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COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION NAVY

CLEAN II

TECHNICAL MEMORANDUM
BACKGROUND AND REFERENCE LEVELS
REMEDIAL INVESTIGATIONS
MARINE CORPS AIR STATION
EL TORO, CALIFORNIA

CTO-0076/0189

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TECHNICAL MEMORANDUM

The purpose of this technical memorandum is to present the procedures and results for the calculation of background concentrations for metals and reference levels for herbicides and pesticides. The general approach used in estimating the background concentrations for metals and reference levels for pesticides and herbicides in the soils at MCAS El Toro consists of: (1) compiling sample results that represent soil conditions that have not been affected by Station operations, (2) selecting appropriate statistical procedures, and (3) calculating background concentrations and reference levels. The specific details of the three steps are discussed in the following sections. In addition, this technical memorandum provides a discussion of how geologic formations sampled for background metals have effected the distribution of the data.

IDENTIFYING BACKGROUND DATA

This step involves identifying a background sample data set for MCAS El Toro. During the Phase I RI, three sets of soil data were compiled for use in these calculations. Two of these data sets are proposed to be combined and the appropriate statistical analyses be conducted to evaluate metal background concentrations. The third set of data will be used to calculate pesticide and herbicide reference levels.

The first set of data was collected from 11 locations in the foothills above MCAS El Toro and was used to calculate background metal concentrations for the Phase I Remedial Investigation (RI) (Jacobs Engineering 1993a, Appendix A3). These background concentrations were intended to be used for screening sites for significant releases during the Phase I RI. The data set consists of two soil samples that were collected at each location: one sample at ground surface, and the second sample from two feet below ground surface (bgs). A total of 24 samples were analyzed for metals by U.S. EPA methods and the results are reported on Table 1. The proposed background calculation method in this paper will use all 24 samples and will combine this data with the second set of data.

The second set of background metal data was compiled from a series of soil borings that were completed upgradient from Installation Restoration Program (IRP) sites (Jacobs Engineering 1993b). These metal results were used during the Phase I RI to establish metal background concentrations which were used for investigation-derived waste (IDW) disposal on the Station (Table 2). The evaluation included samples from depths from near the surface to over 150 feet in upgradient soil borings. For the proposed background calculation in this paper, only soil samples collected from less than 10 feet bgs will be used, or a total of 19 samples as presented on Table 2.

The third set of data was collected from 24 locations (47 total samples) across MCAS El Toro and were used to calculate background pesticide and herbicide concentrations for the Phase I RI (Jacobs Engineering 1993a, Appendix A3). These background concentrations were intended to be used for screening sites for significant releases. The data set consists of one to three soil samples which were collected at each location. These samples were analyzed for pesticides and herbicides by U.S. EPA methods and were reported on Table 3. For the proposed reference level calculation in this paper, all 47 soil samples will be used.

The locations of the three sets of samples are shown on Figure 1.

For this statistical analysis, data with a qualifier "J" or "B" were treated as valid measurements. A "B" qualifier means the concentration reported is greater than the instrument detection limit but less than the contract required detection limit for inorganic compounds. A "J" qualifier means the associated value is an estimated quantity for organic compounds. Prior to the calculation of any statistics, analytical data were pre-processed to include or exclude censored data. These censored data consist of non-detects assigned a "U" qualifier, the reported value of which is the instrument detection limit (IDL). Censored data were pre-processed as follows:

- Censored data exceeding the maximum detected value were excluded from further analysis
- A value of 1/2 the IDL was adopted for the remaining censored data

SELECTION OF STATISTICAL PROCEDURES

Once a background data set is compiled, the next step is to estimate the statistical procedures to be used for the calculations. The selection of an appropriate statistical procedure for a particular data set primarily is based on the distribution characteristics of the data. Figure 2 presents a flow chart which demonstrates the specific step-by-step decision process for the statistical calculations. The information presented in the flow chart on Figure 2 is consistent with statistical performance requirements in the U.S. EPA publications on statistical issues (U.S. EPA 1989b, 1992b, and 1994). The following discussion is guided by the flow chart on Figure 1. The approach adopted for this calculation makes no attempt to remove outliners because all data are assumed to represent background conditions for metals and anthropogenic conditions for pesticides and herbicides. Two sets of background and reference levels were calculated: (1) the upper 95% confidence limit on the 0.95 quantile, herein referred to as the 95% upper threshold limit (UTL); and (2) the 95% confidence limit on the mean/median, herein referred to as the 95% upper confidence limit (UCL). The 95% UTLs will be used at MCAS El Toro to screen analytical results for significant releases. The 95% UCLs are used in the baseline risk assessment to estimate risks associated with background metals at MCAS El Toro.

Descriptive statistics were calculated using the Data Analysis Tools available in MS Excel 5.0. Sample statistics calculated include, among others, the following: mean; standard deviation; skewness; minimum; maximum; and sample size. These statistics were calculated for both the original data (X) and log-transformed data (Y = ln X) in the case of metals to facilitate distributional testing and parametric estimation of the UTLs and UCLs (Table 4). Statistics were calculated only for the original data (X) for organics (Table 5).

Probability plots were constructed using GEO-EAS 1.2.1 to facilitate the assignment of a distribution. Because environmental data are most often lognormally distributed, these probability plots were produced using the log-transformed data. These plots are provided in Appendix A.

Nonparametric Approach

When the proportion of non-detects in a data set is greater than 50%, the assumption of a normal distribution is not valid. Therefore, based on Figure 2, these data sets cannot be statistically analyzed using a parametric method but are to be analyzed using a nonparametric method. Also,

a nonparametric statistical approach was used for those data sets that have a non-detect proportion less than 50% but do not show a normal or lognormal distribution.

When applied to non-normally distributed data, the power of parametric procedures is low, and their results may be in error. Nonparametric, or "distribution-free", methods make no assumptions about the distribution of data, and therefore, do not require that the data to be analyzed follow a normal, or any other specific distribution shape. Therefore, in the process of selecting an appropriate statistical procedure, the percentage of non-detects for each data set is determined. Based on the percentage of non-detects, a parametric or a nonparametric procedure is selected. If a data set contains more than 50 percent of non-detects, a nonparametric method is selected because a parametric method based on normal distribution of data is not appropriate for the data set. Per U.S. EPA (1994), when the assumptions of normality and lognormality cannot be verified, especially when a significant portion of samples are non-detects, the use of a nonparametric procedure should be considered. One of the advantages for the use of a nonparametric procedure is that non-detects do not have to be handled in any special manner (U.S. EPA 1994a).

Nonparametric Estimation of 95% UTLs

An upper 100(1 - α)% confidence limit for the true pth quantile is calculated nonparametrically using the procedure described by Gilbert (1987, p. 142). The equation is valid for n > 20 and is of the form:

$$u_{1-\alpha}(x_p) = p(n+1) + Z_{1-\alpha}[np(1-p)]^{1/2}$$

where $u_{1-\alpha}$ = rank of the 100(1 - α) confidence limit for the true pth quantile; n = sample size; $Z_{1-\alpha}$ = factor given in Appendix A1 of Gilbert (1987), and p = 0.95 in this case. Since $u_{1-\alpha}$ is usually not an integer, the UTL is obtained by linear interpolation between the closest order statistics. This calculation is implemented in MS Excel 5.0.

Nonparametric Estimation of 95% UCLs

An upper 100(1 - α)% confidence limit for the true pth quantile is calculated nonparametrically using the procedure described by Gilbert (1987, p. 142). The equation is valid for n > 20 and is of the form:

$$u_{1-\alpha}(x_p) = p(n+1) + Z_{1-\alpha}[np(1-p)]^{1/2}$$

where $u_{1-\alpha}$ = rank of the 100(1 - α) confidence limit for the true pth quantile; n = sample size; $Z_{1-\alpha}$ = factor given in Appendix A1 of Gilbert (1987), and p = 0.5 in this case. Since $u_{1-\alpha}$ is usually not an integer, the UTL is obtained by linear interpolation between the closest order statistics. This calculation is implemented in MS Excel 5.0.

Note that the resulting UCL represents the 95% confidence interval on the median, rather than the mean, in this nonparametric estimation. For the previous parametric estimation, the resulting UCL represents the 95% confidence interval on the mean. The 95% UCLs estimated

parametrically and nonparametrically, therefore, are not precisely the same. However, both provide conservative estimates of the central tendency of the data.

Parametric Approach

As indicated in Figure 1, if a data set contains less than 50% non-detects, a parametric method may become applicable. The validity of assumption of normality is required for parametric statistical procedures. Metal data sets were tested for normality and lognormality by constructing probability plots, assessing the magnitude of the sample skewness, and applying goodness-of-fit tests. Inspection of probability plots and the skewness were used to screen the data sets for normality or lognormality. If the magnitude of the skewness, as determined for both the original and transformed data, was large (greater than about 0.5), the data set was judged to be non-normal or non-lognormal. If the magnitude of the skewness was small (less than about 0.5), the W test is used to test whether a data set has been drawn from an underlying normal or lognormal distribution. The application of this test is described by Gilbert (1987, pp. 158-160) and implemented in MS Excel 5.0.

Parametric Estimation of 95% UTLs

An upper 100(1 - α) confidence limit for the true pth quantile for normally distributed data is calculated using the procedure described by Gilbert (1987, p. 136). This upper limit is

$$UL_{1-\alpha}(x_p) = \bar{x} + sK_{1-\alpha,p}$$

where x = sample mean; s = sample standard deviation; and $K_{1-\alpha,p}$ = factor given in Appendix A3 of Gilbert (1987). Application to lognormally distributed data results in an equation of the form

$$UL_{1-\alpha}(y_p) = \bar{y} + s_y K_{1-\alpha,p}$$

where y = sample mean of the log-transformed data; and s_y = standard deviation of the log-transformed data.. The UTL is then obtained by taking the inverse transform, i.e.,

$$UTL_{1-\alpha}(x_p) = \exp[UL_{1-\alpha}(y_p)]$$

This calculation is implemented in MS Excel 5.0.

Parametric Estimation of 95% UCLs

The upper one-sided 100(1 - α)% confidence limit for the mean of normally distributed data is given by Gilbert (1987, p. 138) as

$$UL_{1-\alpha} = \bar{x} + t_{1-\alpha,n-1}\frac{s}{\sqrt{n}}$$

where $t_{1-\alpha,n-1}$ = t statistic given in Appendix A2 of Gilbert (1987). The upper one-sided 100(1 - α)% confidence limit for the mean of lognormally distributed data is given by Gilbert (1987, p. 170) as

$$UL_{1-\alpha} = \exp\left(\bar{y} + 0.5s_y^2 + \frac{s_y H_{1-\alpha}}{\sqrt{n-1}}\right)$$

where $H_{1-\alpha}$ = factor given in Appendix A12 of Gilbert (1987), which is a function of s_y, n, and the chosen confidence level α. The calculation of these UCLs are implemented in MS Excel 5.0.

METALS

Results for metals are summarized in Table 4. Probability plots are given in Appendix A. Spreadsheet calculations for the individual metals are provided in Appendix B. Metal results are characterized by a high percent of detects. Two of the data sets were found to be normally distributed at the 95% confidence level, while 9 data sets were found to be lognormally distributed at the 95% confidence level.

ORGANICS

Results for organics are summarized on Table 5. Probability plots are given in Appendix A. Spreadsheet calculations for the individual metals are given in Appendix C. Organic results are characterized by a high percent of nondetects, which were in excess of 50%. UTLs and UCLs were therefore estimated nonparametrically, in accordance with the adopted methodology prescribed on Figure 1.

GEOLOGY OF BACKGROUND METAL SAMPLES

Of the many factors that can influence distribution of metal concentrations in the background data sets, geologic conditions can account for most of the variation in individual chemical distributions. The following sections discuss specific geologic formations that were sampled in the background data sets. Geologic descriptions were derived from Morton (1976). Table 6 summarizes the sample identifications and corresponding geologic formations. Figure 1 illustrates the locations of the samples and corresponding geologic formations as presented on a geologic map from California Division of Maps and Geology (Morton and Miller, 1981).

The average, minimum, and maximum values for background metal samples by geologic formation are presented on Table 7. Figure 2 illustrates the distribution of average metal concentrations by geologic formation (aluminum, barium, calcium, potassium, magnesium, manganese and sodium).

Alluvium and collivium (Qac). The alluvial and colluvial deposits in the MCAS El Toro area form the Tustin Plain. Consisting of heterogeneous silts, fine sands, silty clay, and occasional gravels, these deposits represent the erosion of geologic formations upstream from the Tustin Basin and deposition of these erosional materials in broad, coalescing alluvial fans in the Tustin Basin. The set of background soil samples taken from upgradient soil borings are considered to represent these heterogeneous deposits. As shown on Figure 3, the trend of metal concentrations is similar to other Quarternary deposits.

Landslide debris (Qls). The composition of the landslide debris is dependent on bedrock sources. For the background samples collected at MCAS El Toro, the bedrock source appears to

be the Vaqueros and Sespe Formations. Discussion of these formations is presented below. As shown on Figure 3, the trend of metal concentrations is similar to other Quaternary deposits.

Nonmarine terraces (Qt). These generally liner bench-like deposits parallel and flank drainages channels. These terraces are composed of pale-reddish-brown to yellow-brown and grayish-brown silty to clayey gravel and conglomerates. Clasts reflect composition of bedrock units exposed in upstream drainages and the matrix ranges from lithic, clayey, and quartzo-feldspaththic. The background samples collected from deposits would likely represent the matrix rather than clast composition. As shown on Figure 3, the trend of metal concentrations is similar to other Quaternary deposits.

Capistrano Formation - Oso Member (Tco). The Oso Member of the Capistrano Formation is a marine, white to very light gray coarse-grained and medium to fine-grained sandstone and silty sandstone with local shaly silt interbeds. The composition of the member is a feldspathic quartzose with abundant mica. The background samples collected from this member would be expected to contain relatively low concentrations of metals. As shown on Figure 3, the trend of metal concentrations is similar or lower than Quaternary deposits.

Puente Formation - Soquel Member (Tps). The Soquel Member of the Puente Formation is a marine pale yellow-gray to pale yellow-brown silty sandstone and pebbly sandstone. The composition of the member is quartzo-feldspathic sandstone with abundant biotite. The background samples collected from this member would be expected to contain relatively low concentrations of metals. As shown on Figure 3, metal concentrations tend to be relatively greater than Quaternary deposits, especially the average concentrations for cobalt, chromium, copper, and nickel.

Puente Formation - La Vide Member (Tplv). The La Vida Member of the Puente Formation is a marine light-brown to light pinkish-brown or light gray to almost white siliceous and micaceous siltstone and shale with light gray to yellowish silty sandstone interbeds. The composition of the member is quartzo-feldspathic and micaceous sandstone. The background samples collected from this member would be expected to contain relatively low concentrations of metals. As shown on Figure 3, the trend of metal concentrations is similar to Quaternary deposits.

Vaqueros and Sespe Formations (Tvs). The Vaqueros Formation is a marine siltstone, mudstone, shale and minor conglomeratic sandstone, consisting of quartz and feldspar derived from tonalite, siliceous metavolcanic and metasedimentary rocks of the Santa Ana Mountains. The Sespe Formation is a nonmarine coarse sandstone, silty sandstone, and conglomeratic sandstone, consisting of quartzo-feldspathic grains and locally abundant biotite. The background samples collected from this member would be expected to contain relatively low concentrations of metals. As shown on Figure 3, the trend of metal concentrations is similar to Quaternary deposits.

Topanga Formation - Undifferienated (Tt). The Topanga Formation is a marine, yellowish-gray to light brown fine-grained sandstone and silty sandstone with lenses and interbeds of conglomerate. The composition of the formation is quartz, feldspar, and abundant lithic grains. The background samples collected from this formation would be expected to contain relatively

low concentrations of metals, however, a mercury-barite ore body has been mapped in the Topanga Formation north of Tustin, as shown on Figure 1. The presence of such ore bodies can elevate concentrations of metals to relatively high levels. As illustrated on Figure 3, all average metal concentrations are substantially greater than other tertiary formations and Quarternary deposits, especially for arsenic, cadmium, cobalt, chromium, nickel, vanadium, and zinc.

SUMMARY

Three sets of soil sample data were used to calculate background and reference levels for metals, herbicides and pesticides at MCAS El Toro. Two sets of data were used to calculate metal background concentrations, using the 95% UTL and 95% UCL procedures. One set of herbicide and pesticide data was used to calculate organic reference levels using 95% UTL and 95% UCL procedures. Based on a review of geologic information, the following conclusions are presented:

- Most average metal concentrations do not significantly vary from one geologic formation to another, except for the Topanga Formation which is known to be a source of mercury and barite in the region and the Puente Formation Soquel Member,
- Analysis of background metal concentration distributions as shown in Appendix A indicates that outliers are samples derived from the Topanga or Puente Formation Soquel Member,
- Alluvial deposits on-station have similar metal distributions to the source Tertiary Formations,
- Alluvial deposits derived from the Puente Formation Soquel Member may have relatively higher concentrations of cobalt, chromium, copper, nickel; and,
- Alluvial deposits derived from the Topanga Formation may have relatively higher concentrations of arsenic, cadmium, cobalt, chromium, nickel, vanadium, and zinc.

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LEGEND:

- ● Sample in agricultural area, analyzed for pesticides and herbicides
- ■ Sample in commercial area, analyzed for pesticides and herbicides
- ▼ Sample in residential area, analyzed for pesticides and herbicides
- ◆ Sample in area of minimal human impact, analyzed for metals
- ▲ Sample from soil borings upgradient of IRP sites

Qls

Qls ?

Landslides

= Bedrock landslides

? = Probable bedrock landslides

= Possible bedrock landslides

Qac | Qb

Qac = Alluvium and colluvium

Qb = Beach sediments

Qt | Qtm

Terrace deposits

Qt = Nonmarine terrace deposits

Qtm = Marine terrace deposits

Tp: Tpsc, Tpy, Tps, Tplv

Puente Formation

Tp = Puente Formation undifferentiated

Tpsc = Sycamore Canyon Member

Tpy = Yorba Member

Tps = Soquel Member

Tplv = La Vida Member

Tcs, Tct, Tco

Capistrano Formation

Tcs = siltstone facies

Tct = turbidite facies

Tco = Oso Member

Tm

Monterey Formation

Tt: Ttp, Ttlt, Ttb

Topanga Formation

Tt = Topanga Formation undifferentiated

Ttp = Paulerino Member

Ttlt = Los Trancos Member

Ttb = Bommer Member

Tv

Vaqueros Formation

Tsa

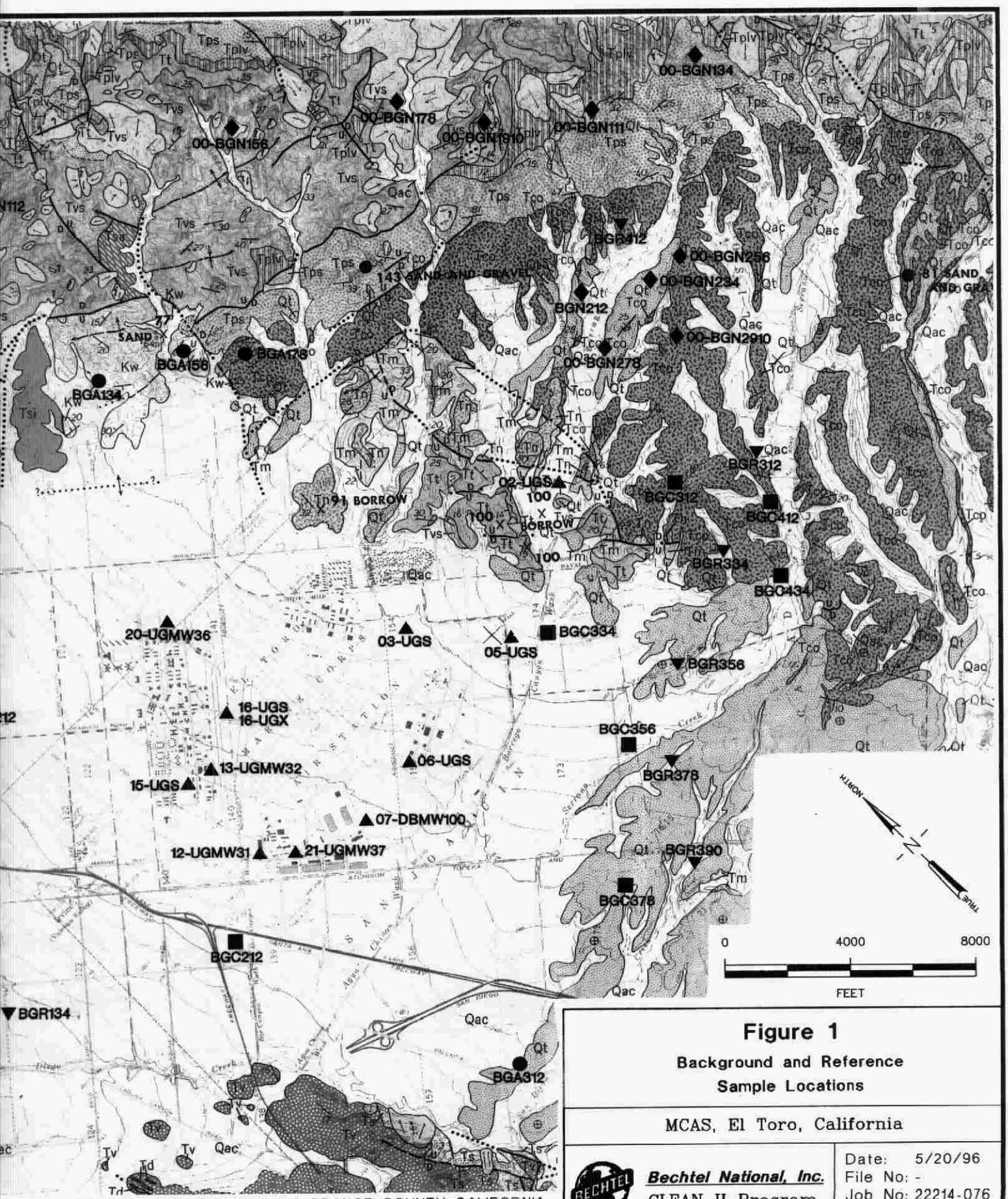
Santiago Formation

Tsi

Silverado Formation

Tvs

Vaqueros and Sespe Formations undifferentiated



SOURCE: GEOLOGIC MAP OF ORANGE COUNTY CALIFORNIA, SHOWING MINES AND MINERAL DEPOSITS (1981)

Figure 1

Background and Reference Sample Locations

MCAS, El Toro, California

Bechtel National, Inc.

CLEAN II Program

Date: 5/20/96
File No: -
Job No: 22214-076
Rev No: A

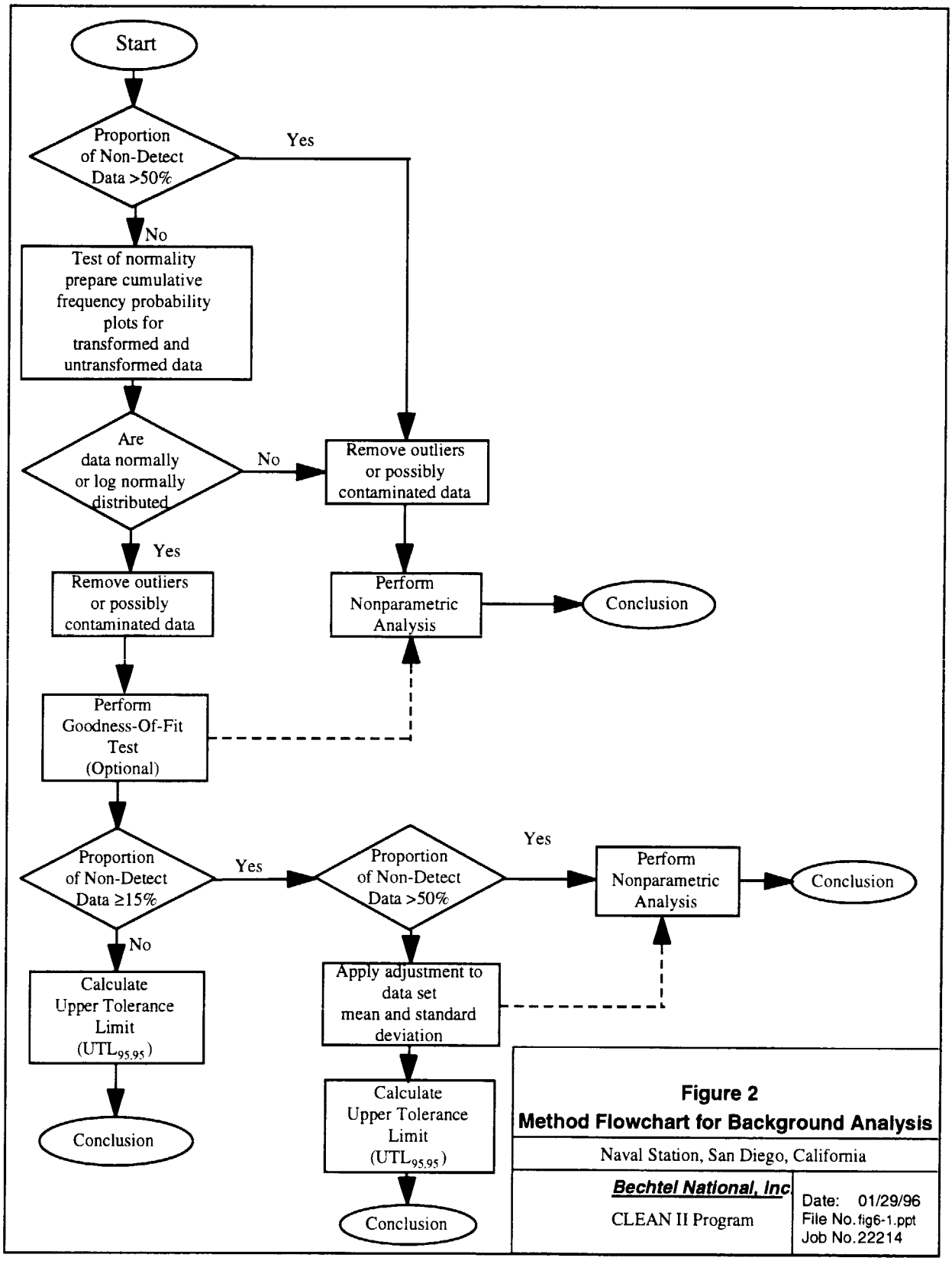


Figure 2
Method Flowchart for Background Analysis

Naval Station, San Diego, California

Bechtel National, Inc

CLEAN II Program

Date: 01/29/96
File No. fig6-1.ppt
Job No. 22214

Figure 3

Distribution of Average Metal Concentrations by Geologic Formation

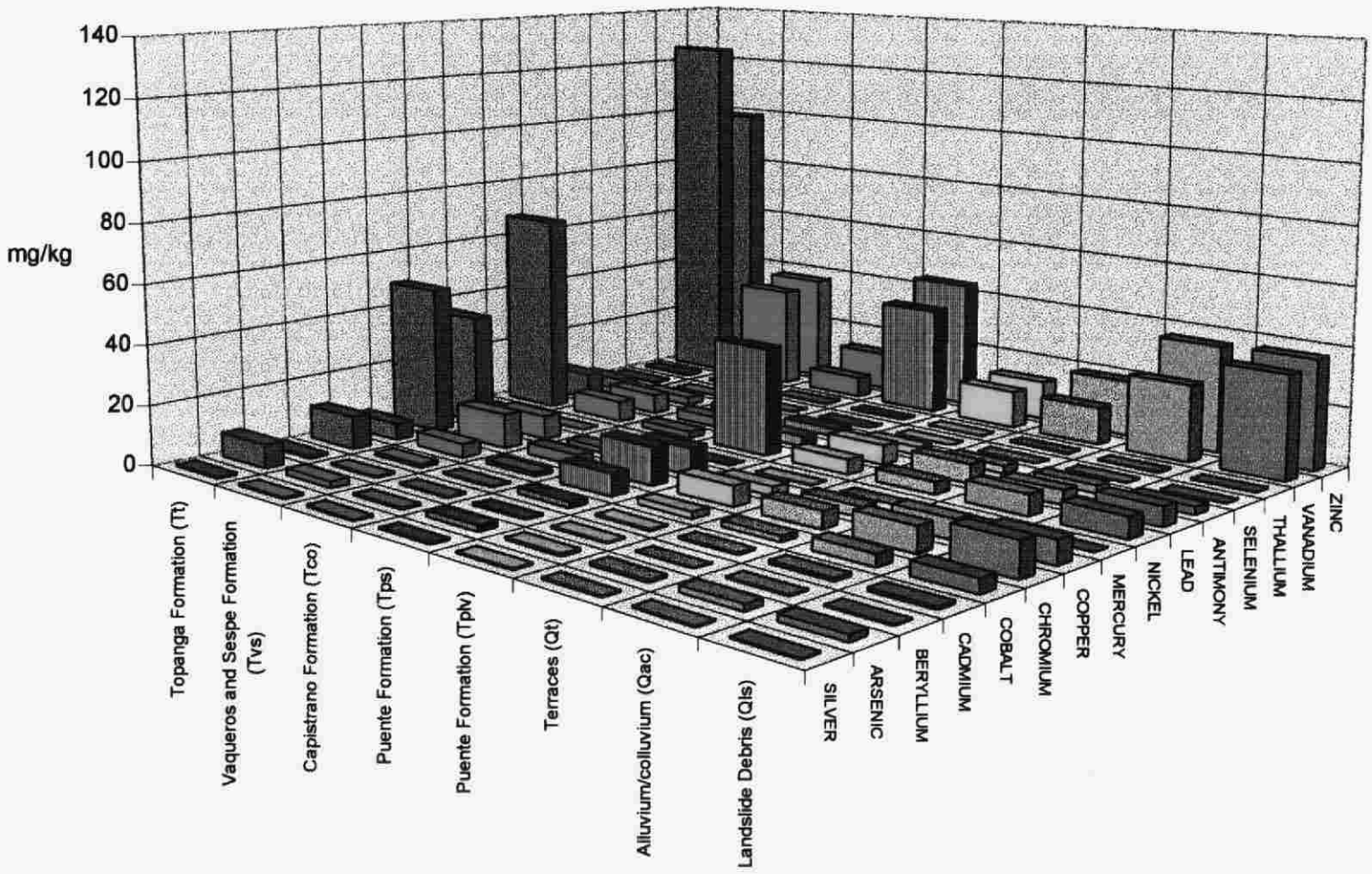


Table 1
Background Metal Soil Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID		00-BGN256		00-BGN256		00-BGN256		00-BGN278		00-BGN278		00-BGN111		00-BGN111	
SAMPLE NUMBER				S1456773		S1456781		S1456782		S1456783		S1456665		S1456775	
SAMPLE DEPTH(FT.BGS)		0		2		2		0		2		0		2	
	UNITS														
SILVER	MG/KG	0.44	UJ	0.45	UJ	0.45	UJ	0.45	UJ	0.46	UJ	0.44	U	0.44	U
ALUMINUM	MG/KG	4960		4740		3870		5250		4710		4210		6630	
ARSENIC	MG/KG	0.65	B	0.71	B	0.91	B	1.2	B	1.1	B	0.88	B	0.74	B
BARIUM	MG/KG	43.9		45		42.6	B	62.2		54.2		40.1	B	35.2	B
BERYLLIUM	MG/KG	0.26	B	0.26	B	0.27	B	0.24	B	0.11	B	0.37	U	0.36	U
CALCIUM	MG/KG	5020		4810		4680		3330		2280		3220		2450	
CADMIUM	MG/KG	0.38	B	0.26	U	0.26	U	1.1	B	0.73	B	0.65	B	0.25	U
COBALT	MG/KG	1.2	U	1.3	U	1.3	U	2.8	B	1.9	B	2.3	B	1.7	B
CHROMIUM	MG/KG	4.5	U	4.5	U	4	U	6.5		5.8	U	6.2		7.1	
COPPER	MG/KG	4.3	B	1.6	J	1.4	J	4.7	B	3.2	B	4.1	B	1.6	B
IRON	MG/KG	3890		3300		2790		7140		6310		3980		3580	
MERCURY	MG/KG	0.07		0.03	U	0.03	U	0.03	B	0.03	U	0.05	U	0.03	U
POTASSIUM	MG/KG	1470		522	B	451	B	2250		1170		852	B	276	B
MAGNESIUM	MG/KG	1580		1330		1140		2130		1920		1580		2500	
MANGANESE	MG/KG	105		64.3		59.8		150		118		92.9		126	
SODIUM	MG/KG	167	B	138	B	108	B	185	B	165	B	181	B	203	B
NICKEL	MG/KG	3.4	B	2.2	B	1.7	U	6.4	B	5.3	B	5.3	B	4.6	B
LEAD	MG/KG	10.6		1.4		1.1		10		1.4		10.8		1.9	
ANTIMONY	MG/KG	2.5	U	2.6	U	2.6	U	2.6	U	2.6	U	2.5	U	2.6	U
SELENIUM	MG/KG	0.16	U	0.11	U	0.11	U	0.12	U	0.15	U	0.1	U	0.11	U
THALLIUM	MG/KG	0.34	U	0.15	U	0.32	U	0.32	U	0.39	U	0.15	U	0.15	U
VANADIUM	MG/KG	8.1	B	8.2	B	7.2	B	15.6		13.3		11		14.1	
ZINC	MG/KG	21.8		11.4		10.7		28.6		19.4		17.9		8.4	

Table 1
Background Metal Soil Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID		00-BGN112		00-BGN112		00-BGN134		00-BGN134		00-BGN156		00-BGN156		00-BGN156	
SAMPLE NUMBER		S1456655		S1456656		S1456786		S1456787		S1456659		S1456650		S1456771	
SAMPLE DEPTH(FT.BGS)		0		2		0		2		0		2		2	
	UNITS														
SILVER	MG/KG	0.44	U	0.46	U	0.46	U	0.45	U	0.44	U	0.45	U	0.45	U
ALUMINUM	MG/KG	9930		14000		7730		11200		6870		10500		10700	
ARSENIC	MG/KG	2.8		4.7		1.6	B	2.5		2.4		2.1	B	2	B
BARIUM	MG/KG	63.4		90.5		90.3		124		105		109		108	
BERYLLIUM	MG/KG	0.35	B	0.62	B	0.49	U	0.44	U	0.53	B	0.53	B	0.39	B
CALCIUM	MG/KG	2000		2560		3430		4230		6150		5070		4830	
CADMIUM	MG/KG	0.75	B	0.84	B	2.6		1.5		1.3		1.2		1.6	
COBALT	MG/KG	5.2	B	6.5	B	9.7	B	5	B	4.3	B	4.2	B	4.1	B
CHROMIUM	MG/KG	12.4		25.5		9.2		16		8		10.5		11.4	
COPPER	MG/KG	6.6		7.1		8.5		9.5		11.1		9		9.3	
IRON	MG/KG	12300		17400		10900		16300		9360		11600		12500	
MERCURY	MG/KG	0.41		0.03	U	0.04	U	0.04	U	0.09		0.03	U	0.09	
POTASSIUM	MG/KG	3110		3780		2990		2910		3290		2990		2870	
MAGNESIUM	MG/KG	3810		6610		3160		4940		3270		3930		4030	
MANGANESE	MG/KG	251		236		574		195		276		272		264	
SODIUM	MG/KG	224	B	506	B	241	B	277	B	204	B	230	B	206	B
NICKEL	MG/KG	5.7	B	10.6		57.9		14.5		8	B	7.4	B	10.1	
LEAD	MG/KG	8.6		2.9		4.9		1.9		22.4		2.3		2.1	
ANTIMONY	MG/KG	2.5	U	2.7	U	2.6	U	2.6	U	2.5	U	2.6	U	2.6	U
SELENIUM	MG/KG	0.13	B	0.22	B	0.11	U	0.21	B	0.1	U	0.11	U	0.11	U
THALLIUM	MG/KG	0.19	B	0.2	B	0.22	B	0.24	B	0.15	U	0.15	U	0.15	B
VANADIUM	MG/KG	39.2		85.4		28.5		44.8		20.8		25.7		26.8	
ZINC	MG/KG	37.6		48		41.7		46		45.4		35.3		35.1	

Table 1
Background Metal Soil Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID		00-BGN178		00-BGN178		00-BGN1910		00-BGN1910		00-BGN2910		00-BGN2910		00-BGN212	
SAMPLE NUMBER		S1456661		S1456662		S1456663		S1456664		S1456784		S1456785		S1456776	
SAMPLE DEPTH(FT.BGS)		0		2		0		2		0		2		0	
	UNITS														
SILVER	MG/KG	0.46	U	0.44	U	0.65	B	0.53	B	0.43	UJ	0.44	UJ	0.43	UJ
ALUMINUM	MG/KG	7970		6190		15300		12900		3270		3550		2640	
ARSENIC	MG/KG	0.46	B	0.65	B	7.4		8.5		0.14	U	0.15	U	0.29	B
BARIUM	MG/KG	59.7		57.5		153		172		31.8	B	22.8	B	36	B
BERYLLIUM	MG/KG	0.24	B	0.24	B	0.79	B	0.66	B	0.6	B	0.26	B	0.26	B
CALCIUM	MG/KG	4550		5810		55100		67600		2530		3060		2040	
CADMIUM	MG/KG	0.38	B	0.43	B	10.6		11.4		0.25	U	0.25	U	0.25	U
COBALT	MG/KG	4	B	3.6	B	5.2	B	6	B	1.2	U	1.2	U	1.2	U
CHROMIUM	MG/KG	6.7		5.3		55		43.7		3.1	U	2.5	U	2.7	U
COPPER	MG/KG	5.6		5.1	B	36.2		37.9		1.1	J	0.36	J	2	J
IRON	MG/KG	9640		8410		18500		17700		2310		2260		2310	
MERCURY	MG/KG	0.04	B	0.03	U	0.11		0.12		0.03	U	0.03	U	0.03	B
POTASSIUM	MG/KG	2670		2020		6230		4880		891	B	435	B	890	B
MAGNESIUM	MG/KG	3700		3290		13600		7630		944	B	969	B	1300	
MANGANESE	MG/KG	185		174		263		241		49.6		49.6		49.3	
SODIUM	MG/KG	225	B	197	B	419	B	450	B	115	B	150	B	146	B
NICKEL	MG/KG	3.4	B	3	B	64.3		71.1		1.6	U	1.6	U	1.8	B
LEAD	MG/KG	4.9		1.6		12.4		4.8		1.8		0.67		6.3	
ANTIMONY	MG/KG	2.6	U	2.5	U	4.5	B	3	U	2.5	U	2.6	U	2.5	U
SELENIUM	MG/KG	0.16	B	0.1	U	0.37	B	0.32	B	0.1	U	0.11	U	0.1	U
THALLIUM	MG/KG	0.22	B	0.15	U	0.53	B	0.42	B	0.29	U	0.19	U	0.27	U
VANADIUM	MG/KG	24.4		21.5		134		117		5.4	B	6.1	B	5.1	B
ZINC	MG/KG	32.1		25.4		99.5		97.9		10.8		9.6		12.9	

Table 1
Background Metal Soil Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID		00-BGN212		00-BGN234		00-BGN234	
SAMPLE NUMBER		S1456777		S1456778		S1456779	
SAMPLE DEPTH(FT.BGS)		2		0		2	
	UNITS						
SILVER	MG/KG	0.46	UJ	0.46	UJ	0.44	UJ
ALUMINUM	MG/KG	3320		6250		6880	
ARSENIC	MG/KG	0.15	U	0.98	B	1.2	B
BARIUM	MG/KG	25.9	B	57.6		54.4	
BERYLLIUM	MG/KG	0.2	B	0.11	U	0.23	B
CALCIUM	MG/KG	2250		1500		1530	
CADMIUM	MG/KG	0.26	U	0.65	B	0.48	B
COBALT	MG/KG	1.3	U	2	B	2.5	B
CHROMIUM	MG/KG	2.1	B	10.2		7.6	
COPPER	MG/KG	0.72	J	5.6		4.1	B
IRON	MG/KG	1880		7540		8090	
MERCURY	MG/KG	0.03	U	0.04	B	0.03	U
POTASSIUM	MG/KG	353	B	2070		1350	
MAGNESIUM	MG/KG	1440		2150		2170	
MANGANESE	MG/KG	13.9		171		97.4	
SODIUM	MG/KG	167	B	199	B	261	B
NICKEL	MG/KG	1.8	B	5.6	B	3.5	B
LEAD	MG/KG	1.1		17.6		2.2	
ANTIMONY	MG/KG	2.6	U	2.6	U	2.5	U
SELENIUM	MG/KG	0.13	U	0.11	U	0.1	U
THALLIUM	MG/KG	0.15	U	0.15	U	0.39	U
VANADIUM	MG/KG	5.4	B	16.9		19.2	
ZINC	MG/KG	6.2		26.7		19.2	

Table 2
Background Soil Boring Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID		02-UGS		02-UGS		03-UGS		03-UGS		05-UGS		05-UGS		06-UGS	
SAMPLE NUMBER		S1454008		S1454502		S1454013		S1454399		S1454040		S1454402		S1454550	
SAMPLE DEPTH(FT.BGS)		0		2		0		0		0		0		2	
	UNITS														
SILVER	MG/KG	0.3	U	0.31	U	0.43	U	0.43	U	0.43	U	0.43	U	0.49	U
ALUMINUM	MG/KG	2720		4240		4910		8550		4990		6580		9280	
ARSENIC	MG/KG	1.1	B	1.9	B	3.5		2.7		1.5	B	1.9	B	2.7	
BARIUM	MG/KG	34.8	B	54.2		79.3		108		61.3		67.3		116	
BERYLLIUM	MG/KG	0.19	U	0.29	U	0.29	U	0.44	U	0.28	U	0.27	U	0.43	B
CALCIUM	MG/KG	1800		2520		4300		5220		2920		3080		4490	
CADMIUM	MG/KG	0.55	U	0.57	U	0.41	B	0.75	B	0.96	B	0.99	B	1.7	
COBALT	MG/KG	1.7	B	2.8	B	2.9	B	4.5	B	2.4	B	1.8	B	5.5	B
CHROMIUM	MG/KG	3.2		5		4.9		7.9		5.8		7		10.6	
COPPER	MG/KG	2.9	B	4.3	B	4.6	B	6.4		6.7		5.8		8.6	
IRON	MG/KG	4030		6030		7260		11300		7350		8550		12400	
MERCURY	MG/KG	0.04	U	0.04	U	0.04	U	0.03	U	0.03	U	0.03	U	0.03	U
POTASSIUM	MG/KG	1250		1500		2780		3460		1950		2110		3340	
MAGNESIUM	MG/KG	1330		1980		3190		4390		2460		2750		4550	
MANGANESE	MG/KG	79.7		116		140		189		136		148		238	
SODIUM	MG/KG	185	U	208	U	189	B	183	B	252	B	304	B	299	B
NICKEL	MG/KG	2.5	B	5.1	B	3.2	U	4.1	U	6.4	U	6.1	U	10.8	
LEAD	MG/KG	3		2.8		10.9		11		2.7		2.6		4.7	
ANTIMONY	MG/KG	2.5	U	2.6	U									2.8	U
SELENIUM	MG/KG	0.42	U	0.43	U					0.1	U	0.1	B	0.12	U
THALLIUM	MG/KG	0.32	U	0.33	U	0.22	B	0.28	B	0.14	B	0.16	B	0.23	B
VANADIUM	MG/KG	9.7	B	14.7		16.3		26.7		18.2		21		29.7	
ZINC	MG/KG	17.7		22.2		33.3		42.4		27		29.3		43.2	

