.8	17.74	1.79	60.3	to 67.4	62.5
PGOU	106	378.4	491.92	47.78	283.7	to 473.2	182.5

Statistics for Iron (Fe): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.88	<0.0001
Skewness	2.01	-
Kurtosis	10.75	-





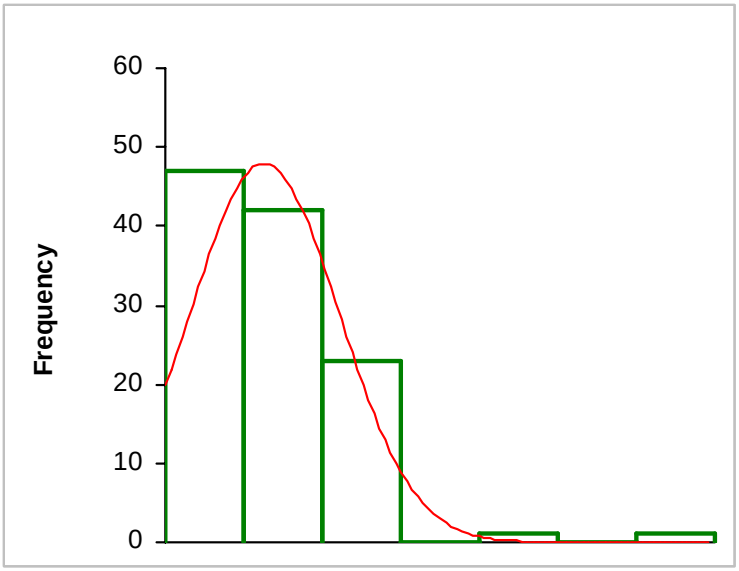
n	251

Fe by Group	n	Rank sum	Mean rank	U
Background	98	18986.5	193.74	858.5
PGOU	153	12639.5	82.61	14135.5

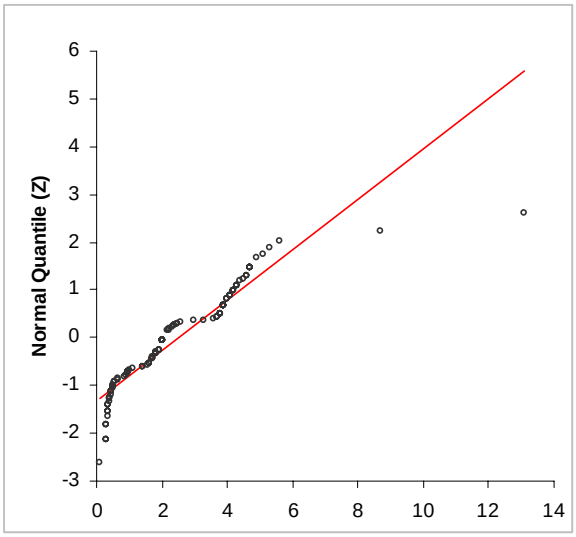
Median difference	2.390		
95.0% CI	–∞	to 2.600	(normal approximation)
Mann-Whitney's statistic	858.5		
Z statistic	11.83		
1-tailed p	1.0000	(normal approximation, corrected for ties)	

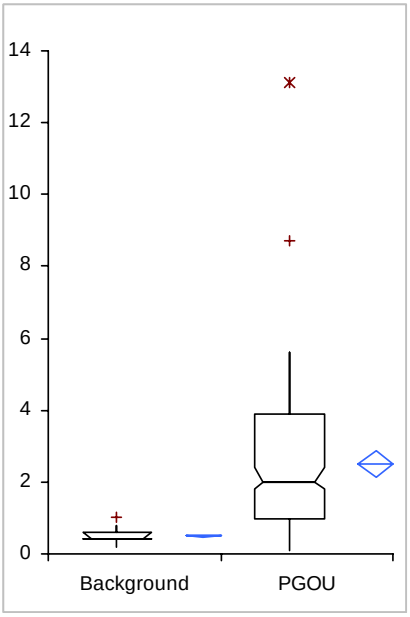
Fe by Group	n	Mean	SE	SD	95% CI		Median
Fe %	153	2.732	0.1003	1.2406	2.300	to 2.800	2.600
Back%	98	5.026	0.0920	0.9112	4.750	to 5.190	4.935

