STATISTICAL EVALUATION OF ALLUVIAL GROUNDWATER QUALITY UPGRADIENT OF THE HOMESTAKE SITE NEAR GRANTS, NM

MOLYBDENUM
SELENIUM
URANIUM

Prepared for:

Homestake Mining Company of California
Grants Project
P. O. Box 98
Grants, NM 87020

Prepared by:

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EXCUTIVE SUMMARY

Molybdenum, selenium, and uranium are key contaminants introduced into the shallow groundwater as a result of the processing of uranium ore at the Homestake site, located near Grants, New Mexico. However, a natural source of these same constituents exists upgradient which influences natural background groundwater quality. The purpose of this report is to statistically characterize upgradient concentrations of molybdenum, selenium, and uranium in the alluvial aquifer and to propose statistical methods for determining whether alluvial wells located downgradient of the site have been impacted by contamination originating at the site.

Samples were collected at near and far upgradient wells from 1976 to 1998. Fifteen wells provided the upgradient well data while data from six far upgradient wells were used to construct that data set. Close examination of the groundwater database provided justification for elimination of select samples. Samples were eliminated based upon high detection limits, reported zero concentrations, and extreme maximum concentrations. Only a minor percentage of samples were eliminated; the completeness of the data set was not compromised.

Statistical analyses were preformed on the individual data sets (constituent and location specific) to determine distribution, statistical similarities between near and far upgradient data, and upper tolerance limits. Results of the distribution analysis indicated that all data sets were nonparametrically distributed. The molybdenum and uranium near and far upgradient background data sets were shown to be statistically similar and so analyses on the combined data set was performed.

The 95th percentile was calculated as the non-parametric upper tolerance limit for all analyzed data sets. The 95th percentile should be used to compare to downgradient well concentrations to determine if "above expected background concentrations" exist. If the downgradient concentration is greater than the 95th percentile, contamination may be indicated. However, it should be noted that since the 95th percentile was calculated as the upper tolerance limit, statistically 5% of the time one would expect the upper tolerance limit to be exceeded. Because the molybdenum and uranium near and far upgradient data sets were statistically similar, the combined data set 95th percentile should be representative of upgradient background concentrations. Because the selenium near and far upgradient data sets were not statistically similar, it is advised to use the near upgradient 95th percentile for downgradient well concentration comparisons. A summary table of the parameter, data set, distribution, 95th percentile, range, arithmetic mean and sample number is provided as Table ES-1.

Table ES-1. Summary Table for Upgradient Wells, Statistical Analysis

Parameter	Data Set	Distribution	95th Percentile	Range	Arithmetic Mean	Samples
Molybdenum	Near Upgradient	Nonparametric	0.054	<0.001 to 0.2	0.019	366
	Far Upgradient	Nonparametric	0.04	<0.01 to 0.07	0.018	42
	Combined	Nonparametric	0.05	<0.001 to 0.2	0.019	408
Selenium	Near Upgradient	Nonparametric	0.27	0.009 to 0.755	0.13	365
	Far Upgradient	Nonparametric	0.72	<0.005 to 0.79	0.3	42
Uranium	Near Upgradient	Nonparametric	0.147	0.003392 to 0.7208	0.05	366
	Far Upgradient	Nonparametric	0.18	0.001 to 0.192	0.07	42
	Combined	Nonparametric	0.16	0.001 to 0.7208	0.05	408

REPORT

1.0 INTRODUCTION

Molybdenum, selenium, and uranium are key contaminants introduced into the shallow groundwater as a result of the processing of uranium ore at the Homestake site, located near Grants, New Mexico. Because of their mobility, these constituents are used to track contaminant plume migration downgradient of the site. However, extensive mineralized areas upgradient of the site serve as a natural source of these same constituents in the alluvial groundwater. The purpose of this report is to statistically characterize upgradient concentrations of molybdenum, selenium, and uranium in the alluvial aquifer and to propose statistical methods for determining whether alluvial wells located downgradient of the site have been impacted by contamination originating at the site.

This report was prepared at the request of Homestake Mining Company. Homestake Mining Company provided the chemical analysis data, and George Hoffman from Hydro-Engineering, a contractor for the Homestake site, provided the well location map presented in this report as well as other valuable information, both printed and verbal, used in this assessment.

1.1 Monitor well network

Figure 1 shows the location of the fifteen upgradient monitor wells for which ground water quality data were provided. Alluvial wells DD, ND, P, P1, P2, P3, P4, Q, and R are located within approximately one mile of the site and are referred to in this report as near upgradient background wells, four of these wells (DD, P, Q, and R) have been sampled since 1976, data from well ND extends back to 1983, wells P1 and P2 have been sampled since 1992 and wells P3 and P4 were sampled for the first time in 1998. The sampling frequency varies by well and over time, but generally most of the near upgradient wells were sampled at least twice per year through 1998. These data were combined into a statistical set of data based upon geochemical similarities and knowledge of completion interval (Hoffman 1999).

Data from six additional wells farther upgradient of the site were also provided for this analysis. Wells 914, 916, 920, 921, 922, and 950 are located approximately two to three miles upgradient of the Homestake site and are collectively referred to in this report as far upgradient background wells. In addition to being located farther from the site, these wells were not installed by Homestake. Because completion logs are not available (personal communication, G. Hoffman) it cannot be determined whether these wells access alluvial groundwater, water from a deeper water bearing unit, or some combination from both groundwater sources. These wells have been sampled less frequently than the near upgradient wells. These data were combined into a statistical data set based upon upgradient placement in relation to the Homestake site and lack of completion interval knowledge.

A statistical comparison analyses between well sets was performed and the two data sets were combined into a single data set when statistically defensible.

1.2 Data preparation

The database provided for analysis consisted of six fields describing, well identification number, sample date, measured parameter, laboratory identification where the sample was processed, remark code (qualifiers) and concentration (mg/L).

Examination of the database revealed isolated problems with individual data values. For example, two molybdenum values reported as <0.1 mg/L were omitted as uninformative because typically molybdenum analyses were performed using a detection limit of 0.01 or 0.03 mg/L, and most upgradient molybdenum levels lie well below 0.1 mg/L. This data was from well P in November 1982 and from Well R in September 1992. A reported selenium concentration of 12 mg/L for well P on 2/27/91 was determined to be an error and was removed from the database. This concentration was determined to be the result of laboratory error. Two uranium measurements of exactly 0.00 mg/L were omitted (one was from Well P the other from Well R in September 1979). None of the removed data appears on any table in this report.

The laboratory code field entries in the database indicate that the majority of water samples were analyzed on-site (lab code Homestake), with frequent verification analyses provided by independent laboratories. When the dates reported for the on-site and verification results differed by only one or two days, the data were assumed to represent the same sampling round and one of the dates was changed to agree with the other. The database also includes rare cases of what appear to be replicate analyses of a water sample by the same laboratory. Replicate measurements were removed and replaced by a single data value equal to their arithmetic average. Master data tables and corrected data tables are provided for each constituent so all changes to the original set of data can be tracked.

Multiple measurements of constituent concentrations made by different laboratories on split or replicate samples of a well can be expected to be correlated, which violates the assumption of independence required by most statistical procedures. Therefore, as a last step before processing, the on-site and any verification lab results for a sampling round were averaged together to produce one value for the concentration of a constituent in each well on that date. This process equates the number of data to the number of sampling rounds for a well, and should produce more stable data with less noise.

The data used for statistical evaluation are presented for each constituent in tabular form in the back of this report.

2.0 METHODS

2.1 Distribution Analyses

A distribution analysis was performed to determine if a particular data set was parametric or non-parametric. The data first were subjected to an *a priori* screen (Section 2.1.1). The number of non-detects was then evaluated for the data set (Section 2.1.2). If greater than 15% non-detects existed, the data set was considered non-parametric and the distribution analysis was concluded. If fewer than 15% non-detects existed, the data were subjected to six numerical and two graphical procedures to determine the distribution type. The numerical procedures included the coefficient of variation (Section 2.1.3), the Studentized range test (Section 2.1.4), Geary's test (Section 2.1.5), the coefficient of skewness (Section 2.1.6), the Shapiro-Wilk Test of Normality if the sample size was less than or equal to 50 or the Shapiro-Francia test if the sample size was greater than 50 (Section 2.1.7), and Filliben's statistic (Section 2.1.8). The graphical procedures used were the histogram (Section 2.1.9) and the probability plot (Section 2.1.10). The results of the procedures were compared and the distribution was determined (Section 2.1.11). The T_n statistic was then calculated for the parametric data sets as a second screening mechanism for outliers (Section 2.1.12). If a data set contained fewer than 15% non-detects but failed the numerical and graphical procedures for a parametric distribution, the data set was often carried through to the T_n statistic procedure to determine if outliers were present. In some instances, outliers are identified and removed during the T_n statistic procedure causing a data set that had initially failed to pass the parametric numerical and graphical tests. If outliers were identified during the T_n statistical test, the outliers were removed and the mean and standard deviation were recalculated for the data set, and the distribution analysis was performed again.

2.1.1 Rejection of Outliers: *A Priori* Test

The *a priori* test is a screening test used to eliminate outliers before the distribution analysis is performed. This test is applied to all data whether parametric or non-parametric. An observation that is 4 or 5 times as large as the rest of the data is generally considered suspect (EPA 1989). Conservatively, for this *a priori* test, outliers are defined as maximum values greater than three times the next highest value. Non-transformed data are used for this screening test. If a data value fails the *a priori* test, it is removed from the data set for all following statistical analyses. The data point, however, must be explained as either potential sampling error, laboratory error, an anomalously high value, or some other factor contributing to an unexpectedly "high concentration".

2.1.2 Determination of Percent Non-detects

If the percentage of non-detects was less than 15%, the non-detect was replaced by the detection limit divided by two. A parametric distribution analyses was then performed on the modified data set. If the percentage of non-detects was greater than 15%, the distribution was considered non-parametric and a distribution analysis was not performed (EPA 1989, 1992).

2.1.3 Coefficient of Variation

The coefficient of variation (CV) is a unitless measure that determines dispersion for a set of data. The CV is commonly used in environmental statistical analyses because variability (expressed as a standard deviation) is often proportional to the mean. The CV may be used to determine whether or not the data follow a normal curve by comparing the sample CV to 1. EPA guidance (EPA 1998) suggests that the use of the CV is most valid if the data is non-negative. If the CV was greater than 1, the normality of the data was considered suspect. However, this method cannot be used to conclude the opposite, i.e. the distribution is normal if the CV is less than 1 (EPA 1998). This test was used as a preliminary screening test in conjunction with other more powerful distribution determining tests. The CV was calculated by dividing the standard deviation by the mean. Further information is provided in Guidance for Data Quality Assessment, Practical Methods for Data Analysis (EPA 1998).

The following formula is used to calculate CV:

$$CV = \frac{s}{\bar{X}}$$

where,

CV = coefficient of variation
s = standard deviation, and

$\bar{X}$ = sample mean

2.1.4 Studentized Range Test

Almost 100% of the area of a normal curve lies within +/-5 standard deviations from the mean. The Studentized range test for normality was developed based on this fact. This test compares the range of the sample (w) divided by the sample standard deviation (s) to a critical value range. If (w/s) exists outside of the critical value range, the data set fails the test. The Studentized range test does not perform well if the data are asymmetric. If the data appear to be lognormally distributed the test should not be applied (EPA 1998).

The following formula is used to perform the Studentized Range Test:

$$\frac{w}{s} = \frac{X_n - X_1}{s}$$

where,

w/s = sample range divided by the sample standard deviation
X_n = the maximum value of the data set
X_1 = the minimum value of the data set, and
s = the sample standard deviation

2.1.5 Geary's Test

Another numerical test utilized for normality testing was Geary's test. Geary's test uses the ratio of the mean deviation of the sample to the sample standard deviation. This ratio is then adjusted to approximate a standard normal distribution (EPA 1998). A "Z" value is calculated from the sample mean, the sample sum of squares, and the sum of absolute deviations. The "Z" value is then compared to a critical value such that if the absolute value of "Z" is greater than the critical value, the test indicates that the data do not follow a normal distribution.

The following formulas are used in Geary's Test. The first procedure is to calculate the sample mean:

$$\bar{X} = \frac{1}{n}\sum_{i=1}^{n} X_i$$

where,

$\bar{X}$ = the sample mean
X_i = the individual sample within the data set, and
n = the number of samples within the data set

The second procedure is to calculate the sample sum of squares:

$$SSS = \sum_{i=1}^{n} X_i^2 - \frac{\left(\sum_{i=1}^{n} X_i\right)^2}{n}$$

where,

SSS = sample sum of squares
X_i = the individual sample within the data set, and
n = the number of samples within the data set

The third procedure is to calculate the sum of absolute deviations:

$$SAD = \sum_{i=1}^{n} \left| X_i - \bar{X} \right|$$

where,

SAD = sum of the absolute deviations
$\bar{X}$ = the sample mean
X_i = the individual sample within the data set, and
n = the number of samples within the data set

The fourth procedure is to calculate Geary's test statistic:

$$a = \frac{SAD}{\sqrt{n(SSS)}}$$

where,

a = Geary's test statistic
SAD = sum of the absolute deviations
SSS = sample sum of squares, and
n = the number of samples within the data set

The final step in performing Geary's test is to test "a" for significance by computing:

$$Z = \frac{a - 0.7979}{0.2123/\sqrt{n}}$$

where,

Z = test of "a" for significance
a = Geary's test statistic, and
n = the number of samples within the data set

2.1.6 Coefficient of Skewness

The coefficient of skewness indicates to what degree a data set is skewed or asymmetric with respect to the mean. Data from a perfectly shaped normal distribution have a coefficient of skewness of zero, while asymmetric data have either positive or negative skewness depending on whether the right- or left-hand tail of the distribution is longer and "skinnier" than the opposite tail. A small degree of skewness (between -1 and +1) is not likely to affect the results of statistical tests based on an assumption of normality. However, if the coefficient of skewness is larger than 1 (in absolute value) and the sample size is small (e.g., n<25), statistical research has shown that standard normal theory-based tests are much less powerful than when the absolute skewness is less than 1 (Gayen, 1949). Therefore, it is considered a failure of the test for normality if the coefficient of skewness exceeds 1. The formula

for the coefficient of skewness γ_i is shown below, where n is the number of data points, x_i is an individual sample observation, $\bar{x}$ is the mean of the data set, and σ is the standard deviation.

$$\gamma_i = \frac{\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^3}{\left(\frac{n-1}{n}\right)^{\frac{3}{2}}(\sigma)^3}$$

The Coefficient of Skewness can also be used to evaluate whether the distribution of a data set is more normal or lognormal, based on the closeness of γ_i to zero.

2.1.7 Shapiro-Wilk (n<50) or Shapiro-Francia (n≥50) Test of Normality

The Shapiro-Wilk Test of Normality is based on the premise that, if a set of data is normally distributed, the ordered values should be highly correlative with corresponding quantiles taken from a normal distribution (Shapiro and Wilk, 1965). In particular, the Shapiro-Wilk Test of Normality gives substantial weight to evidence of non-normality in the tails of a distribution, where the robustness of statistical tests based on the normality assumption is the most severely affected (EPA, 1992).

The Shapiro-Wilk test statistic (W) will tend to be large (close to 1) when the data is normally distributed. Only when the plotted data show significant bends or curves will the test statistic be small. The Shapiro-Wilk Test of Normality is considered to be one of the best available tests of normality (Miller, 1986; Madansky, 1988).

The following formula is used to calculate W:

$$W = \left[\frac{b}{\sigma\sqrt{n-1}}\right]^2$$

where,

$$b = \sum_{i=1}^{k} b_i = \sum_{i=1}^{k} a_{n-i+1}\left(x_{(n-i+1)} - x_i\right)$$

and σ = standard deviation,
n = number of data points,
a_{n-i+1} = coefficients determined from Table A-1 in EPA (1992) for $3 \le n \le 50$
K = greatest integer less than or equal to n/2

Normality of the data should be rejected if the Shapiro-Wilk statistic is too low when compared to the critical values provided in Table A-2 (EPA, 1992). Otherwise, the data are assumed to be approximately normal for purposes of further statistical analysis.

The Shapiro-Francia Test of Normality is also based on the premise that, if a set of data is normally distributed, the ordered values should be highly correlative with corresponding quantiles taken from a normal distribution (Shapiro and Francia 1972).