Table 2
Background Soil Boring Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID		07-DBMW100		07-DBMW100		12-UGMW31		13-UGMW32		15-UGS		16-UGS		16-UGS	
SAMPLE NUMBER		S1457113		S1457114		S1454210		S1454219		S1454266		S1454528		S1454529	
SAMPLE DEPTH(FT.BGS)		3		8		2		2		2		0		2	
	UNITS														
SILVER	MG/KG	0.46	U	0.49	U	0.48	U	0.47	U	0.49	U	0.43	U	0.44	U
ALUMINUM	MG/KG	5950		10200		17300		11400		11100		4140		3980	
ARSENIC	MG/KG	1.3	B	3.1		2.1	B	1.8	B	3		0.93	B	0.46	U
BARIUM	MG/KG	77		102		148		160		157		63.9		83.7	
BERYLLIUM	MG/KG	0.49	U	0.55	U	0.51	B	0.47		0.36	B	0.29	U	0.17	U
CALCIUM	MG/KG	2930		5140		4210		9540	B	9530		2550		5260	
CADMIUM	MG/KG	0.85	B	1.5		1.5		1.1	B	0.66	B	0.75	U	0.52	U
COBALT	MG/KG	2.8	B	4.6	B	6.9	B	6.5	B	5.4	B	2.8	B	1.9	B
CHROMIUM	MG/KG	7.1		11.9		15.9		10.7		10.3		4.5		3.8	
COPPER	MG/KG	6.8		9.9		9.6		8.7		7		3.8	B	3.8	B
IRON	MG/KG	8780		12800		19000		14100		15200		6400		5740	
MERCURY	MG/KG	0.03	U	0.03	U	0.03	U	0.03	U	0.03	U				
POTASSIUM	MG/KG	2160		2690		4910		4370		4520		2310		1630	
MAGNESIUM	MG/KG	3420		5170		7570		6960		6780		2350		2270	
MANGANESE	MG/KG	176		225		293		253		247		131		149	
SODIUM	MG/KG	282	B	353	B	275	B	302	B	393	B	184	B	224	B
NICKEL	MG/KG	7.2	U	14.3		10.6		8.4	B	7.6	B	4	B	3.9	B
LEAD	MG/KG	1.7		3.2		2.3		1.9		2.1		4.5		0.79	
ANTIMONY	MG/KG	2.7	U	2.8	U			2.7	U			2.5	U	2.5	U
SELENIUM	MG/KG	0.27	U	0.12	U	0.12	U	0.11	U	0.14	B	0.11	B	0.2	B
THALLIUM	MG/KG	0.2	B	0.42	B	0.18	B	0.25	B	0.16	U	0.14	U	0.15	U
VANADIUM	MG/KG	21.6		33.1		47.9		34		35.8		15.3		14.8	
ZINC	MG/KG	29.2		43.9		53.6		49.4		47.1		24.2		18.7	

Table 2
Background Soil Boring Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID		16-UGX		16-UGX		20-UGMW36		20-UGS		21-UGMW37	
SAMPLE NUMBER		S1454299		S1454302		S1454369		S1454360		S1454367	
SAMPLE DEPTH(FT.BGS)		0		2		0		2		2	
	UNITS										
SILVER	MG/KG	0.43	U	0.44	U	0.43	U	0.54	B		
ALUMINUM	MG/KG	4820		5190		7970		14800		8120	
ARSENIC	MG/KG	1.1	B	1.4	B	2.6		4.1		1.8	B
BARIUM	MG/KG	80.3		89.2		116		136		130	
BERYLLIUM	MG/KG	0.16	U	0.16	U	0.35	U	0.5	U	0.4	B
CALCIUM	MG/KG	4100		6990		4380		5740		3370	
CADMIUM	MG/KG	0.84	U	0.81	U	1.9		2.4		0.97	B
COBALT	MG/KG	2.9	B	3.2	B	4.6	B	6.8	B	4.9	B
CHROMIUM	MG/KG	5.1		4.6		12.1		17.7		9	
COPPER	MG/KG	4	B	4.2	B	9.7		10.3		7.2	
IRON	MG/KG	7450		8390		12900		17800		12100	
MERCURY	MG/KG					0.06	U	0.22		0.03	U
POTASSIUM	MG/KG	2830		2530		4500		4940		3610	
MAGNESIUM	MG/KG	2950		3330		4810		6890		4500	
MANGANESE	MG/KG	161		174		238		281		247	
SODIUM	MG/KG	168	B	169	B	257	B	251	B	303	B
NICKEL	MG/KG	3.4	B	3.6	B	9.9		12.7		7.2	B
LEAD	MG/KG	6.8		1.1		21.4		3.1		2.1	
ANTIMONY	MG/KG	2.5	U	2.5	U	2.8	B	2.6	U		
SELENIUM	MG/KG	0.11	B	0.1	U	0.29	B	0.29	B	0.11	U
THALLIUM	MG/KG	0.14	U	0.15	U	0.25	B	0.15	U	0.2	B
VANADIUM	MG/KG	17.2		20.7		32.7		53		27.9	
ZINC	MG/KG	29.2		25.7		57.4		55.4		39.8	

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGA134 S1454589		00-BGA134 S1454590		00-BGA134 S1454602		00-BGA156 S1454591		00-BGA156 S1454592		00-BGA178 S1454593	
ALPHA-CHLORDANE	MG/KG	1.89	U	2.05	U	2.01	U	1.92	U	1.93	U	1.88	U
GAMMA-CHLORDANE	MG/KG	1.89	UJ	2.05	UJ	2.01	UJ	1.92	UJ	1.93	UJ	1.88	UJ
4,4'-DDD	MG/KG	3.67	U	3.97	U	3.9	U	3.72	U	3.74	U	3.66	U
4,4'-DDE	MG/KG	3.67	U	3.97	U	3.9	U	3.72	U	3.74	U	3.66	U
4,4'-DDT	MG/KG	3.67	UJ	3.97	UJ	3.9	UJ	3.72	UJ	3.74	UJ	3.66	UJ
DIELDRIN	MG/KG	3.67	UJ	3.97	UJ	3.9	UJ	3.72	UJ	3.74	UJ	3.66	UJ
ENDRIN ALDEHYDE	MG/KG	3.67	U	3.97	U	3.9	U	3.72	U	3.74	U	3.66	U
ENDRIN	MG/KG	3.67	UJ	3.97	UJ	3.9	UJ	3.72	UJ	3.74	UJ	3.66	UJ
ENDOSULFAN SULFATE	MG/KG	3.67	U	3.97	U	3.9	U	3.72	U	3.74	U	3.66	U
ENDOSULFAN I	MG/KG	1.89	U	2.05	U	2.01	U	1.92	U	1.93	U	1.88	U
ENDOSULFAN II	MG/KG	3.67	U	3.97	U	3.9	U	3.72	U	3.74	U	3.66	U
METHOXYCHLOR	MG/KG	18.9	U	20.5	U	20.1	U	19.2	U	19.3	U	18.8	U
MCPA	MG/KG	27700	U	30000	U	29500	U	27900	U	28400	U	27500	U
DICHLOROPROP	MG/KG	111	U	120	U	118	U	112	U	114	U	110	U

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGA178 S1454594		00-BGA212 S1454587		00-BGA212 S1454588		00-BGA234 S1454597		00-BGA234 S1454598		00-BGA234 S1454601	
ALPHA-CHLORDANE	MG/KG	1.92	U	1.96	U	2.13	U	3.01		1.94	U	2.14	U
GAMMA-CHLORDANE	MG/KG	1.92	UJ	2.84		1.46		2.49		1.94	U	2.14	U
4,4'-DDD	MG/KG	3.72	U	45.1		1.5		4.58	U	3.77	U	4.16	U
4,4'-DDE	MG/KG	3.72	U	233		17.3		4.58	U	3.77	U	4.16	U
4,4'-DDT	MG/KG	3.72	UJ	272		34.2		18.4		3.77	U	4.16	U
DIELDRIN	MG/KG	3.72	UJ	118		6.6		4.58	U	3.77	U	4.16	U
ENDRIN ALDEHYDE	MG/KG	3.72	U	41.7		4.13	U	4.58	U	3.77	U	4.16	U
ENDRIN	MG/KG	3.72	UJ	19.9		1.01		4.58	U	3.77	U	4.16	U
ENDOSULFAN SULFATE	MG/KG	3.72	U	3.81	U	4.13	U	4.58	U	3.77	U	4.16	U
ENDOSULFAN I	MG/KG	1.92	U	1.96	U	2.13	U	2.36	U	1.94	U	2.14	U
ENDOSULFAN II	MG/KG	3.72	U	10.6		4.13	U	4.58	U	3.77	U	4.16	U
METHOXYCHLOR	MG/KG	19.2	U	19.6	U	21.3	U	23.6	U	19.4	U	21.4	U
MCPA	MG/KG	28000	U	28500	U	31200	U	16800	U	73400	U	127000	
DICHLOROPROP	MG/KG	112	U	114	U	125	U	138	U	113	U	125	U

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGA312 S1454599		00-BGA312 S1454600		00-BGC212 S1454604		00-BGC212 S1454605		00-BGC378 S1454613		00-BGC412 S1454614	
ALPHA-CHLORDANE	MG/KG	2.01	U	2	U	1.98	U	1.85	U	1.9	U	2.01	U
GAMMA-CHLORDANE	MG/KG	2.01	U	2	U	1.98	U	1.85	U	1.9	UJ	2.01	U
4,4'-DDD	MG/KG	58.6		18.6		3.84	U	3.59	U	3.68	UJ	6.19	
4,4'-DDE	MG/KG	158		126		3.84	U	3.59	U	3.68	U	5.62	
4,4'-DDT	MG/KG	208	J	255	J	3.84	U	3.59	U	3.68	U	31	
DIELDRIN	MG/KG	3.9	U	3.87	U	3.84	U	3.59	U	3.68	U	3.9	U
ENDRIN ALDEHYDE	MG/KG	3.9	U	3.87	U	3.84	U	3.59	U	3.68	U	3.9	U
ENDRIN	MG/KG	3.9	U	3.87	U	3.84	U	3.59	U	3.68	U	3.9	U
ENDOSULFAN SULFATE	MG/KG	4.21		3.44		3.84	U	3.59	U	3.68	U	3.9	U
ENDOSULFAN I	MG/KG	0.144		0.179		1.98	U	1.85	U	1.9	U	2.01	U
ENDOSULFAN II	MG/KG	3.9	U	3.87	U	3.84	U	3.59	U	3.68	U	3.9	U
METHOXYCHLOR	MG/KG	20.1	U	20	U	19.8	U	18.5	U	19	U	20.1	U
MCPA	MG/KG	29700	U	29300	U	29000	U	26900	U	27300	U	29600	U
DICHLOROPROP	MG/KG	119	U	117	U	116	U	108	U	109	U	118	U

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGC412 S1454615		00-BGC434 S1454616		00-BGC434 S1454617		00-BGR112 S1454620		00-BGR112 S1454621		00-BGR134 S1454622	
ALPHA-CHLORDANE	MG/KG	1.96	U	2.1	U	2.04	U	2	U	2.05	U	2.18	U
GAMMA-CHLORDANE	MG/KG	1.96	U	2.1	UJ	2.04	UJ	2	UJ	2.05	UJ	2.18	UJ
4,4'-DDD	MG/KG	3.81	U	4.07	UJ	3.97	UJ	3.89	UJ	3.98	UJ	4.24	UJ
4,4'-DDE	MG/KG	3.81	U	4.07	U	3.97	U	3.89	U	3.98	U	4.24	U
4,4'-DDT	MG/KG	3.81	U	4.07	U	3.97	U	3.89	U	3.98	U	4.24	U
DIELDRIN	MG/KG	3.81	U	4.07	UJ	3.97	UJ	3.89	UJ	3.98	UJ	4.24	UJ
ENDRIN ALDEHYDE	MG/KG	3.81	U	4.07	U	3.97	U	3.89	U	3.98	U	4.24	U
ENDRIN	MG/KG	3.81	U	4.07	UJ	3.97	UJ	3.89	UJ	3.98	UJ	4.24	UJ
ENDOSULFAN SULFATE	MG/KG	3.81	U	4.07	U	3.97	U	3.89	U	3.98	U	4.24	U
ENDOSULFAN I	MG/KG	1.96	U	2.1	U	2.04	U	2	U	2.05	U	2.18	U
ENDOSULFAN II	MG/KG	3.81	U	4.07	U	3.97	U	3.89	U	3.98	U	4.24	U
METHOXYCHLOR	MG/KG	19.6	U	21	U	20.4	U	20	U	20.5	U	21.8	U
MCPA	MG/KG	28900	U	30500	U	30100	U	29800	U	30500	U	32200	U
DICHLOROPROP	MG/KG	116	U	122	U	120	U	119	U	122	U	129	U

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGC212 S1454618		00-BGC312 S1454606		00-BGC312 S1454607		00-BGC334 S1454608		00-BGC334 S1454609		00-BGC356 S1454610	
ALPHA-CHLORDANE	MG/KG	1.84	U	1.98	U	1.89	U	1.99	U	1.9	U	1.97	U
GAMMA-CHLORDANE	MG/KG	1.84	U	1.98	UJ	1.89	UJ	1.99	U	1.9	U	1.97	U
4,4'-DDD	MG/KG	3.58	U	3.84	U	3.68	U	6.43		5.17		22.6	
4,4'-DDE	MG/KG	3.58	U	3.84	U	3.68	U	89.9		7.99		57.9	
4,4'-DDT	MG/KG	3.58	U	3.84	UJ	3.68	UJ	97.6		3.69	U	52.2	J
DIELDRIN	MG/KG	3.58	U	3.84	U	3.68	U	6.21		3.69	U	3.82	U
ENDRIN ALDEHYDE	MG/KG	3.58	U	3.84	U	3.68	U	3.87	U	3.69	U	3.82	U
ENDRIN	MG/KG	3.58	U	3.84	U	3.68	U	3.87	U	3.69	U	3.82	U
ENDOSULFAN SULFATE	MG/KG	3.58	U	3.84	U	3.68	U	3.87	U	3.69	U	3.82	U
ENDOSULFAN I	MG/KG	1.84	U	1.98	U	1.89	U	1.99	U	1.9	U	1.97	U
ENDOSULFAN II	MG/KG	3.58	U	3.84	U	3.68	U	3.87	U	3.69	U	3.82	U
METHOXYCHLOR	MG/KG	18.4	U	17.5	U	18.9	U	19.9	U	19	U	19.7	U
MCPA	MG/KG	27000	U	29300	U	28400	U	29200	U	27800	U	28800	U
DICHLOROPROP	MG/KG	108	U	117	U	113	U	117	U	111	U	115	U

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGC356 S1454611		00-BGC378 S1454612		00-BGR134 S1454623		00-BGR312 S1454624		00-BGR312 S1454636		00-BGR312 S1454625	
ALPHA-CHLORDANE	MG/KG	1.92	U	1.97	U	2.04	U	2.11	U	2.06	U	1.92	U
GAMMA-CHLORDANE	MG/KG	1.92	U	1.97	UJ	2.04	UJ	2.11	UJ	2.06	UJ	1.92	UJ
4,4'-DDD	MG/KG	3.73	U	3.82	UJ	3.97	UJ	4.1	U	3.99	UJ	3.73	UJ
4,4'-DDE	MG/KG	3.73	U	3.82	U	3.97	U	4.1	U	3.99	U	3.73	U
4,4'-DDT	MG/KG	3.73	U	3.82	U	3.97	U	4.1	UJ	3.99	UJ	3.73	UJ
DIELDRIN	MG/KG	3.73	U	3.82	U	3.97	UJ	4.1	U	3.99	U	3.73	U
ENDRIN ALDEHYDE	MG/KG	3.73	U	3.82	U	3.97	U	4.1	U	3.99	U	3.73	U
ENDRIN	MG/KG	3.73	U	3.82	U	3.97	UJ	4.1	U	3.99	U	3.73	U
ENDOSULFAN SULFATE	MG/KG	3.73	U	3.82	U	3.97	U	4.1	U	3.99	U	3.73	U
ENDOSULFAN I	MG/KG	1.92	U	1.97	U	2.04	U	2.11	U	2.06	U	1.92	U
ENDOSULFAN II	MG/KG	3.73	U	3.82	U	3.97	U	4.1	U	3.99	U	3.73	U
METHOXYCHLOR	MG/KG	19.2	U	19.7	U	20.4	U	21.1	U	29.4	U	19.2	U
MCPA	MG/KG	28500	U	27900	U	30300	U	31100	U	30400	U	28300	U
DICHLOROPROP	MG/KG	114	U	112	U	121	U	124	U	122	U	113	U

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGR334 S1454626		00-BGR334 S1454627		00-BGR356 S1454628		00-BGR356 S1454629		00-BGR356 S1454637		00-BGR378 S1454630	
ALPHA-CHLORDANE	MG/KG	2.18	U	1.98	U	2	U	17.7		1.94	U	1.94	U
GAMMA-CHLORDANE	MG/KG	2.18	UJ	1.98	UJ	2	UJ	18	J	1.94	UJ	1.94	UJ
4,4'-DDD	MG/KG	4.24	UJ	3.84	UJ	3.87	UJ	4.1	UJ	3.77	UJ	3.76	UJ
4,4'-DDE	MG/KG	4.24	U	3.84	U	3.87	U	4.1	U	3.77	U	6.15	
4,4'-DDT	MG/KG	4.24	U	3.84	U	3.87	U	4.1	U	3.77	U	5.21	
DIELDRIN	MG/KG	4.24	UJ	3.84	UJ	3.87	U	4.1	U	3.77	U	3.76	U
ENDRIN ALDEHYDE	MG/KG	4.24	U	3.84	U	3.87	U	4.1	U	3.77	U	3.76	U
ENDRIN	MG/KG	4.24	UJ	3.84	UJ	3.87	U	4.1	U	3.77	U	3.76	U
ENDOSULFAN SULFATE	MG/KG	4.24	U	3.84	U	3.87	U	4.1	U	3.77	U	3.76	U
ENDOSULFAN I	MG/KG	2.18	U	1.98	U	2	U	2.11	U	1.94	U	1.94	U
ENDOSULFAN II	MG/KG	4.24	U	3.84	U	3.87	U	4.1	U	3.77	U	3.76	U
METHOXYCHLOR	MG/KG	21.8	U	19.8	U	20	U	21.1	U	19.4	U	19.4	U
MCPA	MG/KG	32200	U	28900	U	28500	U	29700	U	27800	U	27600	U
DICHLOROPROP	MG/KG	129	U	115	U	114	U	119	U	111	U	141	

Table 3
Background Pesticide and Herbicide Samples
Phase I Remedial Investigation
MCAS El Toro

STATION ID SAMPLE NUMBER SAMPLE DEPTH (FT.BGS)	UNITS	00-BGR378 S1454631		00-BGR390 S1454632		00-BGR390 S1454633		00-BGR412 S1454634		00-BGR412 S1454635	
ALPHA-CHLORDANE	MG/KG	1.91	U	2.02	U	1.97	U	2.03	U	1.98	U
GAMMA-CHLORDANE	MG/KG	1.91	UJ	2.02	UJ	1.97	UJ	2.03	UJ	1.98	UJ
4,4'-DDD	MG/KG	3.71	UJ	3.92	UJ	3.83	UJ	3.93	UJ	3.85	UJ
4,4'-DDE	MG/KG	3.71	U	3.92	U	3.83	U	3.93	U	3.85	U
4,4'-DDT	MG/KG	3.71	U	3.92	U	3.83	U	3.93	U	3.85	U
DIELDRIN	MG/KG	28.8		3.92	U	3.83	U	3.93	U	3.85	U
ENDRIN ALDEHYDE	MG/KG	3.71	U	3.92	U	3.83	U	3.93	U	3.85	U
ENDRIN	MG/KG	3.71	U	3.92	U	3.83	U	3.93	U	3.85	U
ENDOSULFAN SULFATE	MG/KG	3.71	U	3.92	U	3.83	U	3.93	U	3.85	U
ENDOSULFAN I	MG/KG	1.91	U	2.02	U	1.97	U	2.03	U	1.98	U
ENDOSULFAN II	MG/KG	3.71	U	3.92	U	3.83	U	3.93	U	3.85	U
METHOXYCHLOR	MG/KG	19.1	U	20.2	U	19.7	U	20.3	U	19.8	U
MCPA	MG/KG	28400	U	29200	U	28000	U	28800	U	28800	U
DICHLOROPROP	MG/KG	114	U	117	U	112	U	115	U	115	U

Table 4
Background Concentrations for Metals
MCAS El Toro

Analyte	Statistics									95% Upper Confidence Limit 0.95 Quantile		95% Upper Confidence Limit Mean/Median	
Units: mg/kg	Number Analyses	Number Detects	Non-Detects Excluded	Min Detect	Max Detect	Sample Size	Mean	Standard Deviation	Distribution	Parametric	Non-Parametric	Parametric	Non-Parametric
Aluminum	43	43	0	2640	17300	43	7437	3707	LN	18600	-	8610	-
Antimony	36	2	0	2.8	4.5	36	1.43	0.59	-	-	4.5	-	1.3
Arsenic	43	39	0	0.29	8.5	43	1.92	1.73	-	-	8.5	-	1.94
Barium	43	43	0	22.8	172	43	82.51	40.61	LN	220	-	97.3	-
Beryllium	43	24	0	0.11	0.79	43	0.29	0.17	LN	0.893	-	0.352	-
Cadmium	43	30	0	0.38	11.4	43	1.28	2.26	-	-	11.4	-	0.964
Calcium	43	43	0	1500	67600	43	6700	12420	-	-	67600	-	4600
Chromium	43	36	0	2.1	5.5	43	9.63	10.24	LN	39.6	-	12.7	-
Cobalt	43	36	0	1.7	9.7	43	3.49	2.12	N	7.96	-	4.04	-
Copper	43	43	0	0.36	37.9	43	7.09	7.29	-	-	37.9	-	6.88
Iron	43	43	0	1880	19000	43	9246	4953	-	-	19000	-	11100
Lead	43	43	0	0.67	22.4	43	5.22	5.37	LN	22.9	-	6.99	-
Magnesium	43	43	0	944	13600	43	3646	2437	LN	11100	-	4430	-
Manganese	43	43	0	13.9	574	43	179.1	97.82	-	-	574	-	207
Mercury	39	11	0	0.03	0.41	39	0.044	0.073	-	-	0.41	-	0.02
Nickel	43	35	0	1.8	71.1	43	9.67	15.66	-	-	71.1	-	6.71
Potassium	43	43	0	276	6230	43	2514	1446	N	5560	-	2890	-
Selenium	41	13	2	0.1	0.37	39	0.11	0.086	-	-	0.37	-	0.0827
Silver	42	3	0	0.53	0.65	42	0.25	0.095	-	-	0.65	-	0.225
Sodium	43	41	0	108	506	43	231.4	91.47	LN	483	-	258	-
Thallium	43	19	0	0.14	0.53	43	0.17	0.1	-	-	0.53	-	0.192
Vanadium	43	43	0	5.1	134	43	27.77	26.63	LN	102	-	35.1	-
Zinc	43	43	0	6.2	99.5	43	33.4	20.1	LN	104	-	41.2	-

Table 5
Background Concentrations for Organics
MCAS El Toro

Analyte	Statistics								Non-Parametric	
Units: ug/kg	Number Analyses	Number Detects	Non-Detects Excluded	Min Detect	Max Detect	Sample Size	Mean	Standard Deviation	95% Upper Confidence Limit on 0.95 Quantile	95% Upper Confidence Limit on 0.50 Quantile (median)
a-chlordane	47	2	0	3.01	17.7	47	1.39	2.45	17.7	1
g-chlordane	47	4	0	1.46	18	47	1.43	2.49	18	1.01
4,4'-DDD	47	8	0	1.5	58.6	47	5.1	10.79	58.6	1.99
4,4'-DDE	47	9	0	5.62	233	47	16.5	45.29	233	1.99
4,4'-DDT	47	9	0	5.21	272	47	22.27	61.48	272	1.99
Dieldrin	47	4	0	6.21	118	47	5.17	17.28	118	1.96
Endrin aldehyde	47	1	0	41.7	41.7	47	2.79	5.8	41.7	1.95
Endrin	47	2	0	1.01	19.9	47	2.3	2.63	19.9	1.95
Endosulfan sulfate	47	2	3	3.44	4.21	44	2.01	0.42	4.21	1.94
Endosulfan I	47	2	45	0.144	0.179	2	-	-	0.179	-
Endosulfan II	47	1	0	10.6	10.6	47	2.12	1.27	10.6	1.95
MCPA	47	1	0	127000	127000	47	17250	16710	127000	14700
Dichloroprop	47	1	0	141	141	47	60.18	12.41	141	58.8

Table 6
Background Metal Soil Samples
and Associated Geologic Formations
MCAS El Toro

Sample ID	Geologic Formation	Geologic Map Symbol
00-BGN111	Puente Formation La Vida Member	Tplv
00-BGN112	Quaternary landslide/Vaquueros and Sespe Formations	Qls/Tvs
00-BGN134	Puente Formation Soquel Member	Tps
00-BGN156	Quaternary landslide/Vaquueros and Sespe Formations	Qls/Tvs
00-BGN178	Quaternary landslide/Vaquueros and Sespe Formations	Qls/Tvs
00-BGN1910	Topanga Formation	Tt
00-BGN212	Quaternary nonmarine terrace deposits	Qt
00-BGN234	Quaternary nonmarine terrace deposits	Qt
00-BGN256	Capistrano Formation Oso Member	Tco
00-BGN278	Quaternary nonmarine terrace deposits	Qt
00-BGN2910	Capistrano Formation Oso Member	Tco
02-UGS	Quaternary alluvium and colluvium	Qac
03-UGS	Quaternary alluvium and colluvium	Qac
05-UGS	Quaternary alluvium and colluvium	Qac
06-UGS	Quaternary alluvium and colluvium	Qac
07-DBMW100	Quaternary alluvium and colluvium	Qac
12-UGS	Quaternary alluvium and colluvium	Qac
13-UGS	Quaternary alluvium and colluvium	Qac
15-UGS	Quaternary alluvium and colluvium	Qac
16-UGS	Quaternary alluvium and colluvium	Qac
16-UGX	Quaternary alluvium and colluvium	Qac
20-UGS	Quaternary alluvium and colluvium	Qac
21-UGS	Quaternary alluvium and colluvium	Qac

Table 7
Background Metal Soil Samples
Summary Statistics
MCAS El Toro

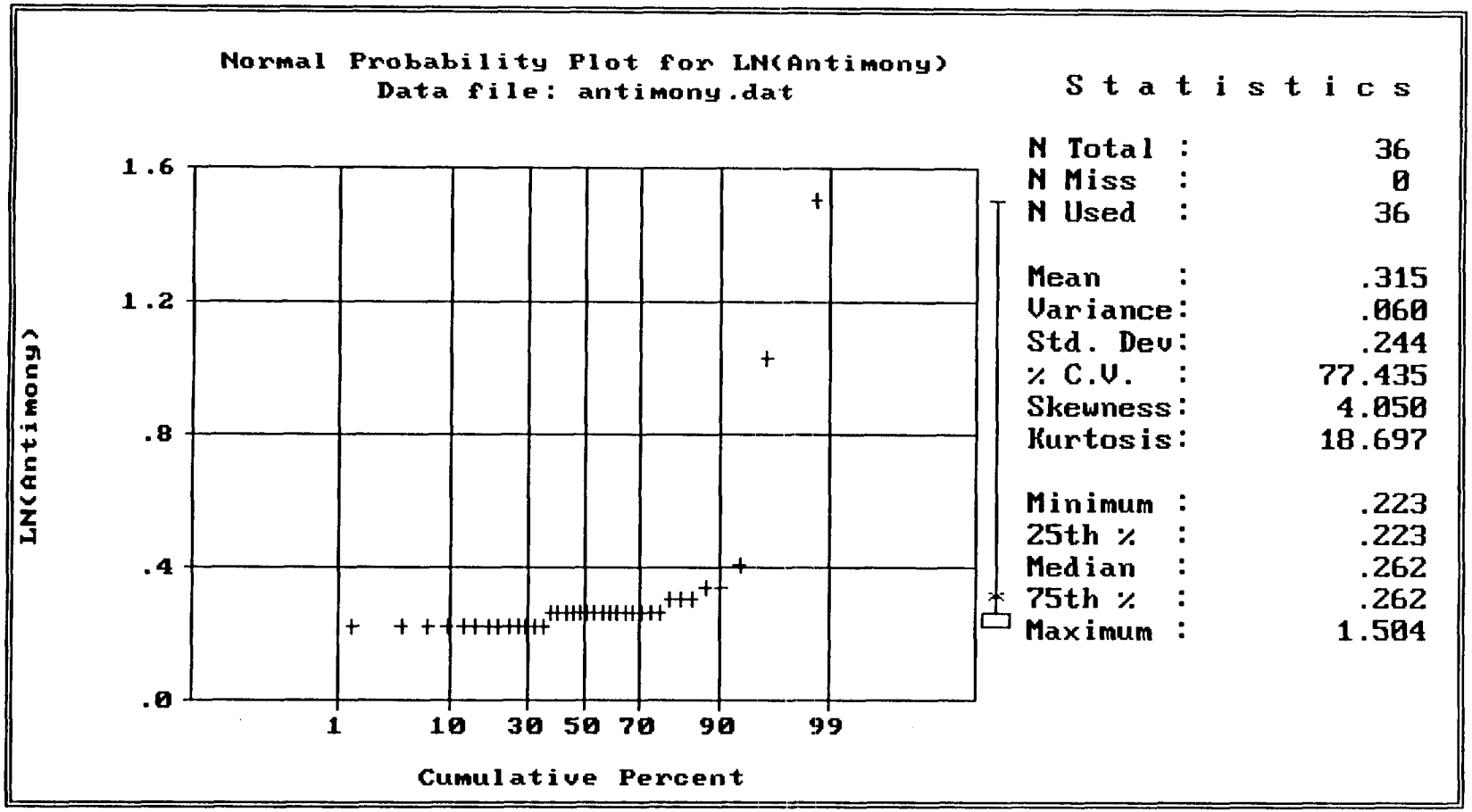
	Landslide Debris (Qls)			Alluvium/colluvium (Qac)			Terraces (Qt)			Puente Formation (Tplv)		
	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minumum	Maximum
SILVER	0.45	0.44	0.46	0.44	0.30	0.54	0.45	0.43	0.46	0.44	0.44	0.44
ALUMINUM	9451.43	6190.00	14000.00	7696.84	2720.00	17300.00	4841.67	2640.00	6880.00	5420.00	4210.00	6630.00
ARSENIC	2.16	0.46	4.70	2.05	0.46	4.10	0.82	0.15	1.20	0.81	0.74	0.88
BARIUM	84.73	57.50	109.00	98.11	34.80	160.00	48.38	25.90	62.20	37.65	35.20	40.10
BERYLLIUM	0.41	0.24	0.62	0.35	0.16	0.55	0.19	0.11	0.26	0.37	0.36	0.37
CALCIUM	4424.29	2000.00	6150.00	4635.26	1800.00	9540.00	2155.00	1500.00	3330.00	2835.00	2450.00	3220.00
CADMIUM	0.93	0.38	1.60	1.04	0.41	2.40	0.58	0.25	1.10	0.45	0.25	0.65
COBALT	4.56	3.60	6.50	3.94	1.70	6.90	1.95	1.20	2.80	2.00	1.70	2.30
CHROMIUM	11.40	5.30	25.50	8.27	3.20	17.70	5.82	2.10	10.20	6.65	6.20	7.10
COPPER	7.69	5.10	11.10	6.54	2.90	10.30	3.39	0.72	5.60	2.85	1.60	4.10
IRON	11601.43	8410.00	17400.00	10398.95	4030.00	19000.00	5545.00	1880.00	8090.00	3780.00	3580.00	3980.00
MERCURY	0.10	0.03	0.41	0.05	0.03	0.22	0.03	0.03	0.04	0.04	0.03	0.05
POTASSIUM	2961.43	2020.00	3780.00	3020.53	1250.00	4940.00	1347.17	353.00	2250.00	564.00	276.00	852.00
MAGNESIUM	4091.43	3270.00	6610.00	4086.84	1330.00	7570.00	1851.67	1300.00	2170.00	2040.00	1580.00	2500.00
MANGANESE	236.86	174.00	276.00	190.62	79.70	293.00	99.93	13.90	171.00	109.45	92.90	126.00
SODIUM	256.00	197.00	506.00	251.63	168.00	393.00	187.17	146.00	261.00	192.00	181.00	203.00
NICKEL	6.89	3.00	10.60	6.89	2.50	14.30	4.07	1.80	6.40	4.95	4.60	5.30
LEAD	6.40	1.60	22.40	4.67	0.79	21.40	6.43	1.10	17.60	6.35	1.90	10.80
ANTIMONY	2.57	2.50	2.70	2.63	2.50	2.80	2.57	2.50	2.60	2.55	2.50	2.60
SELENIUM	0.13	0.10	0.22	0.18	0.10	0.43	0.12	0.10	0.15	0.11	0.10	0.11
THALLIUM	0.17	0.15	0.22	0.21	0.14	0.42	0.28	0.15	0.39	0.15	0.15	0.15
VANADIUM	34.83	20.80	85.40	25.81	9.70	53.00	12.58	5.10	19.20	12.55	11.00	14.10
ZINC	36.99	25.40	48.00	36.25	17.70	57.40	18.83	6.20	28.60	13.15	8.40	17.90

Table 7
Background Metal Soil Samples
Summary Statistics
MCAS El Toro

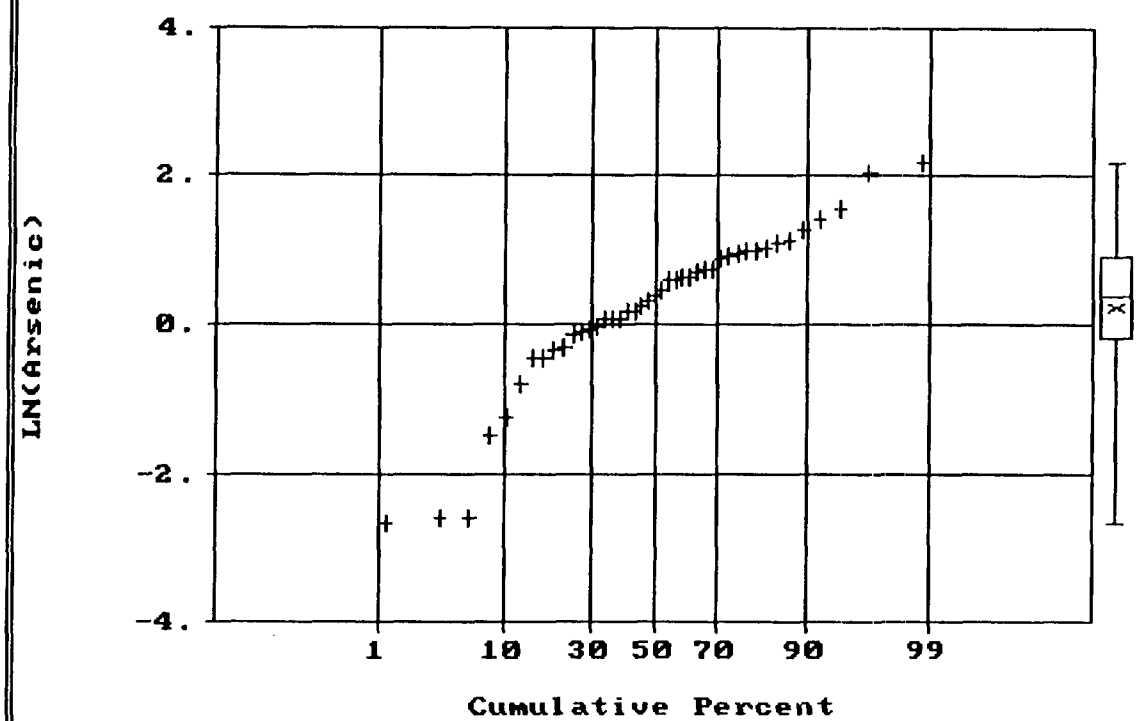
	Puente Formation (Tps)			Capistrano Formation (Tco)			Vaqueros and Sespe Formation (Tvs)			Topanga Formation (Tt)		
	Average	Minumum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum
SILVER	0.46	0.45	0.46	0.44	0.43	0.45	0.45	0.44	0.46	0.59	0.53	0.65
ALUMINUM	9465.00	7730.00	11200.00	4078.00	3270.00	4960.00	9451.43	6190.00	14000.00	14100.00	12900.00	15300.00
ARSENIC	2.05	1.60	2.50	0.51	0.14	0.91	2.16	0.46	4.70	7.95	7.40	8.50
BARIUM	107.15	90.30	124.00	37.22	22.80	45.00	84.73	57.50	109.00	162.50	153.00	172.00
BERYLLIUM	0.47	0.44	0.49	0.33	0.26	0.60	0.41	0.24	0.62	0.73	0.66	0.79
CALCIUM	3830.00	3430.00	4230.00	4020.00	2530.00	5020.00	4424.29	2000.00	6150.00	61350.00	55100.00	67600.00
CADMIUM	2.05	1.50	2.60	0.28	0.25	0.38	0.93	0.38	1.60	11.00	10.60	11.40
COBALT	7.35	5.00	9.70	1.24	1.20	1.30	4.56	3.60	6.50	5.60	5.20	6.00
CHROMIUM	12.60	9.20	16.00	3.72	2.50	4.50	11.40	5.30	25.50	49.35	43.70	55.00
COPPER	9.00	8.50	9.50	1.75	0.36	4.30	7.69	5.10	11.10	37.05	36.20	37.90
IRON	13600.00	10900.00	16300.00	2910.00	2260.00	3890.00	11601.43	8410.00	17400.00	18100.00	17700.00	18500.00
MERCURY	0.04	0.04	0.04	0.04	0.03	0.07	0.10	0.03	0.41	0.12	0.11	0.12
POTASSIUM	2950.00	2910.00	2990.00	753.80	435.00	1470.00	2961.43	2020.00	3780.00	5555.00	4880.00	6230.00
MAGNESIUM	4050.00	3160.00	4940.00	1192.60	944.00	1580.00	4091.43	3270.00	6610.00	10615.00	7630.00	13600.00
MANGANESE	384.50	195.00	574.00	65.66	49.60	105.00	236.86	174.00	276.00	252.00	241.00	263.00
SODIUM	259.00	241.00	277.00	135.60	108.00	167.00	256.00	197.00	506.00	434.50	419.00	450.00
NICKEL	36.20	14.50	57.90	2.10	1.60	3.40	6.89	3.00	10.60	67.70	64.30	71.10
LEAD	3.40	1.90	4.90	3.11	0.67	10.60	6.40	1.60	22.40	8.60	4.80	12.40
ANTIMONY	2.60	2.60	2.60	2.56	2.50	2.60	2.57	2.50	2.70	3.75	3.00	4.50
SELENIUM	0.16	0.11	0.21	0.12	0.10	0.16	0.13	0.10	0.22	0.35	0.32	0.37
THALLIUM	0.23	0.22	0.24	0.26	0.15	0.34	0.17	0.15	0.22	0.48	0.42	0.53
VANADIUM	36.65	28.50	44.80	7.00	5.40	8.20	34.83	20.80	85.40	125.50	117.00	134.00
ZINC	43.85	41.70	46.00	12.86	9.60	21.80	36.99	25.40	48.00	98.70	97.90	99.50

APPENDIX A

PROBABILITY PLOTS

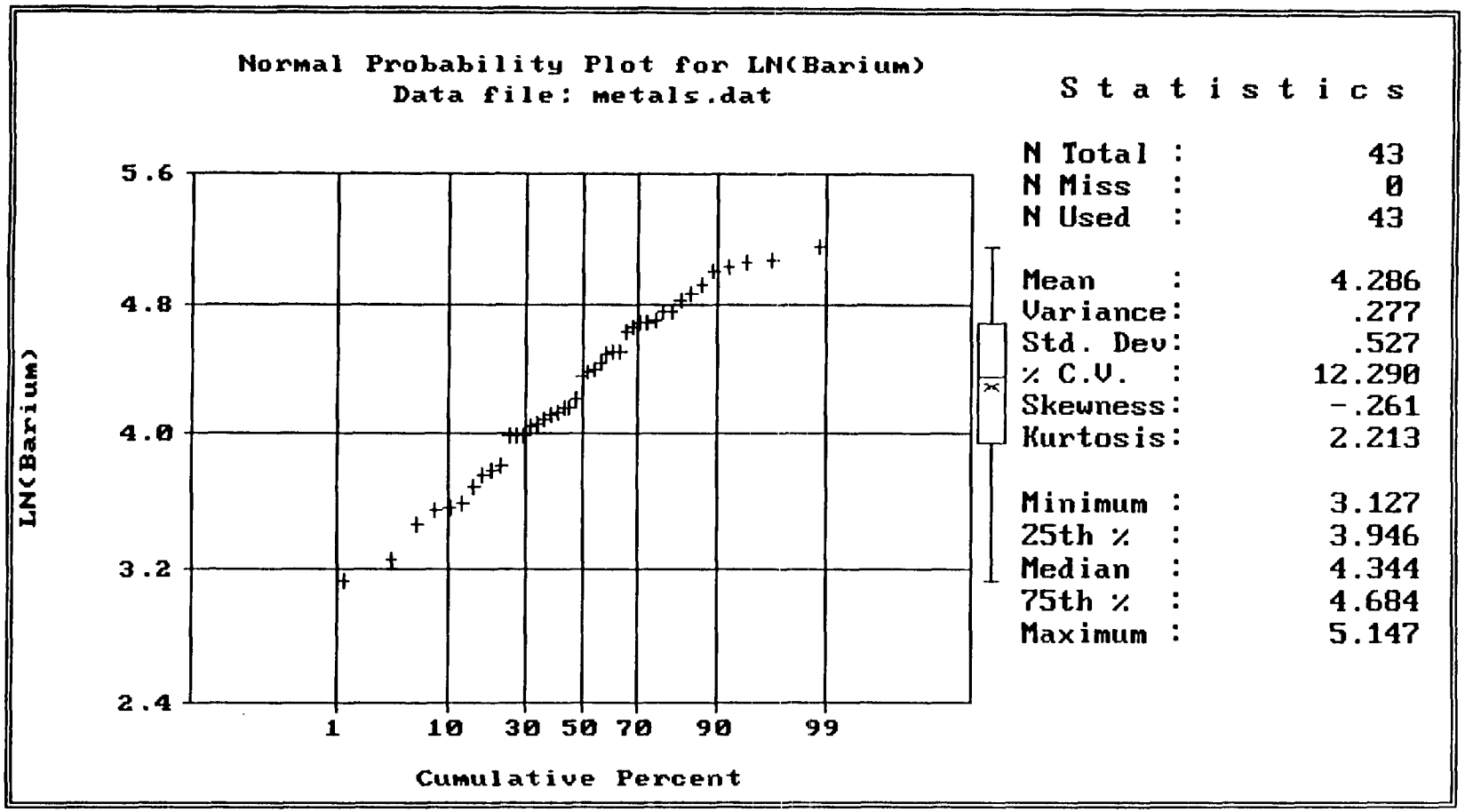

Normal Probability Plot for LN(Antimony)
Data file: antimony.dat
LN(Antimony)
1.6
1.2
.8
.4
.0
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 36
N Miss : 0
N Used : 36
Mean : .315
Variance: .060
Std. Dev: .244
% C.V. : 77.435
Skewness: 4.050
Kurtosis: 18.697
Minimum : .223
25th % : .223
Median : .262
75th % : .262
Maximum : 1.504