Statistics for Molybdenum (Mo): PGOU Data versus Background



	Coefficient	p
Shapiro-Wilk	0.85	<0.0001
Skewness	1.85	-
Kurtosis	7.73	-





n	206

Mo by Group	n	Rank sum	Mean rank	U
Background	98	6254.5	63.82	9180.5
PGOU	108	15066.5	139.50	1403.5

Median difference	-1.6000		
95.0% CI	–∞	to -1.4000	(normal approximation)
Mann-Whitney's statistic	9180.5		
Z statistic	-9.16		
1-tailed p	<0.0001	(normal approximation, corrected for ties)	

Mo by Group	n	Mean	SD	SE	95% CI of Mean		Median
Background	98	0.4918	0.18426	0.01861	0.4000	to 0.6000	0.4000
PGOU	108	2.5241	1.93776	0.18646	1.8300	to 2.4000	2.0000

Table L-1 Summary of Background Tailings Data
RI/FS for PGOU Soil Sites in Areas 20, 21, and 49
Aerojet Superfund Site
Sacramento County, California

Soil Group	Sample ID	Soil Unit	% Clay	Ag	Al %	As	Ba	Be	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	Hg (ppb)	K %	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sr	Ti %	Tl	V	Zn
X	ABG-007	246	35	0.04	9.39	6	660	0.5	0.1	1.42	0.3	26	119	41	4.97	30	1.16	1.07	1280	0.8	0.89	73	710	16	0.2	185	0.4	0.3	147	88
X	ABG-008	223	55	0.08	11.13	8.4	710	0.5	0.1	0.95	0.2	31	119	52	5.87	30	1.05	1.13	1400	0.6	0.74	95	630	12.5	0.6	142	0.42	0.3	158	91
X	ABG-014	245	27	0.02	7.47	5.2	550	0.5	0.1	1.84	0.1	17	134	30	4.2	10	1.08	1.13	730	0.6	1.12	78	540	13.5	0.2	228	0.39	0.3	134	59
X	ABG-016	245	50	0.06	11.11	8.2	670	0.5	0.1	1.03	0.2	29	122	51	5.71	30	1.06	1.14	1360	0.8	0.7	91	630	15	0.4	136	0.43	0.3	165	92
X	ABG-017	245	12	0.04	8.09	4.4	680	0.25	0.1	2.42	0.1	22	116	37	4.89	10	0.97	1.38	905	0.4	1.34	65	790	11	0.1	298	0.42	0.3	161	72
X	ABG-021	245	38	0.04	10.18	8.6	580	0.5	0.1	0.85	0.1	16	45	27	4.77	10	1.15	0.75	700	0.6	0.82	40	450	17.5	0.2	159	0.45	0.3	130	71
X	ABG-022	245	25	0.04	7.74	5	590	0.5	0.2	1.77	0.1	19	105	31	4.45	20	1.16	1.06	710	0.6	1.08	62	660	14.5	0.1	229	0.42	0.3	141	67
X	ABG-023	245	12	0.02	6.79	5.6	600	0.25	0.1	2.14	0.1	17	113	30	4.08	10	1.09	1.12	790	0.4	1.13	55	580	11.5	0.2	245	0.36	0.2	142	56
X	ABG-024	245	50	0.10	11.48	9.8	600	0.5	0.2	0.72	0.2	27	127	53	6.22	50	0.79	0.99	1220	0.8	0.47	104	590	13.5	0.4	102	0.42	0.2	166	85
X	ABG-025	245	42	0.04	9.17	8	650	0.5	0.1	1.76	0.2	26	125	44	5.07	60	1.07	1.21	1150	0.6	1.02	71	640	9.5	0.2	213	0.45	0.4	166	79
X	ABG-026	245	42	0.06	10.8	9.6	530	0.5	0.2	0.63	0.1	26	124	51	6.03	20	0.89	0.93	995	0.8	0.47	94	720	14	0.6	90	0.43	0.3	167	81