The Shapiro-Francia test statistic (W') will tend to be large (close to 1) when the data is normally distributed. Only when the plotted data show significant bends or curves will the test statistic be small. Normality of the data should be rejected if the Shapiro-Francia statistic is below calculated critical values (EPA 1992). Otherwise, the data are assumed to be approximately normal for purposes of further statistical analysis.

The following formula is used to calculate W':

$$W' = \frac{\left[\Sigma_i m_i x_i\right]^2}{(n-1)SD^2 \Sigma_i m_i^2}$$

where,

W' = test statistic
x_i = represents the ith ordered value of the sample
n = the number of samples within the data set
SD = the sample standard deviation
m_i = the approximated expected value of the ith ordered Normal quantile.

The values for m_i can be approximately computed as

$$m_i = \Phi^{-1}\left(\frac{i}{n+1}\right)$$

where,

m_i = the approximated expected value of the ith ordered Normal quantile
Φ^{-1} = the inverse of the standard Normal distribution with zero mean and unit variance
n = the number of samples within the data set

2.1.8 Filliben's Statistic

Filliben's statistic is approximately equivalent to the Shapiro-Wilk and Shapiro-Francia tests as described by Filliben (1975). This test correlates well with the use of probability plots, because the essence of the test is to compute the common correlation coefficient for points on a probability plot (EPA 1992). Since the correlation coefficient is a measure of the linearity of the points on a scatterplot, Filliben's statistic will be high when the plotted points fall along a straight line and low when there are significant bends and curves in the probability plot. Comparison of the Shapiro-Wilk and Filliben's statistic has indicated very similar statistical power for detecting non-normality (Ryan and Joiner, 1976). Critical values for the correlation coefficient have been derived in EPA 1992. If the calculated value is less than the critical value, there is significant evidence of non-normality.

Filliben's statistic may be computed as:

$$r = \frac{\Sigma_{i=1}^{n} X_i M_i}{\left(\sqrt{\Sigma_i M_i^2}\right)(SD)\left(\sqrt{n-1}\right)}$$

where,

r = Filliben's statistic
X_i = represents the ith smallest ordered concentration value
n = the number of samples within the data set
SD = the sample standard deviation
M_i = the median of the ith order statistic from a standard Normal distribution.

The ith Normal order statistic median may be approximated as $M_i = \Phi^{-1}(m_i)$, where as before Φ^{-1} is the inverse of the standard Normal cumulative distribution and m_i can be can be computed as follows (given sample size n):

$$m_i = 1 - \left(0.5^{1/n}\right) \text{ for } i = 1$$

$$m_i = (i - 0.3175)/(n + 0.365) \text{ for } 1<i<n$$

$$m_i = 0.5^{1/n} \text{ for } i = n$$

2.1.9 Histograms

Histograms are useful for visually determining whether the data sets are skewed, and if so, in what direction. Histograms are created by determining the range of sample concentrations, then dividing the concentration range into equal intervals. Samples are then placed into the appropriate concentration intervals. The concentration range forms the x-axis. Calculating the percentage of samples per concentration interval compared to the total number of samples, or simply plotting the number of data values that fall within an interval, provides the y-axis in terms of percent frequency or frequency, respectively, of a particular concentration interval.

2.1.10 Probability Plots

Another simple and useful graphical test for determining normality is to plot the data on probability paper. The y-axis is scaled to represent probabilities according to the normal distribution, and the data are arranged in increasing order. An observed value is plotted on the x-axis, and the proportion of observations less than or equal to each observed value is plotted as the y-coordinate. The scale is constructed so that, if the data are normal, the points when plotted will approximate a straight line. Visually apparent curves or bends indicate that the data do not follow a normal distribution (EPA, 1992).

Probability plots are particularly useful for spotting irregularities within the data when compared to a specific distributional model such as the normal distribution. It is easy to determine whether departures from normality are occurring more or less in the middle ranges of the data or in the extreme tails. Probability plots can also indicate the presence of possible outlier values that do not follow the basic pattern of the data and can show the presence of significant positive or negative skewness.

The probability for a particular data value x is calculated as

$$\text{Probability} = 100*((i-3/8)/(n+1/4))$$

where,

i = ranked order of x_i from i to n
n = number of samples

2.1.11 Determination of Distribution

Upon completion of the *a priori* screen, percent non-detect determination, and graphical and numerical distribution analysis, a determination of the distribution was made (EPA, 1992).

2.1.12 The T_n Statistic Test

The T_n Statistic test was performed on the near and far upgradient background data after the *a priori* screen and initial distribution analysis had been completed. The test was run iteratively until the largest remaining value in the

data set passed. If a particular data set had fewer than 15% non-detects but failed the parametric distribution tests, it was often carried over to the T_n Statistic and analyzed using the parametric distribution that it most closely resembled. In some instances, identification and removal of outliers during the T_n Statistic procedure allows for the previously failed data set to pass the parametric numerical and graphical tests. If failures were reported during the T_n statistical test, the values were removed and the mean and standard deviation were recalculated on the censored data set. Failures of the T_n Statistic are defined as T_n calculated values that exceed the critical value (EPA, 1989). The censored data set was then used for all additional statistical tests. (Removed data points are considered either potential sampling error, laboratory error, an anomalously high value, or some other factor contributing to an unexpectedly large concentration).

To calculate the T_n statistic, the following formula is used:

$$T_n = \frac{(x_n - \bar{x})}{\sigma}$$

where

$T_n = T_n$ statistic,
x_n = individual sample,
$\bar{x}$ = mean of sample set, and
σ = standard deviation.

2.1.13 Determination of Upper Tolerance Limit

This section describes two methods, one for parametric data and the other for non-parametric data that establish the maximum expected background concentration using a 95 percent confidence limit. A parametric upper tolerance limit (Section 2.1.13.1) is calculated for parametric data sets, while a 95th percentile (considered a non-parametric upper tolerance limit)(Section 2.1.13.2) is calculated for non-parametric data sets.

2.1.13.1 Parametric Upper Tolerance Limit

A tolerance interval establishes a concentration range that is constructed to contain a specified proportion (P%) of the population with a specified confidence coefficient, Y. The proportion of the population included, P, is referred to as the coverage. The probability with which the tolerance interval includes the proportion P% of the population is referred to as the tolerance coefficient.

A coverage of 95% was used as recommended by EPA (1989). By using this coverage, random observations from the same distribution would exceed the upper tolerance limit less than 5% of the time. Similarly, a tolerance coefficient of 95% was used. This means that there is a confidence level of 95% that the upper 95% tolerance limit would contain at least 95% of the distribution of observations from background groundwater data. These values were chosen to be consistent with the performance standards described in Section 2 of EPA 1989.

Tolerance intervals were constructed assuming that the data or the transformed data were normally distributed.

The formula for the UTL is as follows:

$$UTL = \bar{x} + t_{.05(n-1)} \cdot \sigma$$

where

$\bar{x}$ = the mean of the population,
$t_{.05(n-1)}$ is one-sided tolerance factor for n (Table 5, Appendix B, EPA 1989), and
σ = the standard deviation

2.1.13.2 95th Percentile

For non-parametric data sets, the 95th percentile value was used for expressing the upper range of background. The 95th percentile indicated that 95 percent of the data would be expected to be below that value, while 5 percent would be above the value. The calculated background was therefore insensitive to the magnitude of the largest 5 percent of the data points.

Percentiles can be calculated in several similar manners. EPA 1998 provides one method of calculating percentiles. The 95th percentile presented in this report was calculated electronically by the Microsoft Excel software program (Microsoft 1992).

2.2 Comparison Test

2.2.1 Introduction

A comparison test was performed between near upgradient and far upgradient data sets to determine if the two data sets were statistically similar. If the data sets were similar, then the data sets were combined to determine the upper tolerance limit for the larger data set. If the near and far upgradient data sets did not compare statistically, the data sets were not combined.

Comparison tests are of two basic types: parametric and non-parametric. Only a non-parametric test was applied to the Homestake background data. This test was the Wilcoxon Rank-sum test.

2.2.2. Wilcoxon Rank Sum Test

The Wilcoxon-Rank Sum (WRS) Test is a powerful nonparametric test to determine if data sets are statistically similar (EPA 1992). As a general rule, the WRS test should be used with caution if more than about 40% of the measurements are non-detects. All data were subjected to the WRS test in this analysis with the knowledge that the test power was greatly reduced when the non-detect percent was greater than 40.

In general the WRS test is performed by combining two data sets and ranking that set from highest to lowest. The ranked sum of each set is compared to determine if one set is statistically different than the other. A statistical software package (STATGRAPHICS) (Manugistics 1998) was used to perform this two-way procedure.

3.0 MOLYBDENUM

3.1 Introduction

Molybdenum concentration data for near upgradient wells are characterized by a high frequency of nondetects at laboratory detection limits of 0.03, 0.01, and 0.001 mg/L. Approximately 16 percent of measurements from these wells exceed the NRC site standard of 0.03 mg/L, with exceedences ranging from 0.03 to 0.2 mg/L. Only two of 408 (0.5 percent) measurements exceed 0.10 mg/L.

Molybdenum concentration data for far upgradient wells are also characterized by a high percentage of nondetects at laboratory detection limits of 0.03 and 0.01 mg/L. Approximately 14 percent of measurements from these wells exceed the NRC site standard of 0.03 mg/L, with exceedences ranging from 0.03 to 0.07 mg/L. No measurements from the far upgradient wells exceeded 0.10 mg/L.

Table 1 summarizes data for both near upgradient and far upgradient background wells.

3.2 Molybdenum Near Upgradient

Table 2 presents the molybdenum near upgradient background data set with the data not corrected for non-detects or duplicates. Tables 3 through 10 present the sampling date and the final data set (corrected for non-detects and duplicates for the near upgradient background wells. Finally, Table 11 is a summary table of all the final data sets for the near upgradient wells used in the statistical analyses. A distribution analysis was first performed for the molybdenum data. Then the 95th upper tolerance limit was calculated.

3.2.1 Distribution Analysis Results

3.2.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 12. No outliers were determined or eliminated from the molybdenum near upgradient background data set.

3.2.1.2 Determination of Percent Non-detects

Because the near upgradient molybdenum data had 40% non-detects, the data were considered to be nonparametric (EPA 1989)(Table 1). Thus, no more distribution tests were applied to the data.

3.2.2. Determination of Upper Tolerance Limit

3.2.2.1 95th Percentile

Because the data was determined to be nonparametrically distributed (due to greater than 15% non-detects), the 95th percentile of the data was calculated. The 95th percentile was determined to be 0.054 mg/L (Table 13). The molybdenum near upgradient background data set summary table is presented as Table 14.

3.3 Molybdenum Far Upgradient Distribution Analysis Results

Table 15 presents the molybdenum far upgradient background data set with the data not corrected for non-detects or duplicates. Tables 16 through 21 present the sampling date and the final data set (corrected for non-detects and duplicates for the far upgradient background wells. Finally, Table 22 is a summary table of all the final data sets for the far upgradient wells used in the statistical analyses. A distribution analysis was first performed for the molybdenum data. Then the 95th upper tolerance limit was calculated.

3.3.1 Distribution Analysis Results

3.3.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 23. No outliers were determined or eliminated from the molybdenum far upgradient background data set.

3.3.1.2 Determination of Percent Non-detects

Because the far upgradient molybdenum data had 86% non-detects, the data were considered to be nonparametric (EPA 1989) (Table 1). Thus, no more distribution tests were applied to the data.

3.3.2 Determination of Upper Tolerance Limit

3.3.2.1 95th Percentile

Because the data was determined to be nonparametrically distributed (due to greater than 15% non-detects), the 95th percentile of the data was calculated. The 95th percentile was determined to be 0.040 mg/L (Table 24). The molybdenum far upgradient background data set summary table is presented as Table 25.

3.4 Molybdenum Near and Far Upgradient Comparison Statistics Results

The molybdenum near upgradient background data set was statistically similar to the molybdenum far upgradient background data set (Table 26). Thus, distribution fitting and an upper tolerance limit calculation was performed on the combined data set.

3.5 Molybdenum Combined Distribution Analysis Results

Table 27 is a summary table of all the final data sets for the combined upgradient wells used in the statistical analyses. A distribution analysis was first performed for the molybdenum data. Then the 95th upper tolerance limit was calculated.

3.5.1 Distribution Analysis Results

3.5.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 28. No outliers were determined or eliminated from the molybdenum combined upgradient background data set.

3.5.1.2 Determination of Percent Non-detects

Because the combined upgradient molybdenum data had over 40% non-detects, the data were considered to be nonparametric (EPA 1989) (Table 1). Thus, no more distribution tests were applied to the data.

3.5.2 Determination of Upper Tolerance Limit

3.5.2.1 95th Percentile

Because the data was determined to be nonparametrically distributed (due to greater than 15% non-detects), the 95th percentile of the data was calculated. The 95th percentile was determined to be 0.05 mg/L (Table 29). The molybdenum combined upgradient background data set summary table is presented as Table 30.

4.0 SELENIUM

4.1 Introduction

Selenium concentrations measured in near upgradient wells range from 0.009 mg/L to 0.755 mg/L. Less than five percent of measurements are below detection, and slightly above half of all measurements from the near upgradient wells lie above the NRC site standard of 0.10 mg/L with exceedances ranging from 0.1 to 0.755. Table 31 provides a statistical summary of the data by well for both near upgradient and far upgradient wells.

Selenium concentrations measured in far upgradient wells range from <0.005 to 0.79 mg/L. Approximately 16% of the data for the far upgradient wells are nondetect. Approximately 60 percent of measurements from these wells exceed the NRC site standard of 0.10 mg/L, with exceedences ranging from 0.276 to 0.79 mg/L. Though typically when non-detects exceed 15% of the data set only non-parametric statistics are applied, because the percent non-detect was so close to 15, parametric distribution analyses were still performed.

4.2 Selenium Near Upgradient

Table 32 presents the selenium near upgradient background data set with the data not corrected for non-detects or duplicates. Tables 33 through 40 present the sampling date and the final data set (corrected for non-detects and duplicates for the near upgradient background wells. Finally, Table 41 is a summary table of all the final data sets for the near upgradient wells used in the statistical analyses. A distribution analysis was first performed for the molybdenum data. Then the 95th upper tolerance limit was calculated.

4.2.1 Distribution Analysis Results

4.2.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 42. No outliers were determined or eliminated from the selenium near upgradient background data set.

4.2.1.2 Determination of Percent Non-detects

Because the near upgradient selenium data set had less than 15% non-detects, distribution tests were applied to the data (Table 31).

4.2.1.3 Coefficient of Variation

Both the normal and log-transformed data sets passed the CV screen (Table 43). The CV value was 0.73 for the normal data and –0.41 for the log-transformed data compared to the critical value of 1. According to EPA 1998, if the CV is less than 1, the data may be, but does not necessarily have to be normal.

4.2.1.4 Studentized Range Test

The normal data set failed the Studentized range test (Table 44). The range (w) divided by the standard deviation (s) produced a result of 8.05. The critical value range was 5.47 to 6.94. When (w/s) falls outside the critical range, it implies that the data are not well modeled by a normal curve (EPA 1998).

4.2.1.5 Geary's Test

Both the normal and log-transformed data sets failed Geary's test (Table 45). The calculated "Z" values were –2.0 and –2.9 respectively, while the critical value is 1.645. Because the absolute value of "Z" was

4.2.1.6 Coefficient of Skewness

Both the normal and log-transformed data sets failed the coefficient of skewness test (Table 46). The calculated coefficient of skewness was 1.7 for the normal set and –1.1 for the log-transformed data set compared to an acceptable range of –1 to 1. Because the coefficient of skewness is greater than 1, the normal distribution may provide a poor approximation to the data set (EPA 1992).

4.2.1.7 Shapiro-Francia (n≥50) Test of Normality

Both data sets failed the Shapiro-Francia test (Table 47). Though the critical value for the test could not be precisely determined, it is evident from comparison of tabulated critical values to n that the critical value approaches 1 as n increases. The critical value for n=99 is 0.975 for 95% confidence. The calculated W' for the normal data was 0.88, for the log-transformed data it was 0.90. Therefore, normality of the data was rejected (EPA 1992).

4.2.1.8 Filliben's Statistic

Both data sets failed Filliben's Statistic (Table 48). Though the critical value for the test could not be precisely determined, it is also evident from comparison of tabulated critical values to n that the critical value approaches 1 as n increases. The critical value for n=100 is 0.987 for 95% confidence. The calculated test statistic for the normal data was 0.937, for the log-transformed data it was 0.950. Therefore, normality of the data was rejected (EPA 1992).