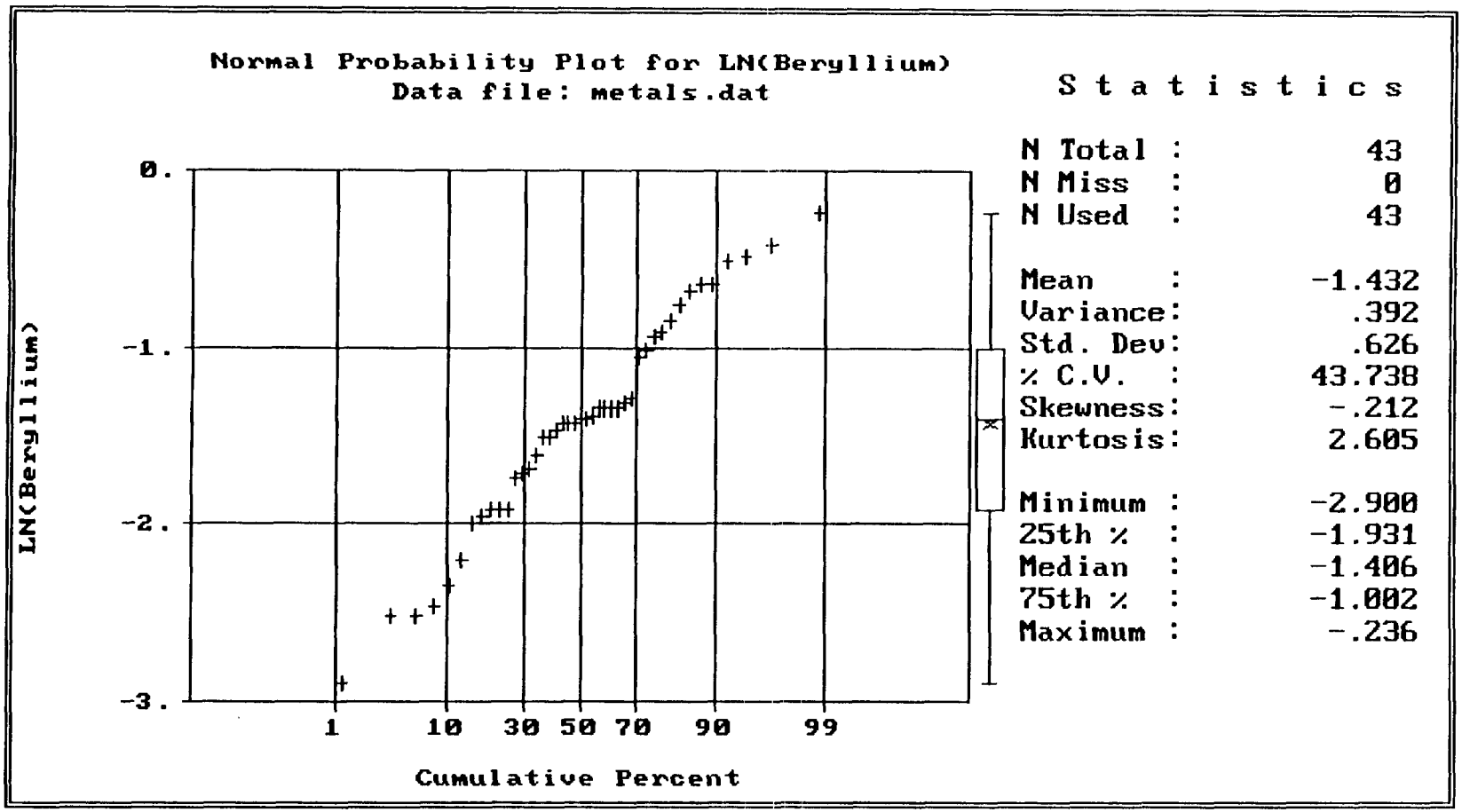
Normal Probability Plot for LN(Arsenic)
Data file: metals.dat

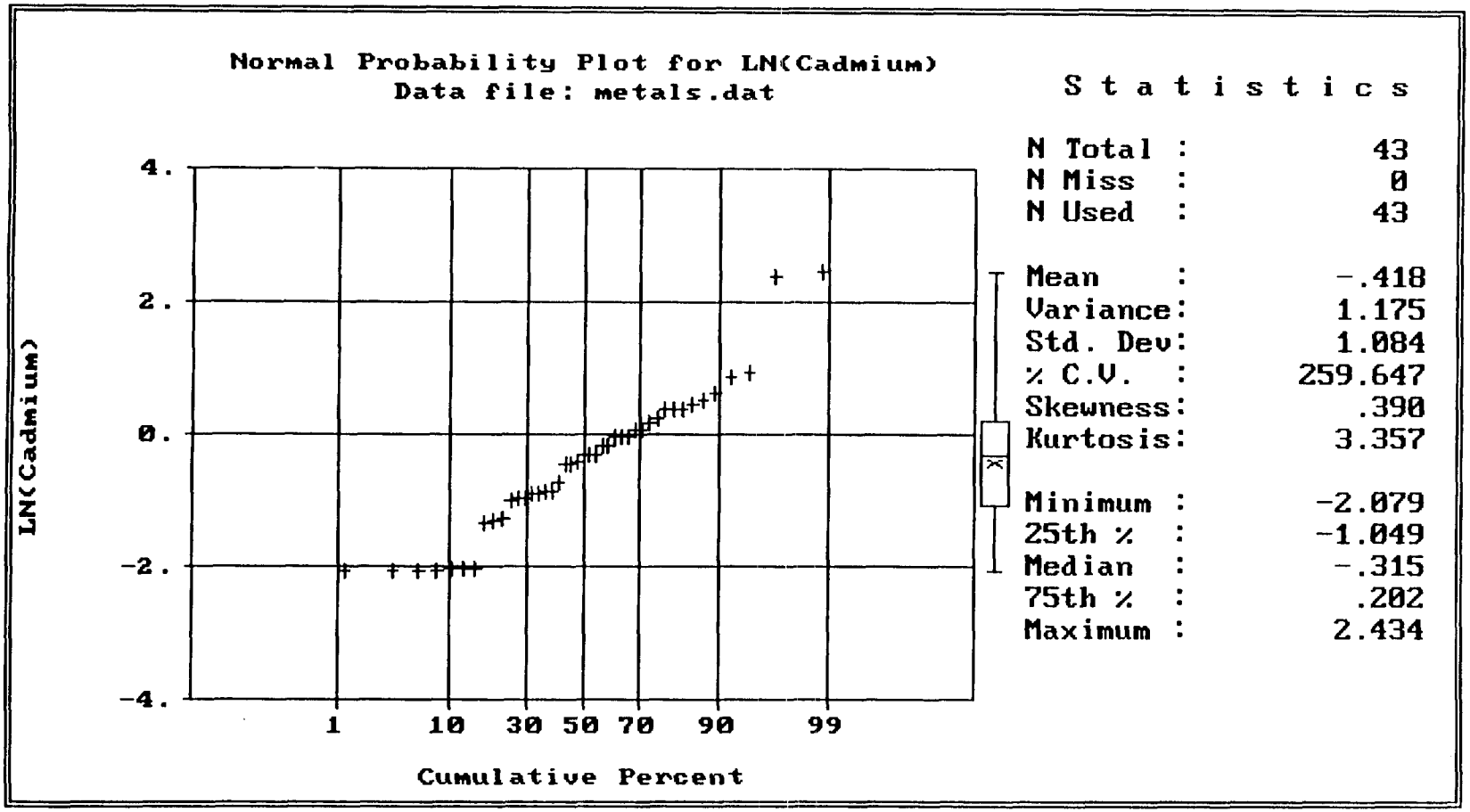


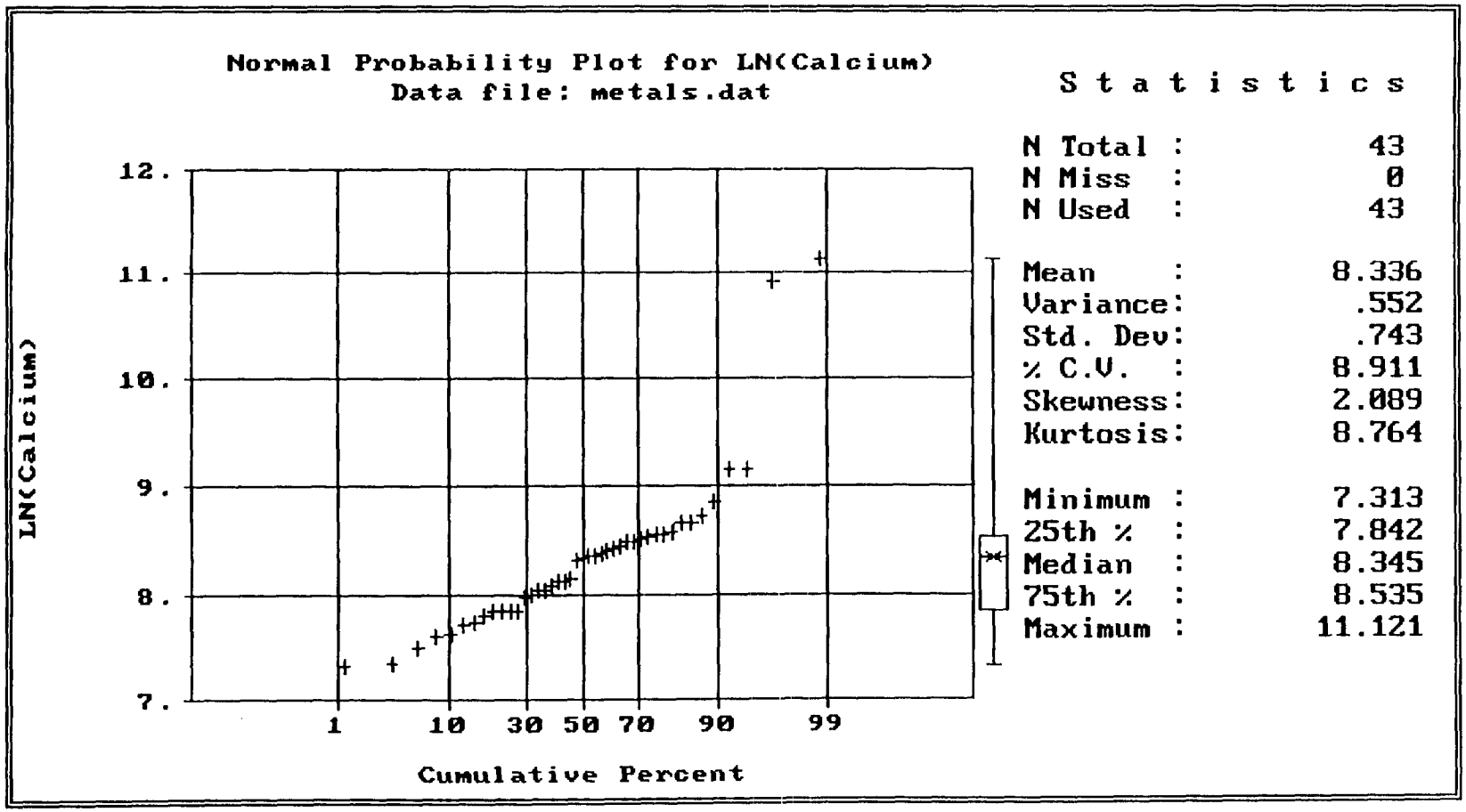
Statistics

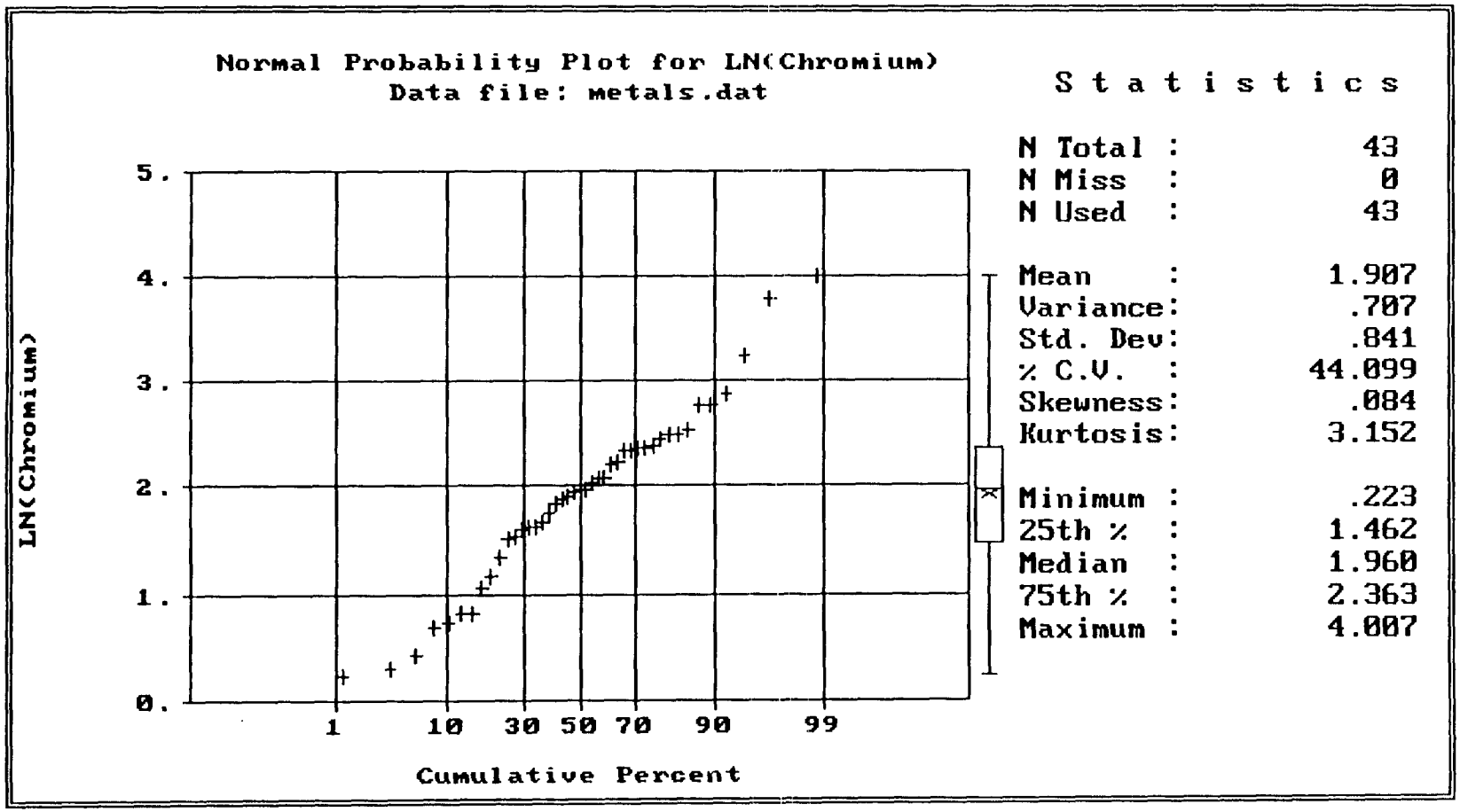
N Total :	43
N Miss :	0
N Used :	43
Mean :	.232
Variance:	1.177
Std. Dev:	1.085
% C.V. :	468.172
Skewness:	-1.084
Kurtosis:	4.290
Minimum :	-2.659
25th % :	-.171
Median :	.405
75th % :	.926
Maximum :	2.140

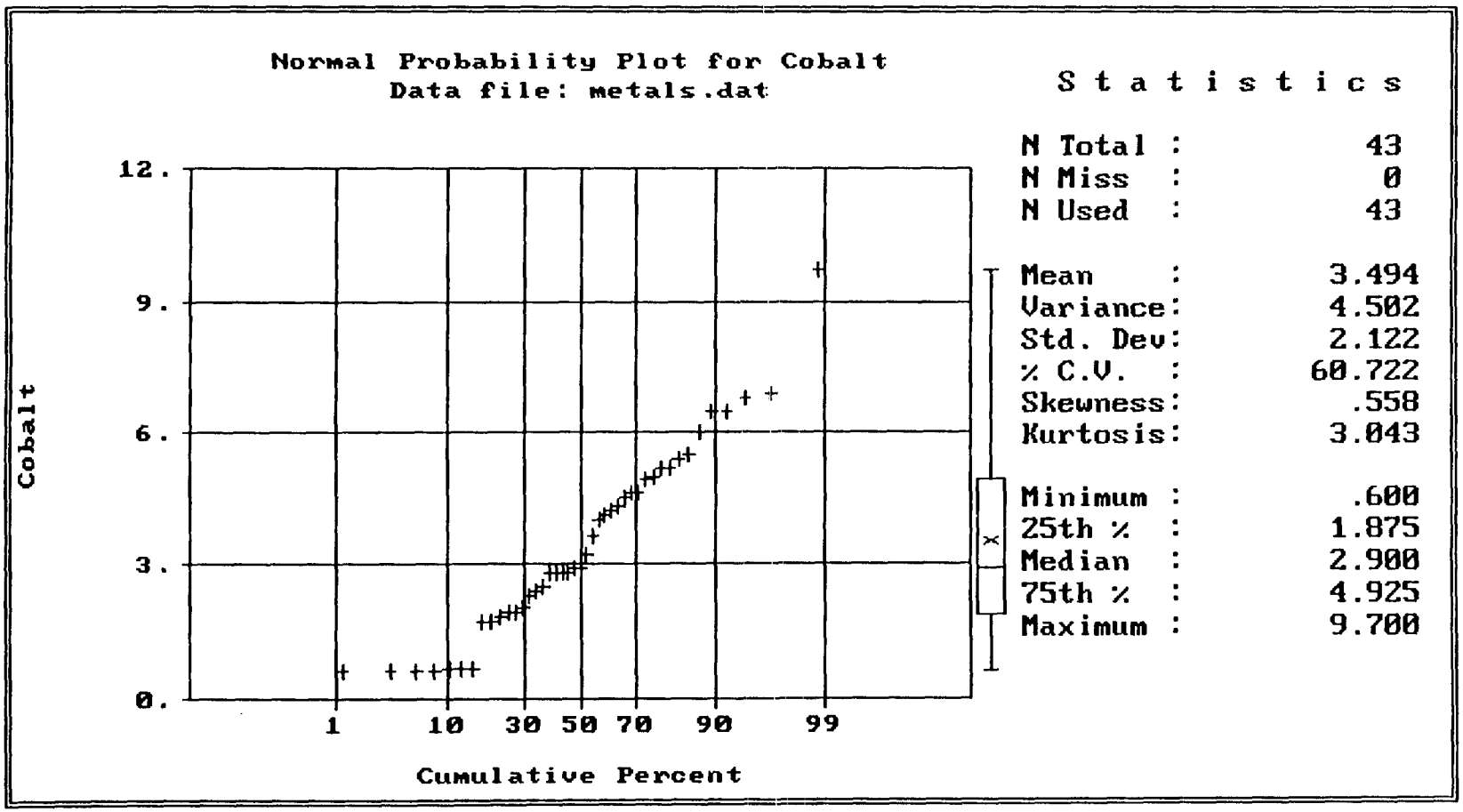

Normal Probability Plot for LN(Barium)
Data file: metals.dat
LN(Barium)
5.6
4.8
4.0
3.2
2.4
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 4.286
Variance: .277
Std. Dev: .527
% C.V. : 12.290
Skewness: -.261
Kurtosis: 2.213
Minimum : 3.127
25th % : 3.946
Median : 4.344
75th % : 4.684
Maximum : 5.147

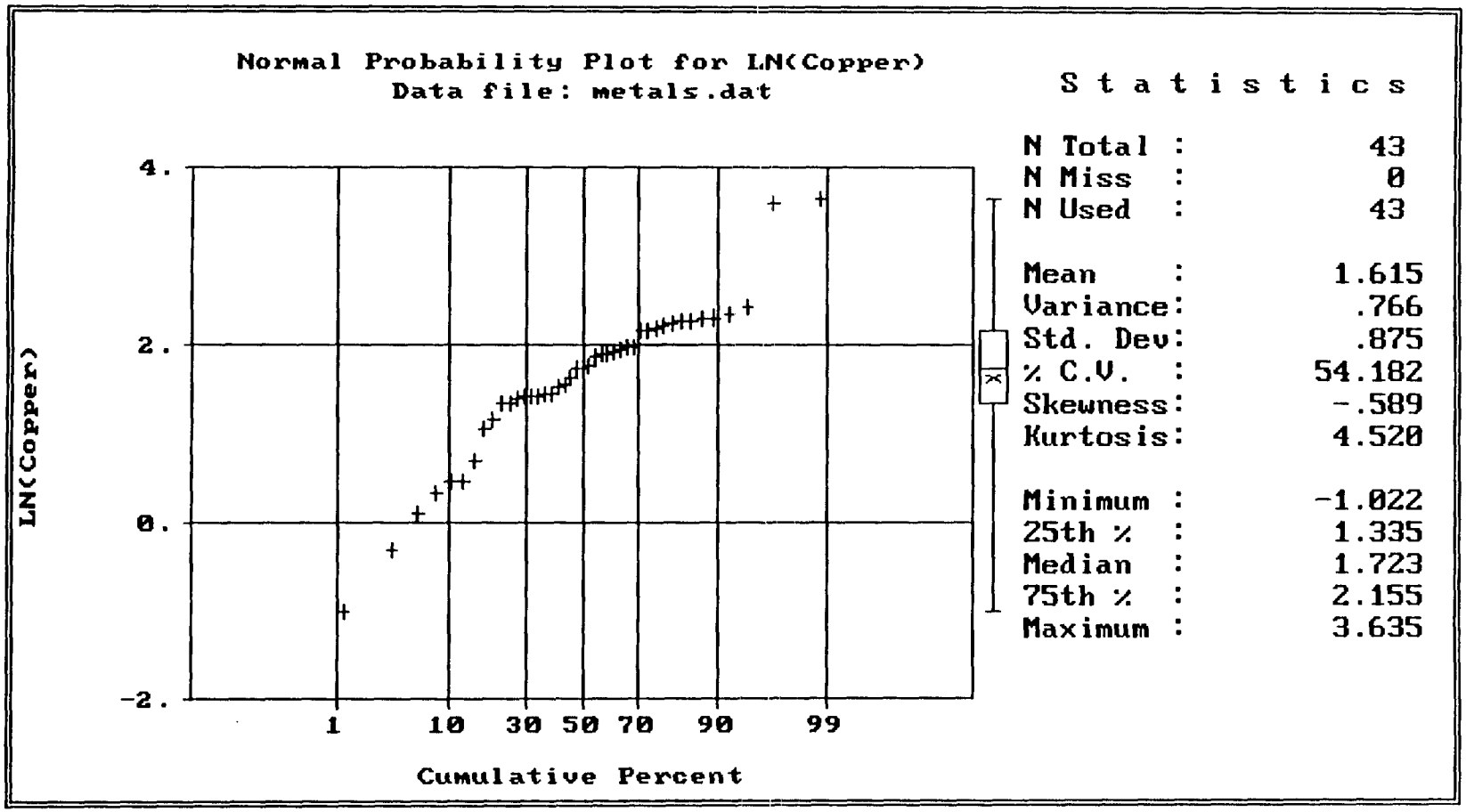

Normal Probability Plot for LN(Beryllium)
Data file: metals.dat
LN(Beryllium)
0.
-1.
-2.
-3.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : -1.432
Variance: .392
Std. Dev: .626
% C.V. : 43.738
Skewness: -.212
Kurtosis: 2.605
Minimum : -2.900
25th % : -1.931
Median : -1.406
75th % : -1.002
Maximum : -.236

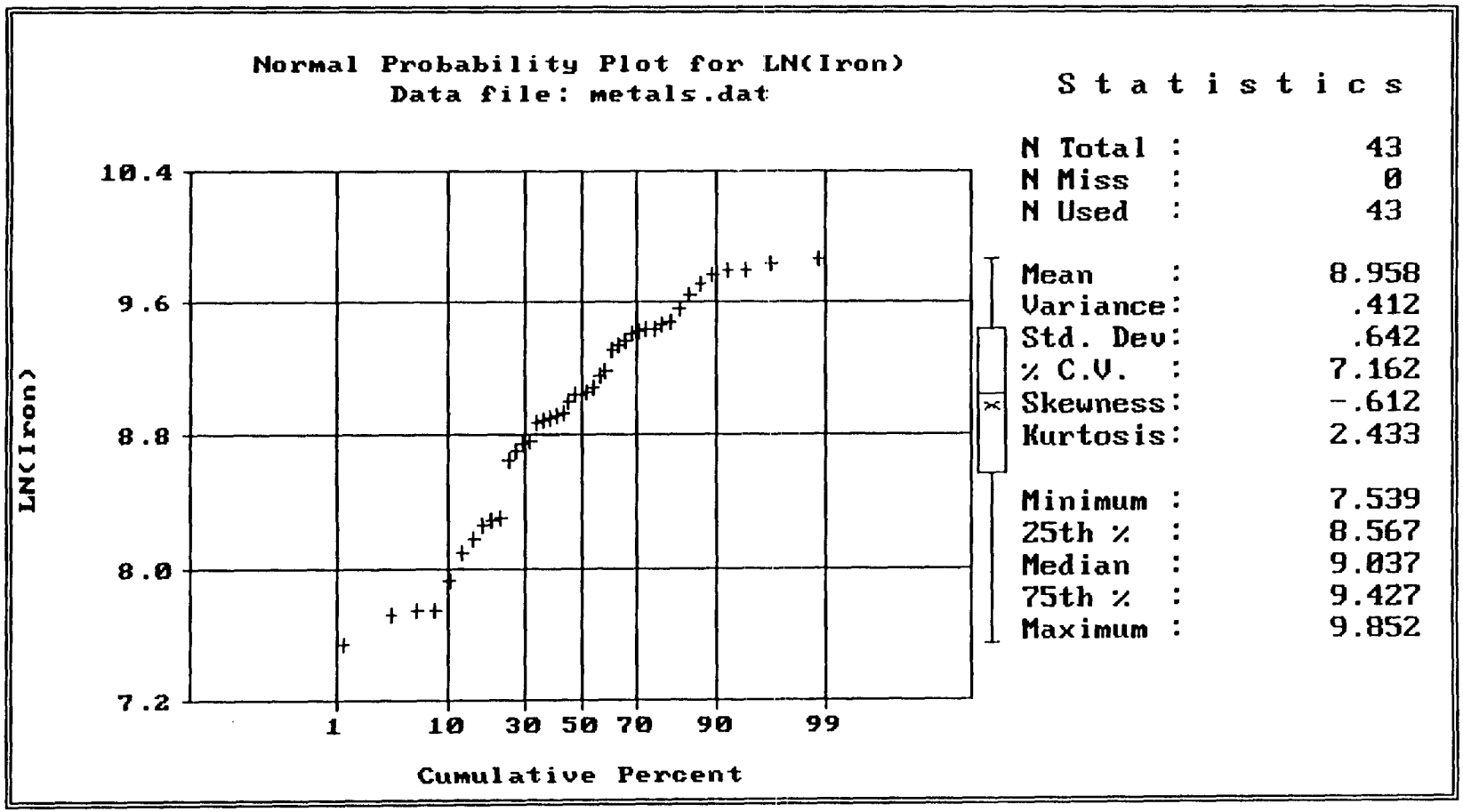

Normal Probability Plot for LN(Cadmium)
Data file: metals.dat
LN(Cadmium)
4.
2.
0.
-2.
-4.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : -.418
Variance: 1.175
Std. Dev: 1.084
% C.V. : 259.647
Skewness: .390
Kurtosis: 3.357
Minimum : -2.079
25th % : -1.049
Median : -.315
75th % : .202
Maximum : 2.434

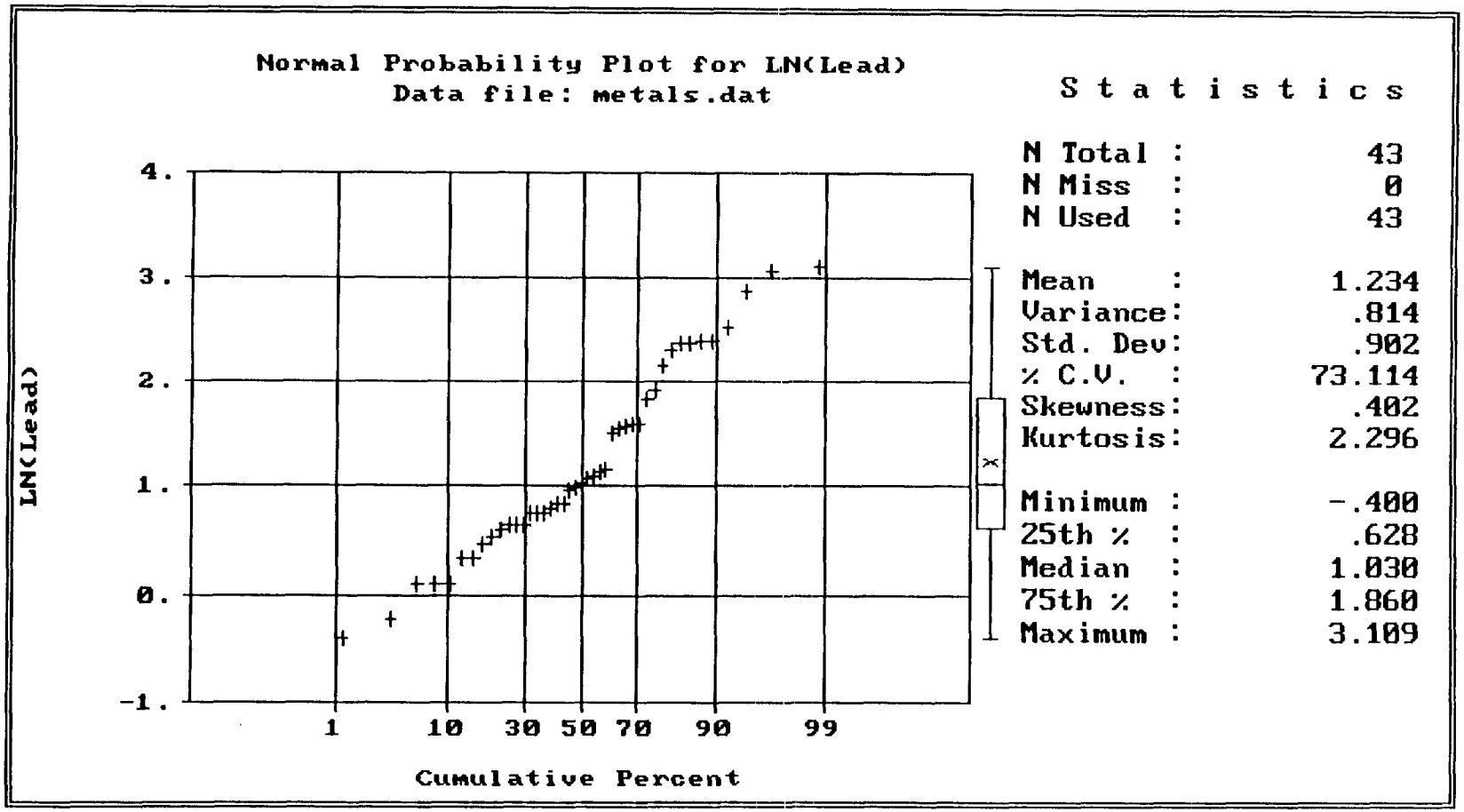

Normal Probability Plot for LN(Calcium)
Data file: metals.dat
LN(Calcium)
12.
11.
10.
9.
8.
7.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 8.336
Variance: .552
Std. Dev: .743
% C.V. : 8.911
Skewness: 2.089
Kurtosis: 8.764
Minimum : 7.313
25th % : 7.842
Median : 8.345
75th % : 8.535
Maximum : 11.121


Normal Probability Plot for LN(Chromium)
Data file: metals.dat
LN(Chromium)
5.
4.
3.
2.
1.
0.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 1.907
Variance: .707
Std. Dev: .841
% C.V. : 44.099
Skewness: .084
Kurtosis: 3.152
Minimum : .223
25th % : 1.462
Median : 1.960
75th % : 2.363
Maximum : 4.007

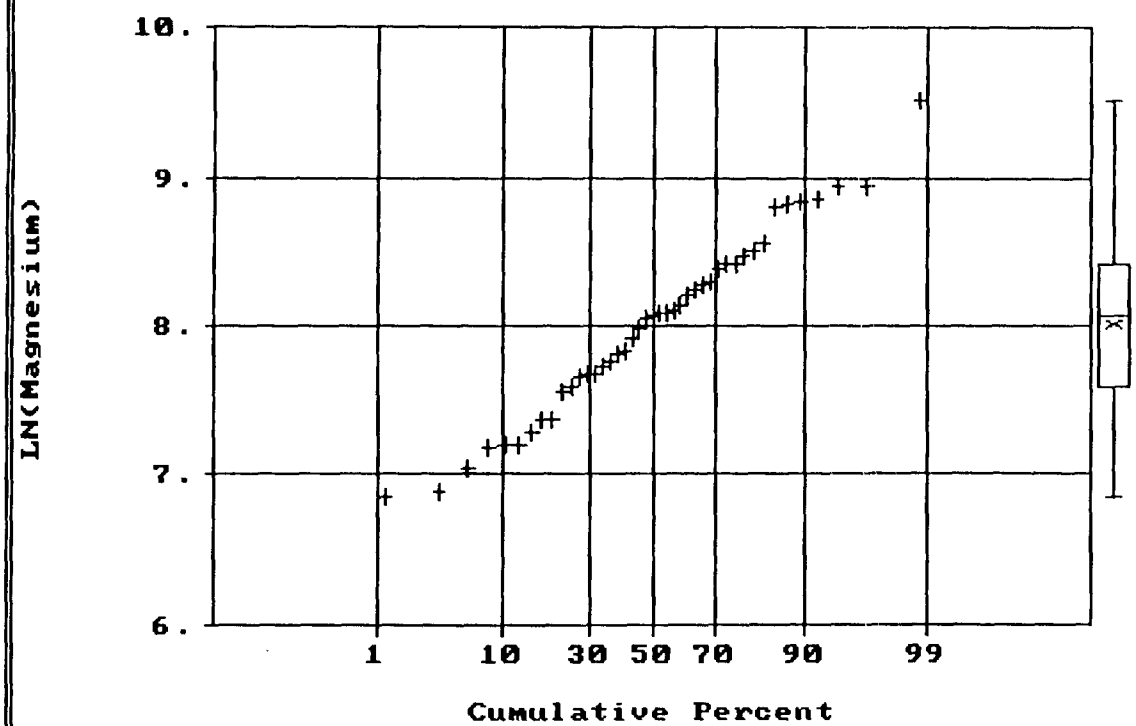

Normal Probability Plot for Cobalt
Data file: metals.dat
Cobalt
12.
9.
6.
3.
0.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 3.494
Variance: 4.502
Std. Dev: 2.122
% C.V. : 60.722
Skewness: .558
Kurtosis: 3.043
Minimum : .600
25th % : 1.875
Median : 2.900
75th % : 4.925
Maximum : 9.700


Normal Probability Plot for LN(Copper)
Data file: metals.dat
LN(Copper)
4.
2.
0.
-2.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 1.615
Variance: .766
Std. Dev: .875
% C.V. : 54.182
Skewness: -.589
Kurtosis: 4.520
Minimum : -1.022
25th % : 1.335
Median : 1.723
75th % : 2.155
Maximum : 3.635


Normal Probability Plot for LN(Iron)
Data file: metals.dat
LN(Iron)
10.4
9.6
8.8
8.0
7.2
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 8.958
Variance: .412
Std. Dev: .642
% C.V. : 7.162
Skewness: -.612
Kurtosis: 2.433
Minimum : 7.539
25th % : 8.567
Median : 9.037
75th % : 9.427
Maximum : 9.852

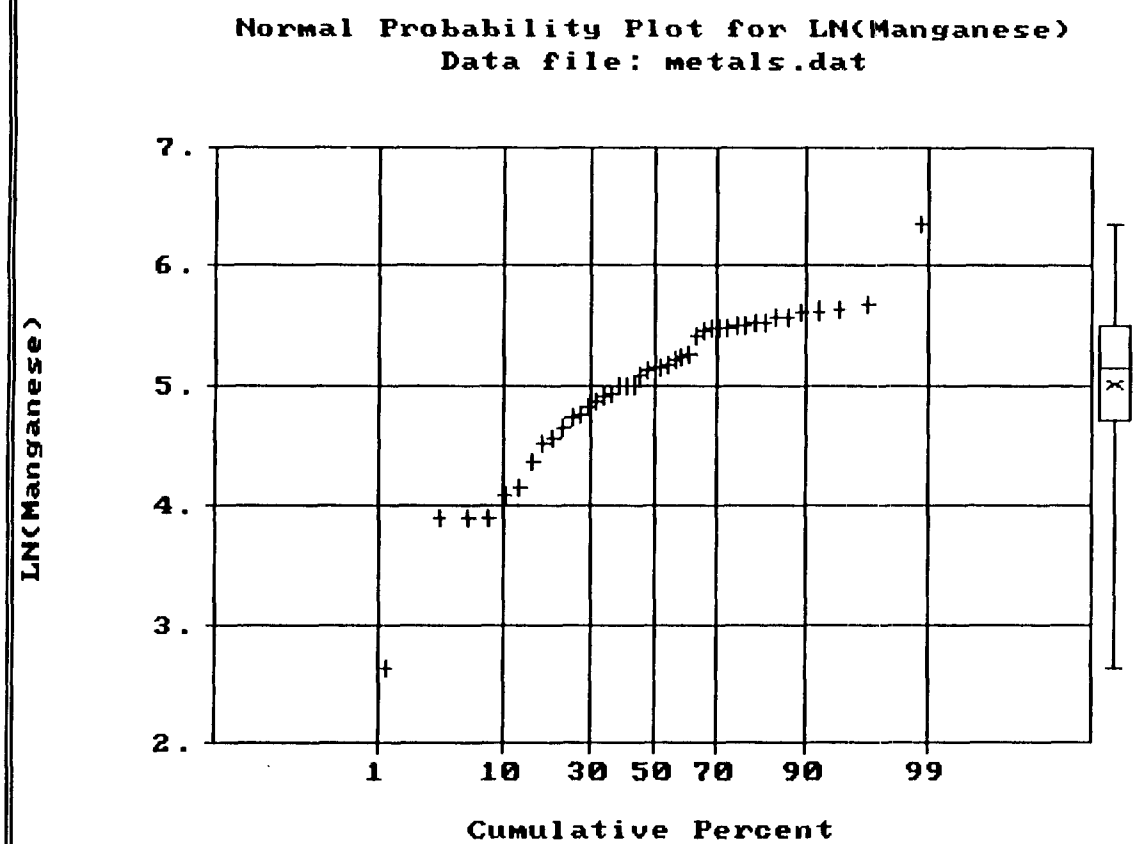

Normal Probability Plot for LN(Lead)
Data file: metals.dat
LN(Lead)
4.
3.
2.
1.
0.
-1.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 1.234
Variance: .814
Std. Dev: .902
% C.V. : 73.114
Skewness: .402
Kurtosis: 2.296
Minimum : -.400
25th % : .628
Median : 1.030
75th % : 1.860
Maximum : 3.109

Normal Probability Plot for LN(Magnesium)
Data file: metals.dat



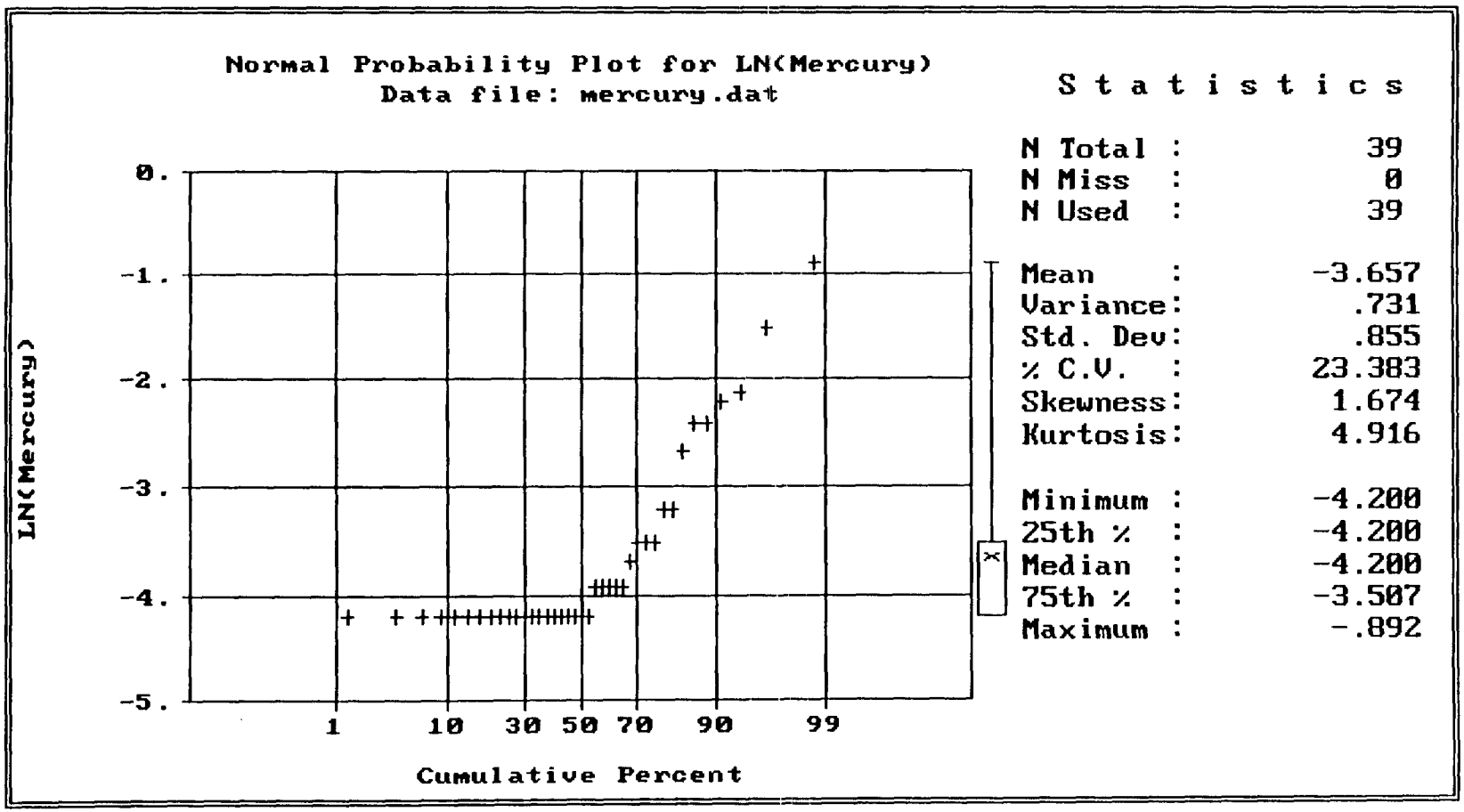
Statistics

N Total :	43
N Miss :	0
N Used :	43
Mean :	8.013
Variance:	.384
Std. Dev:	.619
% C.V. :	7.731
Skewness:	.079
Kurtosis:	2.516
Minimum :	6.850
25th % :	7.583
Median :	8.068
75th % :	8.415
Maximum :	9.518

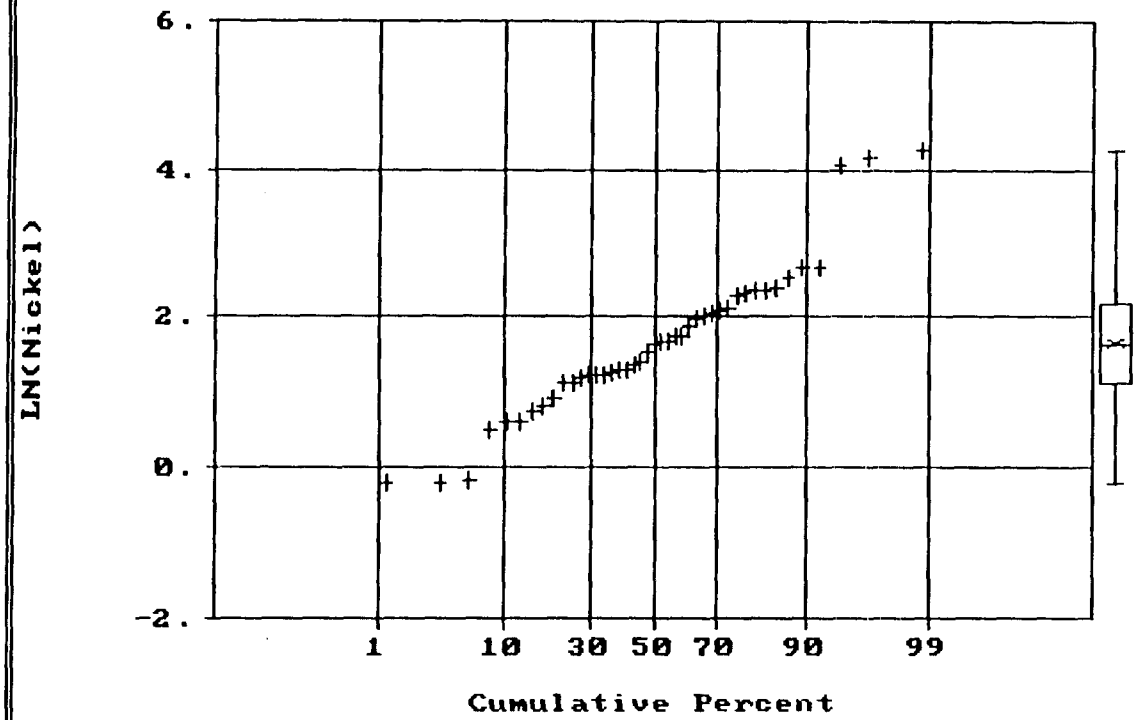


Statistics

N Total :	43
N Miss :	0
N Used :	43
Mean :	5.017
Variance:	.437
Std. Dev:	.661
% C.V. :	13.178
Skewness:	-1.250
Kurtosis:	5.483
Minimum :	2.632
25th % :	4.729
Median :	5.159
75th % :	5.491
Maximum :	6.353