X	ABG-027	245	8	0.04	7.12	11	570	0.25	0.1	2.64	0.1	21	121	41	4.27	10	0.92	1.41	830	0.4	1.48	62	690	14	0.2	332	0.37	0.3	145	69
X	ABG-033	245	8	0.02	7.22	4.6	850	0.5	0.1	2.36	0.1	20	183	31	4.06	10	1.19	1.18	825	0.4	1.16	62	610	10	0.1	245	0.35	0.4	138	56
X	ABG-034	245	60	0.06	11.79	12	600	0.5	0.1	0.71	0.2	32	125	57	6.45	60	0.82	0.98	1350	0.8	0.5	109	620	15	0.6	103	0.42	0.2	178	84
X	ABG-035	245	43	1.64	8.09	6.4	460	0.5	0.1	0.77	0.1	18	113	25	4.73	40	0.88	0.53	495	1	0.52	63	460	14.5	0.8	101	0.42	0.3	160	52
X	ABG-039	246	43	0.04	9.91	7.6	670	0.5	0.1	1.13	0.2	26	114	46	5.28	10	1.11	1.11	1155	0.8	0.88	86	560	12	0.2	151	0.42	0.3	151	85
X	ABG-041	246	42	0.06	11.17	9.6	690	0.5	0.2	0.86	0.3	36	129	56	5.99	40	1.11	1.15	1600	0.8	0.64	112	710	15	0.4	117	0.4	0.3	164	93
X	ABG-042	223	55	0.06	10.78	10.4	740	0.5	0.1	0.92	0.3	36	119	57	5.64	30	0.89	1.15	1760	0.6	0.74	106	560	12	0.4	137	0.4	0.4	164	93
X	ABG-044	245	21	0.12	8.17	5	710	0.5	0.1	2.09	0.1	26	145	35	4.32	100	1.51	1.3	860	0.6	1.28	80	460	12	0.1	262	0.36	0.3	143	56
X	ABG-045	245	39	0.04	6.98	3.6	730	0.5	0.1	2.52	0.1	19	99	25	3.4	30	1.71	1.2	600	0.4	1.66	39	470	7.5	0.1	326	0.3	0.1	122	41
X	ABG-047	245	19	0.04	7.9	4.6	670	0.5	0.1	2.66	0.1	25	136	34	4.76	10	1.2	1.53	845	0.4	1.48	59	680	6.5	0.4	298	0.44	0.1	163	58
X	ABG-048	245	12	0.28	7.2	5.2	600	0.25	0.1	2.39	0.4	19	134	53	4.52	220	1.13	1.3	745	0.6	1.23	64	690	63.5	0.4	256	0.39	0.3	157	129
X	ABG-049	245	8	0.04	6.75	5.2	570	0.25	0.1	2.63	0.1	20	142	30	4.31	10	1.22	1.39	725	0.4	1.23	47	520	7	0.1	274	0.35	0.2	153	50
X	ABG-050	246	42	0.06	10.76	9	680	0.5	0.2	0.79	0.3	35	115	50	5.78	50	0.93	1.03	1900	0.8	0.62	96	610	13	0.4	118	0.41	0.3	157	83
X	ABG-051	245	32	0.06	7.94	5.8	580	0.5	0.1	2.12	0.3	26	151	36	4.58	40	1.4	1.27	800	0.6	1.12	72	720	16	0.2	240	0.37	0.3	147	75
X	ABG-052	243	15	0.06	10.48	6.8	760	1	0.2	1.1	0.2	35	118	46	5.48	20	1.36	1.19	1295	0.6	0.94	91	650	12	0.2	163	0.43	0.2	150	83
X	ABG-053	246	42	0.08	12.25	7.4	640	1	0.1	0.67	0.1	37	144	52	6.7	150	1.15	1.14	1005	0.6	0.54	104	590	12	0.4	103	0.46	0.3	181	77
X	ABG-054	245	16	0.02	7.79	3.4	610	0.5	0.1	2.69	0.1	25	143	31	4.62	10	1.23	1.5	755	0.2	1.39	50	450	6	0.1	292	0.4	0.3	158	52
X	ABG-055	245	10	0.02	7.56	5	750	0.5	0.1	2.68	0.1	24	140	33	4.63	10	1.22	1.57	740	0.4	1.32	65	540	7	0.1	281	0.4	0.2	166	50