4.2.1.9 Histograms

Figure 2 depicts the histogram for the normal data set. The figure depicts a fair distribution "fit" with right skewness implying that the normal distribution could provide a poor approximation to the data set. Figure 3 depic the histogram for the log-transformed data set. This figure also depicts a fair distribution "fit" with left skewness implying that the normal distribution could provide a poor approximation to the data set

4.2.1.10 Probability Plots

Figure 4 shows the probability plot for the normal data set. There are two sharp breaks in the plot, one near the detection limit, the other near 0.4 mg/l. This probability plot depicts a poor normal distribution "fit", implying the normal distribution will provide a poor approximation to the data set. Figure 5 is the probability plot for the log-transformed data set. There are at least four breaks in the plot. This probability plot also depicts a poor normal distribution "fit", with the same implication as above.

4.2.1.11 Determination of Distribution

Based on the distribution analysis results, the selenium near upgradient background data set is non-parametric (Table 49).

4.2.1.12 The T_n Statistic Test

Though the data set was determined to be nonparametric, the T_n statistic outlier test was applied to the log-transformed data set. The log-transformed data set was selected because it approximated normality better than the non-transformed data set. No outliers were detected using the T_n statistic (Table 50).

4.2.2. Determination of Upper Tolerance Limit

4.2.2.1 95th Percentile

Because the data was determined to be non-parametrically distributed, the 95th percentile of the data was calculated. The 95th percentile was determined to be 0.27 mg/L (Table 51). The selenium near upgradient background data set summary table is presented as Table 52.

4.3 Selenium Far Upgradient Distribution Analysis Results

Table 53 presents the selenium far upgradient background data set with the data not corrected for non-detects or duplicates. Tables 54 through 59 present the sampling date and the final data set (corrected for non-detects and duplicates for the far upgradient background wells. Finally, Table 60 is a summary table of all the final data sets for the far upgradient wells used in the statistical analyses. A distribution analysis was first performed for the selenium data. Then the 95th upper tolerance limit was calculated.

4.3.1 Distribution Analysis Results

4.3.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 61. No outliers were determined or eliminated from the selenium far upgradient background data set.

4.3.1.2 Determination of Percent Non-detects

Because the far upgradient selenium data set had only slightly more than 15% non-detects, distribution tests were applied to the data (Table 31).

4.3.1.3 Coefficient of Variation

Both the normal and log-transformed data sets passed the CV screen (Table 62). The CV value was 0.88 for the normal data and –0.88 for the log-transformed data compared to the critical value of 1. According to EPA 1998, if the CV is less than 1, the data may be, but does not necessarily have to be normal.

4.3.1.4 Studentized Range Test

The normal data set failed the Studentized range test (Table 63). The range (w) divided by the standard deviation (s) produced a result of 3.03. The critical value range was 3.75 to 5.26. When (w/s) falls outside the critical range, it implies that the data are not well modeled by a normal curve (EPA 1998).

4.3.1.5 Geary's Test

Both the normal and log-transformed data sets failed Geary's test (Table 64). The calculated "Z" values were 3.2 and 4.5 respectively, while the critical value is 1.645. Because the absolute value of "Z" was greater than the associated critical value, it implies that the data are not well modeled by a normal curve (EPA 1998).

4.3.1.6 Coefficient of Skewness

Both the normal and log-transformed data sets passed the coefficient of skewness test (Table 65). The calculated coefficient of skewness was 0.1 for the normal set and –0.5 for the log-transformed data set compared to an acceptable range of –1 to 1. Because the coefficient of skewness was less than 1, the normal distribution may accurately approximate the data set (EPA 1992).

4.3.1.7 Shapiro-Wilk (n<50)

Both data sets failed the Shapiro-Wilk test (Table 66). The calculated W for the normal data was 0.85, for the log-transformed data it was 0.77 compared to a critical value of 0.942. Therefore, normality of the data was rejected (EPA 1992).

4.3.1.8 Filliben's Statistic

Both data sets failed Filliben's Statistic (Table 67). The calculated test statistic for the normal data was 0.934, for the log-transformed data it was 0.893 compared to a critical value of 0.973. Therefore, normality of the data was rejected (EPA 1992).

4.3.1.9 Histograms

Figure 6 depicts the histogram for the normal data set. The figure depicts a poor distribution "fit" implying that the normal distribution could provide a poor approximation to the data set. Figure 7 depicts the histogram for the log-transformed data set. This figure also depicts a poor distribution "fit" also implying that the normal distribution could provide a poor approximation to the data set

4.3.1.10 Probability Plots

Figure 8 shows the probability plot for the normal data set. There is at least two sharp breaks in the plot. This probability plot depicts a poor normal distribution "fit", implying the normal distribution will provide a poor approximation to the data set. Figure 9 is the probability plot for the log-transformed data set. There are at least four breaks in the plot. This probability plot also depicts a poor normal distribution "fit", with the same implica as above.

4.3.1.11 Determination of Distribution

Based on the distribution analysis results, the selenium far upgradient background data set is non-parametric (Table 68).

4.3.1.12 The T_n Statistic Test

Though the data set was determined to be nonparametric, the T_n statistic outlier test was applied to the normal data set. The normal data set was selected because it approximated normality better than the log-transformed data set. No outliers were detected using the T_n statistic (Table 69).

4.3.2 Determination of Upper Tolerance Limit

4.3.2.1 95th Percentile

Because the data was determined to be non-parametrically distributed, the 95th percentile of the data was calculated. The 95th percentile was determined to be 0.72 mg/L (Table 70). The selenium far upgradient background data set summary table is presented as Table 71.

4.4 Selenium Near and Far Upgradient Comparison Statistics Results

The selenium near upgradient background data set was not statistically similar to the selenium far upgradient background data set (Table 72). Thus, distribution fitting and an upper tolerance limit calculation was not performed on the combined data set.

5.0 URANIUM

5.1 Introduction

Uranium concentrations measured in the near upgradient wells range from 0.003392 to 0.7208 mg/L. The highest uranium concentrations are found in samples from well DD, where 96 percent of measurements exceed the NRC site standard of 0.04 mg/L. Other wells also show exceedences of the standard, and overall 46 percent of measurements in near upgradient wells are above the 0.04 mg/L NRC standard.

Uranium concentrations measured in the far upgradient wells range from 0.001 to 0.192 mg/L. The highest uranium concentrations are found in samples from wells 920 , 921 and 950, where over 80 percent of measurements exceed the NRC site standard of 0.04 mg/L. No other wells show exceedences of the standard, and overall approximately 53 percent of measurements in the far upgradient wells are above the 0.04 mg/L NRC standard.

Table 73 provides a statistical summary of the uranium data by well for both near upgradient and far upgradient wells.

5.2 Uranium Near Upgradient

Table 74 presents the uranium near upgradient background data set with the data not corrected for non-detects or duplicates. Tables 75 through 82 present the sampling date and the final data set (corrected for non-detects and duplicates for the near upgradient background wells. Finally, Table 83 is a summary table of all the final data sets for the near upgradient wells used in the statistical analyses. A distribution analysis was first performed for the uranium data. Then the 95th upper tolerance limit was calculated.

5.2.1 Distribution Analysis Results

5.2.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 84. No outliers were determined or eliminated from the uranium near upgradient background data set.

5.2.1.2 Determination of Percent Non-detects

Because the near upgradient uranium data less than 15% non-detects, distribution tests were applied to the data (Table 73).

5.2.1.3 Coefficient of Variation

The log-transformed data set passed the CV screen (Table 85). The normal data set failed the CV test. The CV value was 1.09 for the normal data and –0.29 for the log-transformed data compared to the critical value of 1. According to EPA 1998, if the CV is less than 1, the data may be, but does not necessarily have to be normal.

5.2.1.4 Studentized Range Test

The normal data set failed the Studentized range test (Table 86). The range (w) divided by the standard deviation (s) produced a result of 12.72. The critical value range was 5.47 to 6.94. When (w/s) falls outside the critical range, it implies that the data are not well modeled by a normal curve (EPA 1998).

5.2.1.5 Geary's Test

Both the normal and log-transformed data sets failed Geary's test (Table 87). The calculated "Z" values were –16.6 and –3.9 respectively, while the critical value is 1.645. Because the absolute value of "Z" was greater than the associated critical value, it implies that the data are not well modeled by a normal curve (EPA 1998).

5.2.1.6 Coefficient of Skewness

The normal data set failed the coefficient or skewness test while the log-transformed data set passed (Table 88). The calculated coefficient of skewness was 5.4 for the normal set and –0.4 for the log-transformed data set compared to an acceptable range of –1 to 1. Because the coefficient of skewness was less than 1 for the log-transformed data set, the normal distribution may accurately approximate the data set (EPA 1992).

5.2.1.7 Shapiro-Francia ($n \geq 50$) Test of Normality

Both data sets failed the Shapiro-Francia test (Table 89). Though the critical value for the test could not be precisely determined, it is evident from comparison of tabulated critical values to n that the critical value approaches 1 as n increases. The critical value for n=99 is 0.975 for 95% confidence. The calculated W' for the normal data was 0.62, for the log-transformed data it was 0.96. Therefore, normality of the data was rejected (EPA 1992).

5.2.1.8 Filliben's Statistic

Both data sets failed Filliben's Statistic (Table 90). Though the critical value for the test could not be precisely determined, it is also evident from comparison of tabulated critical values to n that the critical value approaches 1 as n increases. The critical value for n=100 is 0.987 for 95% confidence. The calculated test statistic for the normal data was 0.790, for the log-transformed data it was 0.982. Therefore, normality of the data was rejected (EPA 1992).

5.2.1.9 Histograms

Figure 10 depicts the histogram for the normal data set. The figure depicts a poor distribution "fit" implying that the normal distribution could provide a poor approximation to the data set. Figure 11 depicts the histogram for the log-transformed data set. This figure depicts a good distribution "fit" implying that the normal distribution could provide a representative approximation to the data set

5.2.1.10 Probability Plots

Figure 12 shows the probability plot for the normal data set. There is at least three sharp breaks in the plot. This probability plot depicts a poor normal distribution "fit", implying the normal distribution will provide a poor approximation to the data set. Figure 13 is the probability plot for the log-transformed data set. There are at least two breaks in the plot. This probability plot depicts a fair to poor normal distribution "fit", with the same implication as above.

5.2.1.11 Determination of Distribution

Based on the distribution analysis results, the uranium near upgradient background data set is non-parametric (Table 91).

5.2.1.12 The T_n Statistic Test

Though the data set was determined to be nonparametric, the T_n statistic outlier test was applied to the log-transformed data set. The log-transformed data set was selected because it approximated normality better than the normal data set. No outliers were detected using the T_n statistic (Table 92).

5.2.2 Determination of Upper Tolerance Limit

5.2.2.1 95th Percentile

Because the data was determined to be non-parametrically distributed, the 95th percentile of the data was calculated. The 95th percentile was determined to be 0.147 mg/L (Table 93). The uranium near upgradient background data set summary table is presented as Table 94.

5.3 Uranium Far Upgradient Distribution Analysis Results

Table 95 presents the uranium far upgradient background data set with the data not corrected for non-detects or duplicates. Tables 96 through 101 present the sampling date and the final data set (corrected for non-detects and duplicates for the near upgradient background wells. Finally, Table 102 is a summary table of all the final data sets for the near upgradient wells used in the statistical analyses. A distribution analysis was first performed for the uranium data. Then the 95th upper tolerance limit was calculated.

5.3.1 Distribution Analysis Results

5.3.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 103. No outliers were determined or eliminated from the uranium far upgradient background data set.

5.3.1.2 Determination of Percent Non-detects

Because the far upgradient uranium data set had only slightly more than 15% non-detects, distribution tests were applied to the data (Table 73).

5.3.1.3 Coefficient of Variation

Both the normal and log-transformed data sets passed the CV screen (Table 104). The CV value was 0.99 for the normal data and –0.45 for the log-transformed data compared to the critical value of 1. According to EPA 1998, if the CV is less than 1, the data may be, but does not necessarily have to be normal.

5.3.1.4 Studentized Range Test

The normal data set failed the Studentized range test (Table 105). The range (w) divided by the standard deviation (s) produced a result of 2.83. The critical value range was 3.75 to 5.26. When (w/s) falls outside the critical range, it implies that the data are not well modeled by a normal curve (EPA 1998).

5.3.1.5 Geary's Test

Both the normal and log-transformed data sets failed Geary's test (Table 106). The calculated "Z" values were 3.1 and 3.6 respectively, while the critical value is 1.645. Because the absolute value of "Z" was greater than the associated critical value, it implies that the data are not well modeled by a normal curve (EPA 1998).

5.3.1.6 Coefficient of Skewness

Both the normal and log-transformed data sets passed the coefficient of skewness test (Table 107). The calculated coefficient of skewness was 0.5 for the normal set and –0.3 for the log-transformed data set compared to an acceptable range of –1 to 1. Because the coefficient of skewness was less than 1, the normal distribution may accurately approximate the data set (EPA 1992).

5.3.1.7 Shapiro-Wilk (n<50) Test of Normality

Both data sets failed the Shapiro-Wilk test (Table 108). The calculated W for the normal data was 0.83, for the log-transformed data it was 0.88 compared to a critical value of 0.942. Therefore, normality of the data was rejected (EPA 1992).

5.3.1.8 Filliben's Statistic

Both data sets failed Filliben's Statistic (Table 109). The calculated test statistic for the normal data was 0.924, for the log-transformed data it was 0.951 compared to a critical value of 0.973. Therefore, normality of the data was rejected (EPA 1992).

5.3.1.9 Histograms

Figure 14 depicts the histogram for the normal data set. The figure depicts a poor distribution "fit" implying that the normal distribution could provide a poor approximation to the data set. Figure 15 depicts the histogram for the log-transformed data set. This figure also depicts a poor distribution "fit" also implying that the normal distribution could provide a poor approximation to the data set

5.3.1.10 Probability Plots

Figure 16 shows the probability plot for the normal data set. There is at least two sharp breaks in the plot. This probability plot depicts a fair to poor normal distribution "fit", implying the normal distribution will provide a poor approximation to the data set. Figure 17 is the probability plot for the log-transformed data set. There are at least two breaks in the plot. This probability plot also depicts a poor normal distribution "fit", with the same implication as above.

5.3.1.11 Determination of Distribution

Based on the distribution analysis results, the uranium far upgradient background data set is non-parametric (Table 110).

5.3.1.12 The T_n Statistic Test

Though the data set was determined to be nonparametric, the T_n statistic outlier test was applied to the log-transformed data set. The log-transformed data set was selected because it approximated normality better than the normal data set. No outliers were detected using the T_n statistic (Table 111).

5.3.2 Determination of Upper Tolerance Limit

5.3.2.1 95th Percentile

Because the data was determined to be non-parametrically distributed, the 95th percentile of the data was calculate The 95th percentile was determined to be 0.18 mg/L (Table 112). The uranium far upgradient background data se summary table is presented as Table 113.

5.4 Uranium Near and Far Upgradient Comparison Statistics Results

The uranium near upgradient background data set was statistically similar to the uranium far upgradient background data set (Table 114). Thus, distribution fitting and an upper tolerance limit calculation was performed on the combined data set.

5.5 Uranium Combined

Table 115 is a summary table of all the final data sets for the near upgradient wells used in the statistical analyses. A distribution analysis was first performed for the uranium data. Then the 95th upper tolerance limit was calculated.

5.5.1 Distribution Analysis Results

5.5.1.1 Rejection of Outliers: *A Priori* Test

Results of the *a priori* test are presented in Table 116. No outliers were determined or eliminated from the uranium combined upgradient background data set.

5.5.1.2 Determination of Percent Non-detects

Because the combined upgradient uranium data had less than 15% non-detects, distribution tests were applied to the data (Table 73).

5.5.1.3 Coefficient of Variation

The normal data set failed the CV screen while the log-transformed data set passed (Table 117). The CV value was 1.08 for the normal data and –0.31 for the log-transformed data compared to the critical value of 1. According to EPA 1998, if the CV is less than 1, the data may be, but does not necessarily have to be normal.