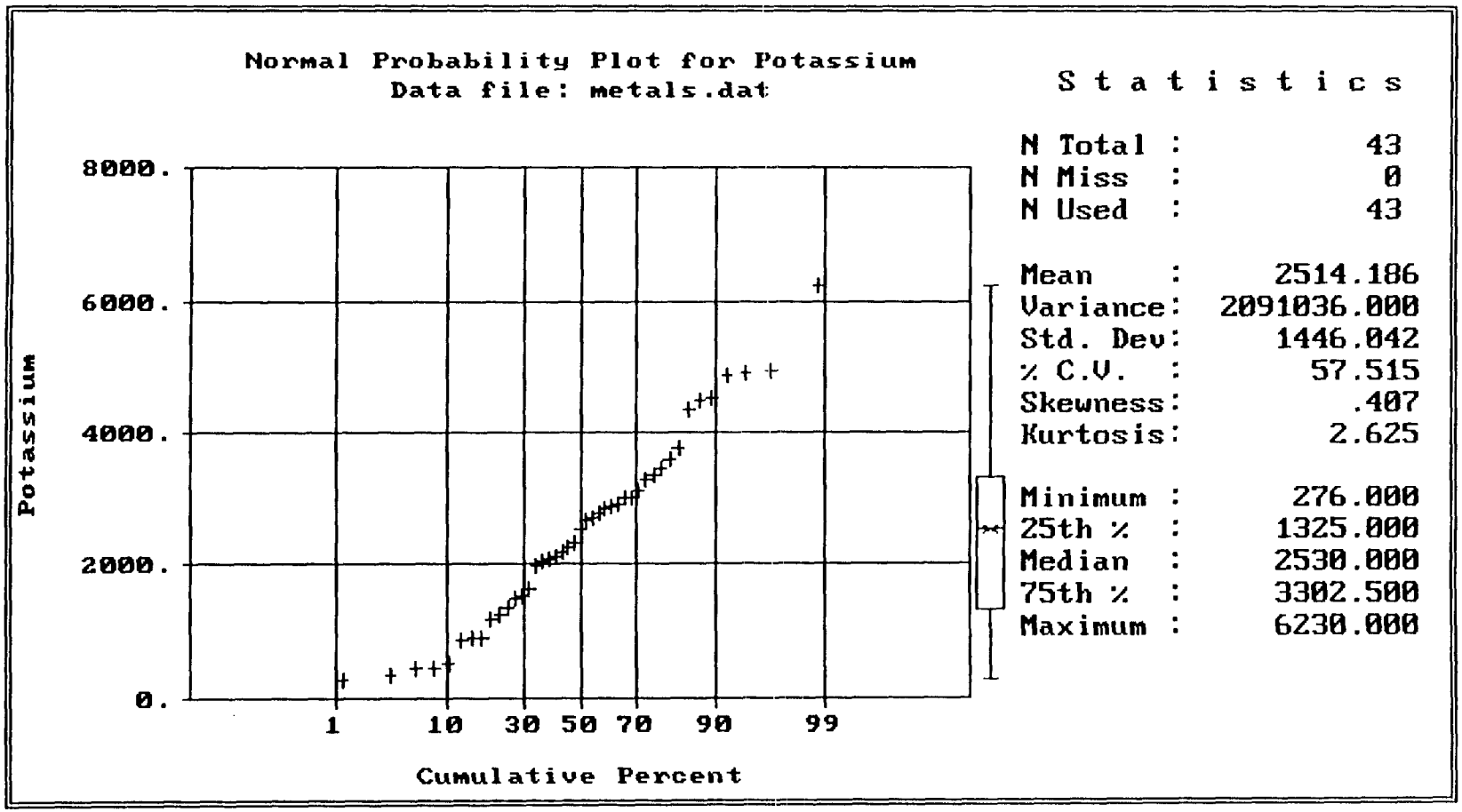

Normal Probability Plot for LN(Mercury)
Data file: mercury.dat
LN(Mercury)
0.
-1.
-2.
-3.
-4.
-5.
1
10
30
50
70
90
99
Cumulative Percent
x
Statistics
N Total : 39
N Miss : 0
N Used : 39
Mean : -3.657
Variance: .731
Std. Dev: .855
% C.V. : 23.383
Skewness: 1.674
Kurtosis: 4.916
Minimum : -4.200
25th % : -4.200
Median : -4.200
75th % : -3.507
Maximum : -.892

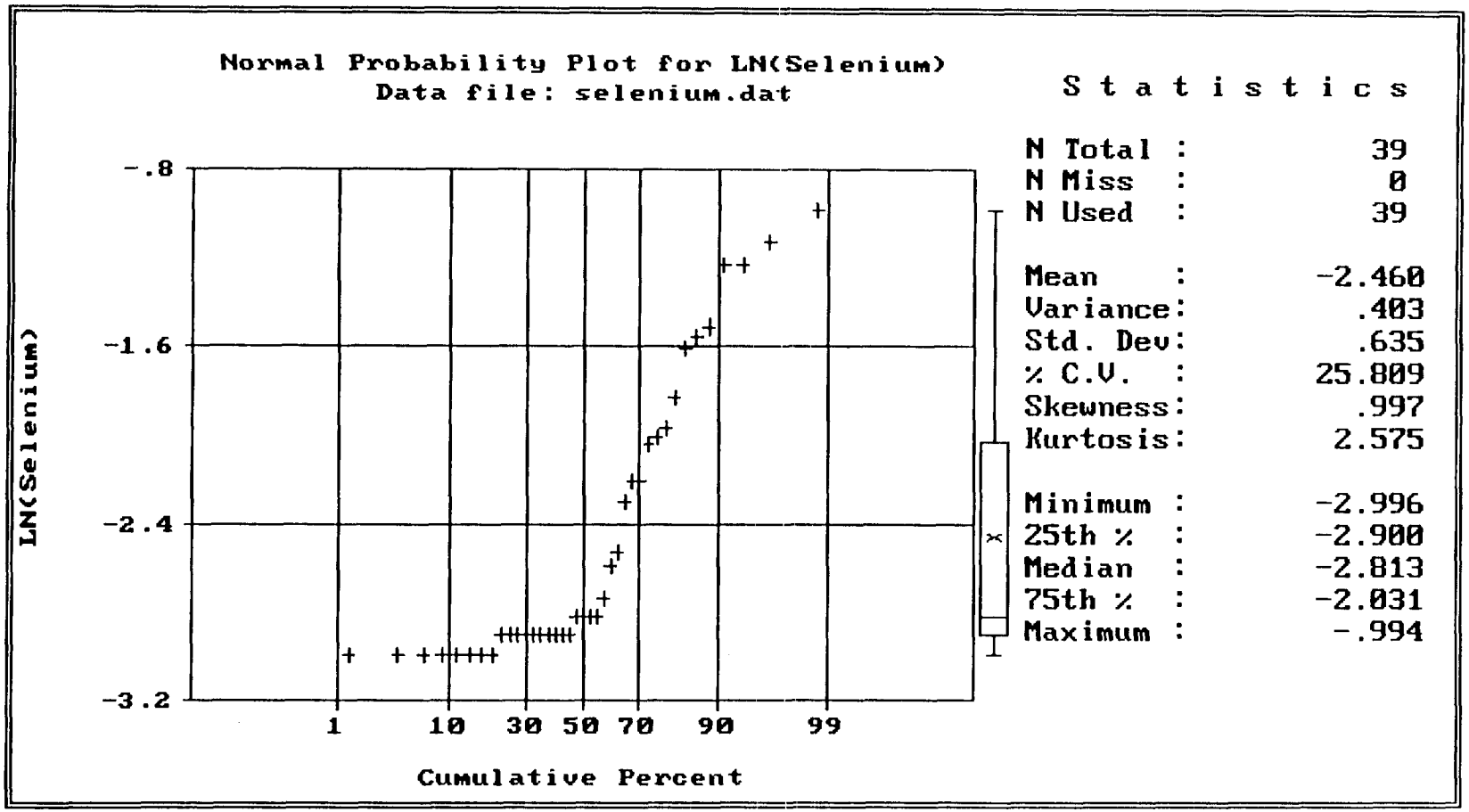
Normal Probability Plot for LN(Nickel)
Data file: metals.dat

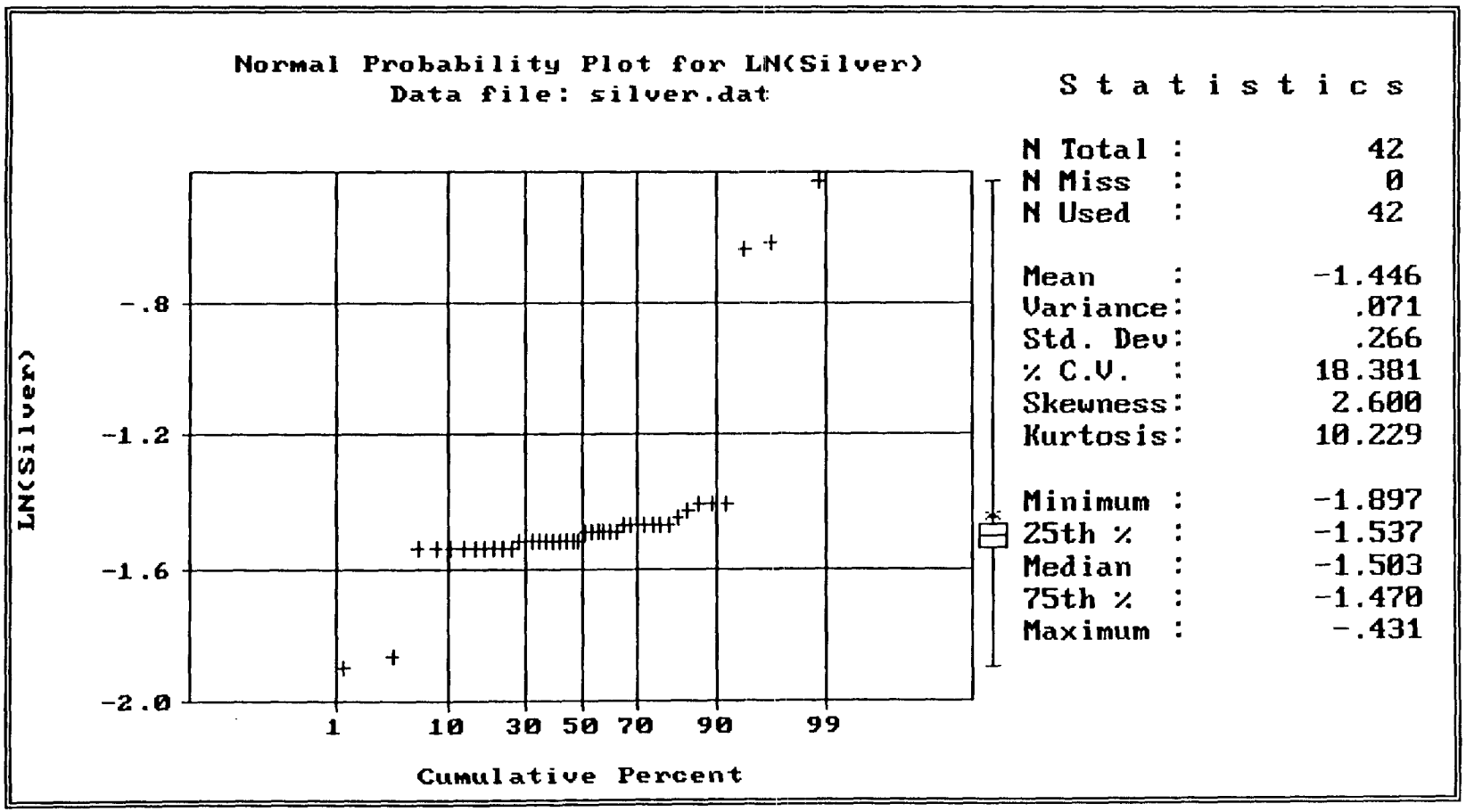


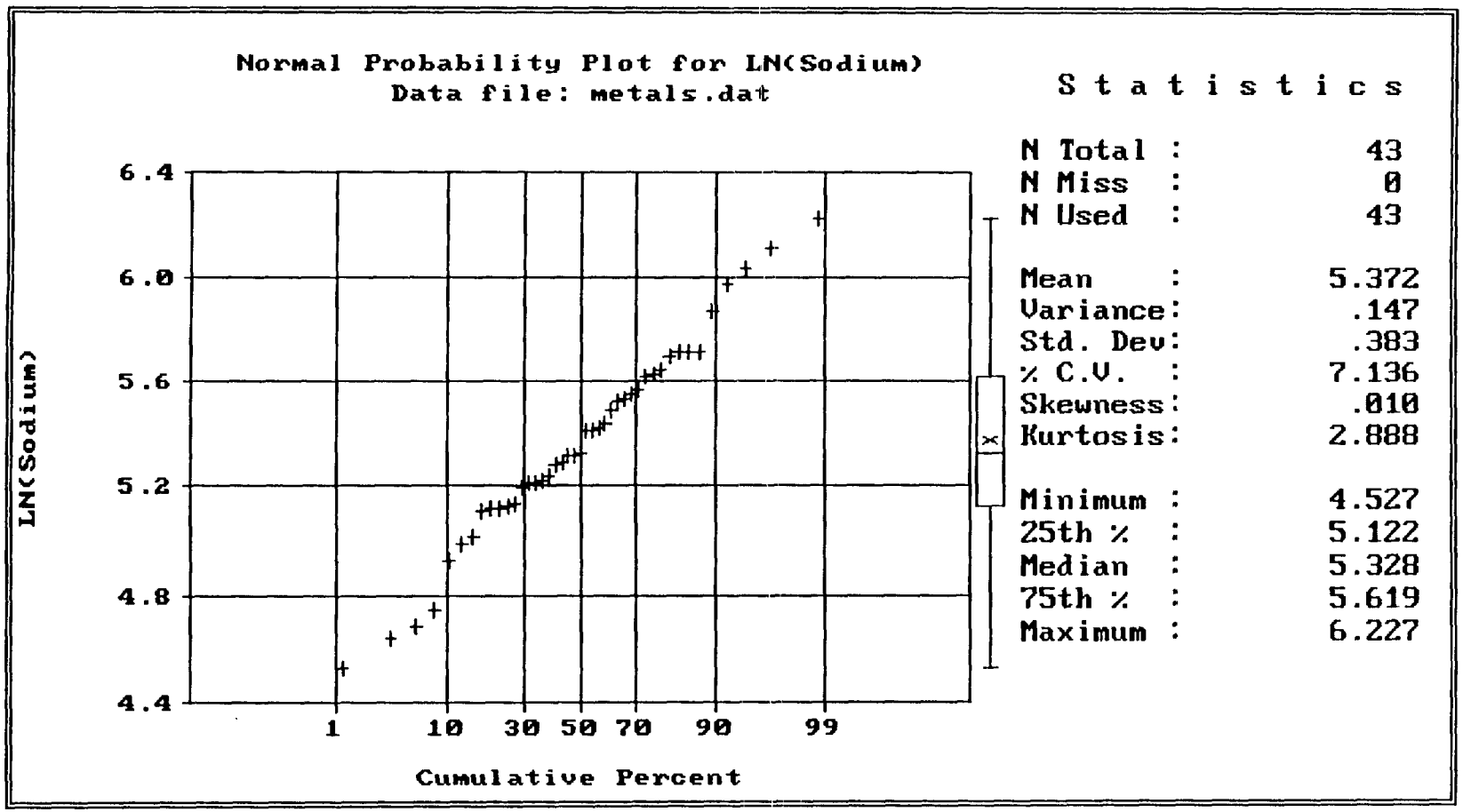
Statistics

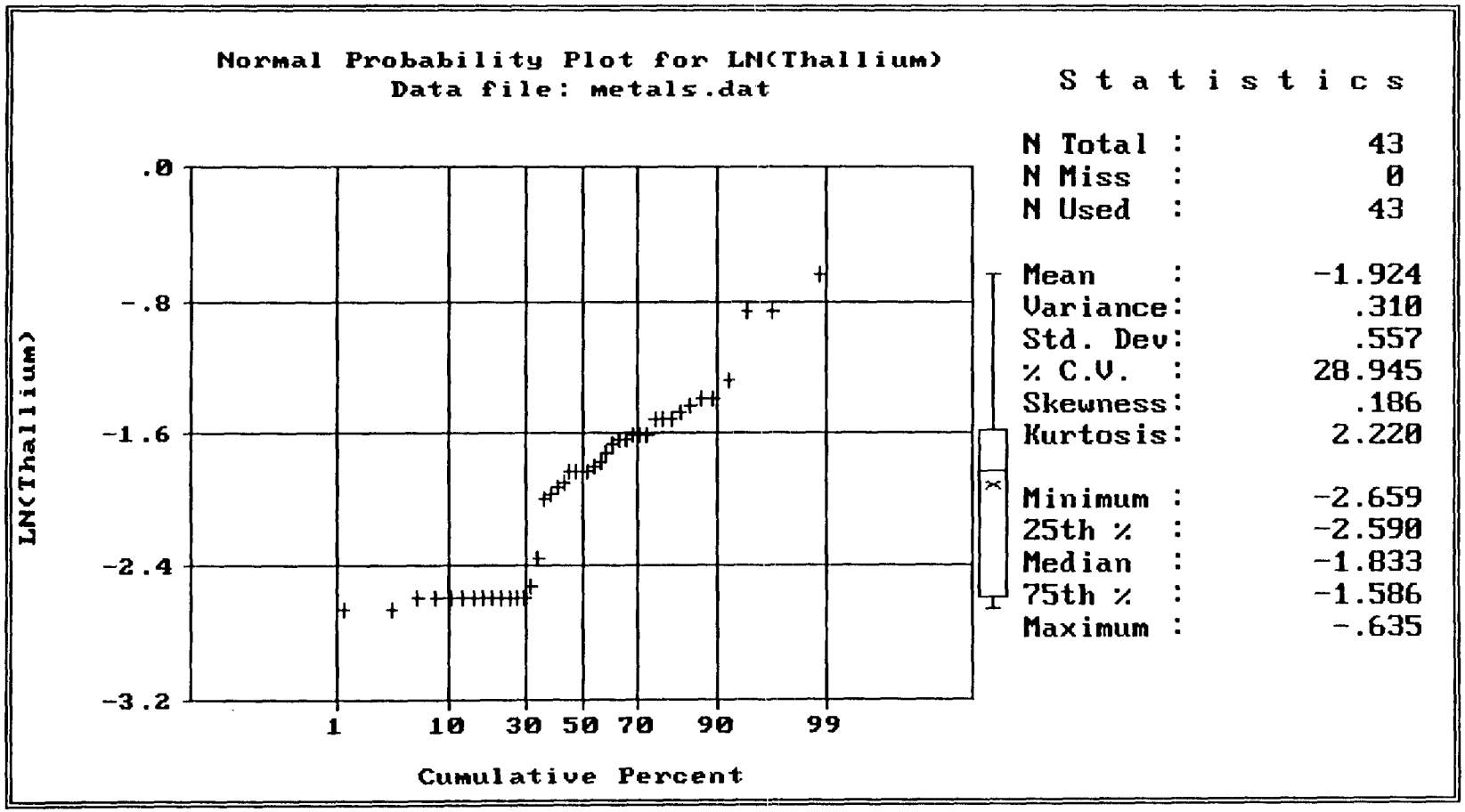
N Total :	43
N Miss :	0
N Used :	43
Mean :	1.655
Variance:	1.027
Std. Dev:	1.013
% C.V. :	61.231
Skewness:	.603
Kurtosis:	3.832
Minimum :	-.223
25th % :	1.111
Median :	1.629
75th % :	2.169
Maximum :	4.264


Normal Probability Plot for Potassium
Data file: metals.dat
Potassium
8000.
6000.
4000.
2000.
0.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 2514.186
Variance: 2091036.000
Std. Dev: 1446.042
% C.V. : 57.515
Skewness: .407
Kurtosis: 2.625
Minimum : 276.000
25th % : 1325.000
Median : 2530.000
75th % : 3302.500
Maximum : 6230.000

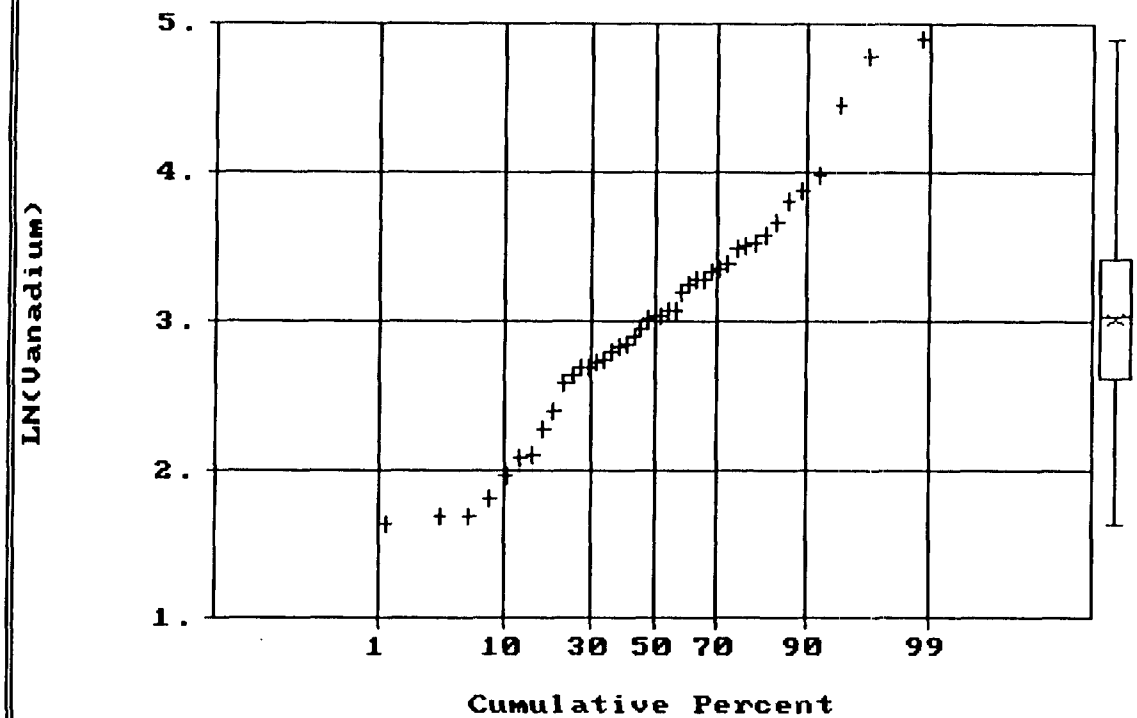

Normal Probability Plot for LN(Selenium)
Data file: selenium.dat
LN(Selenium)
-.8
-1.6
-2.4
-3.2
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 39
N Miss : 0
N Used : 39
Mean : -2.460
Variance: .403
Std. Dev: .635
% C.V. : 25.809
Skewness: .997
Kurtosis: 2.575
Minimum : -2.996
25th % : -2.900
Median : -2.813
75th % : -2.031
Maximum : -.994


Normal Probability Plot for LN(Silver)
Data file: silver.dat
LN(Silver)
-.8
-1.2
-1.6
-2.0
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 42
N Miss : 0
N Used : 42
Mean : -1.446
Variance: .071
Std. Dev: .266
% C.V. : 18.381
Skewness: 2.600
Kurtosis: 10.229
Minimum : -1.897
25th % : -1.537
Median : -1.503
75th % : -1.470
Maximum : -.431


Normal Probability Plot for LN(Sodium)
Data file: metals.dat
LN(Sodium)
6.4
6.0
5.6
5.2
4.8
4.4
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 5.372
Variance: .147
Std. Dev: .383
% C.V. : 7.136
Skewness: .010
Kurtosis: 2.888
Minimum : 4.527
25th % : 5.122
Median : 5.328
75th % : 5.619
Maximum : 6.227

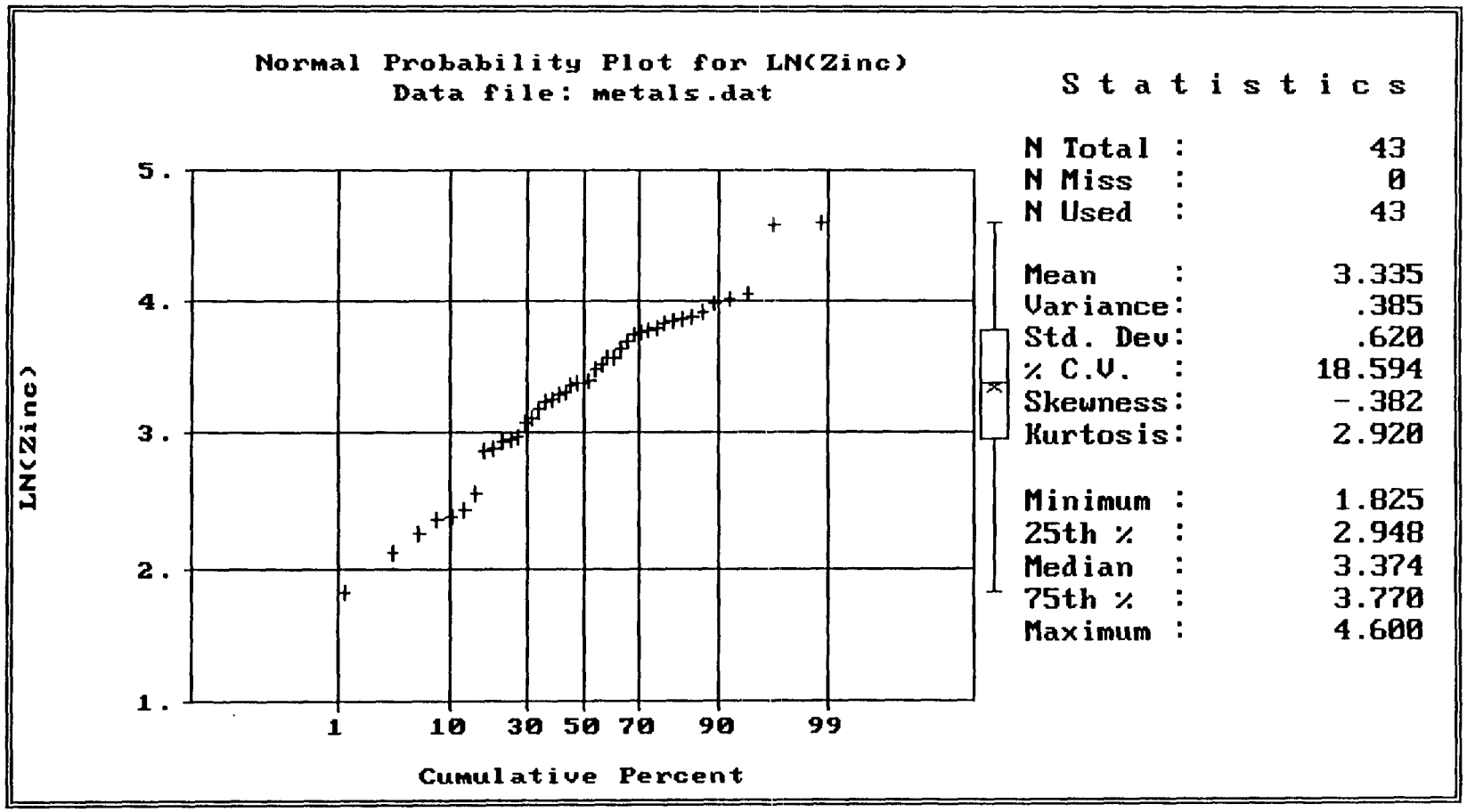

Normal Probability Plot for LN(Thallium)
Data file: metals.dat
LN(Thallium)
.0
-.8
-1.6
-2.4
-3.2
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : -1.924
Variance: .310
Std. Dev: .557
% C.V. : 28.945
Skewness: .186
Kurtosis: 2.220
Minimum : -2.659
25th % : -2.590
Median : -1.833
75th % : -1.586
Maximum : -.635

Normal Probability Plot for LN(Vanadium)
Data file: metals.dat

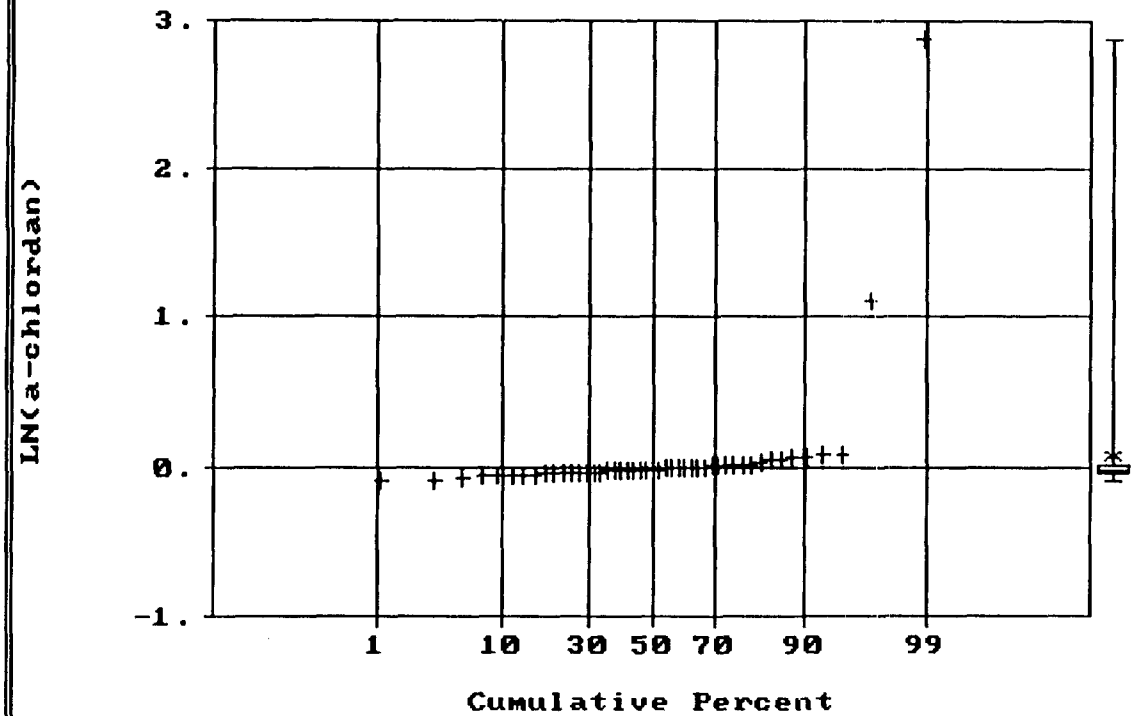


S t a t i s t i c s

N Total :	43
N Miss :	0
N Used :	43
Mean :	3.021
Variance:	.581
Std. Dev:	.762
% C.V. :	25.222
Skewness:	.261
Kurtosis:	3.139
Minimum :	1.629
25th % :	2.632
Median :	3.035
75th % :	3.415
Maximum :	4.898

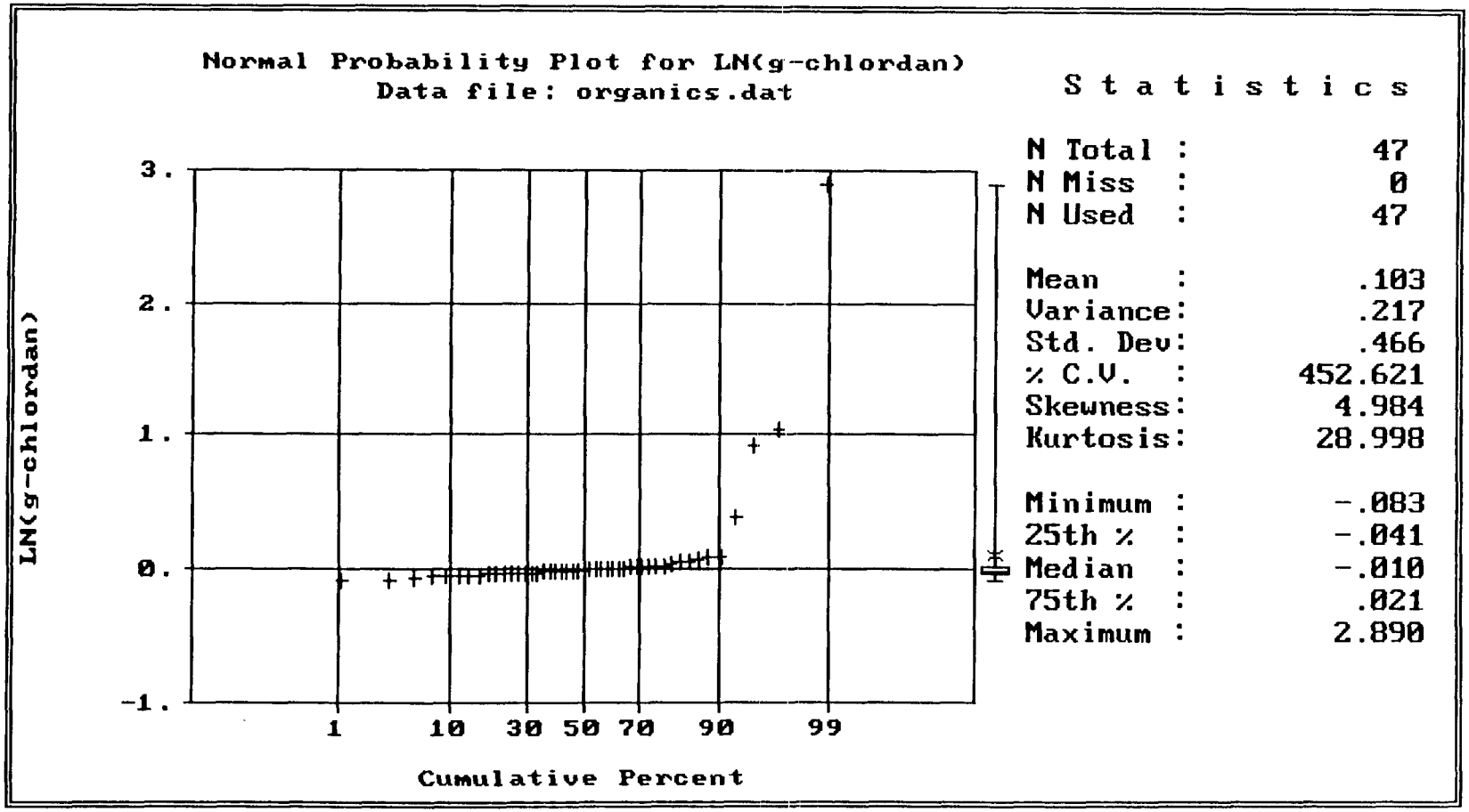

Normal Probability Plot for LN(Zinc)
Data file: metals.dat
LN(Zinc)
5.
4.
3.
2.
1.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 43
N Miss : 0
N Used : 43
Mean : 3.335
Variance: .385
Std. Dev: .620
% C.V. : 18.594
Skewness: -.382
Kurtosis: 2.920
Minimum : 1.825
25th % : 2.948
Median : 3.374
75th % : 3.770
Maximum : 4.600

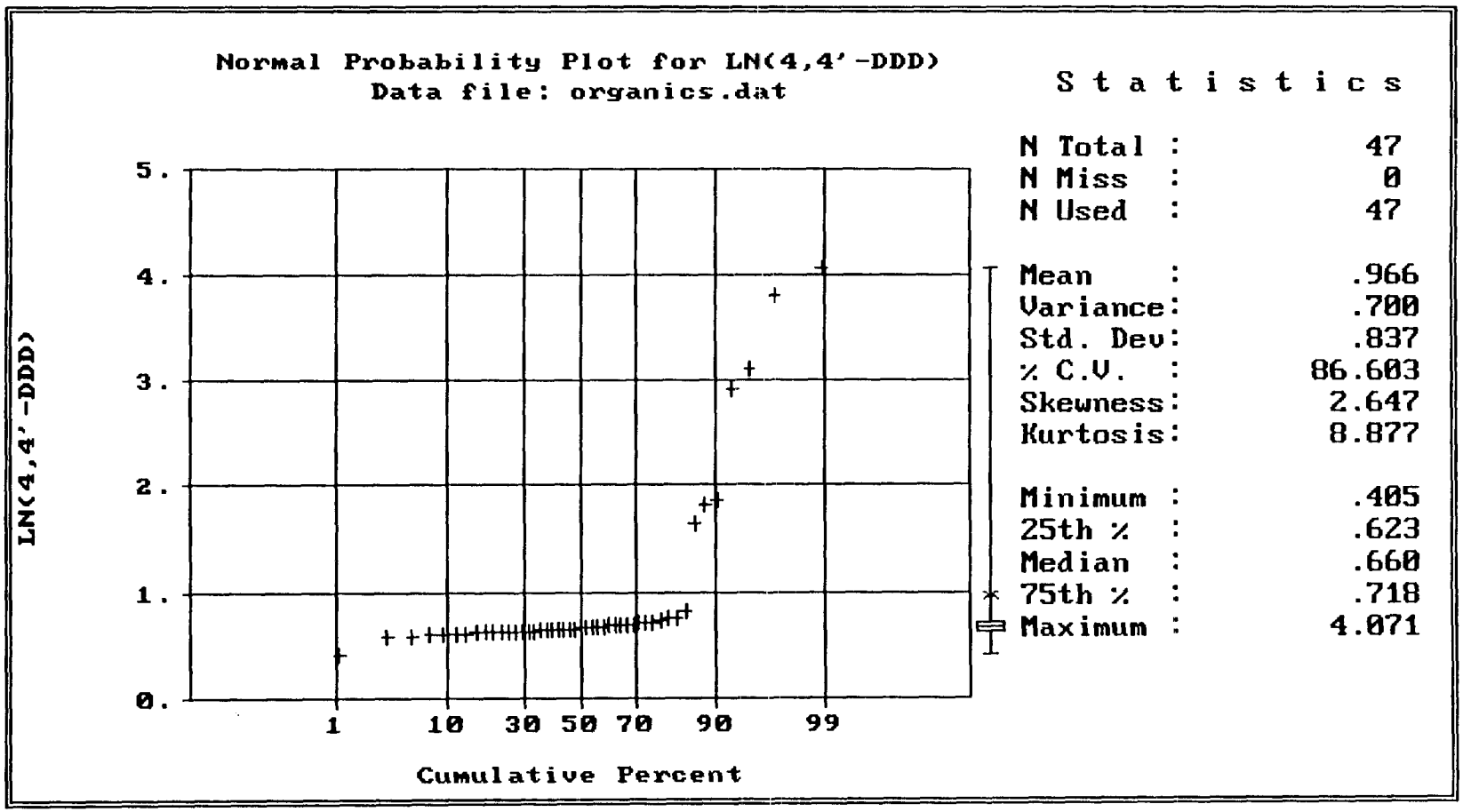
Normal Probability Plot for LN(a-chlordan)
Data file: organics.dat



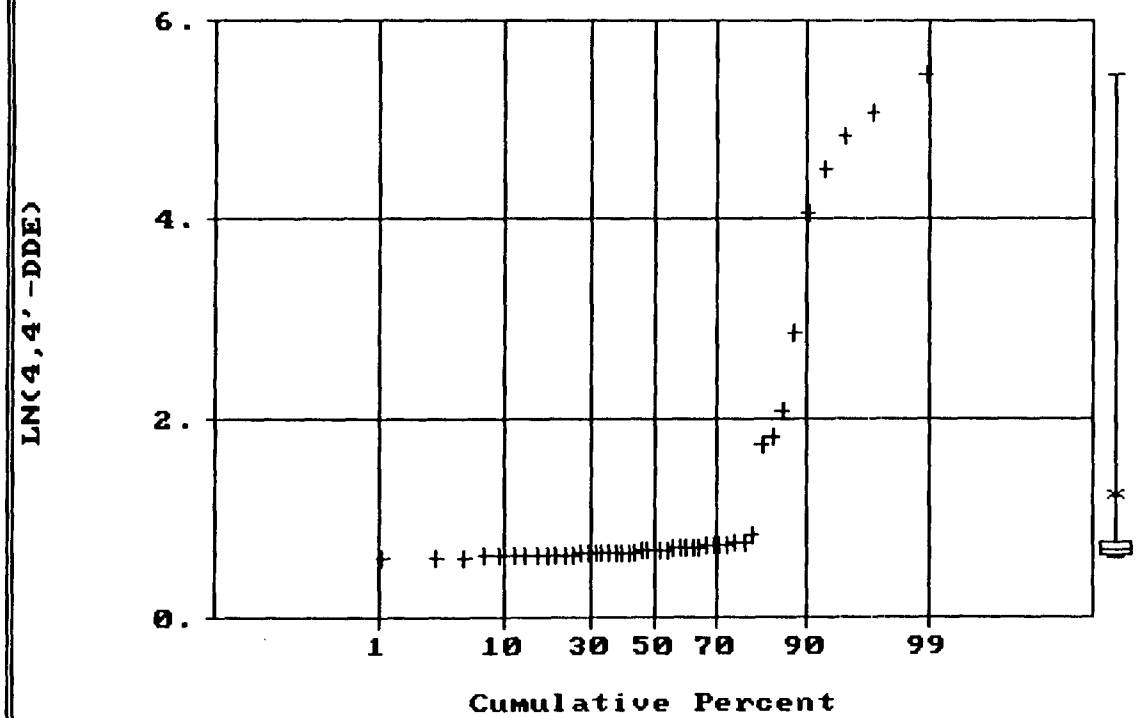
Statistics

N Total :	47
N Miss :	0
N Used :	47
Mean :	.077
Variance:	.201
Std. Dev:	.449
% C.V. :	580.642
Skewness:	5.565
Kurtosis:	34.074
Minimum :	-.083
25th % :	-.041
Median :	-.010
75th % :	.020
Maximum :	2.874


Normal Probability Plot for LN(g-chlordan)
Data file: organics.dat
LN(g-chlordan)
3.
2.
1.
0.
-1.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 47
N Miss : 0
N Used : 47
Mean : .103
Variance: .217
Std. Dev: .466
% C.V. : 452.621
Skewness: 4.984
Kurtosis: 28.998
Minimum : -.083
25th % : -.041
Median : -.010
75th % : .021
Maximum : 2.890