X	ABG-056	246	22	0.04	10.38	6.8	690	0.5	0	1.33	0.2	34	139	47	5.55	60	1.27	1.31	1140	0.6	0.99	89	560	10	0.2	175	0.45	0.2	164	77
X	ABG-057	245	12	0.04	7.44	4.8	600	0.5	0.1	2.26	0.1	30	161	33	4.87	30	1.26	1.3	880	0.6	1.18	53	600	20.5	0.2	265	0.43	0.1	172	59
X	ABG-058	246	41	0.06	11.66	8.4	620	1	0.1	0.84	0.2	39	188	50	6.4	110	0.92	1.02	1500	0.8	0.58	102	620	13.5	0.2	114	0.44	0.2	177	75
X	ABG-059	245	23	0.02	8.84	5.6	640	0.5	0.1	1.73	0.05	26	134	32	5.31	20	1.07	1.2	540	0.4	0.94	53	270	15	0.4	199	0.44	0.1	178	44
X	ABG-060	245	6	0.02	7.17	4.4	610	0.5	0.1	2.58	0.1	24	171	31	4.24	60	1.33	1.5	770	0.4	1.42	64	480	6.5	0.1	294	0.36	0.1	147	44
X	ABG-061	243	18	0.04	11.1	6.8	710	1	0.1	0.91	0.1	36	138	52	6.05	70	1.3	1.29	1095	0.6	0.75	95	470	10.5	0.4	133	0.43	0.4	163	82
X	ABG-062	245	6	0.04	6.63	3.6	680	0.5	0.1	2.12	0.1	22	155	25	4.13	50	1.63	1.2	645	0.4	1.28	50	380	7	0.1	276	0.3	0.3	143	41
X	ABG-063	246	45	0.04	11.44	9.2	670	1	0.1	0.83	0.3	38	128	55	6.04	60	1.18	1.13	1365	0.8	0.62	104	610	13	0.6	120	0.42	0.4	166	83
X	ABG-065	246	40	0.08	11.56	8.6	570	1	0.2	0.72	0.1	37	147	57	6.46	100	0.89	1.05	935	0.6	0.47	109	550	15	0.4	109	0.44	0.3	173	76
X	ABG-066	246	36	0.04	9.94	6.8	690	0.5	0.1	0.96	0.1	33	130	51	5.47	90	1.07	1.17	870	0.6	0.72	86	480	10.5	0.2	140	0.44	0.4	151	77
X	ABG-067	245	15	0.04	8.58	3.4	810	0.5	0.1	2.26	0.1	24	90	32	5	30	1.15	0.98	645	0.4	1.52	61	900	11.5	0.1	364	0.42	0.1	149	60
X	ABG-069	245	6	0.04	6.59	3.6	590	0.5	0.1	2.21	0.05	24	207	25	4.06	30	1.28	1.24	780	0.4	1.14	58	390	6.5	0.1	257	0.35	0.2	143	38
X	ABG-070	245	5	0.02	6.46	3.4	540	0.5	0.1	2.5	0.05	24	241	26	4.41	30	1.24	1.47	785	0.4	1.18	57	390	9.5	0.1	265	0.37	0.1	159	40
X	ABG-071	245	3	0.02	6.43	3.4	770	0.5	0.1	2.45	0.05	20	133	23	3.91	20	1.84	1.32	620	0.4	1.34	40	380	4.5	0.1	301	0.28	0.4	139	32
X	ABG-072	245	10	0.04	7.12	3.2	750	0.5	0.1	2.39	0.1	21	164	28	3.54	30	1.83	1.38	690	0.4	1.44	57	570	6.5	0.1	299	0.27	0.3	124	46
X	ABG-073	245	23	0.08	7.39	4	580	0.5	0.1	2.36	0.1	24	134	31	4.41	40	1.17	1.37	695	0.4	1.36	65	510	6.5	0.1	273	0.39	0.2	149	47
X	ABG-074	245	42	0.08	12.21	6.4	670	1	0.1	0.71	0.1	40	156	58	6.68	60	1.07	1.26	875	0.6	0.52	113	480	12.5	0.4	111	0.47	0.3	176	77
X	ABG-075	246	37	0.06	10.65	4.8	700	0.5	0.1	1.05	0.2	37	139	54	5.94	70	1.05	1.29	965	0.6	0.71	82	490	10	0.1	157	0.44	0.4	166	80
X	ABG-076	245	9	0.02	7.42	3.8	550	0.5	0.1	2.66	0.1	25	120	33	4.44	10	1.09	1.54	790	0.4	1.47	61	720	7.5	0.1	316	0.36	0.3	148	51