5.5.1.4 Studentized Range Test

The data set failed the Studentized range test (Table 118). The range (w) divided by the standard deviation (s) produced a result of 12.46. The critical value range was 5.47 to 6.94. When (w/s) falls outside the critical range, it implies that the data are not well modeled by a normal curve (EPA 1998).

5.5.1.5 Geary's Test

Both the normal and log-transformed data sets failed Geary's test (Table 119). The calculated "Z" values were -13.8 and –2.9 respectively, while the critical value is 1.645. Because the absolute value of "Z" was greater than the associated critical value, it implies that the data are not well modeled by a normal curve (EPA 1998).

5.5.1.6 Coefficient of Skewness

The normal data set failed the coefficient of skewness test while the log-transformed data set passed (Table 120). The calculated coefficient of skewness was 4.6 for the normal set and –0.5 for the log-transformed data set compared to an acceptable range of –1 to 1. Because the coefficient of skewness was less than 1 for the log-transformed data set, the normal distribution may accurately approximate that data set (EPA 1992).

5.5.1.7 Shapiro-Francia (n≥50) Test of Normality

Both data sets failed the Shapiro-Francia test (Table 121). Though the critical value for the test could not be precisely determined, it is evident from comparison of tabulated critical values to n that the critical value approaches 1 as n increases. The critical value for n=99 is 0.975 for 95% confidence. The calculated W' for the normal data was 0.67, for the log-transformed data it was 0.966. Therefore, normality of the data was rejected (EPA 1992).

5.5.1.8 Filliben's Statistic

Both data sets failed Filliben's Statistic (Table 122). Though the critical value for the test could not be precisely determined, it is also evident from comparison of tabulated critical values to n that the critical value approaches 1 as n increases. The critical value for n=100 is 0.987 for 95% confidence. The calculated test statistic for the normal data was 0.818, for the log-transformed data it was 0.983. Therefore, normality of the data was rejected (EPA 1992).

5.5.1.9 Histograms

Figure 18 depicts the histogram for the normal data set. The figure depicts a poor distribution "fit" implying that the normal distribution could provide a poor approximation to the data set. Figure 19 depicts the histogram for the log-transformed data set. This figure also depicts a good distribution "fit" implying that the normal distribution could provide a good approximation to the data set.

5.5.1.10 Probability Plots

Figure 20 shows the probability plot for the normal data set. There is at least four breaks in the plot. This probability plot depicts a poor normal distribution "fit", implying the normal distribution will provide a poor approximation to the data set. Figure 21 is the probability plot for the log-transformed data set. There are also at least four breaks in this plot. This probability plot also depicts a poor normal distribution "fit", with the same implication as above.

5.5.1.11 Determination of Distribution

Based on the distribution analysis results, the uranium combined upgradient background data set is non-parametric (Table 123).

5.5.1.12 The T_n Statistic Test

Though the data set was determined to be nonparametric, the T_n statistic outlier test was applied to the log-transformed data set. The log-transformed data set was selected because it approximated normality better than the normal data set. No outliers were detected using the T_n statistic (Table 124).

5.5.2 Determination of Upper Tolerance Limit

5.5.2.1 95th Percentile

Because the data was determined to be non-parametrically distributed, the 95th percentile of the data was calculated. The 95th percentile was determined to be 0.16 mg/L (Table 125). The uranium combined upgradient background data set summary table is presented as Table 126.

6.0 SUMMARY

Samples were collected at near and far upgradient wells from 1976 to 1998. Fifteen wells provided the upgradient well data while data from six far upgradient wells were used to construct that data set. Close examination of the groundwater database provided justification for elimination of select samples. Samples were eliminated based upon high detection limits, reported zero concentrations, and extreme maximum concentrations.

Statistical analyses were preformed on the individual data sets to determine distribution, statistical similarities between near and far upgradient data, and upper tolerance limits. Results of the distribution analysis indicated that all data sets were nonparametrically distributed. The molybdenum and uranium near and far upgradient background data sets were shown to be statistically similar and so analyses on the combined data set was performed.

The 95th percentile was calculated as the non-parametric upper tolerance limit for all analyzed data sets. The 95th percentile should be used to compare to downgradient well concentrations to determine if "above expected background concentrations" exist. If the downgradient concentration is greater than the 95th percentile, contamination may be indicated. However, it should be noted that since the 95th percentile was calculated as the upper tolerance limit, statistically 5% of the time one would expect the upper tolerance limit to be exceeded. Because the molybdenum and uranium near and far upgradient data sets were statistically similar, the combined data set 95th percentile should be representative of upgradient background concentrations. Because the selenium near and far upgradient data sets were not statistically similar, it is advised to use the near upgradient 95th percentile for downgradient well concentration comparisons. A summary table of the parameter, data set, distribution, 95th percentile, range, and sample number is provided as Table 127.

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MOLYBDENUM

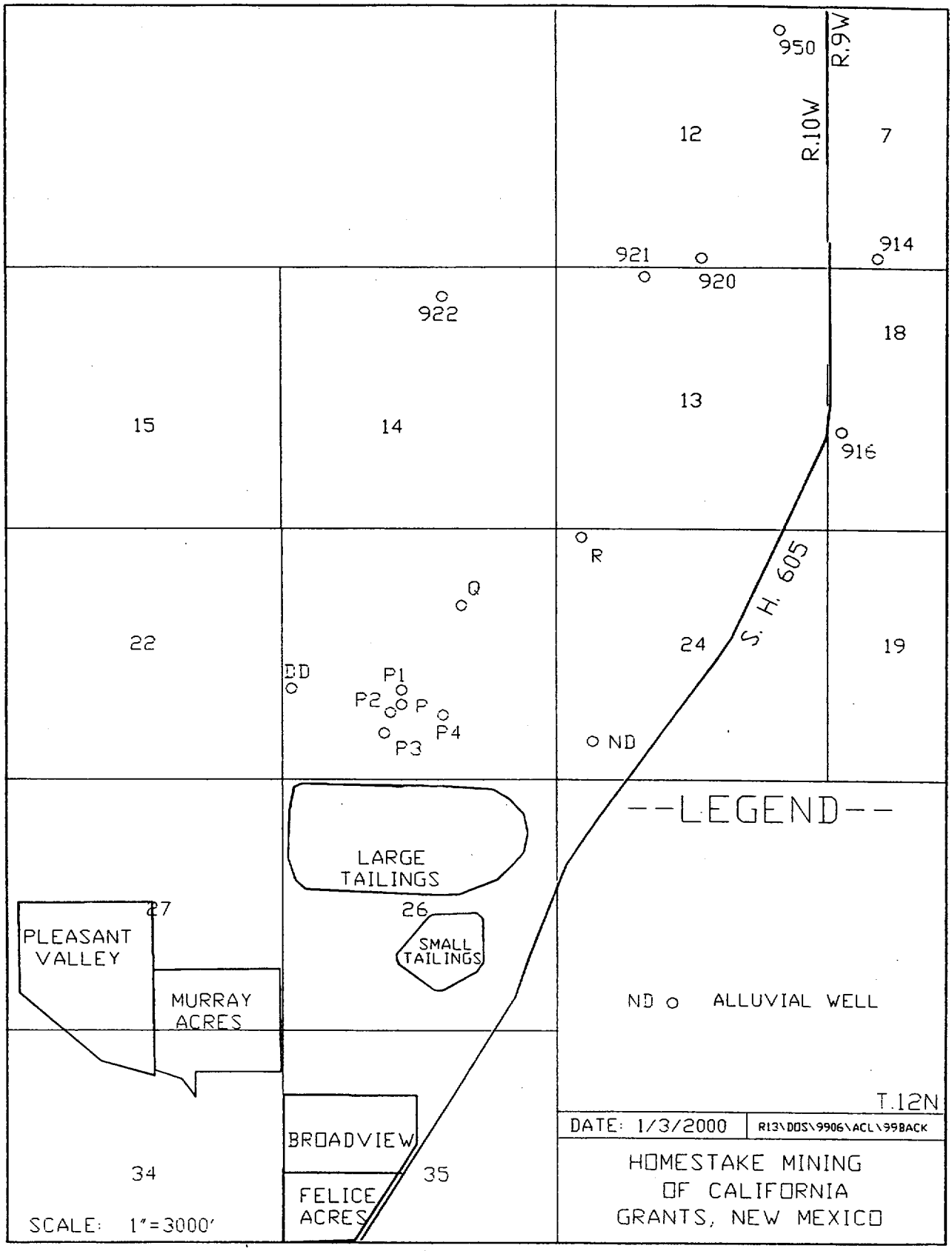

FIGURE 1. LOCATION OF UPGRADIENT WELLS

Table 1. Molybdenum concentrations in alluvial ground water samples upgradient of the Homestake Site, Grants, New Mexico from January 1976 to November 1998

Well ID	DD	ND	P	P1	P2	P3	P4	Q	R	All wells	914	916	920	921	922	950	All Wells
1st sampling date	03-Jun-76	12-Jan-83	07-Jan-76	21-Sep-92	21-Sep-92	23-Apr-98	24-Apr-98	07-Jan-76	07-Jan-76	07-Jan-76	10-Jan-83	21-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81
Most recent sampling date	01-Apr-98	05-Aug-98	12-Nov-98	28-Oct-98	28-Oct-98	23-Apr-98	24-Apr-98	04-Mar-98	06-May-98	12-Nov-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	25-Jan-96	12-May-98
Total number of measurments	56	13	132	32	29	1	1	98	107	469	6	5	18	5	6	3	43
Number of independent measurements	50	13	97	26	24	1	1	77	77	366	6	5	17	5	6	3	42
Percent nondect of total number of measurements	28.57%	46.15%	32.58%	90.63%	72.41%	100.00%	100.00%	34.69%	34.58%	40.10%	83.33%	100.00%	77.78%	100.00%	83.33%	100.00%	86%
Minimum	0.0075	<0.01	0.007	<0.01	<0.01	<0.03	<0.03	<0.001	0.0045	<0.001	<0.03	<0.03	<0.01	<0.03	<0.03	<0.03	<0.01
Median	0.01	0.015	0.015	0.015	0.015	<0.03	<0.03	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Mean	0.02	0.031538462	0.020405498	0.015961538	0.019375	<0.03	<0.03	0.0183636	0.0206039	0.0194	0.02416667	0.015	0.01794118	0.015	0.0175	0.015	0.016585
Maximum	0.05	0.16	0.1	0.05	0.05	<0.03	<0.03	0.07	0.2	0.2	0.07	0.015	0.05	0.015	0.03	0.015	0.07
Percent greater than or equal to the NRC site standard (0.03mg/L)	18.00%	38.46%	16.49%	7.69%	20.83%	0.00%	0.00%	12.99%	14.29%	15.85%	16.67%	0.00%	23.53%	0.00%	16.67%	0.00%	14.29%

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
DD	03-Jun-76	Molybdenum	Homestake	None	0.01
DD	27-Aug-76	Molybdenum	Homestake	None	0.04
DD	15-Sep-81	Molybdenum	Homestake	None	0.05
DD	24-Mar-82	Molybdenum	Homestake	None	0.03
DD	26-May-82	Molybdenum	Homestake	None	0.01
DD	18-Nov-82	Molybdenum	Homestake	None	0.03
DD	04-Mar-83	Molybdenum	Homestake	None	0.03
DD	28-Jun-83	Molybdenum	Homestake	None	0.01
DD	28-Jun-83	Molybdenum	NM EID	Less Than	0.01
DD	14-Sep-83	Molybdenum	Homestake	None	0.01
DD	19-Dec-83	Molybdenum	Homestake	None	0.02
DD	07-Mar-84	Molybdenum	Homestake	None	0.01
DD	09-May-84	Molybdenum	Homestake	None	0.01
DD	09-May-84	Molybdenum	Controls for Env	None	0.007
DD	12-Sep-84	Molybdenum	Homestake	None	0.04
DD	12-Dec-84	Molybdenum	Homestake	None	0.04
DD	13-Mar-85	Molybdenum	Homestake	None	0.02
DD	06-Jun-85	Molybdenum	Homestake	None	0.01
DD	04-Sep-85	Molybdenum	Homestake	None	0.01
DD	16-Dec-85	Molybdenum	Homestake	None	0.01
DD	20-Mar-86	Molybdenum	Homestake	None	0.01
DD	30-Jun-86	Molybdenum	Homestake	None	0.01
DD	15-Sep-86	Molybdenum	Homestake	None	0.01
DD	09-Dec-86	Molybdenum	Homestake	None	0.01
DD	19-Mar-87	Molybdenum	Homestake	None	0.01
DD	24-Jun-87	Molybdenum	Homestake	None	0.01
DD	15-Sep-87	Molybdenum	Homestake	None	0.01
DD	08-Dec-87	Molybdenum	Homestake	None	0.01
DD	24-Feb-88	Molybdenum	Homestake	None	0.02
DD	09-Jun-88	Molybdenum	Homestake	None	0.02
DD	11-Oct-88	Molybdenum	Homestake	None	0.01
DD	08-Dec-88	Molybdenum	Homestake	None	0.01
DD	13-Dec-88	Molybdenum	Homestake	None	0.01
DD	13-Dec-88	Molybdenum	Barringer Lab	None	0.05
DD	11-Jan-89	Molybdenum	Homestake	None	0.01
DD	11-Jan-89	Molybdenum	Barringer Lab	None	0.01
DD	15-Feb-89	Molybdenum	Homestake	None	0.01
DD	15-Feb-89	Molybdenum	Barringer Lab	None	0.02
DD	29-Mar-89	Molybdenum	Homestake	None	0.01
DD	13-Jun-89	Molybdenum	Homestake	Less Than	0.01
DD	15-Nov-89	Molybdenum	Homestake	Less Than	0.01
DD	13-Mar-90	Molybdenum	Homestake	Less Than	0.01
DD	13-Mar-90	Molybdenum	Barringer Lab	None	0.03
DD	12-Sep-90	Molybdenum	Homestake	Less Than	0.01
DD	27-Feb-91	Molybdenum	Homestake	Less Than	0.01
DD	16-Sep-91	Molybdenum	Homestake	Less Than	0.01
DD	09-Mar-92	Molybdenum	Homestake	Less Than	0.01
DD	22-Sep-92	Molybdenum	Homestake	Less Than	0.01
DD	21-Oct-93	Molybdenum	Energy Lab	Less Than	0.03
DD	09-Mar-94	Molybdenum	Energy Lab	Less Than	0.03
DD	21-Oct-94	Molybdenum	Energy Lab	Less Than	0.03
DD	10-Oct-95	Molybdenum	Energy Lab	Less Than	0.03

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
DD	10-Oct-96	Molybdenum	Energy Lab	Less Than	0.03
DD	14-Apr-97	Molybdenum	Energy Lab	Less Than	0.03
DD	09-Sep-97	Molybdenum	Energy Lab	Less Than	0.03
DD	01-Apr-98	Molybdenum	Energy Lab	None	0.04
ND	12-Jan-83	Molybdenum	Homestake	None	0.06
ND	06-Jan-84	Molybdenum	Homestake	None	0.03
ND	18-Dec-89	Molybdenum	Homestake	None	0.01
ND	17-Oct-90	Molybdenum	Homestake	None	0.03
ND	16-Sep-91	Molybdenum	Homestake	Less than	0.01
ND	18-Aug-92	Molybdenum	Homestake	None	0.01
ND	25-Aug-93	Molybdenum	Energy	None	0.16
ND	14-Mar-94	Molybdenum	Energy	Less than	0.03
ND	22-Aug-94	Molybdenum	Energy	Less than	0.03
ND	22-Aug-95	Molybdenum	Energy	Less than	0.03
ND	29-Jul-96	Molybdenum	Energy	None	0.03
ND	11-Aug-97	Molybdenum	Energy	Less than	0.03
ND	05-Aug-98	Molybdenum	Energy	Less than	0.03
P	07-Jan-76	Molybdenum	Homestake	Less than	0.05
P	30-Mar-76	Molybdenum	Homestake	None	0.07
P	09-Apr-76	Molybdenum	Homestake	None	0.07
P	03-Jun-76	Molybdenum	Homestake	None	0.01
P	27-Aug-76	Molybdenum	Homestake	None	0.1
P	13-Jun-77	Molybdenum	Eberline	None	0.01
P	13-Jun-77	Molybdenum	Homestake	None	0.02
P	13-Jun-77	Molybdenum	NM EID	None	0.01
P	24-Aug-77	Molybdenum	Eberline	Less than	0.01
P	24-Aug-77	Molybdenum	Homestake	None	0.03
P	24-Aug-77	Molybdenum	NM EID	None	0.01
P	11-Oct-77	Molybdenum	NM EID	None	0.01
P	11-Oct-77	Molybdenum	Homestake	None	0.01
P	01-Feb-78	Molybdenum	NM EID	None	0.01
P	01-Feb-78	Molybdenum	Homestake	None	0.04
P	17-Apr-78	Molybdenum	Homestake	None	0.04
P	11-Jul-78	Molybdenum	NM EID	None	0.014
P	11-Jul-78	Molybdenum	Homestake	None	0.03
P	23-Oct-78	Molybdenum	Homestake	None	0.03
P	23-Oct-78	Molybdenum	NM EID	None	0.01
P	30-Jan-79	Molybdenum	Homestake	None	0.05
P	30-Jan-79	Molybdenum	NM EID	None	0.001
P	30-Apr-79	Molybdenum	Homestake	None	0.03
P	30-Apr-79	Molybdenum	NM EID	None	0.005
P	12-Jul-79	Molybdenum	Homestake	None	0.06
P	10-Sep-79	Molybdenum	Homestake	None	0.1
P	06-Nov-79	Molybdenum	Homestake	None	0.05
P	09-Jan-80	Molybdenum	Homestake	None	0.08
P	16-Apr-80	Molybdenum	Homestake	None	0.04
P	17-Apr-80	Molybdenum	NM EID	None	0.005
P	16-Jul-80	Molybdenum	Homestake	None	0.01
P	16-Jul-80	Molybdenum	NM EID	None	0.005
P	13-Oct-80	Molybdenum	Homestake	None	0.02
P	07-Jan-81	Molybdenum	Homestake	None	0.01
P	07-Jan-81	Molybdenum	NM EID	None	0.005