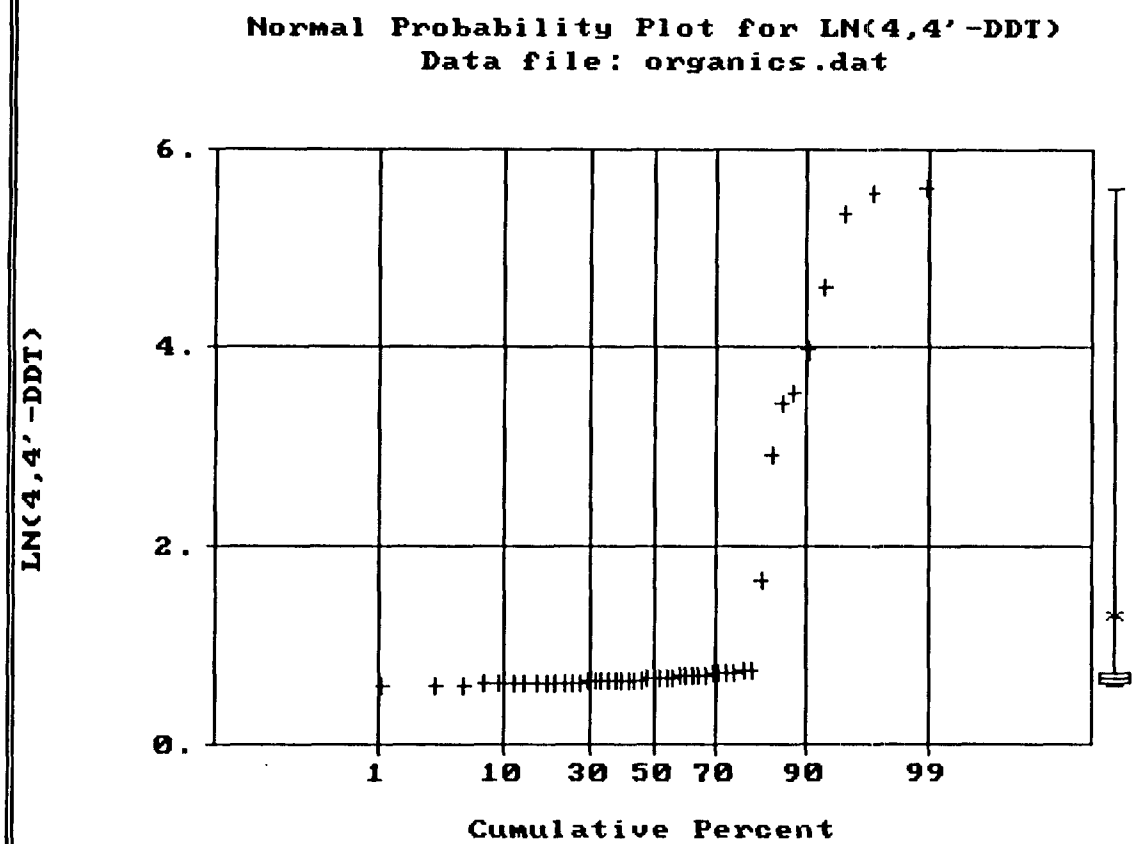

Normal Probability Plot for LN(4,4'-DDD)
Data file: organics.dat
LN(4,4'-DDD)
5.
4.
3.
2.
1.
0.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 47
N Miss : 0
N Used : 47
Mean : .966
Variance: .700
Std. Dev: .837
% C.V. : 86.603
Skewness: 2.647
Kurtosis: 8.877
Minimum : .405
25th % : .623
Median : .660
75th % : .718
Maximum : 4.071

Normal Probability Plot for LN(4,4'-DDE)
Data file: organics.dat



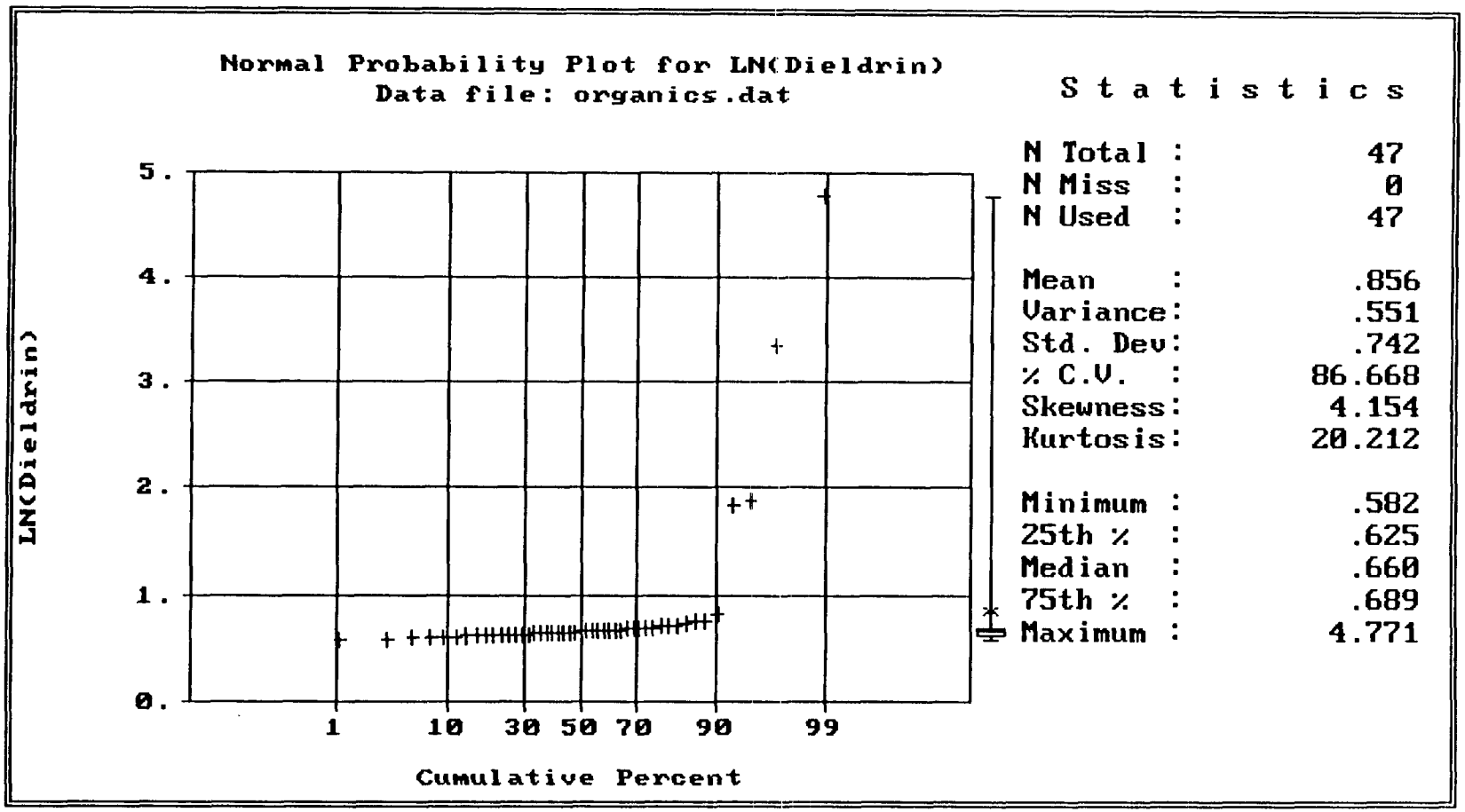
S t a t i s t i c s

N Total :	47
N Miss :	0
N Used :	47
Mean :	1.224
Variance:	1.750
Std. Dev:	1.323
% C.V. :	108.105
Skewness:	2.235
Kurtosis:	6.512
Minimum :	.582
25th % :	.625
Median :	.668
75th % :	.737
Maximum :	5.451

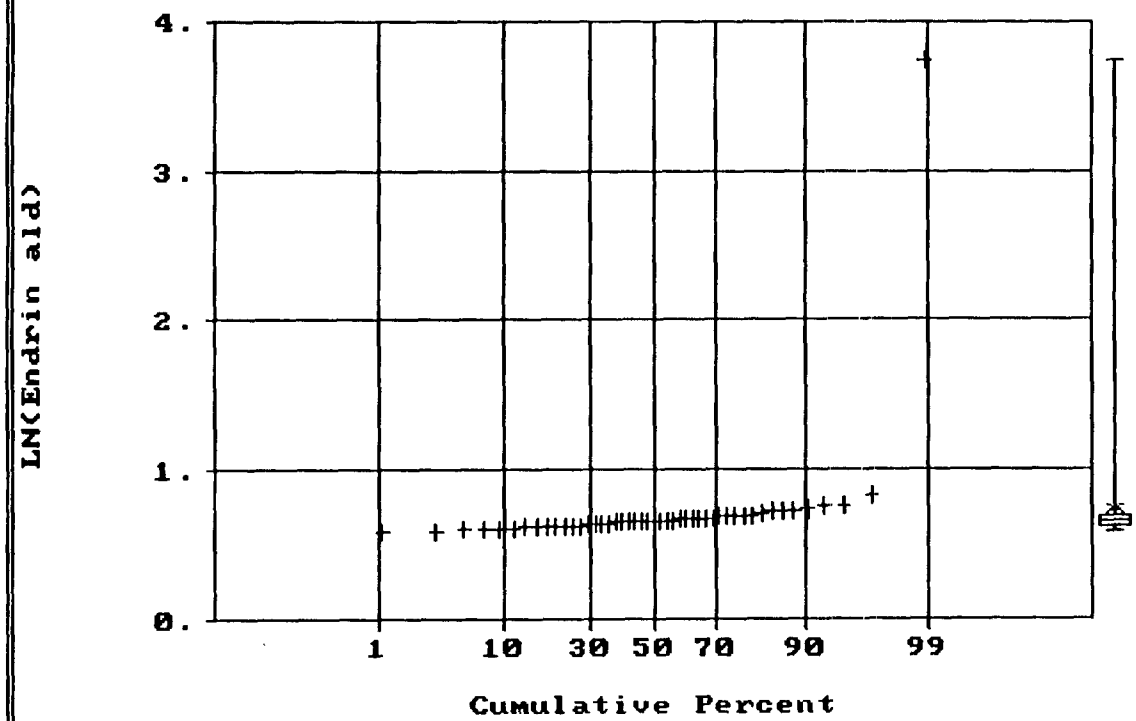


Statistics

N Total :	47
N Miss :	0
N Used :	47
Mean :	1.308
Variance:	2.146
Std. Dev:	1.465
% C.V. :	112.018
Skewness:	2.015
Kurtosis:	5.537
Minimum :	.582
25th % :	.623
Median :	.665
75th % :	.721
Maximum :	5.606


Normal Probability Plot for LN(Dieldrin)
Data file: organics.dat
LN(Dieldrin)
5.
4.
3.
2.
1.
0.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 47
N Miss : 0
N Used : 47
Mean : .856
Variance: .551
Std. Dev: .742
% C.V. : 86.668
Skewness: 4.154
Kurtosis: 20.212
Minimum : .582
25th % : .625
Median : .660
75th % : .689
Maximum : 4.771

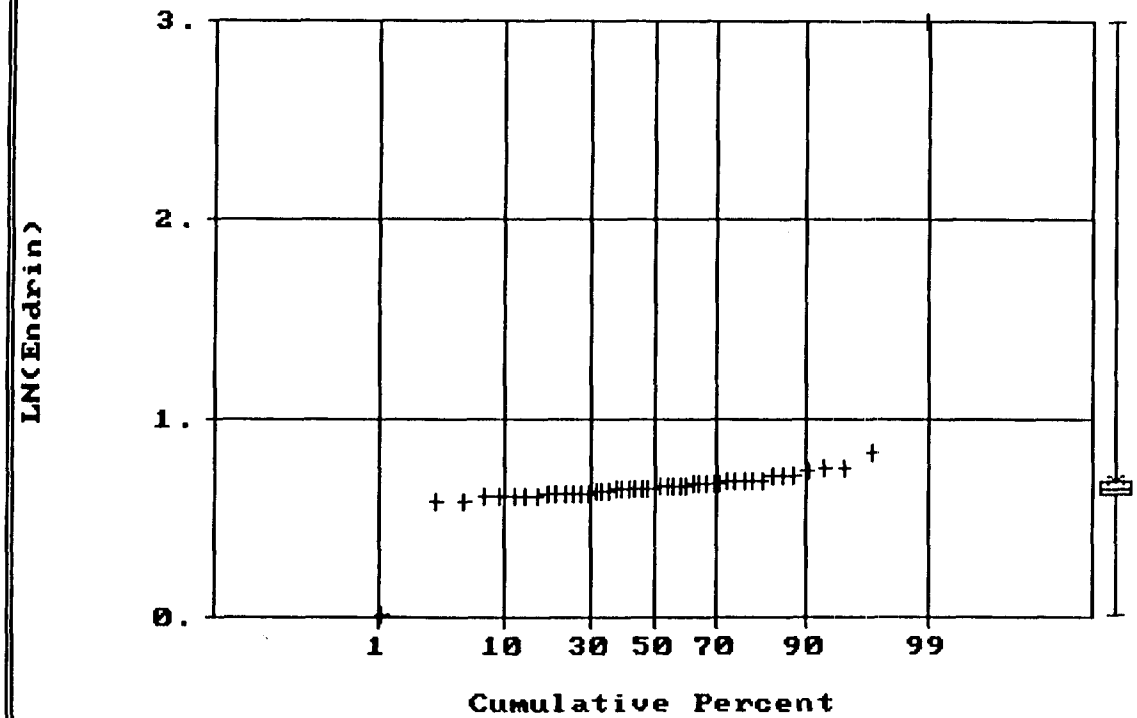
Normal Probability Plot for LN(Endrin ald)
Data file: organics.dat



S t a t i s t i c s

N Total :	47
N Miss :	0
N Used :	47
Mean :	.726
Variance:	.203
Std. Dev:	.450
% C.V. :	61.986
Skewness:	6.520
Kurtosis:	44.017
Minimum :	.582
25th % :	.623
Median :	.655
75th % :	.686
Maximum :	3.731

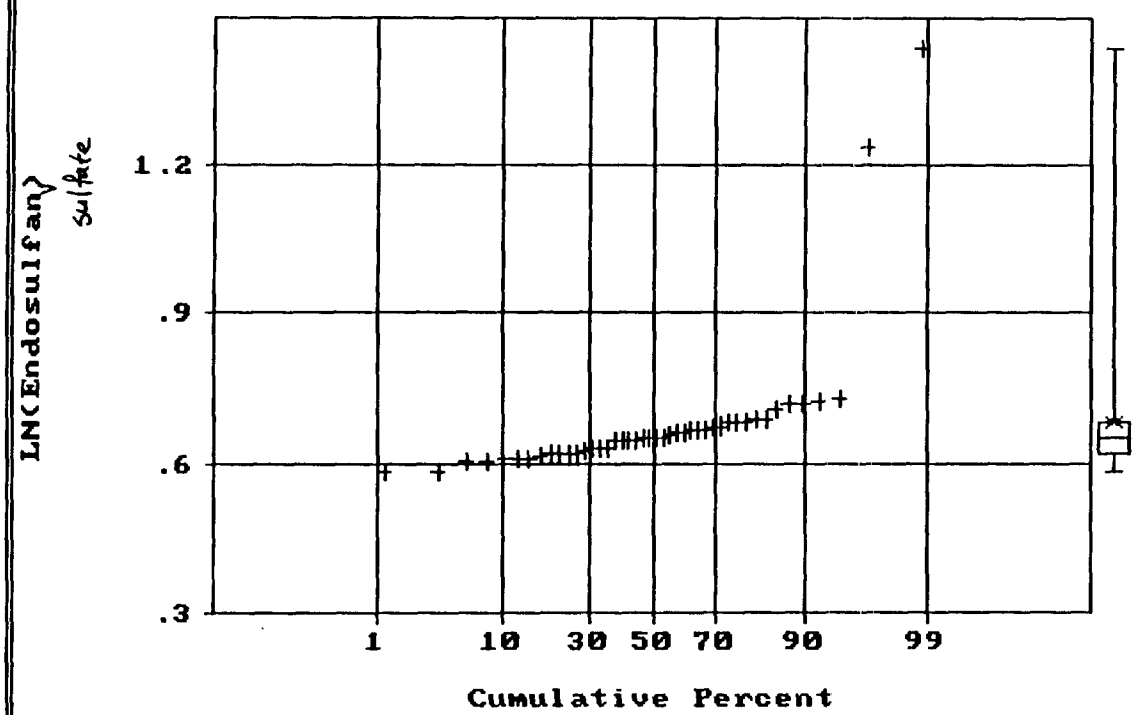
Normal Probability Plot for LN(Endrin)
Data file: organics.dat



S t a t i s t i c s

N Total :	47
N Miss :	0
N Used :	47
Mean :	.695
Variance:	.128
Std. Dev:	.358
% C.V. :	51.483
Skewness:	5.632
Kurtosis:	37.821
Minimum :	.010
25th % :	.623
Median :	.652
75th % :	.686
Maximum :	2.991

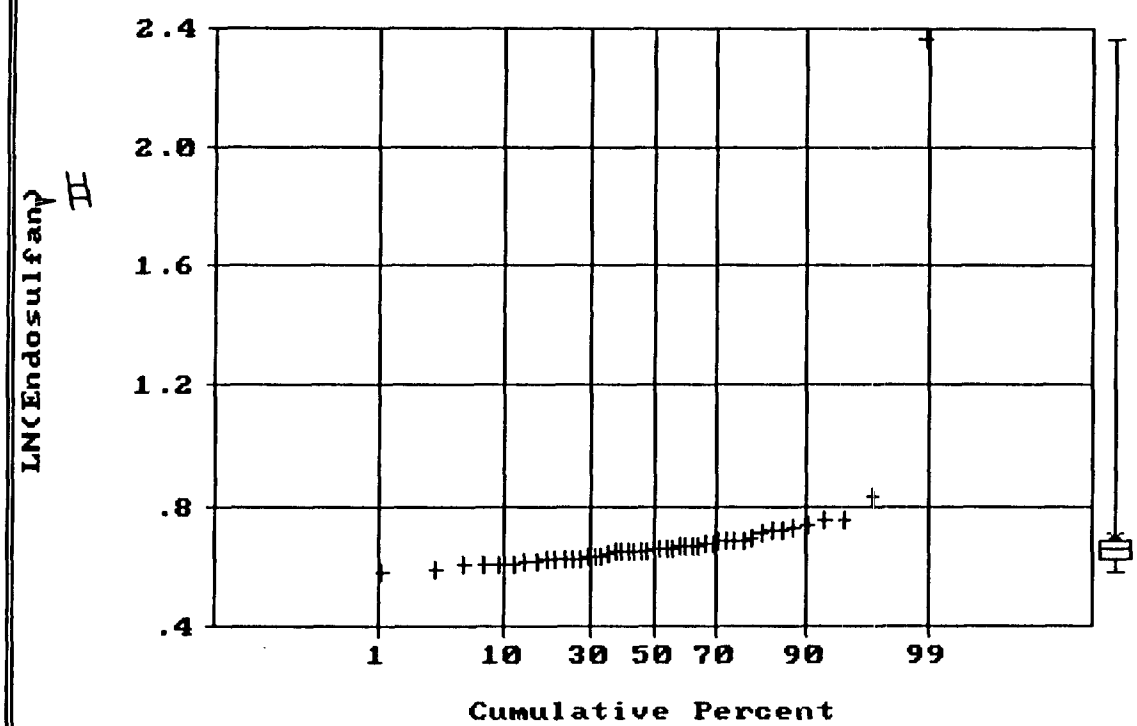
Normal Probability Plot for LN(Endosulfan sulfate)
Data file: endoslft.dat



Statistics

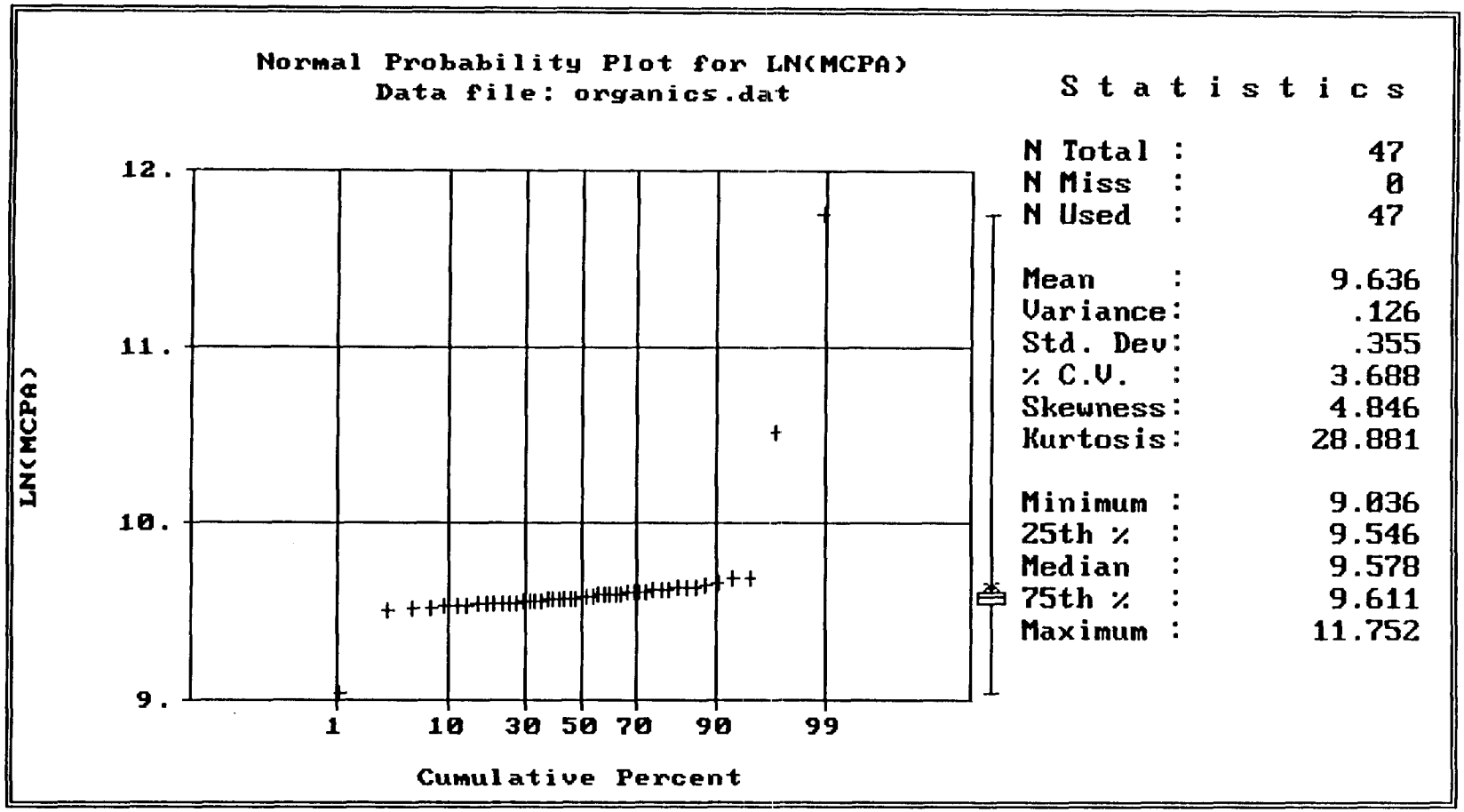
N Total :	44
N Miss :	0
N Used :	44
Mean :	.683
Variance:	.023
Std. Dev:	.150
% C.V. :	21.996
Skewness:	4.095
Kurtosis:	19.430
Minimum :	.582
25th % :	.623
Median :	.652
75th % :	.686
Maximum :	1.437

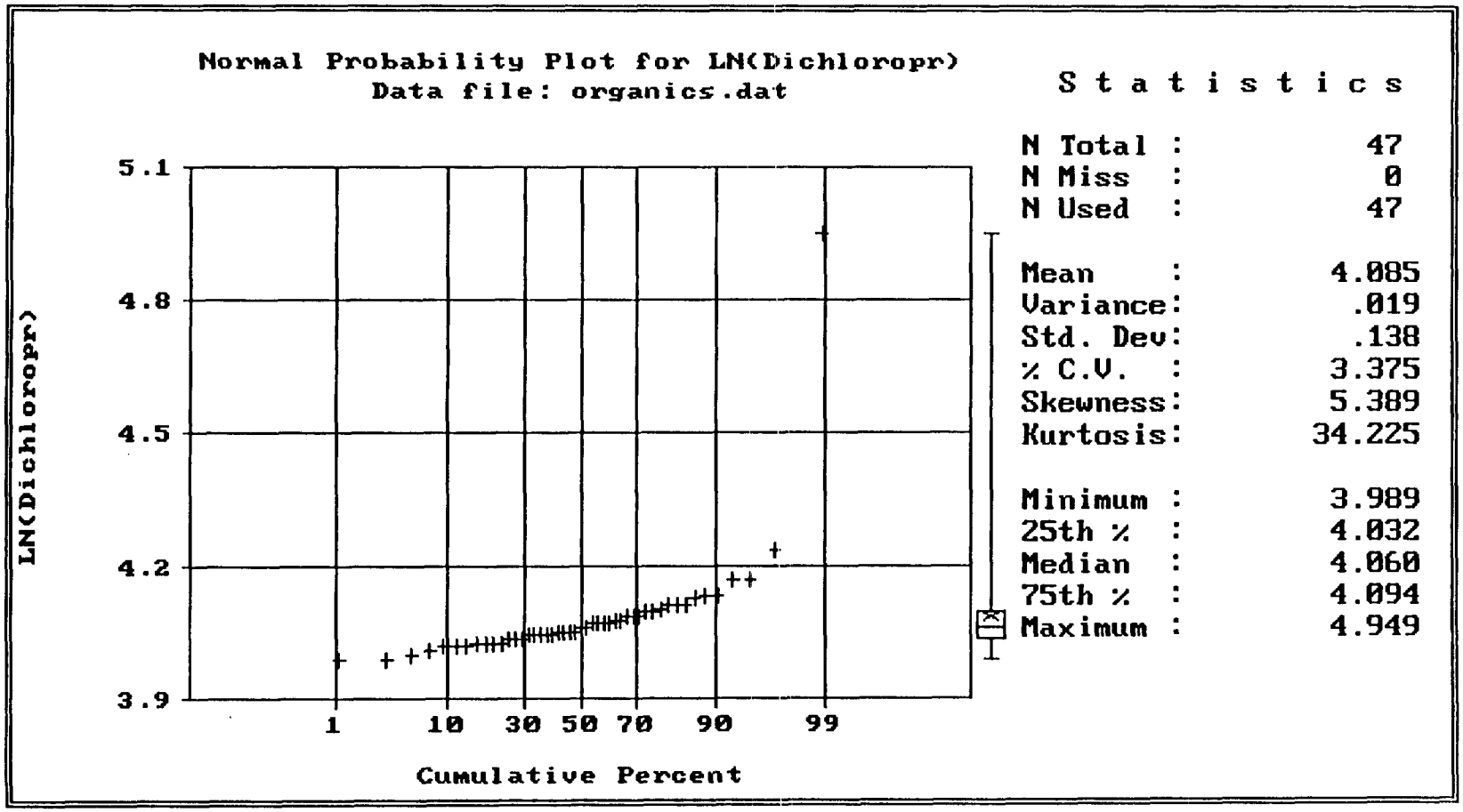
Normal Probability Plot for LN(Endosulfan) II
Data file: organics.dat



S t a t i s t i c s

N Total :	47
N Miss :	0
N Used :	47
Mean :	.697
Variance:	.064
Std. Dev:	.252
% C.V. :	36.212
Skewness:	6.274
Kurtosis:	41.868
Minimum :	.582
25th % :	.623
Median :	.655
75th % :	.686
Maximum :	2.361


Normal Probability Plot for LN(MCPA)
Data file: organics.dat
LN(MCPA)
12.
11.
10.
9.
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 47
N Miss : 0
N Used : 47
Mean : 9.636
Variance: .126
Std. Dev: .355
% C.V. : 3.688
Skewness: 4.846
Kurtosis: 28.881
Minimum : 9.036
25th % : 9.546
Median : 9.578
75th % : 9.611
Maximum : 11.752


Normal Probability Plot for LN(Dichloropr)
Data file: organics.dat
LN(Dichloropr)
5.1
4.8
4.5
4.2
3.9
1
10
30
50
70
90
99
Cumulative Percent
Statistics
N Total : 47
N Miss : 0
N Used : 47
Mean : 4.085
Variance: .019
Std. Dev: .138
% C.V. : 3.375
Skewness: 5.389
Kurtosis: 34.225
Minimum : 3.989
25th % : 4.032
Median : 4.060
75th % : 4.094
Maximum : 4.949

APPENDIX B

CALCULATIONS FOR METALS

Alumium
Statistical Calculatons

Aluminum (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	a_i	Y_n-i+1	Y_i	
12-UGS	S1454210	2	17300		17300	9.758	0.3894	9.758	7.879	0.732
00-BGN1910	S1456663	0	15300		15300	9.636	0.2684	9.636	7.908	0.464
20-UGS	S1454360	2	14800		14800	9.602	0.2334	9.602	8.093	0.352
00-BGN112	S1456656	2	14000		14000	9.547	0.2078	9.547	8.108	0.299
00-BGN1910	S1456664	2	12900		12900	9.465	0.1871	9.465	8.175	0.241
13-UGS	S1454219	2	11400		11400	9.341	0.1695	9.341	8.261	0.183
00-BGN134	S1456787	2	11200		11200	9.324	0.1539	9.324	8.289	0.159
15-UGS	S1454266	2	11100		11100	9.315	0.1398	9.315	8.328	0.138
00-BGN156	S1456771	2	10700		10700	9.278	0.1269	9.278	8.345	0.118
00-BGN156	S1456650	2	10500		10500	9.259	0.1149	9.259	8.352	0.104
07-DBMW100	S1457114	8	10200		10200	9.230	0.1035	9.230	8.457	0.080
00-BGN112	S1456655	0	9930		9930	9.203	0.0927	9.203	8.464	0.069
06-UGS	S1454550	2	9280		9280	9.136	0.0824	9.136	8.481	0.054
03-UGS	S1454399	0	8550		8550	9.054	0.0724	9.054	8.499	0.040
21-UGS	S1454367	2	8120		8120	9.002	0.0628	9.002	8.509	0.031
20-UGS	S1454369	0	7970		7970	8.983	0.0534	8.983	8.515	0.025
00-BGN178	S1456661	0	7970		7970	8.983	0.0442	8.983	8.554	0.019
00-BGN134	S1456786	0	7730		7730	8.953	0.0352	8.953	8.566	0.014
00-BGN234	S1456779	2	6880		6880	8.836	0.0263	8.836	8.691	0.004
00-BGN156	S1456659	0	6870		6870	8.835	0.0175	8.835	8.731	0.002
00-BGN111	S1456775	2	6630		6630	8.799	0.0087	8.799	8.740	0.001
05-UGS	S1454402	0	6580		6580	8.792	0	8.792	8.792	0.000
00-BGN234	S1456778	0	6250		6250	8.740				
00-BGN178	S1456662	2	6190		6190	8.731				
07-DBMW100	S1457113	3	5950		5950	8.691				
00-BGN278	S1456782	0	5250		5250	8.566				
16-UGX	S1454302	2	5190		5190	8.554				
05-UGS	S1454040	0	4990		4990	8.515				
00-BGN256	S1456780	0	4960		4960	8.509				
03-UGS	S1454013	0	4910		4910	8.499				
16-UGX	S1454299	0	4820		4820	8.481				
00-BGN256	S1456773	2	4740		4740	8.464				
00-BGN278	S1456783	2	4710		4710	8.457				
02-UGS	S1454502	2	4240		4240	8.352				
00-BGN111	S1456665	0	4210		4210	8.345				
18-UGS	S1454528	0	4140		4140	8.328				
16-UGS	S1454529	2	3980		3980	8.289				
00-BGN256	S1456781	2	3870		3870	8.261				
00-BGN2910	S1456785	2	3550		3550	8.175				
00-BGN212	S1456777	2	3320		3320	8.108				
00-BGN2910	S1456784	0	3270		3270	8.093				
02-UGS	S1454008	0	2720		2720	7.908				
00-BGN212	S1456776	0	2640		2640	7.879				
Summary Statistics:					Mean	7437.44	8.7972			

Alumium
Statistical Calculatons

	Standard Error	565.288	0.0748		
	Median	6580	8.7918		
	Mode	7970	8.9834		
	Standard Deviation	3706.84	0.4906		
	Sample Variance	1.4E+07	0.2407		
	Kurtosis	0.07739	-0.8552		
	Skewness	0.89409	0.0909		
	Range	14660	1.8799		
	Minimum	2640	7.8785		
	Maximum	17300	9.7585		
	Sum	319810	378.28		
	Count	43	43		
	Confidence Level (95.0%)	1107.94	0.1466		
W Test for LN Distribution:	d =		10.111		
	k =		21		
	W =		0.9681		
	W(5) =		0.943		
	W > W(5)	Accept	LN		
UTL(95,95) & UCL(95) LN Distribution:	Mean =		8.7972		
	StDev =		0.4906		
	N =		43		
	K(95,95) =		2.106		
	UTL(95,95) =		9.8304	Exp =	**18591**
	H(95) =		1.89		
	UCL(95) =		**8609.4**		

Antimony
Statistical Calculations

Antimony (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	ln(X)	Rank
00-BGN1910	S1456663	0	4.5	B	4.5	1.504077	36
20-UGS	S1454369	0	2.8	B	2.8	1.029619	35
00-BGN1910	S1456664	2	3	U	1.5	0.405465	34
06-UGS	S1454550	2	2.8	U	1.4	0.336472	33
07-DBMW100	S1457114	8	2.8	U	1.4	0.336472	32
07-DBMW100	S1457113	3	2.7	U	1.35	0.300105	31
13-UGS	S1454219	2	2.7	U	1.35	0.300105	30
00-BGN112	S1456656	2	2.7	U	1.35	0.300105	29
02-UGS	S1454502	2	2.6	U	1.3	0.262364	28
20-UGS	S1454360	2	2.6	U	1.3	0.262364	27
00-BGN256	S1456773	2	2.6	U	1.3	0.262364	26
00-BGN256	S1456781	2	2.6	U	1.3	0.262364	25
00-BGN278	S1456782	0	2.6	U	1.3	0.262364	24
00-BGN278	S1456783	2	2.6	U	1.3	0.262364	23
00-BGN111	S1456775	2	2.6	U	1.3	0.262364	22
00-BGN134	S1456786	0	2.6	U	1.3	0.262364	21
00-BGN134	S1456787	2	2.6	U	1.3	0.262364	20
00-BGN156	S1456650	2	2.6	U	1.3	0.262364	19
00-BGN156	S1456771	2	2.6	U	1.3	0.262364	18
00-BGN178	S1456661	0	2.6	U	1.3	0.262364	17
00-BGN2910	S1456785	2	2.6	U	1.3	0.262364	16
00-BGN212	S1456777	2	2.6	U	1.3	0.262364	15
00-BGN234	S1456778	0	2.6	U	1.3	0.262364	14
02-UGS	S1454008	0	2.5	U	1.25	0.223144	13
18-UGS	S1454528	0	2.5	U	1.25	0.223144	12
16-UGS	S1454529	2	2.5	U	1.25	0.223144	11
16-UGX	S1454299	0	2.5	U	1.25	0.223144	10
16-UGX	S1454302	2	2.5	U	1.25	0.223144	9
00-BGN256	S1456780	0	2.5	U	1.25	0.223144	8
00-BGN111	S1456665	0	2.5	U	1.25	0.223144	7
00-BGN112	S1456655	0	2.5	U	1.25	0.223144	6
00-BGN156	S1456659	0	2.5	U	1.25	0.223144	5
00-BGN178	S1456662	2	2.5	U	1.25	0.223144	4
00-BGN2910	S1456784	0	2.5	U	1.25	0.223144	3
00-BGN212	S1456776	0	2.5	U	1.25	0.223144	2
00-BGN234	S1456779	2	2.5	U	1.25	0.223144	1
Summary Statistics:				Mean	1.427778	0.315243	

Antimony
Statistical Calculations

Standard Error	0.097599	0.040685
Median	1.3	0.262364
Mode	1.3	0.262364
Standard Deviation	0.585594	0.244108
Sample Variance	0.342921	0.059589
Kurtosis	23.44831	18.30418
Skewness	4.741784	4.228439
Range	3.25	1.280934
Minimum	1.25	0.223144
Maximum	4.5	1.504077
Sum	51.4	11.34875
Count	36	36
Confidence Level (95.0%)	0.19129	0.07974

UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	36
	Z(5) =	1.644853
	U =	37.30092
	UTL(95,95) =	**4.5**

UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	36
	Z(5) =	1.644853
	U =	23.43456
	UCL(95,50) =	**1.3**

Arsenic
Statistical Calculations

Arsenic (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN1910	S1456664	2	8.5		8.5	2.140066	43
00-BGN1910	S1456663	0	7.4		7.4	2.00148	42
00-BGN112	S1456656	2	4.7		4.7	1.547563	41
20-UGS	S1454360	2	4.1		4.1	1.410987	40
03-UGS	S1454013	0	3.5		3.5	1.252763	39
07-DBMW100	S1457114	8	3.1		3.1	1.131402	38
15-UGS	S1454266	2	3		3	1.098612	37
00-BGN112	S1456655	0	2.8		2.8	1.029619	36
03-UGS	S1454399	0	2.7		2.7	0.993252	35
06-UGS	S1454550	2	2.7		2.7	0.993252	34
20-UGS	S1454369	0	2.6		2.6	0.955511	33
00-BGN134	S1456787	2	2.5		2.5	0.916291	32
00-BGN156	S1456659	0	2.4		2.4	0.875469	31
12-UGS	S1454210	2	2.1	B	2.1	0.741937	30
00-BGN156	S1456650	2	2.1	B	2.1	0.741937	29
00-BGN156	S1456771	2	2	B	2	0.693147	28
02-UGS	S1454502	2	1.9	B	1.9	0.641854	27
05-UGS	S1454402	0	1.9	B	1.9	0.641854	26
13-UGS	S1454219	2	1.8	B	1.8	0.587787	25
21-UGS	S1454367	2	1.8	B	1.8	0.587787	24
00-BGN134	S1456786	0	1.6	B	1.6	0.470004	23
05-UGS	S1454040	0	1.5	B	1.5	0.405465	22
16-UGX	S1454302	2	1.4	B	1.4	0.336472	21
07-DBMW100	S1457113	3	1.3	B	1.3	0.262364	20
00-BGN278	S1456782	0	1.2	B	1.2	0.182322	19
00-BGN234	S1456779	2	1.2	B	1.2	0.182322	18
02-UGS	S1454008	0	1.1	B	1.1	0.09531	17
16-UGX	S1454299	0	1.1	B	1.1	0.09531	16
00-BGN278	S1456783	2	1.1	B	1.1	0.09531	15
00-BGN234	S1456778	0	0.98	B	0.98	-0.0202	14
18-UGS	S1454528	0	0.93	B	0.93	-0.07257	13
00-BGN256	S1456781	2	0.91	B	0.91	-0.09431	12
00-BGN111	S1456665	0	0.88	B	0.88	-0.12783	11
00-BGN111	S1456775	2	0.74	B	0.74	-0.30111	10
00-BGN256	S1456773	2	0.71	B	0.71	-0.34249	9
00-BGN256	S1456780	0	0.65	B	0.65	-0.43078	8
00-BGN178	S1456662	2	0.65	B	0.65	-0.43078	7
00-BGN178	S1456661	0	0.46	B	0.46	-0.77653	6
00-BGN212	S1456776	0	0.29	B	0.29	-1.23787	5
16-UGS	S1454529	2	0.46	U	0.23	-1.46968	4
00-BGN2910	S1456785	2	0.15	U	0.075	-2.59027	3
00-BGN212	S1456777	2	0.15	U	0.075	-2.59027	2
00-BGN2910	S1456784	0	0.14	U	0.07	-2.65926	1
Summary Statistics:				Mean	1.924419	0.231709	

Arsenic
Statistical Calculations

	Standard Error	0.264024	0.16543
	Median	1.5	0.405465
	Mode	1.1	0.09531
	Standard Deviation	1.731319	1.084798
	Sample Variance	2.997467	1.176787
	Kurtosis	5.737286	1.607164
	Skewness	2.132685	-1.12399
	Range	8.43	4.799326
	Minimum	0.07	-2.65926
	Maximum	8.5	2.140066
	Sum	82.75	9.963497
	Count	43	43
	Confidence Level (95.0%)	0.517476	0.324237
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	43	
	Z(5) =	1.644853	
	U =	44.15076	
	UTL(95,95) =	**8.5**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	43	
	Z(5) =	1.644853	
	U =	27.39301	
	UCL(95,50) =	**1.939301**	

Barium
Statistical Calculations

Barium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456664	2	172		172	5.1475	43	0.389	5.147	3.127	0.787
13-UGS	S1454219	2	160		160	5.0752	42	0.268	5.075	3.254	0.489
15-UGS	S1454266	2	157		157	5.0562	41	0.233	5.056	3.459	0.373
00-BGN1910	S1456663	0	153		153	5.0304	40	0.208	5.030	3.550	0.308
12-UGS	S1454210	2	148		148	4.9972	39	0.187	4.997	3.561	0.269
20-UGS	S1454360	2	136		136	4.9127	38	0.17	4.913	3.584	0.225
21-UGS	S1454367	2	130		130	4.8675	37	0.154	4.868	3.691	0.181
00-BGN134	S1456787	2	124		124	4.8203	36	0.14	4.820	3.752	0.149
06-UGS	S1454550	2	116		116	4.7536	35	0.127	4.754	3.782	0.123
20-UGS	S1454369	0	116		116	4.7536	34	0.115	4.754	3.807	0.109
00-BGN156	S1456650	2	109		109	4.6913	33	0.104	4.691	3.993	0.072
03-UGS	S1454399	0	108		108	4.6821	32	0.093	4.682	3.993	0.064
00-BGN156	S1456771	2	108		108	4.6821	31	0.082	4.682	3.996	0.057
00-BGN156	S1456659	0	105		105	4.654	30	0.072	4.654	4.052	0.044
07-DBMW100	S1457114	8	102		102	4.625	29	0.063	4.625	4.054	0.036
00-BGN112	S1456656	2	90.5		90.5	4.5053	28	0.053	4.505	4.089	0.022
00-BGN134	S1456786	0	90.3		90.3	4.5031	27	0.044	4.503	4.116	0.017
16-UGX	S1454302	2	89.2		89.2	4.4909	26	0.035	4.491	4.130	0.013
16-UGS	S1454529	2	83.7		83.7	4.4272	25	0.026	4.427	4.149	0.007
16-UGX	S1454299	0	80.3		80.3	4.3858	24	0.018	4.386	4.157	0.004
03-UGS	S1454013	0	79.3		79.3	4.3732	23	0.009	4.373	4.209	0.001
07-DBMW100	S1457113	3	77		77	4.3438	22	0	4.344	4.344	0.000
05-UGS	S1454402	0	67.3		67.3	4.2092	21				
18-UGS	S1454528	0	63.9		63.9	4.1573	20				
00-BGN112	S1456655	0	63.4		63.4	4.1495	19				
00-BGN278	S1456782	0	62.2		62.2	4.1304	18				
05-UGS	S1454040	0	61.3		61.3	4.1158	17				
00-BGN178	S1456661	0	59.7		59.7	4.0893	16				
00-BGN234	S1456778	0	57.6		57.6	4.0535	15				
00-BGN178	S1456662	2	57.5		57.5	4.0518	14				
00-BGN234	S1456779	2	54.4		54.4	3.9964	13				
02-UGS	S1454502	2	54.2		54.2	3.9927	12				
00-BGN278	S1456783	2	54.2		54.2	3.9927	11				
00-BGN256	S1456773	2	45		45	3.8067	10				
00-BGN256	S1456780	0	43.9		43.9	3.7819	9				
00-BGN256	S1456781	2	42.6	B	42.6	3.7519	8				
00-BGN111	S1456665	0	40.1	B	40.1	3.6914	7				
00-BGN212	S1456776	0	36	B	36	3.5835	6				
00-BGN111	S1456775	2	35.2	B	35.2	3.561	5				
02-UGS	S1454008	0	34.8	B	34.8	3.5496	4				
00-BGN2910	S1456784	0	31.8	B	31.8	3.4595	3				
00-BGN212	S1456777	2	25.9	B	25.9	3.2542	2				
00-BGN2910	S1456785	2	22.8	B	22.8	3.1268	1				
Summary Statistics:					Mean 82.514	4.2857					

Barium
Statistical Calculations

	Standard Error	6.1935	0.0803	
	Median	77	4.3438	
	Mode	116	4.7536	
	Standard Deviation	40.613	0.5267	
	Sample Variance	1649.4	0.2774	
	Kurtosis	-0.6764	-0.7334	
	Skewness	0.5474	-0.2708	
	Range	149.2	2.0207	
	Minimum	22.8	3.1268	
	Maximum	172	5.1475	
	Sum	3548.1	184.28	
	Count	43	43	
	Confidence Level (95.0%)	12.139	0.1574	
W Test for LN Distribution:	d =		11.652	
	k =		21	
	W =		0.9628	
	W(5) =		0.943	
	W > W(5)	Accept	LN	
UTL(95,95) & UCL(95) LN Distribution:	Mean =		4.2857	
	StDev =		0.5267	
	N =		43	
	K(95,95) =		2.106	
	UTL(95,95) =		5.3949	Exp = **220.3**
	H(95) =		1.89	
	UCL(95) =		**97.317**	