X	ABG-077	245	26	0.06	9.5	3.6	770	0.25	0.1	2.65	0.1	23	129	34	5.46	40	1.22	1.65	850	0.4	1.44	75	1330	12.5	0.1	304	0.49	0.2	162	64
X	ABG-078	246	40	0.04	11.5	14.4	840	0.25	0.6	1.05	0.3	41	143	51	7.1	60	1.07	1.29	1790	0.6	0.75	137	640	15	0.4	171	0.45	0.4	177	63
X	ABG-079	245	9	0.02	7.56	4.8	610	0.5	0.2	2.98	0.1	28	163	36	4.57	30	1.17	1.96	845	0.2	1.45	83	580	7.5	0.6	327	0.37	0.3	160	53
X	ABG-080	246	60	0.08	12.41	8.2	670	1	0.2	0.64	0.2	40	141	57	6.71	70	1.05	1.11	1200	0.6	0.47	105	590	12.5	0.8	103	0.45	0.3	179	82
X	ABG-081	245	5	0.04	6.46	3.8	640	0.5	0.1	2.5	0.2	19	168	27	3.4	20	1.47	1.26	675	0.4	1.48	64	380	7	0.2	309	0.3	0.3	123	41
X	ABG-082	245	11	0.04	8.05	4.4	800	0.25	0.2	2.96	0.1	20	144	31	4.54	30	1.69	1.71	810	0.4	1.57	68	510	5.5	0.2	331	0.36	0.3	152	48
X	ABG-085	246	45	0.08	11.57	6	610	1	0.1	0.72	0.1	36	127	55	6.35	150	0.88	1.15	945	0.4	0.49	87	500	11	0.2	113	0.43	0.3	160	80
X	ABG-086	245	16	0.06	8.18	4.8	650	0.5	0.1	1.99	0.2	26	118	37	4.86	20	1.11	1.27	720	0.4	1.16	60	680	11.5	0.2	252	0.42	0.3	154	70
X	ABG-087	245	13	0.06	7.25	5	610	0.5	0.1	2.62	0.1	25	134	36	4.62	20	1.08	1.55	705	0.4	1.32	52	600	8.5	0.2	271	0.42	0.4	167	57
X	ABG-088	245	32	0.08	9.49	8.2	730	0.5	0.2	1.43	0.3	36	123	50	5.2	50	1.1	1.35	1205	0.4	0.94	82	570	9.5	0.2	193	0.42	0.4	154	86
X	ABG-090	245	18	0.04	7.14	5.2	580	0.5	0.2	1.89	0.1	17	104	32	3.89	50	1.17	1.18	685	0.6	1.19	55	440	9.5	0.1	228	0.34	0.2	123	56
X	ABG-091	245	8	0.06	6.26	5.8	440	0.25	0.1	2.67	0.1	17	127	41	3.7	30	1.01	1.55	700	0.4	1.28	55	520	12	0.1	262	0.29	0.1	126	52
X	ABG-092	245	6	0.02	6.58	4.2	650	0.25	0.2	2.09	0.1	17	126	26	3.45	20	1.4	1.24	665	0.4	1.23	48	330	7.5	0.1	266	0.29	0.2	128	43
X	ABG-093	245	9	0.02	7.42	3.4	740	0.5	0.2	2.89	0.1	20	188	28	3.8	20	1.67	1.69	740	0.4	1.63	56	460	7	0.1	361	0.3	0.2	146	43
X	ABG-094	245	10	0.04	5.35	3	640	0.25	0.1	0.75	0.1	16	99	15	2.91	50	1.45	0.36	805	0.4	0.53	33	310	14.5	0.2	129	0.4	0.3	110	33
X	ABG-095	246	60	0.02	11.91	4	590	2.5	0.4	0.72	0.05	33	132	28	6.59	60	0.9	1.11	800	0.2	0.62	88	480	7	0.1	124	0.48	0.3	207	41
X	ABG-097	245	10	0.04	8.75	4.4	720	1	0.2	2.48	0.1	23	132	37	4.88	20	1.48	1.43	815	0.4	1.43	76	680	9	0.1	297	0.45	0.3	174	62
X	ABG-098	245	4	0.02	6.97	4.8	540	0.25	0.1	2.94	0.1	18	127	32	3.84	10	1.14	1.55	730	0.4	1.56	51	400	4.5	0.1	319	0.35	0.2	151	44