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P	15-Apr-81	Molybdenum	Homestake	None	0.05
P	15-Apr-81	Molybdenum	NM EID	None	0.005
P	07-Jul-81	Molybdenum	Homestake	None	0.04
P	07-Oct-81	Molybdenum	Homestake	None	0.02
P	28-Dec-81	Molybdenum	NM EID	None	0.01
P	28-Dec-81	Molybdenum	Homestake	None	0.05
P	24-Mar-82	Molybdenum	Homestake	None	0.02
P	24-Mar-82	Molybdenum	NM EID	None	0.01
P	22-May-82	Molybdenum	Homestake	None	0.02
P	25-Aug-82	Molybdenum	Homestake	None	0.02
P	18-Nov-82	Molybdenum	Controls for	None	0.009
P	18-Nov-82	Molybdenum	Homestake	None	0.04
P	18-Nov-82	Molybdenum	Controls for	None	0.008
P	23-Feb-83	Molybdenum	Homestake	None	0.03
P	26-May-83	Molybdenum	Homestake	None	0.02
P	27-Jun-83	Molybdenum	Homestake	None	0.01
P	27-Jun-83	Molybdenum	NM EID	Less than	0.01
P	12-Sep-83	Molybdenum	Homestake	None	0.01
P	19-Dec-83	Molybdenum	Homestake	None	0.02
P	07-Mar-84	Molybdenum	Homestake	None	0.02
P	09-May-84	Molybdenum	Controls for	None	0.004
P	09-May-84	Molybdenum	Homestake	None	0.01
P	12-Sep-84	Molybdenum	Homestake	None	0.02
P	13-Dec-84	Molybdenum	Homestake	None	0.01
P	11-Mar-85	Molybdenum	Controls for	Less than	0.01
P	11-Mar-85	Molybdenum	Homestake	None	0.02
P	29-May-85	Molybdenum	Homestake	None	0.01
P	04-Sep-85	Molybdenum	Controls for	Less than	0.01
P	04-Sep-85	Molybdenum	Homestake	None	0.02
P	16-Dec-85	Molybdenum	Homestake	None	0.02
P	10-Mar-86	Molybdenum	Controls for	Less than	0.01
P	10-Mar-86	Molybdenum	Homestake	None	0.01
P	30-Jun-86	Molybdenum	Homestake	None	0.01
P	15-Sep-86	Molybdenum	Controls for	Less than	0.01
P	15-Sep-86	Molybdenum	Homestake	Less than	0.01
P	16-Dec-86	Molybdenum	Homestake	Less than	0.01
P	19-Mar-87	Molybdenum	Controls for	Less than	0.01
P	19-Mar-87	Molybdenum	Homestake	None	0.01
P	24-Jun-87	Molybdenum	Homestake	None	0.01
P	16-Sep-87	Molybdenum	Controls for	Less than	0.01
P	16-Sep-87	Molybdenum	Homestake	None	0.01
P	08-Dec-87	Molybdenum	Homestake	None	0.01
P	24-Feb-88	Molybdenum	Homestake	None	0.02
P	24-Feb-88	Molybdenum	Barringer	None	0.03
P	12-May-88	Molybdenum	Homestake	None	0.03
P	23-Aug-88	Molybdenum	Homestake	None	0.01
P	23-Aug-88	Molybdenum	Barringer	None	0.01
P	12-Oct-88	Molybdenum	Homestake	None	0.01
P	13-Dec-88	Molybdenum	Homestake	None	0.02
P	13-Dec-88	Molybdenum	Barringer	None	0.04
P	11-Jan-89	Molybdenum	Homestake	None	0.01
P	11-Jan-89	Molybdenum	Barringer	None	0.02

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P	15-Feb-89	Molybdenum	Homestake	None	0.01
P	15-Feb-89	Molybdenum	Barringer	None	0.06
P	16-May-89	Molybdenum	Homestake	None	0.01
P	10-Aug-89	Molybdenum	Homestake	None	0.02
P	15-Nov-89	Molybdenum	Homestake	None	0.01
P	13-Mar-90	Molybdenum	Homestake	None	0.01
P	13-Mar-90	Molybdenum	Barringer	None	0.1
P	04-Jun-90	Molybdenum	Homestake	None	0.01
P	12-Sep-90	Molybdenum	Homestake	None	0.01
P	03-Dec-90	Molybdenum	Homestake	None	0.01
P	03-Dec-90	Molybdenum	Barringer	None	0.02
P	27-Feb-91	Molybdenum	Homestake	Less than	0.01
P	03-Jun-91	Molybdenum	Homestake	Less than	0.01
P	16-Sep-91	Molybdenum	Homestake	Less than	0.01
P	18-Nov-91	Molybdenum	Homestake	Less than	0.01
P	09-Mar-92	Molybdenum	Homestake	None	0.01
P	04-Jun-92	Molybdenum	Homestake	Less than	0.01
P	21-Sep-92	Molybdenum	Homestake	Less than	0.01
P	03-Dec-92	Molybdenum	Homestake	Less than	0.01
P	03-Mar-93	Molybdenum	Homestake	Less than	0.01
P	01-Jun-93	Molybdenum	Homestake	Less than	0.01
P	08-Sep-93	Molybdenum	Energy	Less than	0.05
P	24-Nov-93	Molybdenum	Energy	Less than	0.03
P	01-Mar-94	Molybdenum	Energy	Less than	0.03
P	31-May-94	Molybdenum	Energy	Less than	0.03
P	01-Sep-94	Molybdenum	Energy	Less than	0.03
P	28-Nov-94	Molybdenum	Energy	Less than	0.03
P	16-Mar-95	Molybdenum	Energy	Less than	0.03
P	16-Mar-95	Molybdenum	Energy	Less than	0.03
P	06-Jun-95	Molybdenum	Energy	Less than	0.03
P	05-Sep-95	Molybdenum	Energy	Less than	0.03
P	05-Dec-95	Molybdenum	Energy	Less than	0.03
P	05-Dec-95	Molybdenum	Energy	Less than	0.03
P	11-Mar-96	Molybdenum	Energy	Less than	0.03
P	03-Jun-96	Molybdenum	Energy	Less than	0.03
P	17-Sep-96	Molybdenum	Energy	Less than	0.03
P	10-Oct-96	Molybdenum	Energy	Less than	0.03
P	06-Mar-97	Molybdenum	Energy	Less than	0.03
P	27-May-97	Molybdenum	Energy	Less than	0.03
P	09-Sep-97	Molybdenum	Energy	Less than	0.03
P	09-Sep-97	Molybdenum	Energy	Quality Control	0.03
P	03-Nov-97	Molybdenum	Energy	Less than	0.03
P	04-Mar-98	Molybdenum	Energy	Less than	0.03
P	04-Mar-98	Molybdenum	Energy	Quality Control	0.03
P	05-May-98	Molybdenum	Energy	None	0.05
P	16-Sep-98	Molybdenum	Energy	Less than	0.03
P	12-Nov-98	Molybdenum	Energy	Less than	0.03
P	12-Nov-98	Molybdenum	ACZ Laboratories	Quality Control	0.01
P	12-Nov-98	Molybdenum	Energy	Quality Control	0.03
P1	21-Sep-92	Molybdenum	Homestake	Less than	0.01
P1	21-Jan-93	Molybdenum	Energy	Less than	0.01
P1	21-Jan-93	Molybdenum	Homestake	Less than	0.01

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P1	13-Apr-93	Molybdenum	Homestake	Less than	0.01
P1	13-Jul-93	Molybdenum	Homestake	None	0.01
P1	21-Oct-93	Molybdenum	Energy	Less than	0.03
P1	04-Jan-94	Molybdenum	Energy	Less than	0.03
P1	07-Mar-94	Molybdenum	Energy	Less than	0.03
P1	12-Apr-94	Molybdenum	Energy	Less than	0.03
P1	06-Jul-94	Molybdenum	Energy	Less than	0.03
P1	21-Oct-94	Molybdenum	Energy	Less than	0.03
P1	04-Jan-95	Molybdenum	Energy	Less than	0.03
P1	04-Jan-95	Molybdenum	Energy	Less than	0.03
P1	12-Apr-95	Molybdenum	Energy	Less than	0.03
P1	06-Jul-95	Molybdenum	Energy	Less than	0.03
P1	03-Oct-95	Molybdenum	Energy	Less than	0.03
P1	10-Jan-96	Molybdenum	Energy	Less than	0.03
P1	10-Jan-96	Molybdenum	Energy	Less than	0.03
P1	09-Apr-96	Molybdenum	Energy	Less than	0.03
P1	09-Apr-96	Molybdenum	Energy	Less than	0.03
P1	19-Jul-96	Molybdenum	Energy	Less than	0.03
P1	19-Jul-96	Molybdenum	Energy	Less than	0.03
P1	04-Nov-96	Molybdenum	Energy	Less than	0.03
P1	04-Nov-96	Molybdenum	Energy	Less than	0.03
P1	13-Jan-97	Molybdenum	Energy	Quality Control	0.03
P1	13-Jan-97	Molybdenum	Energy	Less than	0.03
P1	14-Apr-97	Molybdenum	Energy	Less than	0.03
P1	14-Apr-97	Molybdenum	Energy	Quality Control	0.03
P1	08-Jul-97	Molybdenum	Energy	Less than	0.03
P1	03-Nov-97	Molybdenum	Energy	Less than	0.03
P1	19-Jan-98	Molybdenum	Energy	Less than	0.03
P1	19-Jan-98	Molybdenum	Energy	Quality Control	0.03
P1	01-Apr-98	Molybdenum	Energy	None	0.04
P1	01-Apr-98	Molybdenum	Energy	Quality Control	0.03
P1	14-Jul-98	Molybdenum	Energy	None	0.05
P1	28-Oct-98	Molybdenum	Energy	Less than	0.03
P2	21-Sep-92	Molybdenum	Homestake	Less than	0.01
P2	08-Feb-93	Molybdenum	Energy	None	0.01
P2	08-Feb-93	Molybdenum	Homestake	Less than	0.01
P2	04-May-93	Molybdenum	Energy	None	0.01
P2	04-May-93	Molybdenum	Homestake	Less than	0.01
P2	12-Aug-93	Molybdenum	Homestake	None	0.01
P2	01-Nov-93	Molybdenum	Energy	Less than	0.03
P2	02-Feb-94	Molybdenum	Energy	Less than	0.03
P2	07-Mar-94	Molybdenum	Energy	Less than	0.03
P2	29-Apr-94	Molybdenum	Energy	Less than	0.03
P2	29-Apr-94	Molybdenum	Energy	Less than	0.03
P2	01-Aug-94	Molybdenum	Energy	None	0.04
P2	01-Nov-94	Molybdenum	Energy	Less than	0.03
P2	03-Feb-95	Molybdenum	Energy	Less than	0.03
P2	05-May-95	Molybdenum	Energy	Less than	0.03
P2	02-Aug-95	Molybdenum	Energy	Less than	0.03
P2	02-Aug-95	Molybdenum	Energy	Less than	0.03
P2	06-Nov-95	Molybdenum	Energy	None	0.04
P2	12-Feb-96	Molybdenum	Energy	Less than	0.03

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
P2	14-May-96	Molybdenum	Energy	Less than	0.03
P2	14-May-96	Molybdenum	Energy	Less than	0.03
P2	29-Jul-96	Molybdenum	Energy	None	0.04
P2	03-Feb-97	Molybdenum	Energy	Less than	0.03
P2	03-Feb-97	Molybdenum	Energy	Quality Control	0.03
P2	29-Apr-97	Molybdenum	Energy	Less than	0.03
P2	29-Apr-97	Molybdenum	Energy	Quality Control	0.03
P2	13-Oct-97	Molybdenum	Energy	Less than	0.03
P2	10-Feb-98	Molybdenum	Energy	Quality Control	0.03
P2	10-Feb-98	Molybdenum	Energy	Less than	0.03
P2	05-May-98	Molybdenum	Energy	None	0.04
P2	04-Aug-98	Molybdenum	Energy	None	0.05
P2	28-Oct-98	Molybdenum	Energy	Less than	0.03
P3	23-Apr-98	Molybdenum	Energy	Less than	0.03
P4	24-Apr-98	Molybdenum	Energy	Less than	0.03
Q	07-Jan-76	Molybdenum	Homestake	Less than	0.05
Q	30-Mar-76	Molybdenum	Homestake	None	0.06
Q	09-Apr-76	Molybdenum	Homestake	None	0.02
Q	03-Jun-76	Molybdenum	Homestake	None	0.01
Q	27-Aug-76	Molybdenum	Homestake	None	0.02
Q	13-Jun-77	Molybdenum	Homestake	None	0.02
Q	24-Aug-77	Molybdenum	Eberline	Less than	0.01
Q	24-Aug-77	Molybdenum	Homestake	None	0.03
Q	11-Oct-77	Molybdenum	Eberline	Less than	0.01
Q	11-Oct-77	Molybdenum	Homestake	None	0.01
Q	01-Feb-78	Molybdenum	Eberline	Less than	0.01
Q	01-Feb-78	Molybdenum	Homestake	None	0.03
Q	17-Apr-78	Molybdenum	Homestake	None	0.04
Q	10-Jul-78	Molybdenum	NM EID	None	0.01
Q	10-Jul-78	Molybdenum	Homestake	None	0.02
Q	23-Oct-78	Molybdenum	Homestake	None	0.03
Q	23-Oct-78	Molybdenum	NM EID	Less than	0.01
Q	23-Oct-78	Molybdenum	NM EID	None	0.01
Q	30-Jan-79	Molybdenum	Homestake	None	0.02
Q	30-Jan-79	Molybdenum	NM EID	Less than	0.001
Q	30-Apr-79	Molybdenum	Homestake	None	0.03
Q	30-Apr-79	Molybdenum	NM EID	Less than	0.005
Q	12-Jul-79	Molybdenum	Homestake	None	0.07
Q	10-Sep-79	Molybdenum	Homestake	None	0.07
Q	06-Nov-79	Molybdenum	Homestake	None	0.03
Q	09-Jan-80	Molybdenum	Homestake	None	0.07
Q	16-Apr-80	Molybdenum	Homestake	None	0.03
Q	17-Apr-80	Molybdenum	NM EID	Less than	0.005
Q	16-Jul-80	Molybdenum	Homestake	None	0.01
Q	16-Jul-80	Molybdenum	NM EID	Less than	0.005
Q	13-Oct-80	Molybdenum	Homestake	None	0.02
Q	07-Jan-81	Molybdenum	Homestake	Less than	0.01
Q	07-Jan-81	Molybdenum	NM EID	None	0.005
Q	15-Apr-81	Molybdenum	Homestake	None	0.03
Q	15-Apr-81	Molybdenum	NM EID	None	0.005
Q	07-Jul-81	Molybdenum	Homestake	None	0.03
Q	07-Oct-81	Molybdenum	Homestake	None	0.01