Beryllium
Statistical Calculations

Beryllium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456663	0	0.79	B	0.79	-0.2357	0.3894	-0.236	-2.900	1.038
00-BGN1910	S1456664	2	0.66	B	0.66	-0.4155	0.2684	-0.416	-2.526	0.566
00-BGN112	S1456656	2	0.62	B	0.62	-0.478	0.2334	-0.478	-2.526	0.478
00-BGN2910	S1456784	0	0.6	B	0.6	-0.5108	0.2078	-0.511	-2.465	0.406
00-BGN156	S1456659	0	0.53	B	0.53	-0.6349	0.1871	-0.635	-2.354	0.322
00-BGN156	S1456650	2	0.53	B	0.53	-0.6349	0.1695	-0.635	-2.207	0.267
12-UGS	S1454210	2	0.51	B	0.51	-0.6733	0.1539	-0.673	-2.002	0.205
13-UGS	S1454219	2	0.47		0.47	-0.755	0.1398	-0.755	-1.966	0.169
06-UGS	S1454550	2	0.43	B	0.43	-0.844	0.1269	-0.844	-1.931	0.138
21-UGS	S1454367	2	0.4	B	0.4	-0.9163	0.1149	-0.916	-1.931	0.117
00-BGN156	S1456771	2	0.39	B	0.39	-0.9416	0.1035	-0.942	-1.931	0.102
15-UGS	S1454266	2	0.36	B	0.36	-1.0217	0.0927	-1.022	-1.743	0.067
00-BGN112	S1456655	0	0.35	B	0.35	-1.0498	0.0824	-1.050	-1.715	0.055
07-DBMW100	S1457114	8	0.55	U	0.275	-1.291	0.0724	-1.291	-1.687	0.029
00-BGN256	S1456781	2	0.27	B	0.27	-1.3093	0.0628	-1.309	-1.609	0.019
00-BGN256	S1456780	0	0.26	B	0.26	-1.3471	0.0534	-1.347	-1.514	0.009
00-BGN256	S1456773	2	0.26	B	0.26	-1.3471	0.0442	-1.347	-1.514	0.007
00-BGN2910	S1456785	2	0.26	B	0.26	-1.3471	0.0352	-1.347	-1.470	0.004
00-BGN212	S1456776	0	0.26	B	0.26	-1.3471	0.0263	-1.347	-1.427	0.002
20-UGS	S1454360	2	0.5	U	0.25	-1.3863	0.0175	-1.386	-1.427	0.001
07-DBMW100	S1457113	3	0.49	U	0.245	-1.4065	0.0087	-1.406	-1.427	0.000
00-BGN134	S1456786	0	0.49	U	0.245	-1.4065	0	-1.406	-1.406	0.000
00-BGN278	S1456782	0	0.24	B	0.24	-1.4271				
00-BGN178	S1456661	0	0.24	B	0.24	-1.4271				
00-BGN178	S1456662	2	0.24	B	0.24	-1.4271				
00-BGN234	S1456779	2	0.23	B	0.23	-1.4697				
03-UGS	S1454399	0	0.44	U	0.22	-1.5141				
00-BGN134	S1456787	2	0.44	U	0.22	-1.5141				
00-BGN212	S1456777	2	0.2	B	0.2	-1.6094				
00-BGN111	S1456665	0	0.37	U	0.185	-1.6874				
00-BGN111	S1456775	2	0.36	U	0.18	-1.7148				
20-UGS	S1454369	0	0.35	U	0.175	-1.743				
02-UGS	S1454502	2	0.29	U	0.145	-1.931				
03-UGS	S1454013	0	0.29	U	0.145	-1.931				
18-UGS	S1454528	0	0.29	U	0.145	-1.931				
05-UGS	S1454040	0	0.28	U	0.14	-1.9661				
05-UGS	S1454402	0	0.27	U	0.135	-2.0025				
00-BGN278	S1456783	2	0.11	B	0.11	-2.2073				
02-UGS	S1454008	0	0.19	U	0.095	-2.3539				
16-UGS	S1454529	2	0.17	U	0.085	-2.4651				
16-UGX	S1454299	0	0.16	U	0.08	-2.5257				
16-UGX	S1454302	2	0.16	U	0.08	-2.5257				
00-BGN234	S1456778	0	0.11	U	0.055	-2.9004				
Summary Statistics:				Mean	0.2863	-1.4319				

Beryllium
Statistical Calculations

	Standard Error	0.0266	0.0955		
	Median	0.245	-1.4065		
	Mode	0.26	-1.3471		
	Standard Deviation	0.1745	0.6263		
	Sample Variance	0.0304	0.3923		
	Kurtosis	0.645	-0.2918		
	Skewness	1.0791	-0.2198		
	Range	0.735	2.6647		
	Minimum	0.055	-2.9004		
	Maximum	0.79	-0.2357		
	Sum	12.31	-61.573		
	Count	43	43		
	Confidence Level (95.0%)	0.0521	0.1872		
W Test for LN Distribution:	d =		16.475		
	k =		21		
	W =		0.9711		
	W(5) =		0.943		
	W > W(5)	Accept	LN		
UTL(95,95) & UCL(95) LN Distribution:	Mean =		-1.4319		
	StDev =		0.6263		
	N =		43		
	K(95,95) =		2.106		
	UTL(95,95) =		-0.1129	Exp =	**0.893**
	H(95) =		1.997		
	UCL(95) =		**0.3525**		

Cadium
Statistical Calculations

Cadmium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456664	2	11.4		11.4	2.433613	43	0.3894	2.434	-2.079	1.757
00-BGN1910	S1456663	0	10.6		10.6	2.360854	42	0.2684	2.361	-2.079	1.192
00-BGN134	S1456786	0	2.6		2.6	0.955511	41	0.2334	0.956	-2.079	0.708
20-UGS	S1454360	2	2.4		2.4	0.875469	40	0.2078	0.875	-2.079	0.614
20-UGS	S1454369	0	1.9		1.9	0.641854	39	0.1871	0.642	-2.040	0.502
06-UGS	S1454550	2	1.7		1.7	0.530628	38	0.1695	0.531	-2.040	0.436
00-BGN156	S1456771	2	1.6		1.6	0.470004	37	0.1539	0.470	-2.040	0.386
07-DBMW10(	S1457114	8	1.5		1.5	0.405465	36	0.1398	0.405	-1.347	0.245
12-UGS	S1454210	2	1.5		1.5	0.405465	35	0.1269	0.405	-1.291	0.215
00-BGN134	S1456787	2	1.5		1.5	0.405465	34	0.1149	0.405	-1.255	0.191
00-BGN156	S1456659	0	1.3		1.3	0.262364	33	0.1035	0.262	-0.981	0.129
00-BGN156	S1456650	2	1.2		1.2	0.182322	32	0.0927	0.182	-0.968	0.107
13-UGS	S1454219	2	1.1	B	1.1	0.09531	31	0.0824	0.095	-0.968	0.088
00-BGN278	S1456782	0	1.1	B	1.1	0.09531	30	0.0724	0.095	-0.904	0.072
05-UGS	S1454402	0	0.99	B	0.99	-0.01005	29	0.0628	-0.010	-0.892	0.055
21-UGS	S1454367	2	0.97	B	0.97	-0.03046	28	0.0534	-0.030	-0.868	0.045
05-UGS	S1454040	0	0.96	B	0.96	-0.04082	27	0.0442	-0.041	-0.844	0.035
07-DBMW10(	S1457113	3	0.85	B	0.85	-0.16252	26	0.0352	-0.163	-0.734	0.020
00-BGN112	S1456656	2	0.84	B	0.84	-0.17435	25	0.0263	-0.174	-0.431	0.007
03-UGS	S1454399	0	0.75	B	0.75	-0.28768	24	0.0175	-0.288	-0.431	0.003
00-BGN112	S1456655	0	0.75	B	0.75	-0.28768	23	0.0087	-0.288	-0.416	0.001
00-BGN278	S1456783	2	0.73	B	0.73	-0.31471	22	0	-0.315	-0.315	0.000
15-UGS	S1454266	2	0.66	B	0.66	-0.41552	21				
00-BGN111	S1456665	0	0.65	B	0.65	-0.43078	20				
00-BGN234	S1456778	0	0.65	B	0.65	-0.43078	19				
00-BGN234	S1456779	2	0.48	B	0.48	-0.73397	18				
00-BGN178	S1456662	2	0.43	B	0.43	-0.84397	17				
16-UGX	S1454299	0	0.84	U	0.42	-0.8675	16				
03-UGS	S1454013	0	0.41	B	0.41	-0.8916	15				
16-UGX	S1454302	2	0.81	U	0.405	-0.90387	14				
00-BGN256	S1456780	0	0.38	B	0.38	-0.96758	13				
00-BGN178	S1456661	0	0.38	B	0.38	-0.96758	12				
18-UGS	S1454528	0	0.75	U	0.375	-0.98083	11				
02-UGS	S1454502	2	0.57	U	0.285	-1.25527	10				
02-UGS	S1454008	0	0.55	U	0.275	-1.29098	9				
16-UGS	S1454529	2	0.52	U	0.26	-1.34707	8				
00-BGN256	S1456773	2	0.26	U	0.13	-2.04022	7				
00-BGN256	S1456781	2	0.26	U	0.13	-2.04022	6				
00-BGN212	S1456777	2	0.26	U	0.13	-2.04022	5				
00-BGN111	S1456775	2	0.25	U	0.125	-2.07944	4				
00-BGN2910	S1456784	0	0.25	U	0.125	-2.07944	3				
00-BGN2910	S1456785	2	0.25	U	0.125	-2.07944	2				
00-BGN212	S1456776	0	0.25	U	0.125	-2.07944	1				
Summary Statistics:				Mean	1.2835	-0.41754					

Cadium
Statistical Calculations

	Standard Error	0.3444	0.16533
	Median	0.73	-0.31471
	Mode	0.125	-2.07944
	Standard Deviation	2.2587	1.084142
	Sample Variance	5.1015	1.175364
	Kurtosis	15.807	0.55601
	Skewness	3.96	0.404377
	Range	11.275	4.513055
	Minimum	0.125	-2.07944
	Maximum	11.4	2.433613
	Sum	55.19	-17.9544
	Count	43	43
	Confidence Level (95.0%)	0.6951	0.33365
W Test for LN Distribution:	d =		49.36528
	k =		21
	W =		0.938833
	W(5) =		0.943
	W < W(5)	Reject	LN
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	43	
	Z(5) =	1.6449	
	U =	44.151	
	UTL(95,95) =	**11.4**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	43	
	Z(5) =	1.6449	
	U =	27.393	
	UCL(95,50) =	**0.9639**	

Cadium
Statistical Calculations

Calcium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN1910	S1456664	2	67600		67600	11.12136	43
00-BGN1910	S1456663	0	55100		55100	10.9169	42
13-UGS	S1454219	2	9540	B	9540	9.163249	41
15-UGS	S1454266	2	9530		9530	9.1622	40
16-UGX	S1454302	2	6990		6990	8.852236	39
00-BGN156	S1456659	0	6150		6150	8.724207	38
00-BGN178	S1456662	2	5810		5810	8.667336	37
20-UGS	S1454360	2	5740		5740	8.655214	36
16-UGS	S1454529	2	5260		5260	8.567886	35
03-UGS	S1454399	0	5220		5220	8.560253	34
07-DBMW100	S1457114	8	5140		5140	8.544808	33
00-BGN156	S1456650	2	5070		5070	8.531096	32
00-BGN256	S1456780	0	5020		5020	8.521185	31
00-BGN156	S1456771	2	4830		4830	8.482602	30
00-BGN256	S1456773	2	4810		4810	8.478452	29
00-BGN256	S1456781	2	4680		4680	8.451053	28
00-BGN178	S1456661	0	4550		4550	8.422883	27
06-UGS	S1454550	2	4490		4490	8.409608	26
20-UGS	S1454369	0	4380		4380	8.384804	25
03-UGS	S1454013	0	4300		4300	8.36637	24
00-BGN134	S1456787	2	4230		4230	8.349957	23
12-UGS	S1454210	2	4210		4210	8.345218	22
16-UGX	S1454299	0	4100		4100	8.318742	21
00-BGN134	S1456786	0	3430		3430	8.140316	20
21-UGS	S1454367	2	3370		3370	8.122668	19
00-BGN278	S1456782	0	3330		3330	8.110728	18
00-BGN111	S1456665	0	3220		3220	8.077137	17
05-UGS	S1454402	0	3080		3080	8.032685	16
00-BGN2910	S1456785	2	3060		3060	8.02617	15
07-DBMW100	S1457113	3	2930		2930	7.982758	14
05-UGS	S1454040	0	2920		2920	7.979339	13
00-BGN112	S1456656	2	2560		2560	7.847763	12
18-UGS	S1454528	0	2550		2550	7.843849	11
00-BGN2910	S1456784	0	2530		2530	7.835975	10
02-UGS	S1454502	2	2520		2520	7.832014	9
00-BGN111	S1456775	2	2450		2450	7.803843	8
00-BGN278	S1456783	2	2280		2280	7.731931	7
00-BGN212	S1456777	2	2250		2250	7.718685	6
00-BGN212	S1456776	0	2040		2040	7.620705	5
00-BGN112	S1456655	0	2000		2000	7.600902	4
02-UGS	S1454008	0	1800		1800	7.495542	3
00-BGN234	S1456779	2	1530		1530	7.333023	2
00-BGN234	S1456778	0	1500		1500	7.31322	1
Summary Statistics:				Mean	6700	8.335974	

Cadium
Statistical Calculations

Standard Error	1894.343	0.113274
Median	4210	8.345218
Mode	#N/A	#N/A
Standard Deviation	12422.04	0.742787
Sample Variance	1.54E+08	0.551733
Kurtosis	18.97985	6.648878
Skewness	4.3988	2.164871
Range	66100	3.808143
Minimum	1500	7.31322
Maximum	67600	11.12136
Sum	288100	358.4469
Count	43	43
Confidence Level (95.0%)	3822.94	0.228596
UTL(95,95) Nonparametric Distribution: P =	0.95	
N =	43	
Z(5) =	1.644853	
U =	44.15076	
UTL(95,95) =	**67600**	
UCL(95,50) Nonparametric Distribution: P =	0.5	
N =	43	
Z(5) =	1.644853	
U =	27.39301	
UCL(95,50) =	**4601.091**	

Chromium
Statistical Calculations

Chromium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456663	0	55		55	4.007333	0.3894	4.007	0.223	1.474
00-BGN1910	S1456664	2	43.7		43.7	3.777348	0.2684	3.777	0.300	0.933
00-BGN112	S1456656	2	25.5		25.5	3.238678	0.2334	3.239	0.438	0.654
20-UGS	S1454360	2	17.7		17.7	2.873565	0.2078	2.874	0.693	0.453
00-BGN134	S1456787	2	16		16	2.772589	0.1871	2.773	0.742	0.380
12-UGS	S1454210	2	15.9		15.9	2.766319	0.1695	2.766	0.811	0.331
00-BGN112	S1456655	0	12.4		12.4	2.517696	0.1539	2.518	0.811	0.263
20-UGS	S1454369	0	12.1		12.1	2.493205	0.1398	2.493	1.065	0.200
07-DBMW10(	S1457114	8	11.9		11.9	2.476538	0.1269	2.477	1.163	0.167
00-BGN156	S1456771	2	11.4		11.4	2.433613	0.1149	2.434	1.335	0.126
13-UGS	S1454219	2	10.7		10.7	2.370244	0.1035	2.370	1.504	0.090
06-UGS	S1454550	2	10.6		10.6	2.360854	0.0927	2.361	1.526	0.077
00-BGN156	S1456650	2	10.5		10.5	2.351375	0.0824	2.351	1.589	0.063
15-UGS	S1454266	2	10.3		10.3	2.332144	0.0724	2.332	1.609	0.052
00-BGN234	S1456778	0	10.2		10.2	2.322388	0.0628	2.322	1.629	0.044
00-BGN134	S1456786	0	9.2		9.2	2.219203	0.0534	2.219	1.668	0.029
21-UGS	S1454367	2	9		9	2.197225	0.0442	2.197	1.758	0.019
00-BGN156	S1456659	0	8		8	2.079442	0.0352	2.079	1.825	0.009
03-UGS	S1454399	0	7.9		7.9	2.066863	0.0263	2.067	1.872	0.005
00-BGN234	S1456779	2	7.6		7.6	2.028148	0.0175	2.028	1.902	0.002
07-DBMW10(	S1457113	3	7.1		7.1	1.960095	0.0087	1.960	1.946	0.000
00-BGN111	S1456775	2	7.1		7.1	1.960095	0	1.960	1.960	0.000
05-UGS	S1454402	0	7		7	1.94591				
00-BGN178	S1456661	0	6.7		6.7	1.902108				
00-BGN278	S1456782	0	6.5		6.5	1.871802				
00-BGN111	S1456665	0	6.2		6.2	1.824549				
05-UGS	S1454040	0	5.8		5.8	1.757858				
00-BGN178	S1456662	2	5.3		5.3	1.667707				
16-UGX	S1454299	0	5.1		5.1	1.629241				
02-UGS	S1454502	2	5		5	1.609438				
03-UGS	S1454013	0	4.9		4.9	1.589235				
16-UGX	S1454302	2	4.6		4.6	1.526056				
18-UGS	S1454528	0	4.5		4.5	1.504077				
16-UGS	S1454529	2	3.8		3.8	1.335001				
02-UGS	S1454008	0	3.2		3.2	1.163151				
00-BGN278	S1456783	2	5.8	U	2.9	1.064711				
00-BGN256	S1456780	0	4.5	U	2.25	0.81093				
00-BGN256	S1456773	2	4.5	U	2.25	0.81093				
00-BGN212	S1456777	2	2.1	B	2.1	0.741937				
00-BGN256	S1456781	2	4	U	2	0.693147				
00-BGN2910	S1456784	0	3.1	U	1.55	0.438255				
00-BGN212	S1456776	0	2.7	U	1.35	0.300105				
00-BGN2910	S1456785	2	2.5	U	1.25	0.223144				
Summary Statistics:					Mean	9.6291	1.907308			

Chromium
Statistical Calculations

	Standard Error	1.5609	0.128267		
	Median	7.1	1.960095		
	Mode	7.1	1.960095		
	Standard Deviation	10.235	0.841105		
	Sample Variance	104.76	0.707458		
	Kurtosis	11.018	0.325066		
	Skewness	3.0985	0.08703		
	Range	53.75	3.78419		
	Minimum	1.25	0.223144		
	Maximum	55	4.007333		
	Sum	414.05	82.01425		
	Count	43	43		
	Confidence Level (95.0%)	3.1499	0.258854		
W Test for LN Distribution:	d =		29.71322		
	k =		21		
	W =		0.970942		
	W(5) =		0.943		
	W > W(5)	Accept	LN		
UTL(95,95) & UCL(95) LN Distribution:	Mean =		1.907308		
	StDev =		0.841105		
	N =		43		
	K(95,95) =		2.106		
	UTL(95,95) =		3.678675	Exp =	**39.594**
	H(95) =		2.188		
	UCL(95) =		**12.74332**		

Cobalt
Statistical Calculations

Cobalt (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank	a_i	X_n-i+1	X_i	
00-BGN134	S1456786	0	9.7	B	9.7	2.27213	43	0.3894	9.700	0.600	3.544
12-UGS	S1454210	2	6.9	B	6.9	1.93152	42	0.2684	6.900	0.600	1.691
20-UGS	S1454360	2	6.8	B	6.8	1.91692	41	0.2334	6.800	0.600	1.447
13-UGS	S1454219	2	6.5	B	6.5	1.8718	40	0.2078	6.500	0.600	1.226
00-BGN112	S1456656	2	6.5	B	6.5	1.8718	39	0.1871	6.500	0.650	1.095
00-BGN1910	S1456664	2	6	B	6	1.79176	38	0.1695	6.000	0.650	0.907
06-UGS	S1454550	2	5.5	B	5.5	1.70475	37	0.1539	5.500	0.650	0.746
15-UGS	S1454266	2	5.4	B	5.4	1.6864	36	0.1398	5.400	1.700	0.517
00-BGN112	S1456655	0	5.2	B	5.2	1.64866	35	0.1269	5.200	1.700	0.444
00-BGN1910	S1456663	0	5.2	B	5.2	1.64866	34	0.1149	5.200	1.800	0.391
00-BGN134	S1456787	2	5	B	5	1.60944	33	0.1035	5.000	1.900	0.321
21-UGS	S1454367	2	4.9	B	4.9	1.58924	32	0.0927	4.900	1.900	0.278
07-DBMW100	S1457114	8	4.6	B	4.6	1.52606	31	0.0824	4.600	2.000	0.214
20-UGS	S1454369	0	4.6	B	4.6	1.52606	30	0.0724	4.600	2.300	0.167
03-UGS	S1454399	0	4.5	B	4.5	1.50408	29	0.0628	4.500	2.400	0.132
00-BGN156	S1456659	0	4.3	B	4.3	1.45862	28	0.0534	4.300	2.500	0.096
00-BGN156	S1456650	2	4.2	B	4.2	1.43508	27	0.0442	4.200	2.800	0.062
00-BGN156	S1456771	2	4.1	B	4.1	1.41099	26	0.0352	4.100	2.800	0.046
00-BGN178	S1456661	0	4	B	4	1.38629	25	0.0263	4.000	2.800	0.032
00-BGN178	S1456662	2	3.6	B	3.6	1.28093	24	0.0175	3.600	2.800	0.014
16-UGX	S1454302	2	3.2	B	3.2	1.16315	23	0.0087	3.200	2.900	0.003
03-UGS	S1454013	0	2.9	B	2.9	1.06471	22	0	2.900	2.900	0.000
16-UGX	S1454299	0	2.9	B	2.9	1.06471	21				
02-UGS	S1454502	2	2.8	B	2.8	1.02962	20				
07-DBMW100	S1457113	3	2.8	B	2.8	1.02962	19				
18-UGS	S1454528	0	2.8	B	2.8	1.02962	18				
00-BGN278	S1456782	0	2.8	B	2.8	1.02962	17				
00-BGN234	S1456779	2	2.5	B	2.5	0.91629	16				
05-UGS	S1454040	0	2.4	B	2.4	0.87547	15				
00-BGN111	S1456665	0	2.3	B	2.3	0.83291	14				
00-BGN234	S1456778	0	2	B	2	0.69315	13				
16-UGS	S1454529	2	1.9	B	1.9	0.64185	12				
00-BGN278	S1456783	2	1.9	B	1.9	0.64185	11				
05-UGS	S1454402	0	1.8	B	1.8	0.58779	10				
02-UGS	S1454008	0	1.7	B	1.7	0.53063	9				
00-BGN111	S1456775	2	1.7	B	1.7	0.53063	8				
00-BGN256	S1456773	2	1.3	U	0.65	-0.43078	7				
00-BGN256	S1456781	2	1.3	U	0.65	-0.43078	6				
00-BGN212	S1456777	2	1.3	U	0.65	-0.43078	5				
00-BGN256	S1456780	0	1.2	U	0.6	-0.51083	4				
00-BGN2910	S1456784	0	1.2	U	0.6	-0.51083	3				
00-BGN2910	S1456785	2	1.2	U	0.6	-0.51083	2				
00-BGN212	S1456776	0	1.2	U	0.6	-0.51083	1				
Summary Statistics:				Mean	3.4942	1.00924					

Cobalt
Statistical Calculations

	Standard Error	0.3236	0.11981
	Median	2.9	1.06471
	Mode	2.8	1.02962
	Standard Deviation	2.1217	0.78565
	Sample Variance	4.5018	0.61724
	Kurtosis	0.2016	-0.25516
	Skewness	0.5781	-0.81579
	Range	9.1	2.78295
	Minimum	0.6	-0.51083
	Maximum	9.7	2.27213
	Sum	150.25	43.3971
	Count	43	43
	Confidence Level (95.0%)	0.653	0.24179
W Test for N Distribution:	d =	189.08	
	k =	21	
	W =	0.9456	
	W(5) =	0.943	
	W > W(5)	Accept	N
UTL(95,95) & UCL(95) N Distribution:	Mean =	3.4942	
	StDev =	2.1217	
	N =	43	
	K(95,95) =	2.106	
	UTL(95,95) =	**7.9626**	
	t(95) =	1.683	
	UCL(95) =	**4.0387**	

Copper
Statistical Calculations

Copper (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN1910	S1456664	2	37.9		37.9	3.634951	43
00-BGN1910	S1456663	0	36.2		36.2	3.589059	42
00-BGN156	S1456659	0	11.1		11.1	2.406945	41
20-UGS	S1454360	2	10.3		10.3	2.332144	40
07-DBMW100	S1457114	8	9.9		9.9	2.292535	39
20-UGS	S1454369	0	9.7		9.7	2.272126	38
12-UGS	S1454210	2	9.6		9.6	2.261763	37
00-BGN134	S1456787	2	9.5		9.5	2.251292	36
00-BGN156	S1456771	2	9.3		9.3	2.230014	35
00-BGN156	S1456650	2	9		9	2.197225	34
13-UGS	S1454219	2	8.7		8.7	2.163323	33
06-UGS	S1454550	2	8.6		8.6	2.151762	32
00-BGN134	S1456786	0	8.5		8.5	2.140066	31
21-UGS	S1454367	2	7.2		7.2	1.974081	30
00-BGN112	S1456656	2	7.1		7.1	1.960095	29
15-UGS	S1454266	2	7		7	1.94591	28
07-DBMW100	S1457113	3	6.8		6.8	1.916923	27
05-UGS	S1454040	0	6.7		6.7	1.902108	26
00-BGN112	S1456655	0	6.6		6.6	1.88707	25
03-UGS	S1454399	0	6.4		6.4	1.856298	24
05-UGS	S1454402	0	5.8		5.8	1.757858	23
00-BGN178	S1456661	0	5.6		5.6	1.722767	22
00-BGN234	S1456778	0	5.6		5.6	1.722767	21
00-BGN178	S1456662	2	5.1	B	5.1	1.629241	20
00-BGN278	S1456782	0	4.7	B	4.7	1.547563	19
03-UGS	S1454013	0	4.6	B	4.6	1.526056	18
02-UGS	S1454502	2	4.3	B	4.3	1.458615	17
00-BGN256	S1456780	0	4.3	B	4.3	1.458615	16
16-UGX	S1454302	2	4.2	B	4.2	1.435085	15
00-BGN111	S1456665	0	4.1	B	4.1	1.410987	14
00-BGN234	S1456779	2	4.1	B	4.1	1.410987	13
16-UGX	S1454299	0	4	B	4	1.386294	12
18-UGS	S1454528	0	3.8	B	3.8	1.335001	11
16-UGS	S1454529	2	3.8	B	3.8	1.335001	10
00-BGN278	S1456783	2	3.2	B	3.2	1.163151	9
02-UGS	S1454008	0	2.9	B	2.9	1.064711	8
00-BGN212	S1456776	0	2	J	2	0.693147	7
00-BGN256	S1456773	2	1.6	J	1.6	0.470004	6
00-BGN111	S1456775	2	1.6	B	1.6	0.470004	5
00-BGN256	S1456781	2	1.4	J	1.4	0.336472	4
00-BGN2910	S1456784	0	1.1	J	1.1	0.09531	3
00-BGN212	S1456777	2	0.72	J	0.72	-0.3285	2
00-BGN2910	S1456785	2	0.36	J	0.36	-1.02165	1
Summary Statistics:				Mean	7.092558	1.615004	

Copper
Statistical Calculations

	Standard Error	1.112247	0.133443
	Median	5.6	1.722767
	Mode	5.6	1.722767
	Standard Deviation	7.29349	0.875047
	Sample Variance	53.19499	0.765706
	Kurtosis	12.58651	1.866591
	Skewness	3.363996	-0.61012
	Range	37.54	4.656602
	Minimum	0.36	-1.02165
	Maximum	37.9	3.634951
	Sum	304.98	69.44517
	Count	43	43
	Confidence Level (95.0%)	2.244606	0.2693
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	43	
	Z(5) =	1.644853	
	U =	44.15076	
	UTL(95,95) =	**37.9**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	43	
	Z(5) =	1.644853	
	U =	27.39301	
	UCL(95,50) =	**6.878602**	

Iron
Statistical Calculations

Iron (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
12-UGS	S1454210	2	19000		19000	9.852194	43
00-BGN1910	S1456663	0	18500		18500	9.825526	42
20-UGS	S1454360	2	17800		17800	9.786954	41
00-BGN1910	S1456664	2	17700		17700	9.78132	40
00-BGN112	S1456656	2	17400		17400	9.764225	39
00-BGN134	S1456787	2	16300		16300	9.69892	38
15-UGS	S1454266	2	15200		15200	9.629051	37
13-UGS	S1454219	2	14100		14100	9.55393	36
20-UGS	S1454369	0	12900		12900	9.464983	35
07-DBMW100	S1457114	8	12800		12800	9.4572	34
00-BGN156	S1456771	2	12500		12500	9.433484	33
06-UGS	S1454550	2	12400		12400	9.425452	32
00-BGN112	S1456655	0	12300		12300	9.417355	31
21-UGS	S1454367	2	12100		12100	9.400961	30
00-BGN156	S1456650	2	11600		11600	9.35876	29
03-UGS	S1454399	0	11300		11300	9.332558	28
00-BGN134	S1456786	0	10900		10900	9.296518	27
00-BGN178	S1456661	0	9640		9640	9.173676	26
00-BGN156	S1456659	0	9360		9360	9.144201	25
07-DBMW100	S1457113	3	8780		8780	9.080232	24
05-UGS	S1454402	0	8550		8550	9.053687	23
00-BGN178	S1456662	2	8410		8410	9.037177	22
16-UGX	S1454302	2	8390		8390	9.034796	21
00-BGN234	S1456779	2	8090		8090	8.998384	20
00-BGN234	S1456778	0	7540		7540	8.927977	19
16-UGX	S1454299	0	7450		7450	8.915969	18
05-UGS	S1454040	0	7350		7350	8.902456	17
03-UGS	S1454013	0	7260		7260	8.890135	16
00-BGN278	S1456782	0	7140		7140	8.873468	15
18-UGS	S1454528	0	6400		6400	8.764053	14
00-BGN278	S1456783	2	6310		6310	8.749891	13
02-UGS	S1454502	2	6030		6030	8.704502	12
16-UGS	S1454529	2	5740		5740	8.655214	11
02-UGS	S1454008	0	4030		4030	8.301522	10
00-BGN111	S1456665	0	3980		3980	8.289037	9
00-BGN256	S1456780	0	3890		3890	8.266164	8
00-BGN111	S1456775	2	3580		3580	8.183118	7
00-BGN256	S1456773	2	3300		3300	8.101678	6
00-BGN256	S1456781	2	2790		2790	7.933797	5
00-BGN2910	S1456784	0	2310		2310	7.745003	4
00-BGN212	S1456776	0	2310		2310	7.745003	3
00-BGN2910	S1456785	2	2260		2260	7.72312	2
00-BGN212	S1456777	2	1880		1880	7.539027	1
Summary Statistics:				Mean	9245.814	8.958434	

Iron
Statistical Calculations

	Standard Error	755.3085	0.097844
	Median	8410	9.037177
	Mode	2310	7.745003
	Standard Deviation	4952.889	0.641605
	Sample Variance	24531111	0.411656
	Kurtosis	-0.80363	-0.48536
	Skewness	0.356348	-0.63443
	Range	17120	2.313167
	Minimum	1880	7.539027
	Maximum	19000	9.852194
	Sum	397570	385.2127
	Count	43	43
	Confidence Level (95.0%)	1524.275	0.197457
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	43	
	Z(5) =	1.644853	
	U =	44.15076	
	UTL(95,95) =	**19000**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	43	
	Z(5) =	1.644853	
	U =	27.39301	
	UCL(95,50) =	**11057.2**	

Lead
Statistical Calculations

Lead (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank	a_i	Y_n-i+1	Y_i	
00-BGN156	S1456659	0	22.4		22.4	3.1091	43	0.3894	3.109	-0.400	1.367
20-UGS	S1454369	0	21.4		21.4	3.0634	42	0.2684	3.063	-0.236	0.885
00-BGN234	S1456778	0	17.6		17.6	2.8679	41	0.2334	2.868	0.095	0.647
00-BGN1910	S1456663	0	12.4		12.4	2.5177	40	0.2078	2.518	0.095	0.503
03-UGS	S1454399	0	11		11	2.3979	39	0.1871	2.398	0.095	0.431
03-UGS	S1454013	0	10.9		10.9	2.3888	38	0.1695	2.389	0.336	0.348
00-BGN111	S1456665	0	10.8		10.8	2.3795	37	0.1539	2.380	0.336	0.314
00-BGN256	S1456780	0	10.6		10.6	2.3609	36	0.1398	2.361	0.470	0.264
00-BGN278	S1456782	0	10		10	2.3026	35	0.1269	2.303	0.531	0.225
00-BGN112	S1456655	0	8.6		8.6	2.1518	34	0.1149	2.152	0.588	0.180
16-UGX	S1454299	0	6.8		6.8	1.9169	33	0.1035	1.917	0.642	0.132
00-BGN212	S1456776	0	6.3		6.3	1.8405	32	0.0927	1.841	0.642	0.111
00-BGN134	S1456786	0	4.9		4.9	1.5892	31	0.0824	1.589	0.642	0.078
00-BGN178	S1456661	0	4.9		4.9	1.5892	30	0.0724	1.589	0.742	0.061
00-BGN1910	S1456664	2	4.8		4.8	1.5686	29	0.0628	1.569	0.742	0.052
06-UGS	S1454550	2	4.7		4.7	1.5476	28	0.0534	1.548	0.742	0.043
18-UGS	S1454528	0	4.5		4.5	1.5041	27	0.0442	1.504	0.788	0.032
07-DBMW100	S1457114	8	3.2		3.2	1.1632	26	0.0352	1.163	0.833	0.012
20-UGS	S1454360	2	3.1		3.1	1.1314	25	0.0263	1.131	0.833	0.008
02-UGS	S1454008	0	3		3	1.0986	24	0.0175	1.099	0.956	0.003
00-BGN112	S1456656	2	2.9		2.9	1.0647	23	0.0087	1.065	0.993	0.001
02-UGS	S1454502	2	2.8		2.8	1.0296	22	0	1.030	1.030	0.000
05-UGS	S1454040	0	2.7		2.7	0.9933	21				
05-UGS	S1454402	0	2.6		2.6	0.9555	20				
12-UGS	S1454210	2	2.3		2.3	0.8329	19				
00-BGN156	S1456650	2	2.3		2.3	0.8329	18				
00-BGN234	S1456779	2	2.2		2.2	0.7885	17				
15-UGS	S1454266	2	2.1		2.1	0.7419	16				
21-UGS	S1454367	2	2.1		2.1	0.7419	15				
00-BGN156	S1456771	2	2.1		2.1	0.7419	14				
13-UGS	S1454219	2	1.9		1.9	0.6419	13				
00-BGN111	S1456775	2	1.9		1.9	0.6419	12				
00-BGN134	S1456787	2	1.9		1.9	0.6419	11				
00-BGN2910	S1456784	0	1.8		1.8	0.5878	10				
07-DBMW100	S1457113	3	1.7		1.7	0.5306	9				
00-BGN178	S1456662	2	1.6		1.6	0.47	8				
00-BGN256	S1456773	2	1.4		1.4	0.3365	7				
00-BGN278	S1456783	2	1.4		1.4	0.3365	6				
16-UGX	S1454302	2	1.1		1.1	0.0953	5				
00-BGN256	S1456781	2	1.1		1.1	0.0953	4				
00-BGN212	S1456777	2	1.1		1.1	0.0953	3				
16-UGS	S1454529	2	0.79		0.79	-0.2357	2				
00-BGN2910	S1456785	2	0.67		0.67	-0.4005	1				
Summary Statistics:					Mean	5.2177	1.2337				

Lead
Statistical Calculations

	Standard Error	0.8187	0.1376	
	Median	2.8	1.0296	
	Mode	2.1	0.7419	
	Standard Deviation	5.3689	0.902	
	Sample Variance	28.825	0.8136	
	Kurtosis	3.0605	-0.6398	
	Skewness	1.8458	0.417	
	Range	21.73	3.5095	
	Minimum	0.67	-0.4005	
	Maximum	22.4	3.1091	
	Sum	224.36	53.049	
	Count	43	43	
	Confidence Level (95.0%)	1.6523	0.2776	
W Test for LN Distribution:	d =		34.171	
	k =		21	
	W =		0.9496	
	W(5) =		0.943	
	W > W(5)	Accept	LN	
UTL(95,95) & UCL(95) LN Distribution:	Mean =		1.2337	
	StDev =		0.902	
	N =		43	
	K(95,95) =		2.106	
	UTL(95,95) =		3.1333	Exp = **22.95**
	H(95) =		2.188	
	UCL(95) =		**6.9938**	

Magnesium
Statistical Calculations

Magnesium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456663	0	13600		13600	9.5178	0.3894	9.518	6.850	1.039
00-BGN1910	S1456664	2	7630		7630	8.9398	0.2684	8.940	6.876	0.554
12-UGS	S1454210	2	7570		7570	8.9319	0.2334	8.932	7.039	0.442
13-UGS	S1454219	2	6960		6960	8.8479	0.2078	8.848	7.170	0.349
20-UGS	S1454360	2	6890		6890	8.8378	0.1871	8.838	7.193	0.308
15-UGS	S1454266	2	6780		6780	8.8217	0.1695	8.822	7.193	0.276
00-BGN112	S1456656	2	6610		6610	8.7963	0.1539	8.796	7.272	0.235
07-DBMW100	S1457114	8	5170		5170	8.5506	0.1398	8.551	7.365	0.166
00-BGN134	S1456787	2	4940		4940	8.5051	0.1269	8.505	7.365	0.145
20-UGS	S1454369	0	4810		4810	8.4785	0.1149	8.478	7.560	0.106
06-UGS	S1454550	2	4550		4550	8.4229	0.1035	8.423	7.591	0.086
21-UGS	S1454367	2	4500		4500	8.4118	0.0927	8.412	7.664	0.069
03-UGS	S1454399	0	4390		4390	8.3871	0.0824	8.387	7.673	0.059
00-BGN156	S1456771	2	4030		4030	8.3015	0.0724	8.302	7.682	0.045
00-BGN156	S1456650	2	3930		3930	8.2764	0.0628	8.276	7.728	0.034
00-BGN112	S1456655	0	3810		3810	8.2454	0.0534	8.245	7.762	0.026
00-BGN178	S1456661	0	3700		3700	8.2161	0.0442	8.216	7.808	0.018
07-DBMW100	S1457113	3	3420		3420	8.1374	0.0352	8.137	7.824	0.011
16-UGX	S1454302	2	3330		3330	8.1107	0.0263	8.111	7.919	0.005
00-BGN178	S1456662	2	3290		3290	8.0986	0.0175	8.099	7.990	0.002
00-BGN156	S1456659	0	3270		3270	8.0925	0.0087	8.093	8.058	0.000
03-UGS	S1454013	0	3190		3190	8.0678	0	8.068	8.068	0.000
00-BGN134	S1456786	0	3160		3160	8.0583				
16-UGX	S1454299	0	2950		2950	7.9896				
05-UGS	S1454402	0	2750		2750	7.9194				
00-BGN111	S1456775	2	2500		2500	7.824				
05-UGS	S1454040	0	2460		2460	7.8079				
18-UGS	S1454528	0	2350		2350	7.7622				
16-UGS	S1454529	2	2270		2270	7.7275				
00-BGN234	S1456779	2	2170		2170	7.6825				
00-BGN234	S1456778	0	2150		2150	7.6732				
00-BGN278	S1456782	0	2130		2130	7.6639				
02-UGS	S1454502	2	1980		1980	7.5909				
00-BGN278	S1456783	2	1920		1920	7.5601				
00-BGN256	S1456780	0	1580		1580	7.3652				
00-BGN111	S1456665	0	1580		1580	7.3652				
00-BGN212	S1456777	2	1440		1440	7.2724				
02-UGS	S1454008	0	1330		1330	7.1929				
00-BGN256	S1456773	2	1330		1330	7.1929				
00-BGN212	S1456776	0	1300		1300	7.1701				
00-BGN256	S1456781	2	1140		1140	7.0388				
00-BGN2910	S1456785	2	969	B	969	6.8763				
00-BGN2910	S1456784	0	944	B	944	6.8501				
Summary Statistics:					Mean	3645.9	8.0135			

Magnesium
Statistical Calculations

	Standard Error	371.66	0.0945		
	Median	3190	8.0678		
	Mode	1580	7.3652		
	Standard Deviation	2437.2	0.6195		
	Sample Variance	6E+06	0.3838		
	Kurtosis	5.3826	-0.392		
	Skewness	1.8915	0.0818		
	Range	12656	2.6677		
	Minimum	944	6.8501		
	Maximum	13600	9.5178		
	Sum	156773	344.58		
	Count	43	43		
	Confidence Level (95.0%)	750.05	0.1906		
W Test for LN Distribution:	d =		16.118		
	k =		21		
	W =		0.9794		
	W(5) =		0.943		
	W > W(5)	Accept	LN		
UTL(95,95) & UCL(95) LN Distribution:	Mean =		8.0135		
	StDev =		0.6195		
	N =		43		
	K(95,95) =		2.106		
	UTL(95,95) =		9.3181	Exp =	**11138**
	H(95) =		1.988		
	UCL(95) =		**4426.6**		

Manganese
Statistical Calculations

Manganese (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN134	S1456786	0	574		574	6.352629	43
12-UGS	S1454210	2	293		293	5.680173	42
20-UGS	S1454360	2	281		281	5.638355	41
00-BGN156	S1456659	0	276		276	5.620401	40
00-BGN156	S1456650	2	272		272	5.605802	39
00-BGN156	S1456771	2	264		264	5.575949	38
00-BGN1910	S1456663	0	263		263	5.572154	37
13-UGS	S1454219	2	253		253	5.533389	36
00-BGN112	S1456655	0	251		251	5.525453	35
15-UGS	S1454266	2	247		247	5.509388	34
21-UGS	S1454367	2	247		247	5.509388	33
00-BGN1910	S1456664	2	241		241	5.484797	32
06-UGS	S1454550	2	238		238	5.472271	31
20-UGS	S1454369	0	238		238	5.472271	30
00-BGN112	S1456656	2	236		236	5.463832	29
07-DBMW100	S1457114	8	225		225	5.4161	28
00-BGN134	S1456787	2	195		195	5.273	27
03-UGS	S1454399	0	189		189	5.241747	26
00-BGN178	S1456661	0	185		185	5.220356	25
07-DBMW100	S1457113	3	176		176	5.170484	24
16-UGX	S1454302	2	174		174	5.159055	23
00-BGN178	S1456662	2	174		174	5.159055	22
00-BGN234	S1456778	0	171		171	5.141664	21
16-UGX	S1454299	0	161		161	5.081404	20
00-BGN278	S1456782	0	150		150	5.010635	19
16-UGS	S1454529	2	149		149	5.003946	18
05-UGS	S1454402	0	148		148	4.997212	17
03-UGS	S1454013	0	140		140	4.941642	16
05-UGS	S1454040	0	136		136	4.912655	15
18-UGS	S1454528	0	131		131	4.875197	14
00-BGN111	S1456775	2	126		126	4.836282	13
00-BGN278	S1456783	2	118		118	4.770685	12
02-UGS	S1454502	2	116		116	4.75359	11
00-BGN256	S1456780	0	105		105	4.65396	10
00-BGN234	S1456779	2	97.4		97.4	4.578826	9
00-BGN111	S1456665	0	92.9		92.9	4.531524	8
02-UGS	S1454008	0	79.7		79.7	4.37827	7
00-BGN256	S1456773	2	64.3		64.3	4.16356	6
00-BGN256	S1456781	2	59.8		59.8	4.091006	5
00-BGN2910	S1456784	0	49.6		49.6	3.903991	4
00-BGN2910	S1456785	2	49.6		49.6	3.903991	3
00-BGN212	S1456776	0	49.3		49.3	3.897924	2
00-BGN212	S1456777	2	13.9		13.9	2.631889	1
Summary Statistics:				Mean	179.0581	5.016649	