Table L-1 Summary of Background Tailings Data
RI/FS for PGOU Soil Sites in Areas 20, 21, and 49
Aerojet Superfund Site
Sacramento County, California

Soil Group	Sample ID	Soil Unit	% Clay	Ag	Al %	As	Ba	Be	Bi	Ca %	Cd	Co	Cr	Cu	Fe %	Hg (ppb)	K %	Mg %	Mn	Mo	Na %	Ni	P	Pb	Sb	Sr	Ti %	Tl	V	Zn
X	ABG-099	245	8	0.01	6.11	3.8	570	0.25	0.2	2.51	0.1	18	120	29	3.47	10	1.14	1.28	610	0.2	1.66	41	500	7.5	0.1	327	0.29	0.1	128	46
X	ABG-100	245	12	0.02	5.66	3.6	620	0.25	0.1	1.83	0.1	16	94	19	3.11	30	1.34	0.85	770	0.4	1.13	34	390	9	0.1	233	0.34	0.3	117	35
X	ABG-108	246	35	0.08	10.84	9.4	670	2.5	0.2	0.76	0.2	34	128	57	6.15	80	0.95	1.02	1450	0.8	0.58	102	550	13.5	0.2	116	0.42	0.3	169	85
X	ABG-109	246	45	0.08	10.44	7.6	610	1	0.2	0.89	0.2	33	136	59	6.13	130	1	1.18	1070	0.6	0.63	97	520	12.5	0.2	126	0.43	0.3	171	82
X	ABG-110	245	30	0.04	8.16	6	650	1.5	0.2	1.22	0.05	23	115	28	4.69	20	1.51	0.82	770	0.8	0.84	54	380	12	0.2	177	0.37	0.2	158	51
X	ABG-113	245	9	0.04	7.87	6	590	1	0.2	3.02	0.1	24	124	39	4.88	20	1.07	1.62	990	0.4	1.57	66	740	8.5	0.1	325	0.42	0.05	170	64
X	ABG-114	246	42	0.06	10.26	8.2	660	2.5	0.4	1.39	0.2	30	142	48	5.78	100	1.21	1.19	1245	0.6	0.92	87	510	11	0.2	180	0.46	0.3	180	74
X	ABG-115	245	2	0.02	7.07	4.6	520	0.25	0.1	3.5	0.1	21	229	34	4.45	10	1.16	1.68	765	0.2	1.56	58	530	4.5	0.1	348	0.4	0.2	166	54
X	ABG-116	245	18	0.2	7.18	4.2	660	0.25	0.2	2.58	0.9	19	155	26	4.22	10	1.3	1.46	755	0.4	1.6	55	480	9.5	0.1	329	0.39	0.2	148	54
X	ABG-125	246	38	0.06	8.92	6.8	580	1.5	0.2	2.07	0.2	25	127	46	5.17	90	1.16	1.39	840	0.6	1.26	64	520	12.5	0.1	257	0.42	0.2	180	72
X	ABG-129	245	25	0.02	9.11	2.4	640	1.5	0.2	1.46	0.1	24	95	31	5.1	30	1.07	1.07	965	0.4	1.1	54	530	9	0.1	213	0.48	0.1	150	65
X	ABG-130	245	60	0.02	7.78	12	530	0.5	0.6	0.36	0.05	10	111	20	4.72	10	1.06	0.5	265	0.4	0.48	45	190	10	0.4	87	0.31	0.2	151	26
X	ABG-132	245	18	0.08	7.16	5	570	0.25	0.1	2.43	0.1	19	145	68	4.39	10	1.1	1.3	720	0.4	1.48	49	440	7.5	0.1	293	0.41	0.1	154	56
X	ABG-134	245	34	0.04	8.59	0.6	1020	1.5	0.2	1.63	0.05	17	68	14	6.06	30	0.94	0.62	350	0.2	1.24	29	240	11	0.1	419	0.59	0.3	187	61
X	ABG-143	245	17	0.08	7.92	5.2	650	0.25	0.2	2.68	0.2	26	136	41	4.9	40	1.12	1.49	1110	0.4	1.39	75	740	20.5	0.1	278	0.42	0.2	168	69