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
Q	28-Dec-81	Molybdenum	Homestake	None	0.04
Q	28-Dec-81	Molybdenum	NM EID	None	0.01
Q	24-Mar-82	Molybdenum	Homestake	None	0.02
Q	24-Mar-82	Molybdenum	NM EID	None	0.01
Q	22-May-82	Molybdenum	Homestake	None	0.02
Q	25-Aug-82	Molybdenum	Homestake	None	0.05
Q	18-Nov-82	Molybdenum	Homestake	None	0.02
Q	23-Feb-83	Molybdenum	Homestake	None	0.02
Q	26-May-83	Molybdenum	Homestake	None	0.02
Q	28-Jun-83	Molybdenum	NM EID	Less than	0.01
Q	28-Jun-83	Molybdenum	Homestake	None	0.01
Q	21-Sep-83	Molybdenum	Homestake	None	0.03
Q	19-Dec-83	Molybdenum	Homestake	None	0.01
Q	07-Mar-84	Molybdenum	Homestake	None	0.01
Q	09-May-84	Molybdenum	Controls for	None	0.005
Q	09-May-84	Molybdenum	Homestake	Less than	0.01
Q	12-Sep-84	Molybdenum	Homestake	None	0.01
Q	12-Dec-84	Molybdenum	Homestake	None	0.02
Q	11-Mar-85	Molybdenum	Homestake	None	0.02
Q	29-May-85	Molybdenum	Homestake	None	0.01
Q	06-Sep-85	Molybdenum	Homestake	None	0.02
Q	16-Dec-85	Molybdenum	Homestake	None	0.02
Q	10-Mar-86	Molybdenum	Homestake	Less than	0.01
Q	30-Jun-86	Molybdenum	Homestake	None	0.01
Q	15-Sep-86	Molybdenum	Homestake	Less than	0.01
Q	15-Dec-86	Molybdenum	Homestake	Less than	0.01
Q	19-Mar-87	Molybdenum	Homestake	None	0.01
Q	19-Jun-87	Molybdenum	Homestake	None	0.01
Q	15-Sep-87	Molybdenum	Homestake	None	0.01
Q	08-Dec-87	Molybdenum	Homestake	None	0.01
Q	24-Feb-88	Molybdenum	Homestake	None	0.02
Q	12-May-88	Molybdenum	Homestake	None	0.02
Q	23-Aug-88	Molybdenum	Homestake	None	0.01
Q	03-Nov-88	Molybdenum	Homestake	None	0.01
Q	13-Dec-88	Molybdenum	Homestake	None	0.02
Q	13-Dec-88	Molybdenum	Barringer	None	0.03
Q	11-Jan-89	Molybdenum	Homestake	None	0.01
Q	11-Jan-89	Molybdenum	Barringer	None	0.01
Q	15-Feb-89	Molybdenum	Homestake	None	0.01
Q	15-Feb-89	Molybdenum	Barringer	None	0.1
Q	16-May-89	Molybdenum	Homestake	Less than	0.01
Q	15-Nov-89	Molybdenum	Homestake	None	0.01
Q	13-Mar-90	Molybdenum	Homestake	Less than	0.01
Q	13-Mar-90	Molybdenum	Barringer	None	0.04
Q	12-Sep-90	Molybdenum	Homestake	Less than	0.01
Q	27-Feb-91	Molybdenum	Homestake	Less than	0.01
Q	16-Sep-91	Molybdenum	Homestake	Less than	0.01
Q	09-Mar-92	Molybdenum	Homestake	Less than	0.01
Q	16-Sep-92	Molybdenum	Homestake	Less than	0.01
Q	03-Mar-93	Molybdenum	Homestake	Less than	0.01
Q	08-Sep-93	Molybdenum	Energy	Less than	0.05
Q	01-Mar-94	Molybdenum	Energy	Less than	0.03

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
Q	01-Mar-94	Molybdenum	Energy	Less than	0.03
Q	01-Sep-94	Molybdenum	Energy	Less than	0.03
Q	16-Mar-95	Molybdenum	Energy	Less than	0.03
Q	05-Sep-95	Molybdenum	Energy	Less than	0.03
Q	11-Mar-96	Molybdenum	Energy	Less than	0.03
Q	17-Sep-96	Molybdenum	Energy	Less than	0.03
Q	06-Mar-97	Molybdenum	Energy	Less than	0.03
Q	09-Sep-97	Molybdenum	Energy	Less than	0.03
Q	04-Mar-98	Molybdenum	Energy	Less than	0.03
R	07-Jan-76	Molybdenum	Homestake	None	0.1
R	30-Mar-76	Molybdenum	Homestake	None	0.05
R	09-Apr-76	Molybdenum	Homestake	None	0.02
R	03-Jun-76	Molybdenum	Homestake	None	0.01
R	01-Sep-76	Molybdenum	Homestake	None	0.2
R	13-Jun-77	Molybdenum	Eberline	None	0.03
R	13-Jun-77	Molybdenum	Homestake	None	0.01
R	24-Aug-77	Molybdenum	Eberline	Less than	0.01
R	24-Aug-77	Molybdenum	Homestake	None	0.02
R	11-Oct-77	Molybdenum	Eberline	Less than	0.01
R	11-Oct-77	Molybdenum	Homestake	None	0.01
R	01-Feb-78	Molybdenum	Eberline	Less than	0.01
R	01-Feb-78	Molybdenum	Homestake	None	0.03
R	17-Apr-78	Molybdenum	Homestake	None	0.02
R	10-Jul-78	Molybdenum	Homestake	None	0.02
R	10-Jul-78	Molybdenum	NM EID	None	0.012
R	23-Oct-78	Molybdenum	Homestake	None	0.03
R	23-Oct-78	Molybdenum	NM EID	Less than	0.01
R	31-Jan-79	Molybdenum	Homestake	None	0.01
R	31-Jan-79	Molybdenum	NM EID	Less than	0.001
R	30-Apr-79	Molybdenum	Homestake	None	0.03
R	30-Apr-79	Molybdenum	NM EID	Less than	0.005
R	12-Jul-79	Molybdenum	Homestake	None	0.05
R	10-Sep-79	Molybdenum	Homestake	None	0.09
R	06-Nov-79	Molybdenum	Homestake	None	0.03
R	07-Jan-80	Molybdenum	NM EID	None	0.005
R	09-Jan-80	Molybdenum	Homestake	None	0.04
R	16-Apr-80	Molybdenum	Homestake	None	0.02
R	17-Apr-80	Molybdenum	NM EID	Less than	0.005
R	16-Jul-80	Molybdenum	Homestake	None	0.01
R	16-Jul-80	Molybdenum	NM EID	Less than	0.005
R	13-Oct-80	Molybdenum	Homestake	None	0.02
R	07-Jan-81	Molybdenum	Homestake	None	0.01
R	15-Apr-81	Molybdenum	Homestake	None	0.09
R	15-Apr-81	Molybdenum	NM EID	None	0.034
R	07-Jul-81	Molybdenum	Homestake	None	0.03
R	28-Dec-81	Molybdenum	Homestake	None	0.04
R	28-Dec-81	Molybdenum	NM EID	None	0.01
R	24-Mar-82	Molybdenum	Homestake	None	0.01
R	24-Mar-82	Molybdenum	NM EID	None	0.01
R	22-May-82	Molybdenum	Homestake	None	0.01
R	25-Aug-82	Molybdenum	Homestake	Less than	0.01
R	18-Nov-82	Molybdenum	Homestake	None	0.01

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
R	23-Feb-83	Molybdenum	Homestake	None	0.01
R	26-May-83	Molybdenum	Homestake	None	0.01
R	28-Jun-83	Molybdenum	Homestake	None	0.01
R	28-Jun-83	Molybdenum	NM EID	Less than	0.01
R	12-Sep-83	Molybdenum	Homestake	None	0.01
R	20-Dec-83	Molybdenum	Homestake	None	0.06
R	07-Mar-84	Molybdenum	Homestake	None	0.01
R	09-May-84	Molybdenum	Controls for	None	0.004
R	09-May-84	Molybdenum	Homestake	Less than	0.01
R	12-Sep-84	Molybdenum	Homestake	None	0.02
R	12-Dec-84	Molybdenum	Homestake	None	0.02
R	11-Mar-85	Molybdenum	Controls for	Less than	0.01
R	11-Mar-85	Molybdenum	Homestake	None	0.02
R	29-May-85	Molybdenum	Homestake	None	0.01
R	05-Sep-85	Molybdenum	Controls for	None	0.06
R	05-Sep-85	Molybdenum	Homestake	None	0.01
R	16-Dec-85	Molybdenum	Homestake	None	0.01
R	10-Mar-86	Molybdenum	Controls for	Less than	0.01
R	10-Mar-86	Molybdenum	Homestake	Less than	0.01
R	30-Jun-86	Molybdenum	Homestake	None	0.01
R	15-Sep-86	Molybdenum	Controls for	Less than	0.01
R	15-Sep-86	Molybdenum	Homestake	None	0.01
R	15-Dec-86	Molybdenum	Homestake	None	0.01
R	19-Mar-87	Molybdenum	Controls for	Less than	0.01
R	19-Mar-87	Molybdenum	Homestake	None	0.01
R	19-Jun-87	Molybdenum	Homestake	None	0.01
R	15-Sep-87	Molybdenum	Controls for	Less than	0.01
R	15-Sep-87	Molybdenum	Homestake	None	0.01
R	08-Dec-87	Molybdenum	Homestake	None	0.02
R	24-Feb-88	Molybdenum	Homestake	None	0.02
R	24-Feb-88	Molybdenum	Barringer	None	0.03
R	12-May-88	Molybdenum	Homestake	None	0.02
R	22-Aug-88	Molybdenum	Homestake	None	0.02
R	22-Aug-88	Molybdenum	Barringer	Less than	0.01
R	03-Nov-88	Molybdenum	Homestake	None	0.03
R	13-Dec-88	Molybdenum	Homestake	None	0.02
R	13-Dec-88	Molybdenum	Barringer	None	0.02
R	11-Jan-89	Molybdenum	Homestake	None	0.01
R	11-Jan-89	Molybdenum	Barringer	None	0.01
R	15-Feb-89	Molybdenum	Homestake	None	0.01
R	15-Feb-89	Molybdenum	Barringer	None	0.01
R	16-May-89	Molybdenum	Homestake	None	0.01
R	15-Nov-89	Molybdenum	Homestake	None	0.01
R	13-Mar-90	Molybdenum	Homestake	Less than	0.01
R	13-Mar-90	Molybdenum	Barringer	None	0.05
R	12-Sep-90	Molybdenum	Homestake	Less than	0.01
R	27-Feb-91	Molybdenum	Homestake	Less than	0.01
R	16-Sep-91	Molybdenum	Homestake	Less than	0.01
R	09-Mar-92	Molybdenum	Homestake	Less than	0.01
R	16-Sep-92	Molybdenum	Homestake	None	0.01
R	01-Jun-93	Molybdenum	Homestake	Less than	0.01
R	08-Sep-93	Molybdenum	Energy	Less than	0.05

Table 2. Molybdenum Near Upgradient Background Data Set (data not corrected for non-detects or duplicates) (continue

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value (mg/L)
R	07-Mar-94	Molybdenum	Energy	Less than	0.03
R	31-May-94	Molybdenum	Energy	Less than	0.03
R	01-Sep-94	Molybdenum	Energy	Less than	0.03
R	06-Jun-95	Molybdenum	Energy	Less than	0.03
R	06-Jun-95	Molybdenum	Energy	Less than	0.03
R	05-Sep-95	Molybdenum	Energy	Less than	0.03
R	05-Sep-95	Molybdenum	Energy	Less than	0.03
R	03-Jun-96	Molybdenum	Energy	Less than	0.03
R	17-Sep-96	Molybdenum	Energy	Less than	0.03
R	10-Oct-96	Molybdenum	Energy	Less than	0.03
R	27-May-97	Molybdenum	Energy	Less than	0.03
R	06-May-98	Molybdenum	Energy	Less than	0.03

Table 3. Molybdenum Near Upgradient Background Data Set for Well DD
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Jun-76	Molybdenum	0.01
27-Aug-76	Molybdenum	0.04
15-Sep-81	Molybdenum	0.05
24-Mar-82	Molybdenum	0.03
26-May-82	Molybdenum	0.01
18-Nov-82	Molybdenum	0.03
04-Mar-83	Molybdenum	0.03
28-Jun-83	Molybdenum	0.0075
14-Sep-83	Molybdenum	0.01
19-Dec-83	Molybdenum	0.02
07-Mar-84	Molybdenum	0.01
09-May-84	Molybdenum	0.0085
12-Sep-84	Molybdenum	0.04
12-Dec-84	Molybdenum	0.04
13-Mar-85	Molybdenum	0.02
06-Jun-85	Molybdenum	0.01
04-Sep-85	Molybdenum	0.01
16-Dec-85	Molybdenum	0.01
20-Mar-86	Molybdenum	0.01
30-Jun-86	Molybdenum	0.01
15-Sep-86	Molybdenum	0.01
09-Dec-86	Molybdenum	0.01
19-Mar-87	Molybdenum	0.01
24-Jun-87	Molybdenum	0.01
15-Sep-87	Molybdenum	0.01
08-Dec-87	Molybdenum	0.01
24-Feb-88	Molybdenum	0.02
09-Jun-88	Molybdenum	0.02
11-Oct-88	Molybdenum	0.01
08-Dec-88	Molybdenum	0.01
13-Dec-88	Molybdenum	0.03
11-Jan-89	Molybdenum	0.01
15-Feb-89	Molybdenum	0.015
29-Mar-89	Molybdenum	0.01
13-Jun-89	Molybdenum	0.005
15-Nov-89	Molybdenum	0.005
13-Mar-90	Molybdenum	0.0175
12-Sep-90	Molybdenum	0.005
27-Feb-91	Molybdenum	0.005
16-Sep-91	Molybdenum	0.005
09-Mar-92	Molybdenum	0.005
22-Sep-92	Molybdenum	0.005
21-Oct-93	Molybdenum	0.015
09-Mar-94	Molybdenum	0.015

Table 3. Molybdenum Near Upgradient Background Data Set for Well DD (continued)
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Oct-94	Molybdenum	0.015
10-Oct-95	Molybdenum	0.015
10-Oct-96	Molybdenum	0.015
14-Apr-97	Molybdenum	0.015
09-Sep-97	Molybdenum	0.015
01-Apr-98	Molybdenum	0.04

Table 4. Molybdenum Near Upgradient Background Data Set for Well ND
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
12-Jan-83	Molybdenum	0.06
06-Jan-84	Molybdenum	0.03
18-Dec-89	Molybdenum	0.01
17-Oct-90	Molybdenum	0.03
16-Sep-91	Molybdenum	0.005
18-Aug-92	Molybdenum	0.01
25-Aug-93	Molybdenum	0.16
14-Mar-94	Molybdenum	0.015
22-Aug-94	Molybdenum	0.015
22-Aug-95	Molybdenum	0.015
29-Jul-96	Molybdenum	0.03
11-Aug-97	Molybdenum	0.015
05-Aug-98	Molybdenum	0.015

Table 5. Molybdenum Near Upgradient Background Data Set for Well P
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
07-Jan-76	Molybdenum	0.025
30-Mar-76	Molybdenum	0.07
09-Apr-76	Molybdenum	0.07
03-Jun-76	Molybdenum	0.01
27-Aug-76	Molybdenum	0.1
13-Jun-77	Molybdenum	0.0133333
24-Aug-77	Molybdenum	0.015
11-Oct-77	Molybdenum	0.01
01-Feb-78	Molybdenum	0.025
17-Apr-78	Molybdenum	0.04
11-Jul-78	Molybdenum	0.022
23-Oct-78	Molybdenum	0.02
30-Jan-79	Molybdenum	0.0255
30-Apr-79	Molybdenum	0.0175
12-Jul-79	Molybdenum	0.06
10-Sep-79	Molybdenum	0.1
06-Nov-79	Molybdenum	0.05
09-Jan-80	Molybdenum	0.08
16-Apr-80	Molybdenum	0.0225
16-Jul-80	Molybdenum	0.0075
13-Oct-80	Molybdenum	0.02
07-Jan-81	Molybdenum	0.0075
15-Apr-81	Molybdenum	0.0275
07-Jul-81	Molybdenum	0.04
07-Oct-81	Molybdenum	0.02
28-Dec-81	Molybdenum	0.03
24-Mar-82	Molybdenum	0.015
22-May-82	Molybdenum	0.02
25-Aug-82	Molybdenum	0.02
18-Nov-82	Molybdenum	0.019
23-Feb-83	Molybdenum	0.03
26-May-83	Molybdenum	0.02
27-Jun-83	Molybdenum	0.0075
12-Sep-83	Molybdenum	0.01
19-Dec-83	Molybdenum	0.02
07-Mar-84	Molybdenum	0.02
09-May-84	Molybdenum	0.007
12-Sep-84	Molybdenum	0.02
13-Dec-84	Molybdenum	0.01
11-Mar-85	Molybdenum	0.0125
29-May-85	Molybdenum	0.01
04-Sep-85	Molybdenum	0.0125
16-Dec-85	Molybdenum	0.02
10-Mar-86	Molybdenum	0.0075
30-Jun-86	Molybdenum	0.01