Manganese
Statistical Calculations

Standard Error	14.91762	0.100818
Median	174	5.159055
Mode	247	5.509388
Standard Deviation	97.82135	0.661105
Sample Variance	9569.016	0.43706
Kurtosis	4.952831	2.951408
Skewness	1.377147	-1.29551
Range	560.1	3.720741
Minimum	13.9	2.631889
Maximum	574	6.352629
Sum	7699.5	215.7159
Count	43	43
Confidence Level (95.0%)	30.10498	0.203458
UTL(95,95) Nonparametric Distribution: P =	0.95	
N =	43	
Z(5) =	1.644853	
U =	44.15076	
UTL(95,95) =	**574**	
UCL(95,50) Nonparametric Distribution: P =	0.5	
N =	43	
Z(5) =	1.644853	
U =	27.39301	
UCL(95,50) =	**206.7903**	

Mercury
Statistical Calculations

Mercury (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN112	S1456655	0	0.41		0.41	-0.8916	39
20-UGS	S1454360	2	0.22		0.22	-1.51413	38
00-BGN1910	S1456664	2	0.12		0.12	-2.12026	37
00-BGN1910	S1456663	0	0.11		0.11	-2.20727	36
00-BGN156	S1456659	0	0.09		0.09	-2.40795	35
00-BGN156	S1456771	2	0.09		0.09	-2.40795	34
00-BGN256	S1456780	0	0.07		0.07	-2.65926	33
00-BGN178	S1456661	0	0.04	B	0.04	-3.21888	32
00-BGN234	S1456778	0	0.04	B	0.04	-3.21888	31
20-UGS	S1454369	0	0.06	U	0.03	-3.50656	30
00-BGN278	S1456782	0	0.03	B	0.03	-3.50656	29
00-BGN212	S1456776	0	0.03	B	0.03	-3.50656	28
00-BGN111	S1456665	0	0.05	U	0.025	-3.68888	27
02-UGS	S1454008	0	0.04	U	0.02	-3.91202	26
02-UGS	S1454502	2	0.04	U	0.02	-3.91202	25
03-UGS	S1454013	0	0.04	U	0.02	-3.91202	24
00-BGN134	S1456786	0	0.04	U	0.02	-3.91202	23
00-BGN134	S1456787	2	0.04	U	0.02	-3.91202	22
03-UGS	S1454399	0	0.03	U	0.015	-4.19971	21
05-UGS	S1454040	0	0.03	U	0.015	-4.19971	20
05-UGS	S1454402	0	0.03	U	0.015	-4.19971	19
06-UGS	S1454550	2	0.03	U	0.015	-4.19971	18
07-DBMW100	S1457113	3	0.03	U	0.015	-4.19971	17
07-DBMW100	S1457114	8	0.03	U	0.015	-4.19971	16
12-UGS	S1454210	2	0.03	U	0.015	-4.19971	15
13-UGS	S1454219	2	0.03	U	0.015	-4.19971	14
15-UGS	S1454266	2	0.03	U	0.015	-4.19971	13
21-UGS	S1454367	2	0.03	U	0.015	-4.19971	12
00-BGN256	S1456773	2	0.03	U	0.015	-4.19971	11
00-BGN256	S1456781	2	0.03	U	0.015	-4.19971	10
00-BGN278	S1456783	2	0.03	U	0.015	-4.19971	9
00-BGN111	S1456775	2	0.03	U	0.015	-4.19971	8
00-BGN112	S1456656	2	0.03	U	0.015	-4.19971	7
00-BGN156	S1456650	2	0.03	U	0.015	-4.19971	6
00-BGN178	S1456662	2	0.03	U	0.015	-4.19971	5
00-BGN2910	S1456784	0	0.03	U	0.015	-4.19971	4
00-BGN2910	S1456785	2	0.03	U	0.015	-4.19971	3
00-BGN212	S1456777	2	0.03	U	0.015	-4.19971	2
00-BGN234	S1456779	2	0.03	U	0.015	-4.19971	1
Summary Statistics:				Mean	0.044103	-3.65663	

Mercury
Statistical Calculations

	Standard Error	0.01166	0.136916
	Median	0.015	-4.19971
	Mode	0.015	-4.19971
	Standard Deviation	0.072818	0.855039
	Sample Variance	0.005302	0.731091
	Kurtosis	17.53103	2.357294
	Skewness	3.933919	1.742221
	Range	0.395	3.308107
	Minimum	0.015	-4.19971
	Maximum	0.41	-0.8916
	Sum	1.72	-142.609
	Count	39	39
	Confidence Level (95.0%)	0.022854	0.26835
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	39	
	Z(5) =	1.644853	
	U =	40.23875	
	UTL(95,95) =	**0.41**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	39	
	Z(5) =	1.644853	
	U =	25.13605	
	UCL(95,50) =	**0.02**	

Nickel
Statistical Calculations

Nickel (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN1910	S1456664	2	71.1		71.1	4.264087	43
00-BGN1910	S1456663	0	64.3		64.3	4.16356	42
00-BGN134	S1456786	0	57.9		57.9	4.058717	41
00-BGN134	S1456787	2	14.5		14.5	2.674149	40
07-DBMW100	S1457114	8	14.3		14.3	2.66026	39
20-UGS	S1454360	2	12.7		12.7	2.541602	38
06-UGS	S1454550	2	10.8		10.8	2.379546	37
12-UGS	S1454210	2	10.6		10.6	2.360854	36
00-BGN112	S1456656	2	10.6		10.6	2.360854	35
00-BGN156	S1456771	2	10.1		10.1	2.312535	34
20-UGS	S1454369	0	9.9		9.9	2.292535	33
13-UGS	S1454219	2	8.4	B	8.4	2.128232	32
00-BGN156	S1456659	0	8	B	8	2.079442	31
15-UGS	S1454266	2	7.6	B	7.6	2.028148	30
00-BGN156	S1456650	2	7.4	B	7.4	2.00148	29
21-UGS	S1454367	2	7.2	B	7.2	1.974081	28
00-BGN278	S1456782	0	6.4	B	6.4	1.856298	27
00-BGN112	S1456655	0	5.7	B	5.7	1.740466	26
00-BGN234	S1456778	0	5.6	B	5.6	1.722767	25
00-BGN278	S1456783	2	5.3	B	5.3	1.667707	24
00-BGN111	S1456665	0	5.3	B	5.3	1.667707	23
02-UGS	S1454502	2	5.1	B	5.1	1.629241	22
00-BGN111	S1456775	2	4.6	B	4.6	1.526056	21
18-UGS	S1454528	0	4	B	4	1.386294	20
16-UGS	S1454529	2	3.9	B	3.9	1.360977	19
07-DBMW100	S1457113	3	7.2	U	3.6	1.280934	18
16-UGX	S1454302	2	3.6	B	3.6	1.280934	17
00-BGN234	S1456779	2	3.5	B	3.5	1.252763	16
16-UGX	S1454299	0	3.4	B	3.4	1.223775	15
00-BGN256	S1456780	0	3.4	B	3.4	1.223775	14
00-BGN178	S1456661	0	3.4	B	3.4	1.223775	13
05-UGS	S1454040	0	6.4	U	3.2	1.163151	12
05-UGS	S1454402	0	6.1	U	3.05	1.115142	11
00-BGN178	S1456662	2	3	B	3	1.098612	10
02-UGS	S1454008	0	2.5	B	2.5	0.916291	9
00-BGN256	S1456773	2	2.2	B	2.2	0.788457	8
03-UGS	S1454399	0	4.1	U	2.05	0.71784	7
00-BGN212	S1456776	0	1.8	B	1.8	0.587787	6
00-BGN212	S1456777	2	1.8	B	1.8	0.587787	5
03-UGS	S1454013	0	3.2	U	1.6	0.470004	4
00-BGN256	S1456781	2	1.7	U	0.85	-0.16252	3
00-BGN2910	S1456784	0	1.6	U	0.8	-0.22314	2
00-BGN2910	S1456785	2	1.6	U	0.8	-0.22314	1
Summary Statistics:				Mean	9.67093	1.654879	

Nickel
Statistical Calculations

Standard Error	2.38859	0.154528
Median	5.1	1.629241
Mode	3.4	1.223775
Standard Deviation	15.66303	1.013305
Sample Variance	245.3305	1.026787
Kurtosis	9.832895	1.090897
Skewness	3.243977	0.624851
Range	70.3	4.487231
Minimum	0.8	-0.22314
Maximum	71.1	4.264087
Sum	415.85	71.15981
Count	43	43
Confidence Level (95.0%)	4.681543	0.302868
UTL(95,95) Nonparametric Distribution: P =	0.95	
N =	43	
Z(5) =	1.644853	
U =	44.15076	
UTL(95,95) =	**71.1**	
UCL(95,50) Nonparametric Distribution: P =	0.5	
N =	43	
Z(5) =	1.644853	
U =	27.39301	
UCL(95,50) =	**6.714409**	

Potassium
Statistical Calculations

Potassium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank	a_i	X_n-i+1	X_i	
00-BGN1910	S1456663	0	6230		6230	8.7371	43	0.3894	6230	276	2318.49
20-UGS	S1454360	2	4940		4940	8.5051	42	0.2684	4940	353	1231.15
12-UGS	S1454210	2	4910		4910	8.499	41	0.2334	4910	435	1044.47
00-BGN1910	S1456664	2	4880		4880	8.4929	40	0.2078	4880	451	920.35
15-UGS	S1454266	2	4520		4520	8.4163	39	0.1871	4520	522	748.03
20-UGS	S1454369	0	4500		4500	8.4118	38	0.1695	4500	852	618.34
13-UGS	S1454219	2	4370		4370	8.3825	37	0.1539	4370	890	535.57
00-BGN112	S1456656	2	3780		3780	8.2375	36	0.1398	3780	891	403.88
21-UGS	S1454367	2	3610		3610	8.1915	35	0.1269	3610	1170	309.64
03-UGS	S1454399	0	3460		3460	8.149	34	0.1149	3460	1250	253.93
06-UGS	S1454550	2	3340		3340	8.1137	33	0.1035	3340	1350	205.97
00-BGN156	S1456659	0	3290		3290	8.0986	32	0.0927	3290	1470	168.71
00-BGN112	S1456655	0	3110		3110	8.0424	31	0.0824	3110	1500	132.66
00-BGN134	S1456786	0	2990		2990	8.003	30	0.0724	2990	1630	98.46
00-BGN156	S1456650	2	2990		2990	8.003	29	0.0628	2990	1950	65.31
00-BGN134	S1456787	2	2910		2910	7.9759	28	0.0534	2910	2020	47.53
00-BGN156	S1456771	2	2870		2870	7.9621	27	0.0442	2870	2070	35.36
16-UGX	S1454299	0	2830		2830	7.948	26	0.0352	2830	2110	25.34
03-UGS	S1454013	0	2780		2780	7.9302	25	0.0263	2780	2160	16.31
07-DBMW100	S1457114	8	2690		2690	7.8973	24	0.0175	2690	2250	7.70
00-BGN178	S1456661	0	2670		2670	7.8898	23	0.0087	2670	2310	3.13
16-UGX	S1454302	2	2530		2530	7.836	22	0	2530	2530	0.00
18-UGS	S1454528	0	2310		2310	7.745	21				
00-BGN278	S1456782	0	2250		2250	7.7187	20				
07-DBMW100	S1457113	3	2160		2160	7.6779	19				
05-UGS	S1454402	0	2110		2110	7.6544	18				
00-BGN234	S1456778	0	2070		2070	7.6353	17				
00-BGN178	S1456662	2	2020		2020	7.6109	16				
05-UGS	S1454040	0	1950		1950	7.5756	15				
16-UGS	S1454529	2	1630		1630	7.3963	14				
02-UGS	S1454502	2	1500		1500	7.3132	13				
00-BGN256	S1456780	0	1470		1470	7.293	12				
00-BGN234	S1456779	2	1350		1350	7.2079	11				
02-UGS	S1454008	0	1250		1250	7.1309	10				
00-BGN278	S1456783	2	1170		1170	7.0648	9				
00-BGN2910	S1456784	0	891	B	891	6.7923	8				
00-BGN212	S1456776	0	890	B	890	6.7912	7				
00-BGN111	S1456665	0	852	B	852	6.7476	6				
00-BGN256	S1456773	2	522	B	522	6.2577	5				
00-BGN256	S1456781	2	451	B	451	6.1115	4				
00-BGN2910	S1456785	2	435	B	435	6.0753	3				
00-BGN212	S1456777	2	353	B	353	5.8665	2				
00-BGN111	S1456775	2	276	B	276	5.6204	1				
Summary Statistics:					Mean	2514.19	7.6049				

Potassium
Statistical Calculations

	Standard Error	220.519	0.1169
	Median	2530	7.836
	Mode	2990	8.003
	Standard Deviation	1446.04	0.7669
	Sample Variance	2091036	0.5881
	Kurtosis	-0.26902	0.3804
	Skewness	0.42214	-1.0009
	Range	5954	3.1167
	Minimum	276	5.6204
	Maximum	6230	8.7371
	Sum	108110	327.01
	Count	43	43
	Confidence Level (95.0%)	432.209	0.2292
W Test for N Distribution:	d =	8.8E+07	
	k =	21	
	W =	0.96172	
	W(5) =	0.943	
	W > W(5)	Accept	N
UTL(95,95) & UCL(95) N Distribution:	Mean =	2514.19	
	StDev =	1446.04	
	N =	43	
	K(95,95) =	2.106	
	UTL(95,95) =	**5559.55**	
	t(95) =	1.683	
	UCL(95) =	**2885.32**	

Selenium
Statistical Calculations

Selenium (mg/kg)							
Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN1910	S1456663	0	0.37	B	0.37	-0.99425	39
00-BGN1910	S1456664	2	0.32	B	0.32	-1.13943	38
20-UGS	S1454369	0	0.29	B	0.29	-1.23787	37
20-UGS	S1454360	2	0.29	B	0.29	-1.23787	36
00-BGN112	S1456656	2	0.22	B	0.22	-1.51413	35
00-BGN134	S1456787	2	0.21	B	0.21	-1.56065	34
16-UGS	S1454529	2	0.2	B	0.2	-1.60944	33
00-BGN178	S1456661	0	0.16	B	0.16	-1.83258	32
15-UGS	S1454266	2	0.14	B	0.14	-1.96611	31
07-DBMW100	S1457113	3	0.27	U	0.135	-2.00248	30
00-BGN112	S1456655	0	0.13	B	0.13	-2.04022	29
18-UGS	S1454528	0	0.11	B	0.11	-2.20727	28
16-UGX	S1454299	0	0.11	B	0.11	-2.20727	27
05-UGS	S1454402	0	0.1	B	0.1	-2.30259	26
00-BGN256	S1456780	0	0.16	U	0.08	-2.52573	25
00-BGN278	S1456783	2	0.15	U	0.075	-2.59027	24
00-BGN212	S1456777	2	0.13	U	0.065	-2.73337	23
06-UGS	S1454550	2	0.12	U	0.06	-2.81341	22
07-DBMW100	S1457114	8	0.12	U	0.06	-2.81341	21
12-UGS	S1454210	2	0.12	U	0.06	-2.81341	20
00-BGN278	S1456782	0	0.12	U	0.06	-2.81341	19
13-UGS	S1454219	2	0.11	U	0.055	-2.90042	18
21-UGS	S1454367	2	0.11	U	0.055	-2.90042	17
00-BGN256	S1456773	2	0.11	U	0.055	-2.90042	16
00-BGN256	S1456781	2	0.11	U	0.055	-2.90042	15
00-BGN111	S1456775	2	0.11	U	0.055	-2.90042	14
00-BGN134	S1456786	0	0.11	U	0.055	-2.90042	13
00-BGN156	S1456650	2	0.11	U	0.055	-2.90042	12
00-BGN156	S1456771	2	0.11	U	0.055	-2.90042	11
00-BGN2910	S1456785	2	0.11	U	0.055	-2.90042	10
00-BGN234	S1456778	0	0.11	U	0.055	-2.90042	9
05-UGS	S1454040	0	0.1	U	0.05	-2.99573	8
16-UGX	S1454302	2	0.1	U	0.05	-2.99573	7
00-BGN111	S1456665	0	0.1	U	0.05	-2.99573	6
00-BGN156	S1456659	0	0.1	U	0.05	-2.99573	5
00-BGN178	S1456662	2	0.1	U	0.05	-2.99573	4
00-BGN2910	S1456784	0	0.1	U	0.05	-2.99573	3
00-BGN212	S1456776	0	0.1	U	0.05	-2.99573	2
00-BGN234	S1456779	2	0.1	U	0.05	-2.99573	1
Exclude (IDL > Max Detect):							
02-UGS	S1454502	2	0.43	U	0.215	-1.53712	
02-UGS	S1454008	0	0.42	U	0.21	-1.56065	
Summary Statistics:				Mean	0.107564	-2.45962	

Selenium
Statistical Calculations

	Standard Error	0.013848	0.101651
	Median	0.06	-2.81341
	Mode	0.055	-2.90042
	Standard Deviation	0.08648	0.634812
	Sample Variance	0.007479	0.402987
	Kurtosis	2.003263	-0.31372
	Skewness	1.705227	1.036994
	Range	0.32	2.00148
	Minimum	0.05	-2.99573
	Maximum	0.37	-0.99425
	Sum	4.195	-95.9253
	Count	39	39
	Confidence Level (95.0%)	0.027141	0.199233
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	39	
	Z(5) =	1.644853	
	U =	40.23875	
	UTL(95,95) =	**0.37**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	39	
	Z(5) =	1.644853	
	U =	25.13605	
	UCL(95,50) =	**0.082721**	

Silver
Statistical Calculations

Silver (mg/kg)							
Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGN1910	S1456663	0	0.65	B	0.65	-0.43078	42
20-UGS	S1454360	2	0.54	B	0.54	-0.61619	41
00-BGN1910	S1456664	2	0.53	B	0.53	-0.63488	40
06-UGS	S1454550	2	0.49	U	0.245	-1.4065	39
07-DBMW100	S1457114	8	0.49	U	0.245	-1.4065	38
15-UGS	S1454266	2	0.49	U	0.245	-1.4065	37
12-UGS	S1454210	2	0.48	U	0.24	-1.42712	36
13-UGS	S1454219	2	0.47	U	0.235	-1.44817	35
07-DBMW100	S1457113	3	0.46	U	0.23	-1.46968	34
00-BGN278	S1456783	2	0.46	U	0.23	-1.46968	33
00-BGN112	S1456656	2	0.46	U	0.23	-1.46968	32
00-BGN134	S1456786	0	0.46	U	0.23	-1.46968	31
00-BGN178	S1456661	0	0.46	U	0.23	-1.46968	30
00-BGN212	S1456777	2	0.46	U	0.23	-1.46968	29
00-BGN234	S1456778	0	0.46	U	0.23	-1.46968	28
00-BGN256	S1456773	2	0.45	U	0.225	-1.49165	27
00-BGN256	S1456781	2	0.45	U	0.225	-1.49165	26
00-BGN278	S1456782	0	0.45	U	0.225	-1.49165	25
00-BGN134	S1456787	2	0.45	U	0.225	-1.49165	24
00-BGN156	S1456650	2	0.45	U	0.225	-1.49165	23
00-BGN156	S1456771	2	0.45	U	0.225	-1.49165	22
16-UGS	S1454529	2	0.44	U	0.22	-1.51413	21
16-UGX	S1454302	2	0.44	U	0.22	-1.51413	20
00-BGN256	S1456780	0	0.44	U	0.22	-1.51413	19
00-BGN111	S1456665	0	0.44	U	0.22	-1.51413	18
00-BGN111	S1456775	2	0.44	U	0.22	-1.51413	17
00-BGN112	S1456655	0	0.44	U	0.22	-1.51413	16
00-BGN156	S1456659	0	0.44	U	0.22	-1.51413	15
00-BGN178	S1456662	2	0.44	U	0.22	-1.51413	14
00-BGN2910	S1456785	2	0.44	U	0.22	-1.51413	13
00-BGN234	S1456779	2	0.44	U	0.22	-1.51413	12
03-UGS	S1454013	0	0.43	U	0.215	-1.53712	11
03-UGS	S1454399	0	0.43	U	0.215	-1.53712	10
05-UGS	S1454040	0	0.43	U	0.215	-1.53712	9
05-UGS	S1454402	0	0.43	U	0.215	-1.53712	8
18-UGS	S1454528	0	0.43	U	0.215	-1.53712	7
16-UGX	S1454299	0	0.43	U	0.215	-1.53712	6
20-UGS	S1454369	0	0.43	U	0.215	-1.53712	5
00-BGN2910	S1456784	0	0.43	U	0.215	-1.53712	4
00-BGN212	S1456776	0	0.43	U	0.215	-1.53712	3
02-UGS	S1454502	2	0.31	U	0.155	-1.86433	2
02-UGS	S1454008	0	0.3	U	0.15	-1.89712	1
Summary Statistics:				Mean	0.245952	-1.44645	

Silver
Statistical Calculations

	Standard Error	0.014615	0.041025
	Median	0.2225	-1.50289
	Mode	0.22	-1.51413
	Standard Deviation	0.094715	0.265876
	Sample Variance	0.008971	0.07069
	Kurtosis	11.08402	8.327269
	Skewness	3.379964	2.697812
	Range	0.5	1.466337
	Minimum	0.15	-1.89712
	Maximum	0.65	-0.43078
	Sum	10.33	-60.7511
	Count	42	42
	Confidence Level (95.0%)	0.028645	0.080408
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	42	
	Z(5) =	1.644853	
	U =	43.17326	
	UTL(95,95) =	**0.65**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	42	
	Z(5) =	1.644853	
	U =	26.82993	
	UCL(95,50) =	**0.225**	

Sodium
Statistical Calculations

Sodium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	a_i	Y_n-i+1	Y_i	
00-BGN112	S1456656	2	506	B	506	6.2265	0.3894	6.227	4.527	0.662
00-BGN1910	S1456664	2	450	B	450	6.1092	0.2684	6.109	4.644	0.393
00-BGN1910	S1456663	0	419	B	419	6.0379	0.2334	6.038	4.682	0.316
15-UGS	S1454266	2	393	B	393	5.9738	0.2078	5.974	4.745	0.255
07-DBMW100	S1457114	8	353	B	353	5.8665	0.1871	5.866	4.927	0.176
05-UGS	S1454402	0	304	B	304	5.717	0.1695	5.717	4.984	0.124
21-UGS	S1454367	2	303	B	303	5.7137	0.1539	5.714	5.011	0.108
13-UGS	S1454219	2	302	B	302	5.7104	0.1398	5.710	5.106	0.085
06-UGS	S1454550	2	299	B	299	5.7004	0.1269	5.700	5.118	0.074
07-DBMW100	S1457113	3	282	B	282	5.6419	0.1149	5.642	5.118	0.060
00-BGN134	S1456787	2	277	B	277	5.624	0.1035	5.624	5.124	0.052
12-UGS	S1454210	2	275	B	275	5.6168	0.0927	5.617	5.130	0.045
00-BGN234	S1456779	2	261	B	261	5.5645	0.0824	5.565	5.198	0.030
20-UGS	S1454369	0	257	B	257	5.5491	0.0724	5.549	5.209	0.025
05-UGS	S1454040	0	252	B	252	5.5294	0.0628	5.529	5.215	0.020
20-UGS	S1454360	2	251	B	251	5.5255	0.0534	5.525	5.220	0.016
00-BGN134	S1456786	0	241	B	241	5.4848	0.0442	5.485	5.242	0.011
00-BGN156	S1456650	2	230	B	230	5.4381	0.0352	5.438	5.283	0.005
00-BGN178	S1456661	0	225	B	225	5.4161	0.0263	5.416	5.293	0.003
16-UGS	S1454529	2	224	B	224	5.4116	0.0175	5.412	5.313	0.002
00-BGN112	S1456655	0	224	B	224	5.4116	0.0087	5.412	5.318	0.001
00-BGN156	S1456771	2	206	B	206	5.3279	0	5.328	5.328	0.000
00-BGN156	S1456659	0	204	B	204	5.3181				
00-BGN111	S1456775	2	203	B	203	5.3132				
00-BGN234	S1456778	0	199	B	199	5.2933				
00-BGN178	S1456662	2	197	B	197	5.2832				
03-UGS	S1454013	0	189	B	189	5.2417				
00-BGN278	S1456782	0	185	B	185	5.2204				
18-UGS	S1454528	0	184	B	184	5.2149				
03-UGS	S1454399	0	183	B	183	5.2095				
00-BGN111	S1456665	0	181	B	181	5.1985				
16-UGX	S1454302	2	169	B	169	5.1299				
16-UGX	S1454299	0	168	B	168	5.124				
00-BGN256	S1456780	0	167	B	167	5.118				
00-BGN212	S1456777	2	167	B	167	5.118				
00-BGN278	S1456783	2	165	B	165	5.1059				
00-BGN2910	S1456785	2	150	B	150	5.0106				
00-BGN212	S1456776	0	146	B	146	4.9836				
00-BGN256	S1456773	2	138	B	138	4.9273				
00-BGN2910	S1456784	0	115	B	115	4.7449				
00-BGN256	S1456781	2	108	B	108	4.6821				
02-UGS	S1454502	2	208	U	104	4.6444				
02-UGS	S1454008	0	185	U	92.5	4.5272				
Summary Statistics:				Mean	231.36	5.3722				

Sodium
Statistical Calculations

	Standard Error	13.95	0.0585	
	Median	206	5.3279	
	Mode	224	5.4116	
	Standard Deviation	91.475	0.3833	
	Sample Variance	8367.6	0.147	
	Kurtosis	1.3115	0.0276	
	Skewness	1.0905	0.0105	
	Range	413.5	1.6993	
	Minimum	92.5	4.5272	
	Maximum	506	6.2265	
	Sum	9948.5	231.01	
	Count	43	43	
	Confidence Level (95.0%)	27.341	0.1146	
W Test for LN Distribution:	d =		6.1722	
	k =		21	
	W =		0.983	
	W(5) =		0.943	
	W > W(5)	Accept	LN	
UTL(95,95) & UCL(95) LN Distribution:	Mean =		5.3722	
	StDev =		0.3833	
	N =		43	
	K(95,95) =		2.106	
	UTL(95,95) =		6.1796	Exp = **482.78**
	H(95) =		1.819	
	UCL(95) =		**258.09**	

Thallium
Statistical Calculations

Thallium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456663	0	0.53	B	0.53	-0.6349	43	0.3894	-0.635	-2.659	0.788
07-DBMW100	S1457114	8	0.42	B	0.42	-0.8675	42	0.2684	-0.868	-2.659	0.481
00-BGN1910	S1456664	2	0.42	B	0.42	-0.8675	41	0.2334	-0.868	-2.590	0.402
03-UGS	S1454399	0	0.28	B	0.28	-1.273	40	0.2078	-1.273	-2.590	0.274
13-UGS	S1454219	2	0.25	B	0.25	-1.3863	39	0.1871	-1.386	-2.590	0.225
20-UGS	S1454369	0	0.25	B	0.25	-1.3863	38	0.1695	-1.386	-2.590	0.204
00-BGN134	S1456787	2	0.24	B	0.24	-1.4271	37	0.1539	-1.427	-2.590	0.179
06-UGS	S1454550	2	0.23	B	0.23	-1.4697	36	0.1398	-1.470	-2.590	0.157
03-UGS	S1454013	0	0.22	B	0.22	-1.5141	35	0.1269	-1.514	-2.590	0.137
00-BGN134	S1456786	0	0.22	B	0.22	-1.5141	34	0.1149	-1.514	-2.590	0.124
00-BGN178	S1456661	0	0.22	B	0.22	-1.5141	33	0.1035	-1.514	-2.590	0.111
07-DBMW100	S1457113	3	0.2	B	0.2	-1.6094	32	0.0927	-1.609	-2.590	0.091
21-UGS	S1454367	2	0.2	B	0.2	-1.6094	31	0.0824	-1.609	-2.590	0.081
00-BGN112	S1456656	2	0.2	B	0.2	-1.6094	30	0.0724	-1.609	-2.526	0.066
00-BGN278	S1456783	2	0.39	U	0.195	-1.6348	29	0.0628	-1.635	-2.354	0.045
00-BGN234	S1456779	2	0.39	U	0.195	-1.6348	28	0.0534	-1.635	-2.002	0.020
00-BGN112	S1456655	0	0.19	B	0.19	-1.6607	27	0.0442	-1.661	-1.966	0.013
12-UGS	S1454210	2	0.18	B	0.18	-1.7148	26	0.0352	-1.715	-1.931	0.008
00-BGN256	S1456780	0	0.34	U	0.17	-1.772	25	0.0263	-1.772	-1.897	0.003
02-UGS	S1454502	2	0.33	U	0.165	-1.8018	24	0.0175	-1.802	-1.833	0.001
02-UGS	S1454008	0	0.32	U	0.16	-1.8326	23	0.0087	-1.833	-1.833	0.000
05-UGS	S1454402	0	0.16	B	0.16	-1.8326	22	0	-1.833	-1.833	0.000
00-BGN256	S1456781	2	0.32	U	0.16	-1.8326	21				
00-BGN278	S1456782	0	0.32	U	0.16	-1.8326	20				
00-BGN156	S1456771	2	0.15	B	0.15	-1.8971	19				
00-BGN2910	S1456784	0	0.29	U	0.145	-1.931	18				
05-UGS	S1454040	0	0.14	B	0.14	-1.9661	17				
00-BGN212	S1456776	0	0.27	U	0.135	-2.0025	16				
00-BGN2910	S1456785	2	0.19	U	0.095	-2.3539	15				
15-UGS	S1454266	2	0.16	U	0.08	-2.5257	14				
16-UGS	S1454529	2	0.15	U	0.075	-2.5903	13				
16-UGX	S1454302	2	0.15	U	0.075	-2.5903	12				
20-UGS	S1454360	2	0.15	U	0.075	-2.5903	11				
00-BGN256	S1456773	2	0.15	U	0.075	-2.5903	10				
00-BGN111	S1456665	0	0.15	U	0.075	-2.5903	9				
00-BGN111	S1456775	2	0.15	U	0.075	-2.5903	8				
00-BGN156	S1456659	0	0.15	U	0.075	-2.5903	7				
00-BGN156	S1456650	2	0.15	U	0.075	-2.5903	6				
00-BGN178	S1456662	2	0.15	U	0.075	-2.5903	5				
00-BGN212	S1456777	2	0.15	U	0.075	-2.5903	4				
00-BGN234	S1456778	0	0.15	U	0.075	-2.5903	3				
18-UGS	S1454528	0	0.14	U	0.07	-2.6593	2				
16-UGX	S1454299	0	0.14	U	0.07	-2.6593	1				
Summary Statistics:				Mean	0.1703	-1.9237					

Thallium
Statistical Calculations

	Standard Error	0.0155	0.0849
	Median	0.16	-1.8326
	Mode	0.075	-2.5903
	Standard Deviation	0.1019	0.5568
	Sample Variance	0.0104	0.3101
	Kurtosis	3.3837	-0.7251
	Skewness	1.6068	0.1925
	Range	0.46	2.0244
	Minimum	0.07	-2.6593
	Maximum	0.53	-0.6349
	Sum	7.325	-82.72
	Count	43	43
	Confidence Level (95.0%)	0.0305	0.1664
W Test for LN Distribution:	d =		13.022
	k =		21
	W =		0.8927
	W(5) =		0.943
	W < W(5)	Reject	LN
UTL(95,95) Nonparametric Distribution:	P =	0.95	
	N =	43	
	Z(5) =	1.6449	
	U =	44.151	
	UTL(95,95) =	**0.53**	
UCL(95,50) Nonparametric Distribution:	P =	0.5	
	N =	43	
	Z(5) =	1.6449	
	U =	27.393	
	UCL(95,50) =	**0.192**	

Vanadium
Statistical Calculations

Vanadium (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456663	0	134		134	4.8978	0.3894	4.8978	1.6292	1.2728
00-BGN1910	S1456664	2	117		117	4.7622	0.2684	4.7622	1.6864	0.8255
00-BGN112	S1456656	2	85.4		85.4	4.4473	0.2334	4.4473	1.6864	0.6444
20-UGS	S1454360	2	53		53	3.9703	0.2078	3.9703	1.8083	0.4493
12-UGS	S1454210	2	47.9		47.9	3.8691	0.1871	3.8691	1.9741	0.3546
00-BGN134	S1456787	2	44.8		44.8	3.8022	0.1695	3.8022	2.0919	0.2899
00-BGN112	S1456655	0	39.2		39.2	3.6687	0.1539	3.6687	2.1041	0.2408
15-UGS	S1454266	2	35.8		35.8	3.5779	0.1398	3.5779	2.2721	0.1826
13-UGS	S1454219	2	34		34	3.5264	0.1269	3.5264	2.3979	0.1432
07-DBMW100	S1457114	8	33.1		33.1	3.4995	0.1149	3.4995	2.5878	0.1048
20-UGS	S1454369	0	32.7		32.7	3.4874	0.1035	3.4874	2.6462	0.0871
06-UGS	S1454550	2	29.7		29.7	3.3911	0.0927	3.3911	2.6878	0.0652
00-BGN134	S1456786	0	28.5		28.5	3.3499	0.0824	3.3499	2.6946	0.054
21-UGS	S1454367	2	27.9		27.9	3.3286	0.0724	3.3286	2.7279	0.0435
00-BGN156	S1456771	2	26.8		26.8	3.2884	0.0628	3.2884	2.7473	0.034
03-UGS	S1454399	0	26.7		26.7	3.2847	0.0534	3.2847	2.7912	0.0264
00-BGN156	S1456650	2	25.7		25.7	3.2465	0.0442	3.2465	2.8273	0.0185
00-BGN178	S1456661	0	24.4		24.4	3.1946	0.0352	3.1946	2.8449	0.0123
07-DBMW100	S1457113	3	21.6		21.6	3.0727	0.0263	3.0727	2.9014	0.0045
00-BGN178	S1456662	2	21.5		21.5	3.0681	0.0175	3.0681	2.9549	0.002
05-UGS	S1454402	0	21		21	3.0445	0.0087	3.0445	3.0301	0.0001
00-BGN156	S1456659	0	20.8		20.8	3.035	0	3.035	3.035	0
16-UGX	S1454302	2	20.7		20.7	3.0301				
00-BGN234	S1456779	2	19.2		19.2	2.9549				
05-UGS	S1454040	0	18.2		18.2	2.9014				
16-UGX	S1454299	0	17.2		17.2	2.8449				
00-BGN234	S1456778	0	16.9		16.9	2.8273				
03-UGS	S1454013	0	16.3		16.3	2.7912				
00-BGN278	S1456782	0	15.6		15.6	2.7473				
18-UGS	S1454528	0	15.3		15.3	2.7279				
16-UGS	S1454529	2	14.8		14.8	2.6946				
02-UGS	S1454502	2	14.7		14.7	2.6878				
00-BGN111	S1456775	2	14.1		14.1	2.6462				
00-BGN278	S1456783	2	13.3		13.3	2.5878				
00-BGN111	S1456665	0	11		11	2.3979				
02-UGS	S1454008	0	9.7	B	9.7	2.2721				
00-BGN256	S1456773	2	8.2	B	8.2	2.1041				
00-BGN256	S1456780	0	8.1	B	8.1	2.0919				
00-BGN256	S1456781	2	7.2	B	7.2	1.9741				
00-BGN2910	S1456785	2	6.1	B	6.1	1.8083				
00-BGN2910	S1456784	0	5.4	B	5.4	1.6864				
00-BGN212	S1456777	2	5.4	B	5.4	1.6864				
00-BGN212	S1456776	0	5.1	B	5.1	1.6292				
Summary Statistics:					Mean	27.767	3.021			

Vanadium
Statistical Calculations

	Standard Error	4.0608	0.1162		
	Median	20.8	3.035		
	Mode	5.4	1.6864		
	Standard Deviation	26.628	0.762		
	Sample Variance	709.07	0.5806		
	Kurtosis	7.9383	0.3103		
	Skewness	2.6889	0.2705		
	Range	128.9	3.2686		
	Minimum	5.1	1.6292		
	Maximum	134	4.8978		
	Sum	1194	129.9		
	Count	43	43		
	Confidence Level (95.0%)	7.959	0.2277		
W Test for LN Distribution:	d =		24.384		
	k =		21		
	W =		0.9668		
	W(5) =		0.943		
	W > W(5)	Accept	LN		
UTL(95,95) & UCL(95) LN Distribution:	Mean =		3.021		
	StDev =		0.762		
	N =		43		
	K(95,95) =		2.106		
	UTL(95,95) =		4.6257	Exp =	**102.08**
	H(95) =		2.111		
	UCL(95) =		**35.146**		

Zinc
Statistical Calculations

Zinc (mg/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	a_i	Y_n-i+1	Y_i	
00-BGN1910	S1456663	0	99.5		99.5	4.6002	0.3894	4.600	1.825	1.081
00-BGN1910	S1456664	2	97.9		97.9	4.5839	0.2684	4.584	2.128	0.659
20-UGS	S1454369	0	57.4		57.4	4.05	0.2334	4.050	2.262	0.417
20-UGS	S1454360	2	55.4		55.4	4.0146	0.2078	4.015	2.370	0.342
12-UGS	S1454210	2	53.6		53.6	3.9815	0.1871	3.982	2.380	0.300
13-UGS	S1454219	2	49.4		49.4	3.9	0.1695	3.900	2.434	0.249
00-BGN112	S1456656	2	48		48	3.8712	0.1539	3.871	2.557	0.202
15-UGS	S1454266	2	47.1		47.1	3.8523	0.1398	3.852	2.874	0.137
00-BGN134	S1456787	2	46		46	3.8286	0.1269	3.829	2.885	0.120
00-BGN156	S1456659	0	45.4		45.4	3.8155	0.1149	3.816	2.929	0.102
07-DBMW100	S1457114	8	43.9		43.9	3.7819	0.1035	3.782	2.955	0.086
06-UGS	S1454550	2	43.2		43.2	3.7658	0.0927	3.766	2.965	0.074
03-UGS	S1454399	0	42.4		42.4	3.7471	0.0824	3.747	3.082	0.055
00-BGN134	S1456786	0	41.7		41.7	3.7305	0.0724	3.731	3.100	0.046
21-UGS	S1454367	2	39.8		39.8	3.6839	0.0628	3.684	3.186	0.031
00-BGN112	S1456655	0	37.6		37.6	3.627	0.0534	3.627	3.235	0.021
00-BGN156	S1456650	2	35.3		35.3	3.5639	0.0442	3.564	3.246	0.014
00-BGN156	S1456771	2	35.1		35.1	3.5582	0.0352	3.558	3.285	0.010
03-UGS	S1454013	0	33.3		33.3	3.5056	0.0263	3.506	3.296	0.006
00-BGN178	S1456661	0	32.1		32.1	3.4689	0.0175	3.469	3.353	0.002
05-UGS	S1454402	0	29.3		29.3	3.3776	0.0087	3.378	3.374	0.000
07-DBMW100	S1457113	3	29.2		29.2	3.3742	0	3.374	3.374	0.000
16-UGX	S1454299	0	29.2		29.2	3.3742				
00-BGN278	S1456782	0	28.6		28.6	3.3534				
05-UGS	S1454040	0	27		27	3.2958				
00-BGN234	S1456778	0	26.7		26.7	3.2847				
16-UGX	S1454302	2	25.7		25.7	3.2465				
00-BGN178	S1456662	2	25.4		25.4	3.2347				
18-UGS	S1454528	0	24.2		24.2	3.1864				
02-UGS	S1454502	2	22.2		22.2	3.1001				
00-BGN256	S1456780	0	21.8		21.8	3.0819				
00-BGN278	S1456783	2	19.4		19.4	2.9653				
00-BGN234	S1456779	2	19.2		19.2	2.9549				
16-UGS	S1454529	2	18.7		18.7	2.9285				
00-BGN111	S1456665	0	17.9		17.9	2.8848				
02-UGS	S1454008	0	17.7		17.7	2.8736				
00-BGN212	S1456776	0	12.9		12.9	2.5572				
00-BGN256	S1456773	2	11.4		11.4	2.4336				
00-BGN2910	S1456784	0	10.8		10.8	2.3795				
00-BGN256	S1456781	2	10.7		10.7	2.3702				
00-BGN2910	S1456785	2	9.6		9.6	2.2618				
00-BGN111	S1456775	2	8.4		8.4	2.1282				
00-BGN212	S1456777	2	6.2		6.2	1.8245				
Summary Statistics:				Mean	33.402	3.3349				

Zinc
Statistical Calculations

	Standard Error	3.0655	0.0946		
	Median	29.2	3.3742		
	Mode	29.2	3.3742		
	Standard Deviation	20.102	0.6201		
	Sample Variance	404.07	0.3845		
	Kurtosis	3.4766	0.0631		
	Skewness	1.5165	-0.3959		
	Range	93.3	2.7756		
	Minimum	6.2	1.8245		
	Maximum	99.5	4.6002		
	Sum	1436.3	143.4		
	Count	43	43		
	Confidence Level (95.0%)	6.0082	0.1853		
W Test for LN Distribution:	d =		16.149		
	k =		21		
	W =		0.967		
	W(5) =		0.943		
	W > W(5)	Accept	LN		
UTL(95,95) & UCL(95) LN Distribution:	Mean =		3.3349		
	StDev =		0.6201		
	N =		43		
	K(95,95) =		2.106		
	UTL(95,95) =		4.6408	Exp =	**103.63**
	H(95) =		1.988		
	UCL(95) =		**41.158**		

APPENDIX C

CALCULATIONS FOR ORGANICS

4,4'-DDE
Statistical Calculations

4,4'-DDE (ug/kg)							
Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGA212	S1454587	0	233		233	5.451038	47
00-BGA312	S1454599	0	158		158	5.062595	46
00-BGA312	S1454600	2	126		126	4.836282	45
00-BGC334	S1454608	0	89.9		89.9	4.498698	44
00-BGC356	S1454610	0	57.9		57.9	4.058717	43
00-BGA212	S1454588	2	17.3		17.3	2.850707	42
00-BGC334	S1454609	2	7.99		7.99	2.078191	41
00-BGR378	S1454630	0	6.15		6.15	1.816452	40
00-BGC412	S1454614	0	5.62		5.62	1.726332	39
00-BGA234	S1454597	0	4.58	U	2.29	0.828552	38
00-BGR134	S1454622	0	4.24	U	2.12	0.751416	37
00-BGR334	S1454626	0	4.24	U	2.12	0.751416	36
00-BGA234	S1454601	2	4.16	U	2.08	0.732368	35
00-BGR312	S1454624	0	4.1	U	2.05	0.71784	34
00-BGR356	S1454629	2	4.1	U	2.05	0.71784	33
00-BGC434	S1454616	0	4.07	U	2.035	0.710496	32
00-BGR312	S1454636	0	3.99	U	1.995	0.690644	31
00-BGR112	S1454621	2	3.98	U	1.99	0.688135	30
00-BGA134	S1454590	2	3.97	U	1.985	0.685619	29
00-BGC434	S1454617	2	3.97	U	1.985	0.685619	28
00-BGR134	S1454623	0	3.97	U	1.985	0.685619	27
00-BGR412	S1454634	0	3.93	U	1.965	0.675492	26
00-BGR390	S1454632	0	3.92	U	1.96	0.672944	25
00-BGA134	S1454602	2	3.9	U	1.95	0.667829	24
00-BGR112	S1454620	0	3.89	U	1.945	0.665262	23
00-BGR356	S1454628	0	3.87	U	1.935	0.660107	22
00-BGR412	S1454635	2	3.85	U	1.925	0.654926	21
00-BGC212	S1454604	0	3.84	U	1.92	0.652325	20
00-BGC312	S1454606	0	3.84	U	1.92	0.652325	19
00-BGR334	S1454627	2	3.84	U	1.92	0.652325	18
00-BGR390	S1454633	2	3.83	U	1.915	0.649718	17
00-BGC378	S1454612	0	3.82	U	1.91	0.647103	16
00-BGC412	S1454615	2	3.81	U	1.905	0.644482	15
00-BGA234	S1454598	2	3.77	U	1.885	0.633928	14
00-BGR356	S1454637	2	3.77	U	1.885	0.633928	13
00-BGA156	S1454592	2	3.74	U	1.87	0.625938	12
00-BGC356	S1454611	2	3.73	U	1.865	0.623261	11
00-BGR312	S1454625	2	3.73	U	1.865	0.623261	10
00-BGA156	S1454591	0	3.72	U	1.86	0.620576	9
00-BGA178	S1454594	2	3.72	U	1.86	0.620576	8
00-BGR378	S1454631	2	3.71	U	1.855	0.617885	7
00-BGC378	S1454613	2	3.68	U	1.84	0.609766	6
00-BGC312	S1454607	2	3.68	U	1.84	0.609766	5
00-BGA134	S1454589	0	3.67	U	1.835	0.607044	4
00-BGA178	S1454593	0	3.66	U	1.83	0.604316	3
00-BGC212	S1454605	2	3.59	U	1.795	0.585005	2
00-BGC212	S1454618	2	3.58	U	1.79	0.582216	1
Summary Statistics:					Mean	16.50191	