X	ABG-144	246	32	0.12	10.72	8.6	760	0.25	0.1	1.45	0.3	35	140	57	5.79	60	1.19	1.38	1420	0.6	0.93	93	580	12	0.2	186	0.43	0.2	173	89
X	ABG-145	245	27	0.04	8.58	6	600	0.25	0.2	3.07	0.1	25	165	42	5.27	20	1.01	1.93	925	0.2	1.5	69	600	9	0.1	326	0.42	0.3	179	64
X	ABG-146	245	22	0.04	8.57	4.6	710	0.25	0.2	2.87	0.1	26	123	35	4.75	80	1.15	1.58	875	0.2	1.71	55	600	7	0.1	378	0.42	0.2	161	64
X	ABG-151	246	30	0.08	9.88	8.2	630	0.25	0.4	1.26	0.2	29	127	54	5.49	990	1.04	1.18	1010	0.8	0.86	68	630	17	0.2	162	0.45	0.2	175	78
X	ABG-153	245	25	0.02	8.31	5	570	0.5	0.1	2.9	0.1	23	136	43	5.18	10	1.05	1.72	860	0.4	1.38	63	600	6	0.2	289	0.44	0.2	182	58
X	ABG-154	246	42	0.46	11.52	8.4	610	0.25	0.2	1.1	0.3	34	145	60	6.07	80	1.2	1.22	1345	0.8	0.71	98	850	17	0.6	136	0.44	0.3	176	86
X	ABG-155	245	23	0.12	8.39	5.8	590	0.25	0.1	3.21	0.2	27	166	49	5.41	400	1.09	1.9	1065	0.4	1.62	75	800	11	0.1	328	0.5	0.1	191	71
X	ABG-156	245	13	0.08	8.75	5.8	760	0.5	0.1	3.32	0.1	28	99	40	5.13	10	1.15	1.65	875	0.2	1.78	48	800	10	0.1	419	0.46	0.1	193	73
X	ABG-158	245	18	0.04	7.35	5	530	0.25	0.1	3.09	0.1	24	169	37	5.16	30	1.11	1.69	835	0.4	1.21	50	400	10.5	0.1	286	0.45	0.1	196	52
X	ABG-159	245	25	0.06	8.44	4.6	550	0.25	0.1	2.68	0.1	26	128	39	5.06	30	1.06	1.62	955	0.4	1.38	65	640	9.5	0.1	279	0.43	0.1	177	58
X	ABG-160	246	42	0.2	11.96	10.6	750	0.25	0.2	0.99	0.2	47	149	63	6.57	120	0.92	1.37	1830	0.6	0.74	122	580	13	0.4	132	0.43	0.1	178	76
X	ABG-161	245	22	0.08	8.75	5.8	640	0.25	0.1	2.86	0.1	27	140	37	5.58	50	0.96	1.72	985	0.4	1.46	61	800	12	0.1	302	0.48	0.2	190	66
X	ABG-164	245	6	0.08	7.22	4.6	470	0.25	0.1	3.55	0.1	25	185	37	4.9	140	1.01	1.88	915	0.4	1.5	54	470	11.5	0.1	333	0.41	0.2	184	51
X	ABG-165	245	36	0.08	8.9	6.6	520	0.25	0.1	1.85	0.05	29	160	33	5.31	50	0.91	0.99	790	0.4	1.04	57	280	8.5	0.4	221	0.47	0.3	189	40
X	ABG-170	245	23	0.04	9.28	3	670	0.25	0.2	2.6	0.05	21	94	36	5.19	30	0.86	1.41	575	0.2	1.51	53	640	9	0.1	326	0.47	0.1	156	57
X	ABG-172	245	22	0.04	8.39	3.4	600	0.25	0.1	2.22	0.05	21	128	35	5.16	20	0.87	1.18	570	0.2	1.48	58	420	9.5	0.1	290	0.46	0.1	169	56
X	ABG-173	245	20	0.02	7.93	2.4	620	0.5	0.1	2.15	0.05	21	102	26	4.76	10	0.75	1.16	510	0.2	1.46	46	380	7	0.1	280	0.45	0.3	150	47