Table 5. Molybdenum Near Upgradient Background Data Set for Well P (continued)
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
15-Sep-86	Molybdenum	0.005
16-Dec-86	Molybdenum	0.005
19-Mar-87	Molybdenum	0.0075
24-Jun-87	Molybdenum	0.01
16-Sep-87	Molybdenum	0.0075
08-Dec-87	Molybdenum	0.01
24-Feb-88	Molybdenum	0.025
12-May-88	Molybdenum	0.03
23-Aug-88	Molybdenum	0.01
12-Oct-88	Molybdenum	0.01
13-Dec-88	Molybdenum	0.03
11-Jan-89	Molybdenum	0.015
15-Feb-89	Molybdenum	0.035
16-May-89	Molybdenum	0.01
10-Aug-89	Molybdenum	0.02
15-Nov-89	Molybdenum	0.01
13-Mar-90	Molybdenum	0.055
04-Jun-90	Molybdenum	0.01
12-Sep-90	Molybdenum	0.01
03-Dec-90	Molybdenum	0.015
27-Feb-91	Molybdenum	0.005
03-Jun-91	Molybdenum	0.005
16-Sep-91	Molybdenum	0.005
18-Nov-91	Molybdenum	0.005
09-Mar-92	Molybdenum	0.01
04-Jun-92	Molybdenum	0.005
21-Sep-92	Molybdenum	0.005
03-Dec-92	Molybdenum	0.005
03-Mar-93	Molybdenum	0.005
01-Jun-93	Molybdenum	0.005
08-Sep-93	Molybdenum	0.025
24-Nov-93	Molybdenum	0.015
01-Mar-94	Molybdenum	0.015
31-May-94	Molybdenum	0.015
01-Sep-94	Molybdenum	0.015
28-Nov-94	Molybdenum	0.015
16-Mar-95	Molybdenum	0.015
06-Jun-95	Molybdenum	0.015
05-Sep-95	Molybdenum	0.015
05-Dec-95	Molybdenum	0.015
11-Mar-96	Molybdenum	0.015
03-Jun-96	Molybdenum	0.015
17-Sep-96	Molybdenum	0.015
10-Oct-96	Molybdenum	0.015
06-Mar-97	Molybdenum	0.015
27-May-97	Molybdenum	0.015
09-Sep-97	Molybdenum	0.015
03-Nov-97	Molybdenum	0.015
04-Mar-98	Molybdenum	0.015
05-May-98	Molybdenum	0.05
16-Sep-98	Molybdenum	0.015
12-Nov-98	Molybdenum	0.015

Table 6. Molybdenum Near Upgradient Background Data Set for Well P1
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Sep-92	Molybdenum	0.005
21-Jan-93	Molybdenum	0.005
13-Apr-93	Molybdenum	0.005
13-Jul-93	Molybdenum	0.01
21-Oct-93	Molybdenum	0.015
04-Jan-94	Molybdenum	0.015
07-Mar-94	Molybdenum	0.015
12-Apr-94	Molybdenum	0.015
06-Jul-94	Molybdenum	0.015
21-Oct-94	Molybdenum	0.015
04-Jan-95	Molybdenum	0.015
12-Apr-95	Molybdenum	0.015
06-Jul-95	Molybdenum	0.015
03-Oct-95	Molybdenum	0.015
10-Jan-96	Molybdenum	0.015
09-Apr-96	Molybdenum	0.015
19-Jul-96	Molybdenum	0.015
04-Nov-96	Molybdenum	0.015
13-Jan-97	Molybdenum	0.015
14-Apr-97	Molybdenum	0.015
08-Jul-97	Molybdenum	0.015
03-Nov-97	Molybdenum	0.015
19-Jan-98	Molybdenum	0.015
01-Apr-98	Molybdenum	0.04
14-Jul-98	Molybdenum	0.05
28-Oct-98	Molybdenum	0.015

Table 7. Molybdenum Near Upgradient Background Data Set for Well P2
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Sep-92	Molybdenum	0.005
08-Feb-93	Molybdenum	0.0075
04-May-93	Molybdenum	0.0075
12-Aug-93	Molybdenum	0.01
01-Nov-93	Molybdenum	0.015
02-Feb-94	Molybdenum	0.015
07-Mar-94	Molybdenum	0.015
29-Apr-94	Molybdenum	0.015
01-Aug-94	Molybdenum	0.04
01-Nov-94	Molybdenum	0.015
03-Feb-95	Molybdenum	0.015
05-May-95	Molybdenum	0.015
02-Aug-95	Molybdenum	0.015
06-Nov-95	Molybdenum	0.04
12-Feb-96	Molybdenum	0.015
14-May-96	Molybdenum	0.015
29-Jul-96	Molybdenum	0.04
03-Feb-97	Molybdenum	0.015
29-Apr-97	Molybdenum	0.015
13-Oct-97	Molybdenum	0.015
10-Feb-98	Molybdenum	0.015
05-May-98	Molybdenum	0.04
04-Aug-98	Molybdenum	0.05
28-Oct-98	Molybdenum	0.015

Table 8. Molybdenum Near Upgradient Background Data Set for Wells P3 and P4
(corrected for non-detects and duplicates)

Well	Sample Date	Parameter	Final Data
P3	23-Apr-98	Molybdenum	0.015
P4	24-Apr-98	Molybdenum	0.015

Table 9. Molybdenum Near Upgradient Background Data Set for Well Q
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
07-Jan-76	Molybdenum	0.025
30-Mar-76	Molybdenum	0.06
09-Apr-76	Molybdenum	0.02
03-Jun-76	Molybdenum	0.01
27-Aug-76	Molybdenum	0.02
13-Jun-77	Molybdenum	0.02
24-Aug-77	Molybdenum	0.0175
11-Oct-77	Molybdenum	0.0075
01-Feb-78	Molybdenum	0.0175
17-Apr-78	Molybdenum	0.04
10-Jul-78	Molybdenum	0.015
23-Oct-78	Molybdenum	0.015
30-Jan-79	Molybdenum	0.01025
30-Apr-79	Molybdenum	0.01625
12-Jul-79	Molybdenum	0.07
10-Sep-79	Molybdenum	0.07
06-Nov-79	Molybdenum	0.03
09-Jan-80	Molybdenum	0.07
16-Apr-80	Molybdenum	0.01625
16-Jul-80	Molybdenum	0.00625
13-Oct-80	Molybdenum	0.02
07-Jan-81	Molybdenum	0.005
15-Apr-81	Molybdenum	0.0175
07-Jul-81	Molybdenum	0.03
07-Oct-81	Molybdenum	0.01
28-Dec-81	Molybdenum	0.025
24-Mar-82	Molybdenum	0.015
22-May-82	Molybdenum	0.02
25-Aug-82	Molybdenum	0.05
18-Nov-82	Molybdenum	0.02
23-Feb-83	Molybdenum	0.02
26-May-83	Molybdenum	0.02
28-Jun-83	Molybdenum	0.0075
21-Sep-83	Molybdenum	0.03
19-Dec-83	Molybdenum	0.01
07-Mar-84	Molybdenum	0.01
09-May-84	Molybdenum	0.005
12-Sep-84	Molybdenum	0.01
12-Dec-84	Molybdenum	0.02
11-Mar-85	Molybdenum	0.02
29-May-85	Molybdenum	0.01
06-Sep-85	Molybdenum	0.02
16-Dec-85	Molybdenum	0.02
10-Mar-86	Molybdenum	0.005
30-Jun-86	Molybdenum	0.01

Table 9. Molybdenum Near Upgradient Background Data Set for Well Q (continued)
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
15-Sep-86	Molybdenum	0.005
15-Dec-86	Molybdenum	0.005
19-Mar-87	Molybdenum	0.01
19-Jun-87	Molybdenum	0.01
15-Sep-87	Molybdenum	0.01
08-Dec-87	Molybdenum	0.01
24-Feb-88	Molybdenum	0.02
12-May-88	Molybdenum	0.02
23-Aug-88	Molybdenum	0.01
03-Nov-88	Molybdenum	0.01
13-Dec-88	Molybdenum	0.025
11-Jan-89	Molybdenum	0.01
15-Feb-89	Molybdenum	0.055
16-May-89	Molybdenum	0.005
15-Nov-89	Molybdenum	0.01
13-Mar-90	Molybdenum	0.0225
12-Sep-90	Molybdenum	0.005
27-Feb-91	Molybdenum	0.005
16-Sep-91	Molybdenum	0.005
09-Mar-92	Molybdenum	0.005
16-Sep-92	Molybdenum	0.005
03-Mar-93	Molybdenum	0.005
08-Sep-93	Molybdenum	0.025
01-Mar-94	Molybdenum	0.015
01-Sep-94	Molybdenum	0.015
16-Mar-95	Molybdenum	0.015
05-Sep-95	Molybdenum	0.015
11-Mar-96	Molybdenum	0.015
17-Sep-96	Molybdenum	0.015
06-Mar-97	Molybdenum	0.015
09-Sep-97	Molybdenum	0.015
04-Mar-98	Molybdenum	0.015

Table 10. Molybdenum Near Upgradient Background Data Set for Well R
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
07-Jan-76	Molybdenum	0.1
30-Mar-76	Molybdenum	0.05
09-Apr-76	Molybdenum	0.02
03-Jun-76	Molybdenum	0.01
01-Sep-76	Molybdenum	0.2
13-Jun-77	Molybdenum	0.02
24-Aug-77	Molybdenum	0.0125
11-Oct-77	Molybdenum	0.0075
01-Feb-78	Molybdenum	0.0175
17-Apr-78	Molybdenum	0.02
10-Jul-78	Molybdenum	0.016
23-Oct-78	Molybdenum	0.0175
31-Jan-79	Molybdenum	0.00525
30-Apr-79	Molybdenum	0.01625
12-Jul-79	Molybdenum	0.05
10-Sep-79	Molybdenum	0.09
06-Nov-79	Molybdenum	0.03
07-Jan-80	Molybdenum	0.0225
16-Apr-80	Molybdenum	0.01125
16-Jul-80	Molybdenum	0.00625
13-Oct-80	Molybdenum	0.02
07-Jan-81	Molybdenum	0.01
15-Apr-81	Molybdenum	0.062
07-Jul-81	Molybdenum	0.03
28-Dec-81	Molybdenum	0.025
24-Mar-82	Molybdenum	0.01
22-May-82	Molybdenum	0.01
25-Aug-82	Molybdenum	0.005
18-Nov-82	Molybdenum	0.01
23-Feb-83	Molybdenum	0.01
26-May-83	Molybdenum	0.01
28-Jun-83	Molybdenum	0.0075
12-Sep-83	Molybdenum	0.01
20-Dec-83	Molybdenum	0.06
07-Mar-84	Molybdenum	0.01
09-May-84	Molybdenum	0.0045
12-Sep-84	Molybdenum	0.02
12-Dec-84	Molybdenum	0.02
11-Mar-85	Molybdenum	0.0125
29-May-85	Molybdenum	0.01
05-Sep-85	Molybdenum	0.035
16-Dec-85	Molybdenum	0.01
10-Mar-86	Molybdenum	0.005
30-Jun-86	Molybdenum	0.01
15-Sep-86	Molybdenum	0.0075

Table 10. Molybdenum Near Upgradient Background Data Set for Well R (continued)
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
15-Dec-86	Molybdenum	0.01
19-Mar-87	Molybdenum	0.0075
19-Jun-87	Molybdenum	0.01
15-Sep-87	Molybdenum	0.0075
08-Dec-87	Molybdenum	0.02
24-Feb-88	Molybdenum	0.025
12-May-88	Molybdenum	0.02
22-Aug-88	Molybdenum	0.0125
03-Nov-88	Molybdenum	0.03
13-Dec-88	Molybdenum	0.02
11-Jan-89	Molybdenum	0.01
15-Feb-89	Molybdenum	0.01
16-May-89	Molybdenum	0.01
15-Nov-89	Molybdenum	0.01
13-Mar-90	Molybdenum	0.0275
12-Sep-90	Molybdenum	0.005
27-Feb-91	Molybdenum	0.005
16-Sep-91	Molybdenum	0.005
09-Mar-92	Molybdenum	0.005
16-Sep-92	Molybdenum	0.01
01-Jun-93	Molybdenum	0.005
08-Sep-93	Molybdenum	0.025
07-Mar-94	Molybdenum	0.015
31-May-94	Molybdenum	0.015
01-Sep-94	Molybdenum	0.015
06-Jun-95	Molybdenum	0.015
05-Sep-95	Molybdenum	0.015
03-Jun-96	Molybdenum	0.015
17-Sep-96	Molybdenum	0.015
10-Oct-96	Molybdenum	0.015
27-May-97	Molybdenum	0.015
06-May-98	Molybdenum	0.015

Table 11. Molybdenum Near Upgradient Background Groundwater Data Set Used in Statistical Analysis
(all concentrations in mg/L)

Well ID								
DD	ND	P	P1	P2	P3	P4	Q	R
0.05	0.16	0.1	0.05	0.05	0.015	0.015	0.07	0.2
0.04	0.06	0.1	0.04	0.04			0.07	0.1
0.04	0.03	0.08	0.015	0.04			0.07	0.09
0.04	0.03	0.07	0.015	0.04			0.06	0.062
0.04	0.03	0.07	0.015	0.04			0.055	0.06
0.03	0.015	0.06	0.015	0.015			0.05	0.05
0.03	0.015	0.055	0.015	0.015			0.04	0.05
0.03	0.015	0.05	0.015	0.015			0.03	0.035
0.03	0.015	0.05	0.015	0.015			0.03	0.03
0.02	0.015	0.04	0.015	0.015			0.03	0.03
0.02	0.01	0.04	0.015	0.015			0.025	0.03
0.02	0.01	0.035	0.015	0.015			0.025	0.0275
0.02	0.005	0.03	0.015	0.015			0.025	0.025
0.0175		0.03	0.015	0.015			0.025	0.025
0.015		0.03	0.015	0.015			0.0225	0.025
0.015		0.03	0.015	0.015			0.02	0.0225
0.015		0.0275	0.015	0.015			0.02	0.02
0.015		0.0255	0.015	0.015			0.02	0.02
0.015		0.025	0.015	0.015			0.02	0.02
0.015		0.025	0.015	0.015			0.02	0.02
0.015		0.025	0.015	0.01			0.02	0.02
0.015		0.025	0.015	0.0075			0.02	0.02
0.01		0.0225	0.01	0.0075			0.02	0.02
0.01		0.022	0.005	0.005			0.02	0.02
0.01		0.02	0.005				0.02	0.02
0.01		0.02	0.005				0.02	0.02
0.01		0.02					0.02	0.0175
0.01		0.02					0.02	0.0175
0.01		0.02					0.02	0.01625
0.01		0.02					0.02	0.016
0.01		0.02					0.0175	0.015
0.01		0.02					0.0175	0.015
0.01		0.02					0.0175	0.015
0.01		0.02					0.01625	0.015
0.01		0.02					0.01625	0.015
0.01		0.02					0.015	0.015
0.01		0.019					0.015	0.015
0.01		0.0175					0.015	0.015
0.01		0.015					0.015	0.015
0.01		0.015					0.015	0.015
0.01		0.015					0.015	0.0125
0.01		0.015					0.015	0.0125
0.0085		0.015					0.015	0.0125
0.0075		0.015					0.015	0.01125
0.005		0.015					0.015	0.01
0.005		0.015					0.015	0.01
0.005		0.015					0.015	0.01
0.005		0.015					0.01025	0.01