4,4'-DDE
Statistical Calculations

	Standard Error	6.605743
	Median	1.95
	Mode	1.985
	Standard Deviation	45.28669
	Sample Variance	2050.884
	Kurtosis	13.13712
	Skewness	3.578831
	Range	231.21
	Minimum	1.79
	Maximum	233
	Sum	775.59
	Count	47
	Confidence Level (95.0%)	13.29666
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**233**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.959961
	U =	30.71841
	UCL(95,50) =	**1.988592**

4,4'-DDD
Statistical Calculations

4,4'-DDD (ug/kg)							
Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGA312	S1454599	0	58.6		58.6	4.070735	35
00-BGA212	S1454587	0	45.1		45.1	3.808882	40
00-BGC356	S1454610	0	22.6		22.6	3.11795	18
00-BGA312	S1454600	2	18.6		18.6	2.923162	34
00-BGC334	S1454608	0	6.43		6.43	1.860975	20
00-BGC412	S1454614	0	6.19		6.19	1.822935	30
00-BGC334	S1454609	2	5.17		5.17	1.642873	19
00-BGA234	S1454597	0	4.58	U	2.29	0.828552	38
00-BGR134	S1454622	0	4.24	U	2.12	0.751416	24
00-BGR334	S1454626	0	4.24	U	2.12	0.751416	11
00-BGA234	S1454601	2	4.16	U	2.08	0.732368	36
00-BGR312	S1454624	0	4.1	U	2.05	0.71784	14
00-BGR356	S1454629	2	4.1	U	2.05	0.71784	8
00-BGC434	S1454616	0	4.07	U	2.035	0.710496	28
00-BGR312	S1454636	0	3.99	U	1.995	0.690644	13
00-BGR112	S1454621	2	3.98	U	1.99	0.688135	25
00-BGA134	S1454590	2	3.97	U	1.985	0.685619	46
00-BGC434	S1454617	2	3.97	U	1.985	0.685619	27
00-BGR134	S1454623	0	3.97	U	1.985	0.685619	15
00-BGR412	S1454634	0	3.93	U	1.965	0.675492	2
00-BGR390	S1454632	0	3.92	U	1.96	0.672944	4
00-BGA134	S1454602	2	3.9	U	1.95	0.667829	45
00-BGR112	S1454620	0	3.89	U	1.945	0.665262	26
00-BGR356	S1454628	0	3.87	U	1.935	0.660107	9
00-BGR412	S1454635	2	3.85	U	1.925	0.654926	1
00-BGC212	S1454604	0	3.84	U	1.92	0.652325	33
00-BGC312	S1454606	0	3.84	U	1.92	0.652325	22
00-BGR334	S1454627	2	3.84	U	1.92	0.652325	10
00-BGR390	S1454633	2	3.83	U	1.915	0.649718	3
00-BGC378	S1454612	0	3.82	U	1.91	0.647103	16
00-BGC412	S1454615	2	3.81	U	1.905	0.644482	29
00-BGA234	S1454598	2	3.77	U	1.885	0.633928	37
00-BGR356	S1454637	2	3.77	U	1.885	0.633928	7
00-BGR378	S1454630	0	3.76	U	1.88	0.631272	6
00-BGA156	S1454592	2	3.74	U	1.87	0.625938	43
00-BGC356	S1454611	2	3.73	U	1.865	0.623261	17
00-BGR312	S1454625	2	3.73	U	1.865	0.623261	12
00-BGA156	S1454591	0	3.72	U	1.86	0.620576	44
00-BGA178	S1454594	2	3.72	U	1.86	0.620576	41
00-BGR378	S1454631	2	3.71	U	1.855	0.617885	5
00-BGC378	S1454613	2	3.68	U	1.84	0.609766	31
00-BGC312	S1454607	2	3.68	U	1.84	0.609766	21
00-BGA134	S1454589	0	3.67	U	1.835	0.607044	47
00-BGA178	S1454593	0	3.66	U	1.83	0.604316	42
00-BGC212	S1454605	2	3.59	U	1.795	0.585005	32
00-BGC212	S1454618	2	3.58	U	1.79	0.582216	23
00-BGA212	S1454588	2	1.5		1.5	0.405465	39
Summary Statistics:					Mean	5.102128	

4,4'-DDD
Statistical Calculations

	Standard Error	1.574075
	Median	1.935
	Mode	1.985
	Standard Deviation	10.79132
	Sample Variance	116.4525
	Kurtosis	16.66924
	Skewness	4.040621
	Range	57.1
	Minimum	1.5
	Maximum	58.6
	Sum	239.8
	Count	47
	Confidence Level (95.0%)	3.168446
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**58.6**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**1.985**

g-chlordane
Statistical Calculations

g-chlordane (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGR356	S1454629	2	18	J	18	2.890372	47
00-BGA212	S1454587	0	2.84		2.84	1.043804	46
00-BGA234	S1454597	0	2.49		2.49	0.912283	45
00-BGA212	S1454588	2	1.46		1.46	0.378436	44
00-BGR134	S1454622	0	2.18	U	1.09	0.086178	43
00-BGR334	S1454626	0	2.18	U	1.09	0.086178	42
00-BGA234	S1454601	2	2.14	U	1.07	0.067659	41
00-BGR312	S1454624	0	2.11	U	1.055	0.053541	40
00-BGC434	S1454616	0	2.1	U	1.05	0.04879	39
00-BGR312	S1454636	0	2.06	U	1.03	0.029559	38
00-BGA134	S1454590	2	2.05	U	1.025	0.024693	37
00-BGR112	S1454621	2	2.05	U	1.025	0.024693	36
00-BGC434	S1454617	2	2.04	U	1.02	0.019803	35
00-BGR134	S1454623	0	2.04	U	1.02	0.019803	34
00-BGR412	S1454634	0	2.03	U	1.015	0.014889	33
00-BGR390	S1454632	0	2.02	U	1.01	0.00995	32
00-BGA134	S1454602	2	2.01	U	1.005	0.004988	31
00-BGA312	S1454599	0	2.01	U	1.005	0.004988	30
00-BGC412	S1454614	0	2.01	U	1.005	0.004988	29
00-BGA312	S1454600	2	2	U	1	0	28
00-BGR112	S1454620	0	2	U	1	0	27
00-BGR356	S1454628	0	2	U	1	0	26
00-BGC334	S1454608	0	1.99	U	0.995	-0.00501	25
00-BGC212	S1454604	0	1.98	U	0.99	-0.01005	24
00-BGC312	S1454606	0	1.98	U	0.99	-0.01005	23
00-BGR334	S1454627	2	1.98	U	0.99	-0.01005	22
00-BGR412	S1454635	2	1.98	U	0.99	-0.01005	21
00-BGC356	S1454610	0	1.97	U	0.985	-0.01511	20
00-BGC378	S1454612	0	1.97	U	0.985	-0.01511	19
00-BGR390	S1454633	2	1.97	U	0.985	-0.01511	18
00-BGC412	S1454615	2	1.96	U	0.98	-0.0202	17
00-BGA234	S1454598	2	1.94	U	0.97	-0.03046	16
00-BGR356	S1454637	2	1.94	U	0.97	-0.03046	15
00-BGR378	S1454630	0	1.94	U	0.97	-0.03046	14
00-BGA156	S1454592	2	1.93	U	0.965	-0.03563	13
00-BGA156	S1454591	0	1.92	U	0.96	-0.04082	12
00-BGA178	S1454594	2	1.92	U	0.96	-0.04082	11
00-BGC356	S1454611	2	1.92	U	0.96	-0.04082	10
00-BGR312	S1454625	2	1.92	U	0.96	-0.04082	9
00-BGR378	S1454631	2	1.91	U	0.955	-0.04604	8
00-BGC378	S1454613	2	1.9	U	0.95	-0.05129	7
00-BGC334	S1454609	2	1.9	U	0.95	-0.05129	6
00-BGA134	S1454589	0	1.89	U	0.945	-0.05657	5
00-BGC312	S1454607	2	1.89	U	0.945	-0.05657	4
00-BGA178	S1454593	0	1.88	U	0.94	-0.06188	3
00-BGC212	S1454605	2	1.85	U	0.925	-0.07796	2
00-BGC212	S1454618	2	1.84	U	0.92	-0.08338	1
Summary Statistics:					Mean	1.434894	

g-chlordane
Statistical Calculations

	Standard Error	0.363709
	Median	0.99
	Mode	0.99
	Standard Deviation	2.493464
	Sample Variance	6.21736
	Kurtosis	45.04652
	Skewness	6.657524
	Range	17.08
	Minimum	0.92
	Maximum	18
	Sum	67.44
	Count	47
	Confidence Level (95.0%)	0.732108
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**18**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**1.005**

a-chlordane
Statistical Calcualtions

a-chlordane (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGR356	S1454629	2	17.7		17.7	2.873565	47
00-BGA234	S1454597	0	3.01		3.01	1.10194	46
00-BGR134	S1454622	0	2.18	U	1.09	0.086178	45
00-BGR334	S1454626	0	2.18	U	1.09	0.086178	44
00-BGA234	S1454601	2	2.14	U	1.07	0.067659	43
00-BGA212	S1454588	2	2.13	U	1.065	0.062975	42
00-BGR312	S1454624	0	2.11	U	1.055	0.053541	41
00-BGC434	S1454616	0	2.1	U	1.05	0.04879	40
00-BGR312	S1454636	0	2.06	U	1.03	0.029559	39
00-BGA134	S1454590	2	2.05	U	1.025	0.024693	38
00-BGR112	S1454621	2	2.05	U	1.025	0.024693	37
00-BGC434	S1454617	2	2.04	U	1.02	0.019803	36
00-BGR134	S1454623	0	2.04	U	1.02	0.019803	35
00-BGR412	S1454634	0	2.03	U	1.015	0.014889	34
00-BGR390	S1454632	0	2.02	U	1.01	0.00995	33
00-BGA134	S1454602	2	2.01	U	1.005	0.004988	32
00-BGA312	S1454599	0	2.01	U	1.005	0.004988	31
00-BGC412	S1454614	0	2.01	U	1.005	0.004988	30
00-BGA312	S1454600	2	2	U	1	0	29
00-BGR112	S1454620	0	2	U	1	0	28
00-BGR356	S1454628	0	2	U	1	0	27
00-BGC334	S1454608	0	1.99	U	0.995	-0.00501	26
00-BGC212	S1454604	0	1.98	U	0.99	-0.01005	25
00-BGC312	S1454606	0	1.98	U	0.99	-0.01005	24
00-BGR334	S1454627	2	1.98	U	0.99	-0.01005	23
00-BGR412	S1454635	2	1.98	U	0.99	-0.01005	22
00-BGC356	S1454610	0	1.97	U	0.985	-0.01511	21
00-BGC378	S1454612	0	1.97	U	0.985	-0.01511	20
00-BGR390	S1454633	2	1.97	U	0.985	-0.01511	19
00-BGA212	S1454587	0	1.96	U	0.98	-0.0202	18
00-BGC412	S1454615	2	1.96	U	0.98	-0.0202	17
00-BGA234	S1454598	2	1.94	U	0.97	-0.03046	16
00-BGR356	S1454637	2	1.94	U	0.97	-0.03046	15
00-BGR378	S1454630	0	1.94	U	0.97	-0.03046	14
00-BGA156	S1454592	2	1.93	U	0.965	-0.03563	13
00-BGA156	S1454591	0	1.92	U	0.96	-0.04082	12
00-BGA178	S1454594	2	1.92	U	0.96	-0.04082	11
00-BGC356	S1454611	2	1.92	U	0.96	-0.04082	10
00-BGR312	S1454625	2	1.92	U	0.96	-0.04082	9
00-BGR378	S1454631	2	1.91	U	0.955	-0.04604	8
00-BGC378	S1454613	2	1.9	U	0.95	-0.05129	7
00-BGC334	S1454609	2	1.9	U	0.95	-0.05129	6
00-BGA134	S1454589	0	1.89	U	0.945	-0.05657	5
00-BGC312	S1454607	2	1.89	U	0.945	-0.05657	4
00-BGA178	S1454593	0	1.88	U	0.94	-0.06188	3
00-BGC212	S1454605	2	1.85	U	0.925	-0.07796	2
00-BGC212	S1454618	2	1.84	U	0.92	-0.08338	1
Sample Statistics:					Mean	1.391596	

a-chlordane
Statistical Calcualtions

	Standard Error	0.357164
	Median	0.99
	Mode	0.99
	Standard Deviation	2.448593
	Sample Variance	5.995607
	Kurtosis	45.54063
	Skewness	6.71032
	Range	16.78
	Minimum	0.92
	Maximum	17.7
	Sum	65.405
	Count	47
	Confidence Level (95.0%)	0.718933
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**17.7**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**1.003191**

Endrin aldehyde
Statistical Calculations

Endrin aldehyde (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGA212	S1454587	0	41.7		41.7	3.730501	47
00-BGA234	S1454597	0	4.58	U	2.29	0.828552	46
00-BGR134	S1454622	0	4.24	U	2.12	0.751416	45
00-BGR334	S1454626	0	4.24	U	2.12	0.751416	44
00-BGA234	S1454601	2	4.16	U	2.08	0.732368	43
00-BGA212	S1454588	2	4.13	U	2.065	0.72513	42
00-BGR312	S1454624	0	4.1	U	2.05	0.71784	41
00-BGR356	S1454629	2	4.1	U	2.05	0.71784	40
00-BGC434	S1454616	0	4.07	U	2.035	0.710496	39
00-BGR312	S1454636	0	3.99	U	1.995	0.690644	38
00-BGR112	S1454621	2	3.98	U	1.99	0.688135	37
00-BGA134	S1454590	2	3.97	U	1.985	0.685619	36
00-BGC434	S1454617	2	3.97	U	1.985	0.685619	35
00-BGR134	S1454623	0	3.97	U	1.985	0.685619	34
00-BGR412	S1454634	0	3.93	U	1.965	0.675492	33
00-BGR390	S1454632	0	3.92	U	1.96	0.672944	32
00-BGA134	S1454602	2	3.9	U	1.95	0.667829	31
00-BGA312	S1454599	0	3.9	U	1.95	0.667829	30
00-BGC412	S1454614	0	3.9	U	1.95	0.667829	29
00-BGR112	S1454620	0	3.89	U	1.945	0.665262	28
00-BGA312	S1454600	2	3.87	U	1.935	0.660107	27
00-BGC334	S1454608	0	3.87	U	1.935	0.660107	26
00-BGR356	S1454628	0	3.87	U	1.935	0.660107	25
00-BGR412	S1454635	2	3.85	U	1.925	0.654926	24
00-BGC212	S1454604	0	3.84	U	1.92	0.652325	23
00-BGC312	S1454606	0	3.84	U	1.92	0.652325	22
00-BGR334	S1454627	2	3.84	U	1.92	0.652325	21
00-BGR390	S1454633	2	3.83	U	1.915	0.649718	20
00-BGC356	S1454610	0	3.82	U	1.91	0.647103	19
00-BGC378	S1454612	0	3.82	U	1.91	0.647103	18
00-BGC412	S1454615	2	3.81	U	1.905	0.644482	17
00-BGA234	S1454598	2	3.77	U	1.885	0.633928	16
00-BGR356	S1454637	2	3.77	U	1.885	0.633928	15
00-BGR378	S1454630	0	3.76	U	1.88	0.631272	14
00-BGA156	S1454592	2	3.74	U	1.87	0.625938	13
00-BGC356	S1454611	2	3.73	U	1.865	0.623261	12
00-BGR312	S1454625	2	3.73	U	1.865	0.623261	11
00-BGA156	S1454591	0	3.72	U	1.86	0.620576	10
00-BGA178	S1454594	2	3.72	U	1.86	0.620576	9
00-BGR378	S1454631	2	3.71	U	1.855	0.617885	8
00-BGC334	S1454609	2	3.69	U	1.845	0.612479	7
00-BGC378	S1454613	2	3.68	U	1.84	0.609766	6
00-BGC312	S1454607	2	3.68	U	1.84	0.609766	5
00-BGA134	S1454589	0	3.67	U	1.835	0.607044	4
00-BGA178	S1454593	0	3.66	U	1.83	0.604316	3
00-BGC212	S1454605	2	3.59	U	1.795	0.585005	2
00-BGC212	S1454618	2	3.58	U	1.79	0.582216	1
Summary Statistics:					Mean	2.785106	

Endrin aldehyde
Statistical Calculations

	Standard Error	0.846089
	Median	1.925
	Mode	1.985
	Standard Deviation	5.800497
	Sample Variance	33.64577
	Kurtosis	46.97309
	Skewness	6.852778
	Range	39.91
	Minimum	1.79
	Maximum	41.7
	Sum	130.9
	Count	47
	Confidence Level (95.0%)	1.703088
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**41.7**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**1.95**

Endrin
Statistical Calculations

Endrin (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGA212	S1454587	0	19.9		19.9	2.99072	47
00-BGA234	S1454597	0	4.58	U	2.29	0.828552	46
00-BGR134	S1454622	0	4.24	U	2.12	0.751416	45
00-BGR334	S1454626	0	4.24	U	2.12	0.751416	44
00-BGA234	S1454601	2	4.16	U	2.08	0.732368	43
00-BGR312	S1454624	0	4.1	U	2.05	0.71784	42
00-BGR356	S1454629	2	4.1	U	2.05	0.71784	41
00-BGC434	S1454616	0	4.07	U	2.035	0.710496	40
00-BGR312	S1454636	0	3.99	U	1.995	0.690644	39
00-BGR112	S1454621	2	3.98	U	1.99	0.688135	38
00-BGA134	S1454590	2	3.97	U	1.985	0.685619	37
00-BGC434	S1454617	2	3.97	U	1.985	0.685619	36
00-BGR134	S1454623	0	3.97	U	1.985	0.685619	35
00-BGR412	S1454634	0	3.93	U	1.965	0.675492	34
00-BGR390	S1454632	0	3.92	U	1.96	0.672944	33
00-BGA134	S1454602	2	3.9	U	1.95	0.667829	32
00-BGA312	S1454599	0	3.9	U	1.95	0.667829	31
00-BGC412	S1454614	0	3.9	U	1.95	0.667829	30
00-BGR112	S1454620	0	3.89	U	1.945	0.665262	29
00-BGA312	S1454600	2	3.87	U	1.935	0.660107	28
00-BGC334	S1454608	0	3.87	U	1.935	0.660107	27
00-BGR356	S1454628	0	3.87	U	1.935	0.660107	26
00-BGR412	S1454635	2	3.85	U	1.925	0.654926	25
00-BGC212	S1454604	0	3.84	U	1.92	0.652325	24
00-BGC312	S1454606	0	3.84	U	1.92	0.652325	23
00-BGR334	S1454627	2	3.84	U	1.92	0.652325	22
00-BGR390	S1454633	2	3.83	U	1.915	0.649718	21
00-BGC356	S1454610	0	3.82	U	1.91	0.647103	20
00-BGC378	S1454612	0	3.82	U	1.91	0.647103	19
00-BGC412	S1454615	2	3.81	U	1.905	0.644482	18
00-BGA234	S1454598	2	3.77	U	1.885	0.633928	17
00-BGR356	S1454637	2	3.77	U	1.885	0.633928	16
00-BGR378	S1454630	0	3.76	U	1.88	0.631272	15
00-BGA156	S1454592	2	3.74	U	1.87	0.625938	14
00-BGC356	S1454611	2	3.73	U	1.865	0.623261	13
00-BGR312	S1454625	2	3.73	U	1.865	0.623261	12
00-BGA156	S1454591	0	3.72	U	1.86	0.620576	11
00-BGA178	S1454594	2	3.72	U	1.86	0.620576	10
00-BGR378	S1454631	2	3.71	U	1.855	0.617885	9
00-BGC334	S1454609	2	3.69	U	1.845	0.612479	8
00-BGC378	S1454613	2	3.68	U	1.84	0.609766	7
00-BGC312	S1454607	2	3.68	U	1.84	0.609766	6
00-BGA134	S1454589	0	3.67	U	1.835	0.607044	5
00-BGA178	S1454593	0	3.66	U	1.83	0.604316	4
00-BGC212	S1454605	2	3.59	U	1.795	0.585005	3
00-BGC212	S1454618	2	3.58	U	1.79	0.582216	2
00-BGA212	S1454588	2	1.01		1.01	0.00995	1
Summary Statistics:				Mean	2.29883		

Endrin
Statistical Calculations

	Standard Error	0.383382
	Median	1.92
	Mode	1.985
	Standard Deviation	2.628335
	Sample Variance	6.908143
	Kurtosis	46.61086
	Skewness	6.812998
	Range	18.89
	Minimum	1.01
	Maximum	19.9
	Sum	108.045
	Count	47
	Confidence Level (95.0%)	0.771707
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**19.9**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**1.948191**

Endosulfan sulfate
Statistical Calculations

Endosulfan sulfate (ug/kg)							
Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGA312	S1454599	0	4.21		4.21	1.437463	44
00-BGA312	S1454600	2	3.44		3.44	1.235471	43
00-BGA234	S1454601	2	4.16	U	2.08	0.732368	42
00-BGA212	S1454588	2	4.13	U	2.065	0.72513	41
00-BGR312	S1454624	0	4.1	U	2.05	0.71784	40
00-BGR356	S1454629	2	4.1	U	2.05	0.71784	39
00-BGC434	S1454616	0	4.07	U	2.035	0.710496	38
00-BGR312	S1454636	0	3.99	U	1.995	0.690644	37
00-BGR112	S1454621	2	3.98	U	1.99	0.688135	36
00-BGA134	S1454590	2	3.97	U	1.985	0.685619	35
00-BGC434	S1454617	2	3.97	U	1.985	0.685619	34
00-BGR134	S1454623	0	3.97	U	1.985	0.685619	33
00-BGR412	S1454634	0	3.93	U	1.965	0.675492	32
00-BGR390	S1454632	0	3.92	U	1.96	0.672944	31
00-BGA134	S1454602	2	3.9	U	1.95	0.667829	30
00-BGC412	S1454614	0	3.9	U	1.95	0.667829	29
00-BGR112	S1454620	0	3.89	U	1.945	0.665262	28
00-BGC334	S1454608	0	3.87	U	1.935	0.660107	27
00-BGR356	S1454628	0	3.87	U	1.935	0.660107	26
00-BGR412	S1454635	2	3.85	U	1.925	0.654926	25
00-BGC212	S1454604	0	3.84	U	1.92	0.652325	24
00-BGC312	S1454606	0	3.84	U	1.92	0.652325	23
00-BGR334	S1454627	2	3.84	U	1.92	0.652325	22
00-BGR390	S1454633	2	3.83	U	1.915	0.649718	21
00-BGC356	S1454610	0	3.82	U	1.91	0.647103	20
00-BGC378	S1454612	0	3.82	U	1.91	0.647103	19
00-BGA212	S1454587	0	3.81	U	1.905	0.644482	18
00-BGC412	S1454615	2	3.81	U	1.905	0.644482	17
00-BGA234	S1454598	2	3.77	U	1.885	0.633928	16
00-BGR356	S1454637	2	3.77	U	1.885	0.633928	15
00-BGR378	S1454630	0	3.76	U	1.88	0.631272	14
00-BGA156	S1454592	2	3.74	U	1.87	0.625938	13
00-BGC356	S1454611	2	3.73	U	1.865	0.623261	12
00-BGR312	S1454625	2	3.73	U	1.865	0.623261	11
00-BGA156	S1454591	0	3.72	U	1.86	0.620576	10
00-BGA178	S1454594	2	3.72	U	1.86	0.620576	9
00-BGR378	S1454631	2	3.71	U	1.855	0.617885	8
00-BGC334	S1454609	2	3.69	U	1.845	0.612479	7
00-BGC378	S1454613	2	3.68	U	1.84	0.609766	6
00-BGC312	S1454607	2	3.68	U	1.84	0.609766	5
00-BGA134	S1454589	0	3.67	U	1.835	0.607044	4
00-BGA178	S1454593	0	3.66	U	1.83	0.604316	3
00-BGC212	S1454605	2	3.59	U	1.795	0.585005	2
00-BGC212	S1454618	2	3.58	U	1.79	0.582216	1
Exclude (IDL > Max Detect):							
00-BGA234	S1454597	0	4.58	U	2.29	0.828552	
00-BGR134	S1454622	0	4.24	U	2.12	0.751416	
00-BGR334	S1454626	0	4.24	U	2.12	0.751416	
Summary Statistics:				Mean	2.007727		

Endosulfan sulfate
Statistical Calculations

	Standard Error	0.062667
	Median	1.92
	Mode	1.985
	Standard Deviation	0.415687
	Sample Variance	0.172796
	Kurtosis	21.62487
	Skewness	4.593295
	Range	2.42
	Minimum	1.79
	Maximum	4.21
	Sum	88.34
	Count	44
	Confidence Level (95.0%)	0.12638
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	44
	Z(5) =	1.644853
	U =	45.12794
	UTL(95,95) =	**4.21**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	44
	Z(5) =	1.644853
	U =	27.95536
	UCL(95,50) =	**1.944554**

Endosulfan I
Statistical Calculations

Endosulfan I (ug/kg)						
Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)
00-BGA312	S1454600	2	0.179		0.179	-1.72037
00-BGA312	S1454599	0	0.144		0.144	-1.93794
Exclude (IDL > Max Detect):						
00-BGA234	S1454597	0	2.36	U	1.18	0.165514
00-BGR134	S1454622	0	2.18	U	1.09	0.086178
00-BGR334	S1454626	0	2.18	U	1.09	0.086178
00-BGA234	S1454601	2	2.14	U	1.07	0.067659
00-BGA212	S1454588	2	2.13	U	1.065	0.062975
00-BGR312	S1454624	0	2.11	U	1.055	0.053541
00-BGR356	S1454629	2	2.11	U	1.055	0.053541
00-BGC434	S1454616	0	2.1	U	1.05	0.04879
00-BGR312	S1454636	0	2.06	U	1.03	0.029559
00-BGA134	S1454590	2	2.05	U	1.025	0.024693
00-BGR112	S1454621	2	2.05	U	1.025	0.024693
00-BGC434	S1454617	2	2.04	U	1.02	0.019803
00-BGR134	S1454623	0	2.04	U	1.02	0.019803
00-BGR412	S1454634	0	2.03	U	1.015	0.014889
00-BGR390	S1454632	0	2.02	U	1.01	0.00995
00-BGA134	S1454602	2	2.01	U	1.005	0.004988
00-BGC412	S1454614	0	2.01	U	1.005	0.004988
00-BGR112	S1454620	0	2	U	1	0
00-BGR356	S1454628	0	2	U	1	0
00-BGC334	S1454608	0	1.99	U	0.995	-0.00501
00-BGC212	S1454604	0	1.98	U	0.99	-0.01005
00-BGC312	S1454606	0	1.98	U	0.99	-0.01005
00-BGR334	S1454627	2	1.98	U	0.99	-0.01005
00-BGR412	S1454635	2	1.98	U	0.99	-0.01005
00-BGC356	S1454610	0	1.97	U	0.985	-0.01511
00-BGC378	S1454612	0	1.97	U	0.985	-0.01511
00-BGR390	S1454633	2	1.97	U	0.985	-0.01511
00-BGA212	S1454587	0	1.96	U	0.98	-0.0202
00-BGC412	S1454615	2	1.96	U	0.98	-0.0202
00-BGA234	S1454598	2	1.94	U	0.97	-0.03046
00-BGR356	S1454637	2	1.94	U	0.97	-0.03046
00-BGR378	S1454630	0	1.94	U	0.97	-0.03046
00-BGA156	S1454592	2	1.93	U	0.965	-0.03563
00-BGA156	S1454591	0	1.92	U	0.96	-0.04082
00-BGA178	S1454594	2	1.92	U	0.96	-0.04082
00-BGC356	S1454611	2	1.92	U	0.96	-0.04082
00-BGR312	S1454625	2	1.92	U	0.96	-0.04082
00-BGR378	S1454631	2	1.91	U	0.955	-0.04604
00-BGC378	S1454613	2	1.9	U	0.95	-0.05129
00-BGC334	S1454609	2	1.9	U	0.95	-0.05129
00-BGA134	S1454589	0	1.89	U	0.945	-0.05657
00-BGC312	S1454607	2	1.89	U	0.945	-0.05657
00-BGA178	S1454593	0	1.88	U	0.94	-0.06188
00-BGC212	S1454605	2	1.85	U	0.925	-0.07796
00-BGC212	S1454618	2	1.84	U	0.92	-0.08338

Dichloroprop
Statistical Calculations

Dichloroprop (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGR378	S1454630	0	141		141	4.94876	47
00-BGA234	S1454597	0	138	U	69	4.234107	46
00-BGR134	S1454622	0	129	U	64.5	4.166665	45
00-BGR334	S1454626	0	129	U	64.5	4.166665	44
00-BGA212	S1454588	2	125	U	62.5	4.135167	43
00-BGA234	S1454601	2	125	U	62.5	4.135167	42
00-BGR312	S1454624	0	124	U	62	4.127134	41
00-BGC434	S1454616	0	122	U	61	4.110874	40
00-BGR112	S1454621	2	122	U	61	4.110874	39
00-BGR312	S1454636	0	122	U	61	4.110874	38
00-BGR134	S1454623	0	121	U	60.5	4.102643	37
00-BGA134	S1454590	2	120	U	60	4.094345	36
00-BGC434	S1454617	2	120	U	60	4.094345	35
00-BGA312	S1454599	0	119	U	59.5	4.085976	34
00-BGR112	S1454620	0	119	U	59.5	4.085976	33
00-BGR356	S1454629	2	119	U	59.5	4.085976	32
00-BGA134	S1454602	2	118	U	59	4.077537	31
00-BGC412	S1454614	0	118	U	59	4.077537	30
00-BGA312	S1454600	2	117	U	58.5	4.069027	29
00-BGC312	S1454606	0	117	U	58.5	4.069027	28
00-BGC334	S1454608	0	117	U	58.5	4.069027	27
00-BGR390	S1454632	0	117	U	58.5	4.069027	26
00-BGC212	S1454604	0	116	U	58	4.060443	25
00-BGC412	S1454615	2	116	U	58	4.060443	24
00-BGC356	S1454610	0	115	U	57.5	4.051785	23
00-BGR334	S1454627	2	115	U	57.5	4.051785	22
00-BGR412	S1454634	0	115	U	57.5	4.051785	21
00-BGR412	S1454635	2	115	U	57.5	4.051785	20
00-BGA156	S1454592	2	114	U	57	4.043051	19
00-BGA212	S1454587	0	114	U	57	4.043051	18
00-BGC356	S1454611	2	114	U	57	4.043051	17
00-BGR356	S1454628	0	114	U	57	4.043051	16
00-BGR378	S1454631	2	114	U	57	4.043051	15
00-BGA234	S1454598	2	113	U	56.5	4.034241	14
00-BGC312	S1454607	2	113	U	56.5	4.034241	13
00-BGR312	S1454625	2	113	U	56.5	4.034241	12
00-BGA156	S1454591	0	112	U	56	4.025352	11
00-BGA178	S1454594	2	112	U	56	4.025352	10
00-BGC378	S1454612	0	112	U	56	4.025352	9
00-BGR390	S1454633	2	112	U	56	4.025352	8
00-BGA134	S1454589	0	111	U	55.5	4.016383	7
00-BGC334	S1454609	2	111	U	55.5	4.016383	6
00-BGR356	S1454637	2	111	U	55.5	4.016383	5
00-BGA178	S1454593	0	110	U	55	4.007333	4
00-BGC378	S1454613	2	109	U	54.5	3.998201	3
00-BGC212	S1454605	2	108	U	54	3.988984	2
00-BGC212	S1454618	2	108	U	54	3.988984	1
Summary Statistics:					Mean	60.18085	

Dichloroprop
Statistical Calculations

	Standard Error	1.809525
	Median	58
	Mode	57
	Standard Deviation	12.40548
	Sample Variance	153.8959
	Kurtosis	41.42906
	Skewness	6.266864
	Range	87
	Minimum	54
	Maximum	141
	Sum	2828.5
	Count	47
	Confidence Level (95.0%)	3.642382
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**141**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**58.81914**

MCPA
Statistical Calculatins

MCPA (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGA234	S1454601	2	127000		127000	11.75194	47
00-BGA234	S1454598	2	73400	U	36700	10.51053	46
00-BGR134	S1454622	0	32200	U	16100	9.686575	45
00-BGR334	S1454626	0	32200	U	16100	9.686575	44
00-BGA212	S1454588	2	31200	U	15600	9.655026	43
00-BGR312	S1454624	0	31100	U	15550	9.651816	42
00-BGC434	S1454616	0	30500	U	15250	9.632335	41
00-BGR112	S1454621	2	30500	U	15250	9.632335	40
00-BGR312	S1454636	0	30400	U	15200	9.629051	39
00-BGR134	S1454623	0	30300	U	15150	9.625756	38
00-BGC434	S1454617	2	30100	U	15050	9.619133	37
00-BGA134	S1454590	2	30000	U	15000	9.615805	36
00-BGR112	S1454620	0	29800	U	14900	9.609116	35
00-BGA312	S1454599	0	29700	U	14850	9.605755	34
00-BGR356	S1454629	2	29700	U	14850	9.605755	33
00-BGC412	S1454614	0	29600	U	14800	9.602382	32
00-BGA134	S1454602	2	29500	U	14750	9.598998	31
00-BGA312	S1454600	2	29300	U	14650	9.592196	30
00-BGC312	S1454606	0	29300	U	14650	9.592196	29
00-BGC334	S1454608	0	29200	U	14600	9.588777	28
00-BGR390	S1454632	0	29200	U	14600	9.588777	27
00-BGC212	S1454604	0	29000	U	14500	9.581904	26
00-BGC412	S1454615	2	28900	U	14450	9.57845	25
00-BGR334	S1454627	2	28900	U	14450	9.57845	24
00-BGC356	S1454610	0	28800	U	14400	9.574983	23
00-BGR412	S1454634	0	28800	U	14400	9.574983	22
00-BGR412	S1454635	2	28800	U	14400	9.574983	21
00-BGA212	S1454587	0	28500	U	14250	9.564512	20
00-BGC356	S1454611	2	28500	U	14250	9.564512	19
00-BGR356	S1454628	0	28500	U	14250	9.564512	18
00-BGA156	S1454592	2	28400	U	14200	9.560997	17
00-BGC312	S1454607	2	28400	U	14200	9.560997	16
00-BGR378	S1454631	2	28400	U	14200	9.560997	15
00-BGR312	S1454625	2	28300	U	14150	9.55747	14
00-BGA178	S1454594	2	28000	U	14000	9.546813	13
00-BGR390	S1454633	2	28000	U	14000	9.546813	12
00-BGA156	S1454591	0	27900	U	13950	9.543235	11
00-BGC378	S1454612	0	27900	U	13950	9.543235	10
00-BGC334	S1454609	2	27800	U	13900	9.539644	9
00-BGR356	S1454637	2	27800	U	13900	9.539644	8
00-BGA134	S1454589	0	27700	U	13850	9.536041	7
00-BGR378	S1454630	0	27600	U	13800	9.532424	6
00-BGA178	S1454593	0	27500	U	13750	9.528794	5
00-BGC378	S1454613	2	27300	U	13650	9.521495	4
00-BGC212	S1454618	2	27000	U	13500	9.510445	3
00-BGC212	S1454605	2	26900	U	13450	9.506734	2
00-BGA234	S1454597	0	16800	U	8400	9.035987	1
Summary Statistics:				Mean	17251.06		

MCPA
Statistical Calculatins

	Standard Error	2437.752
	Median	14450
	Mode	14400
	Standard Deviation	16712.38
	Sample Variance	2.79E+08
	Kurtosis	42.90656
	Skewness	6.457407
	Range	118600
	Minimum	8400
	Maximum	127000
	Sum	810800
	Count	47
	Confidence Level (95.0%)	4906.935
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**127000**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**14650**

Methoxychlor
Statistical Calculations

Methoxychlor (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGR31	S1454636	0	29.4	U	14.7	2.687847	
00-BGA23	S1454597	0	23.6	U	11.8	2.4681	
00-BGR13	S1454622	0	21.8	U	10.9	2.388763	
00-BGR33	S1454626	0	21.8	U	10.9	2.388763	
00-BGA23	S1454601	2	21.4	U	10.7	2.370244	
00-BGA21	S1454588	2	21.3	U	10.65	2.36556	
00-BGR31	S1454624	0	21.1	U	10.55	2.356126	
00-BGR35	S1454629	2	21.1	U	10.55	2.356126	
00-BGC43	S1454616	0	21	U	10.5	2.351375	
00-BGA13	S1454590	2	20.5	U	10.25	2.327278	
00-BGR11	S1454621	2	20.5	U	10.25	2.327278	
00-BGC43	S1454617	2	20.4	U	10.2	2.322388	
00-BGR13	S1454623	0	20.4	U	10.2	2.322388	
00-BGR41	S1454634	0	20.3	U	10.15	2.317474	
00-BGR39	S1454632	0	20.2	U	10.1	2.312535	
00-BGA13	S1454602	2	20.1	U	10.05	2.307573	
00-BGA31	S1454599	0	20.1	U	10.05	2.307573	
00-BGC41	S1454614	0	20.1	U	10.05	2.307573	
00-BGA31	S1454600	2	20	U	10	2.302585	
00-BGR11	S1454620	0	20	U	10	2.302585	
00-BGR35	S1454628	0	20	U	10	2.302585	
00-BGC33	S1454608	0	19.9	U	9.95	2.297573	
00-BGC21	S1454604	0	19.8	U	9.9	2.292535	
00-BGR33	S1454627	2	19.8	U	9.9	2.292535	
00-BGR41	S1454635	2	19.8	U	9.9	2.292535	
00-BGC35	S1454610	0	19.7	U	9.85	2.287471	
00-BGC37	S1454612	0	19.7	U	9.85	2.287471	
00-BGR39	S1454633	2	19.7	U	9.85	2.287471	
00-BGA21	S1454587	0	19.6	U	9.8	2.282382	
00-BGC41	S1454615	2	19.6	U	9.8	2.282382	
00-BGA23	S1454598	2	19.4	U	9.7	2.272126	
00-BGR35	S1454637	2	19.4	U	9.7	2.272126	
00-BGR37	S1454630	0	19.4	U	9.7	2.272126	
00-BGA15	S1454592	2	19.3	U	9.65	2.266958	
00-BGA15	S1454591	0	19.2	U	9.6	2.261763	
00-BGA17	S1454594	2	19.2	U	9.6	2.261763	
00-BGC35	S1454611	2	19.2	U	9.6	2.261763	
00-BGR31	S1454625	2	19.2	U	9.6	2.261763	
00-BGR37	S1454631	2	19.1	U	9.55	2.256541	
00-BGC37	S1454613	2	19	U	9.5	2.251292	
00-BGC33	S1454609	2	19	U	9.5	2.251292	
00-BGA13	S1454589	0	18.9	U	9.45	2.246015	
00-BGC31	S1454607	2	18.9	U	9.45	2.246015	
00-BGA17	S1454593	0	18.8	U	9.4	2.24071	
00-BGC21	S1454605	2	18.5	U	9.25	2.224624	
00-BGC21	S1454618	2	18.4	U	9.2	2.219203	
00-BGC31	S1454606	0	17.5	U	8.75	2.169054	

Endosulfan II
Statistical Calculations

Endosulfan II (ug/kg)

Location ID	Sample ID	Depth (ft)	Result	Qualifier	X	Y=ln(X)	Rank
00-BGA212	S1454587	0	10.6		10.6	2.360854	47
00-BGA234	S1454597	0	4.58	U	2.29	0.828552	46
00-BGR134	S1454622	0	4.24	U	2.12	0.751416	45
00-BGR334	S1454626	0	4.24	U	2.12	0.751416	44
00-BGA234	S1454601	2	4.16	U	2.08	0.732368	43
00-BGA212	S1454588	2	4.13	U	2.065	0.72513	42
00-BGR312	S1454624	0	4.1	U	2.05	0.71784	41
00-BGR356	S1454629	2	4.1	U	2.05	0.71784	40
00-BGC434	S1454616	0	4.07	U	2.035	0.710496	39
00-BGR312	S1454636	0	3.99	U	1.995	0.690644	38
00-BGR112	S1454621	2	3.98	U	1.99	0.688135	37
00-BGA134	S1454590	2	3.97	U	1.985	0.685619	36
00-BGC434	S1454617	2	3.97	U	1.985	0.685619	35
00-BGR134	S1454623	0	3.97	U	1.985	0.685619	34
00-BGR412	S1454634	0	3.93	U	1.965	0.675492	33
00-BGR390	S1454632	0	3.92	U	1.96	0.672944	32
00-BGA134	S1454602	2	3.9	U	1.95	0.667829	31
00-BGA312	S1454599	0	3.9	U	1.95	0.667829	30
00-BGC412	S1454614	0	3.9	U	1.95	0.667829	29
00-BGR112	S1454620	0	3.89	U	1.945	0.665262	28
00-BGA312	S1454600	2	3.87	U	1.935	0.660107	27
00-BGC334	S1454608	0	3.87	U	1.935	0.660107	26
00-BGR356	S1454628	0	3.87	U	1.935	0.660107	25
00-BGR412	S1454635	2	3.85	U	1.925	0.654926	24
00-BGC212	S1454604	0	3.84	U	1.92	0.652325	23
00-BGC312	S1454606	0	3.84	U	1.92	0.652325	22
00-BGR334	S1454627	2	3.84	U	1.92	0.652325	21
00-BGR390	S1454633	2	3.83	U	1.915	0.649718	20
00-BGC356	S1454610	0	3.82	U	1.91	0.647103	19
00-BGC378	S1454612	0	3.82	U	1.91	0.647103	18
00-BGC412	S1454615	2	3.81	U	1.905	0.644482	17
00-BGA234	S1454598	2	3.77	U	1.885	0.633928	16
00-BGR356	S1454637	2	3.77	U	1.885	0.633928	15
00-BGR378	S1454630	0	3.76	U	1.88	0.631272	14
00-BGA156	S1454592	2	3.74	U	1.87	0.625938	13
00-BGC356	S1454611	2	3.73	U	1.865	0.623261	12
00-BGR312	S1454625	2	3.73	U	1.865	0.623261	11
00-BGA156	S1454591	0	3.72	U	1.86	0.620576	10
00-BGA178	S1454594	2	3.72	U	1.86	0.620576	9
00-BGR378	S1454631	2	3.71	U	1.855	0.617885	8
00-BGC334	S1454609	2	3.69	U	1.845	0.612479	7
00-BGC378	S1454613	2	3.68	U	1.84	0.609766	6
00-BGC312	S1454607	2	3.68	U	1.84	0.609766	5
00-BGA134	S1454589	0	3.67	U	1.835	0.607044	4
00-BGA178	S1454593	0	3.66	U	1.83	0.604316	3
00-BGC212	S1454605	2	3.59	U	1.795	0.585005	2
00-BGC212	S1454618	2	3.58	U	1.79	0.582216	1
Summary Statistics:					Mean	2.123404	

Endosulfan II
Statistical Calculations

	Standard Error	0.184794
	Median	1.925
	Mode	1.985
	Standard Deviation	1.266886
	Sample Variance	1.605
	Kurtosis	46.4374
	Skewness	6.795873
	Range	8.81
	Minimum	1.79
	Maximum	10.6
	Sum	99.8
	Count	47
	Confidence Level (95.0%)	0.371971
UTL(95,95) Nonparametric Distribution:	P =	0.95
	N =	47
	Z(5) =	1.644853
	U =	48.05767
	UTL(95,95) =	**10.6**
UCL(95,50) Nonparametric Distribution:	P =	0.5
	N =	47
	Z(5) =	1.644853
	U =	29.63827
	UCL(95,50) =	**1.95**