Notes and Key:
Concentrations are in milligrams per kilogram (mg/kg) unless otherwise noted
ppb = Parts per billion
% = Percent
X = Xerorthents (coarse tailings)

Abbreviations:

Ag = Silver	Cr = Chromium	Ni = Nickel
Al = Aluminum	Cu = Copper	P = Phosphorus
As = Arsenic	Fe = Iron	Pb = Lead
Ba = Barium	Hg = Mercury	Sb = Antimony
Be = Beryllium	K = Potassium	Sr = Strontium
Bi = Bismuth	Mg = Magnesium	Ti = Titanium
Ca = Calcium	Mn = Manganese	Tl = Thallium
Cd = Cadmium	Mo = Molybdenum	V = Vanadium
Co = Cobalt	Na = Sodium	Zn = Zinc

Table L-2 *Summary Statistics for Background Metal*
RI/FS for PGOU Soil Sites in Areas 20, 21, and 49
Aerojet Superfund Site
Sacramento County, California

Metal	Symbol	Number of Samples	Minimum	Maximum	Mean	Median	Standard Deviation	CV	Skewness	Variance	90% UCL	Distribution
Aluminum	Al %	98	5.35	12.41	8.78	8.39	1.80	0.21	0.38	3.26	9.02	Gamma
Antimony	Sb	98	0.1	0.8	0.22	0.20	0.17	0.76	1.59	0.03	0.27	Nonparametric
Arsenic	As	98	0.6	14.4	6.0	5.2	2.4	0.4	0.9	5.9	6.3	Gamma
Barium	Ba	98	440	1,020	644	640	89	0.1	0.9	7952	655	Normal
Beryllium	Be	98	0.25	2.5	0.58	0.50	0.46	0.79	2.63	0.21	0.72	Nonparametric
Cadmium	Cd	98	0.05	0.9	0.15	0.10	0.11	0.74	3.78	0.01	0.18	Nonparametric
Chromium	Cr	98	45	241	135	132	29	0.2	0.7	824	138	Nonparametric
Cobalt	Co	98	10	47	26.1	25.0	7.1	0.3	0.5	50.7	27.0	Nonparametric
Copper	Cu	98	14	68	39.4	37.0	12.0	0.3	0.2	142.9	41.0	Nonparametric
Iron	Fe (%)	98	2.91	7.1	5.026	4.935	0.911	0.181	0.041	0.83	5.145	Normal
Lead	Pb	98	4.5	63.5	11.3	11.0	6.3	0.6	5.9	39.9	12.1	Lognormal
Manganese	Mn	98	265	1,900	927	843	314	0.3	1.1	98366	968	Nonparametric
Molybenum	Mo	98	0.2	1	0.492	0.4	0.184	0.375	0.405	0.034	0.5158	Nonparametric
Mercury	Hg ppb	98	10	990	57	30	109	2	7	11792	90	Nonparametric
Nickel	Ni	98	29	137	71	64	22	0.3	0.6	492	73	Nonparametric
Silver	Ag	98	0.01	1.64	0.08	0.04	0.17	2.26	8.41	0.03	0.13	Nonparametric
Thallium	Tl	98	0.05	0.4	0.24	0.30	0.09	0.39	-0.19	0.01	0.26	Nonparametric
Vanadium	V	98	110	207	159	161	19	0.1	-0.3	356	162	Normal
Zinc	Zn	98	26	129	64	63	18	0.3	0.4	315	66	Normal

Notes and Key:
Concentrations are in milligrams per kilogram (mg/kg) unless otherwise noted
CV = Coefficient of variation
UCL = Upper confidence limit
ppb = Parts per billion
% = Percent