Table 11. Molybdenum Near Upgradient Background Groundwater Data Set Used in Statistical Analysis (continued)
(all concentrations in mg/L)

Well ID								
DD	ND	P	P1	P2	P3	P4	Q	R
0.005		0.015					0.01	0.01
0.005		0.015					0.01	0.01
0.005		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.0133333					0.01	0.01
		0.0125					0.0075	0.0075
		0.0125					0.0075	0.0075
		0.01					0.00625	0.0075
		0.01					0.005	0.0075
		0.01					0.005	0.0075
		0.01					0.005	0.00625
		0.01					0.005	0.00525
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.0045
		0.01						
		0.0075						
		0.0075						
		0.0075						
		0.0075						
		0.0075						
		0.0075						
		0.007						
		0.005						
		0.005						
		0.005						

Table 11. Molybdenum Near Upgradient Background Groundwater Data Set Used in Statistical Analysis (continued)
(all concentrations in mg/L)

Well ID								
DD	ND	P	P1	P2	P3	P4	Q	R
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						

Table 12. Molybdenum Near Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Molybdenum	0.2	0.16	1.3	**PASS**

Table 13. Molybdenum Near Upgradient Background Data Set, 95th Percentile Calculation

Parameter	**Distribution**	**95th Percentile (mg/L)**	**Sample #**
Molybdenum	Nonparametric	0.054	366

Table 14. Molybdenum Near Upgradient Background Data Set, Summary Table

Parameter	**Distribution**	**95th Percentile (mg/L)**	**Range**	**Sample #**
Molybdenum	Nonparametric	0.054	<0.001 to 0.2	366

Table 15. Molybdenum Far Upgradient Background Data Set (data not corrected for non-detects or duplicates)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value
0914	10-Jan-83	Molybdenum	Homestake	None	0.07
0914	14-Mar-94	Molybdenum	Energy Laboratories	Less Than	0.03
0914	12-May-94	Molybdenum	Energy Laboratories	Less Than	0.03
0914	24-Jan-96	Molybdenum	Energy Laboratories	Less Than	0.03
0914	22-May-97	Molybdenum	Energy Laboratories	Less Than	0.03
0914	12-May-98	Molybdenum	Energy Laboratories	Less Than	0.03
0916	21-Feb-94	Molybdenum	Energy Laboratories	Less Than	0.03
0916	26-Apr-94	Molybdenum	Energy Laboratories	Less Than	0.03
0916	29-Jan-96	Molybdenum	Energy Laboratories	Less Than	0.03
0916	28-May-97	Molybdenum	Energy Laboratories	Less Than	0.03
0916	12-May-98	Molybdenum	Energy Laboratories	Less Than	0.03
0920	03-Nov-81	Molybdenum	Homestake	None	0.03
0920	30-Aug-82	Molybdenum	Homestake	None	0.04
0920	05-Jan-83	Molybdenum	Homestake	None	0.04
0920	31-Aug-83	Molybdenum	Homestake	None	0.05
0920	14-Dec-89	Molybdenum	Homestake	Less Than	0.01
0920	09-May-90	Molybdenum	Homestake	Less Than	0.01
0920	21-May-91	Molybdenum	Homestake	Less Than	0.01
0920	06-May-92	Molybdenum	Homestake	Less Than	0.01
0920	06-May-93	Molybdenum	Homestake	Less Than	0.01
0920	28-Feb-94	Molybdenum	Energy Laboratories	Less Than	0.03
0920	29-Apr-94	Molybdenum	Energy Laboratories	Less Than	0.03
0920	29-Apr-94	Molybdenum	Energy Laboratories	Less Than	0.03
0920	11-May-94	Molybdenum	Energy Laboratories	Less Than	0.03
0920	10-May-95	Molybdenum	Energy Laboratories	Less Than	0.03
0920	24-Jan-96	Molybdenum	Energy Laboratories	Less Than	0.03
0920	20-May-96	Molybdenum	Energy Laboratories	Less Than	0.03
0920	23-May-97	Molybdenum	Energy Laboratories	Less Than	0.03
0920	12-May-98	Molybdenum	Energy Laboratories	Less Than	0.03
0921	28-Feb-94	Molybdenum	Energy Laboratories	Less Than	0.03
0921	16-May-94	Molybdenum	Energy Laboratories	Less Than	0.03
0921	24-Jan-96	Molybdenum	Energy Laboratories	Less Than	0.03
0921	23-May-97	Molybdenum	Energy Laboratories	Less Than	0.03
0921	12-May-98	Molybdenum	Energy Laboratories	Less Than	0.03
0922	03-Nov-81	Molybdenum	Homestake	None	0.03
0922	04-Mar-94	Molybdenum	Energy Laboratories	Less Than	0.03
0922	16-May-94	Molybdenum	Energy Laboratories	Less Than	0.03
0922	24-Jan-96	Molybdenum	Energy Laboratories	Less Than	0.03
0922	23-May-97	Molybdenum	Energy Laboratories	Less Than	0.03
0922	12-May-98	Molybdenum	Energy Laboratories	Less Than (QC)	0.03
0922	12-May-98	Molybdenum	Energy Laboratories	Less Than	0.03
0950	28-Feb-94	Molybdenum	Energy Laboratories	Less Than	0.03
0950	11-May-94	Molybdenum	Energy Laboratories	Less Than	0.03
0950	25-Jan-96	Molybdenum	Energy Laboratories	Less Than	0.03

Table 16. Molybdenum Far Upgradient Background Data Set for Well 914
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
10-Jan-83	Molybdenum	0.07
14-Mar-94	Molybdenum	0.015
12-May-94	Molybdenum	0.015
24-Jan-96	Molybdenum	0.015
22-May-97	Molybdenum	0.015
12-May-98	Molybdenum	0.015

Table 17. Molybdenum Far Upgradient Background Data Set for Well 916
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Feb-94	Molybdenum	0.015
26-Apr-94	Molybdenum	0.015
29-Jan-96	Molybdenum	0.015
28-May-97	Molybdenum	0.015
12-May-98	Molybdenum	0.015

Table 18. Molybdenum Far Upgradient Background Data Set for Well 920
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Molybdenum	0.03
30-Aug-82	Molybdenum	0.04
05-Jan-83	Molybdenum	0.04
31-Aug-83	Molybdenum	0.05
14-Dec-89	Molybdenum	0.005
09-May-90	Molybdenum	0.005
21-May-91	Molybdenum	0.005
06-May-92	Molybdenum	0.005
06-May-93	Molybdenum	0.005
28-Feb-94	Molybdenum	0.015
29-Apr-94	Molybdenum	0.015
11-May-94	Molybdenum	0.015
10-May-95	Molybdenum	0.015
24-Jan-96	Molybdenum	0.015
20-May-96	Molybdenum	0.015
23-May-97	Molybdenum	0.015
12-May-98	Molybdenum	0.015

Table 19. Molybdenum Far Upgradient Background Data Set for Well 921
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Molybdenum	0.015
16-May-94	Molybdenum	0.015
24-Jan-96	Molybdenum	0.015
23-May-97	Molybdenum	0.015
12-May-98	Molybdenum	0.015

Table 20. Molybdenum Far Upgradient Background Data Set for Well 922
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Molybdenum	0.03
04-Mar-94	Molybdenum	0.015
16-May-94	Molybdenum	0.015
24-Jan-96	Molybdenum	0.015
23-May-97	Molybdenum	0.015
12-May-98	Molybdenum	0.015

Table 21. Molybdenum Far Upgradient Background Data Set for Well 950
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Molybdenum	0.015
11-May-94	Molybdenum	0.015
25-Jan-96	Molybdenum	0.015

Table 22. Molybdenum Far Upgradient Background Groundwater Data Set Used in Statistical Analysis (all concentrations in mg/L)

Well ID					
914	**916**	**920**	**921**	**922**	**950**
0.07	0.015	0.05	0.015	0.03	0.015
0.015	0.015	0.04	0.015	0.015	0.015
0.015	0.015	0.04	0.015	0.015	0.015
0.015	0.015	0.03	0.015	0.015	
0.015	0.015	0.015	0.015	0.015	
0.015		0.015		0.015	
		0.015			
		0.015			
		0.015			
		0.015			
		0.015			
		0.015			
		0.005			
		0.005			
		0.005			
		0.005			
		0.005			

Table 23. Molybdenum Far Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Molybdenum	0.07	0.05	1.4	**PASS**

Table 24. Molybdenum Far Upgradient Background Data Set, 95th Percentile Calculation

Parameter	**Distribution**	**95th Percentile (mg/L)**	**Sample #**
Molybdenum	Nonparametric	0.040	42

Table 25. Molybdenum Far Upgradient Background Data Set, Summary Table

Parameter	**Distribution**	**95th Percentile (mg/L)**	**Range**	**Sample #**
Molybdenum	Nonparametric	0.040	<0.01 to 0.07	42

Table 26. Molybdenum Upgradient Background Data, Comparison Statistics Results

Comparison of Medians

Median of sample 1: 0.015
Median of sample 2: 0.015

Mann-Whitney (Wilcoxon) W test to compare medians

Null hypothesis: median1 = median2
Alt. hypothesis: median1 NE median2

Average rank of sample 1: 213.417
Average rank of sample 2: 203.477

W = 7311.5
P-value = 0.598284

The StatAdvisor

This option runs a Mann-Whitney W test option to compare the medians of the two samples. This test is constructed by combining the two samples, sorting the data from smallest to largest, and comparing the average ranks of the two samples in the combined data. Since the P-value is greater than or equal to 0.05, there is not a statistically significant difference between the medians at the 95.0% confidence level.

Table 27. Molybdenum Combined Upgradient Background Groundwater Data Set Used in Statistical Analysis
(all concentrations in mg/L)

Well ID														
DD	ND	P	P1	P2	P3	P4	Q	R	914	916	920	921	922	950
0.05	0.16	0.1	0.05	0.05	0.015	0.015	0.07	0.2	0.07	0.015	0.05	0.015	0.03	0.015
0.04	0.06	0.1	0.04	0.04			0.07	0.1	0.015	0.015	0.04	0.015	0.015	0.015
0.04	0.03	0.08	0.015	0.04			0.07	0.09	0.015	0.015	0.04	0.015	0.015	0.015
0.04	0.03	0.07	0.015	0.04			0.06	0.062	0.015	0.015	0.03	0.015	0.015	
0.04	0.03	0.07	0.015	0.04			0.055	0.06	0.015	0.015	0.015	0.015	0.015	
0.03	0.015	0.06	0.015	0.015			0.05	0.05	0.015		0.015		0.015	
0.03	0.015	0.055	0.015	0.015			0.04	0.05			0.015			
0.03	0.015	0.05	0.015	0.015			0.03	0.035			0.015			
0.03	0.015	0.05	0.015	0.015			0.03	0.03			0.015			
0.02	0.015	0.04	0.015	0.015			0.03	0.03			0.015			
0.02	0.01	0.04	0.015	0.015			0.025	0.03			0.015			
0.02	0.01	0.035	0.015	0.015			0.025	0.0275			0.015			
0.02	0.005	0.03	0.015	0.015			0.025	0.025			0.005			
0.0175		0.03	0.015	0.015			0.025	0.025			0.005			
0.015		0.03	0.015	0.015			0.0225	0.025			0.005			
0.015		0.03	0.015	0.015			0.02	0.0225			0.005			
0.015		0.0275	0.015	0.015			0.02	0.02			0.005			
0.015		0.0255	0.015	0.015			0.02	0.02						
0.015		0.025	0.015	0.015			0.02	0.02						
0.015		0.025	0.015	0.015			0.02	0.02						
0.015		0.025	0.015	0.01			0.02	0.02						
0.015		0.025	0.015	0.0075			0.02	0.02						
0.01		0.0225	0.01	0.0075			0.02	0.02						
0.01		0.022	0.005	0.005			0.02	0.02						
0.01		0.02	0.005				0.02	0.02						
0.01		0.02	0.005				0.02	0.0175						
0.01		0.02					0.02	0.0175						
0.01		0.02					0.02	0.01625						
0.01		0.02					0.02	0.016						
0.01		0.02					0.0175	0.015						
0.01		0.02					0.0175	0.015						
0.01		0.02					0.0175	0.015						
0.01		0.02					0.01625	0.015						
0.01		0.02					0.01625	0.015						
0.01		0.02					0.015	0.015						
0.01		0.019					0.015	0.015						
0.01		0.0175					0.015	0.015						
0.01		0.015					0.015	0.015						
0.01		0.015					0.015	0.015						
0.01		0.015					0.015	0.0125						
0.01		0.015					0.015	0.0125						
0.0085		0.015					0.015	0.0125						
0.0075		0.015					0.015	0.01125						
0.005		0.015					0.015	0.01						
0.005		0.015					0.015	0.01						
0.005		0.015					0.015	0.01						
0.005		0.015					0.01025	0.01						

Table 27. Molybdenum Combined Upgradient Background Groundwater Data Set Used in Statistical Analysis (continued)
(all concentrations in mg/L)

Well ID								
DD	ND	P	P1	P2	P3	P4	Q	R
0.005		0.015					0.01	0.01
0.005		0.015					0.01	0.01
0.005		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.015					0.01	0.01
		0.013333					0.01	0.01
		0.0125					0.0075	0.0075
		0.0125					0.0075	0.0075
		0.01					0.00625	0.0075
		0.01					0.005	0.0075
		0.01					0.005	0.0075
		0.01					0.005	0.00625
		0.01					0.005	0.00525
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.005
		0.01					0.005	0.0045
		0.01						
		0.01						
		0.0075						
		0.0075						
		0.0075						
		0.0075						
		0.0075						
		0.0075						
		0.007						
		0.005						
		0.005						
		0.005						

Table 27. Molybdenum Combined Upgradient Background Groundwater Data Set Used in Statistical Analysis (continued)
(all concentrations in mg/L)

Well ID								
DD	ND	P	P1	P2	P3	P4	Q	R
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						
		0.005						

Table 28. Molybdenum Combined Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Molybdenum	0.2	0.16	1.3	PASS

Table 29. Molybdenum Combined Upgradient Background Data Set, 95th Percentile Calculation

Parameter	Distribution	95th Percentile (mg/L)	Sample #
Molybdenum	Nonparametric	0.05	408

Table 30. Molybdenum Combined Upgradient Background Data Set, Summary Table

Parameter	Distribution	95th Percentile (mg/L)	Range	Sample #
Molybdenum	Nonparametric	0.05	<0.001 to 0.2	408

Table 31. Selenium concentrations in alluvial ground water samples upgradient of the Homestake Site, Grants, New Mexico, March 1976 to November 1998

Well ID	DD	ND	P	P1	P2	P3	P4	Q	R	All wells	914	916	920	921	922	950	All Wells
1st sampling date	03-Jun-76	12-Jan-83	30-Mar-76	21-Sep-92	21-Sep-92	23-Apr-98	24-Apr-98	07-Jan-76	07-Jan-76	30-Mar-76	10-Jan-83	21-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81	28-Feb-94	03-Nov-81
Most recent sampling date	01-Apr-98	05-Aug-98	12-Nov-98	28-Oct-98	28-Oct-98	23-Apr-98	24-Apr-98	04-Mar-98	06-May-98	12-Nov-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	25-Jan-96	12-May-98
Total number of measurments	56	13	131	32	31	1	1	98	108	471	6	5	18	5	6	3	43
Number of independent measurements	50	13	95	26	25	1	1	77	77	365	6	5	17	5	6	3	42
Percent nondect of total number of measurements	12.50%	7.69%	0.00%	0.00%	0.00%	0.00%	0.00%	1.02%	1.85%	2.34%	50.00%	20.00%	0.00%	0.00%	50.00%	0.00%	16.3%
Minimum	<0.01	<0.01	0.009	0.144	0.096	0.173	0.104	0.04	0.03	0.009	<0.005	0.007	0.32	0.415	<0.005	0.276	<0.005
Median	0.01	0.04	0.1	0.2385	0.233	0.173	0.104	0.179	0.09	0.104	0.006	0.008	0.495	0.534	0.0055	0.288	0.34125
Mean	0.02	0.0314615	0.11377368	0.2314615	0.2275	0.173	0.104	0.1751074	0.11028617	0.127	0.01708333	0.1064	0.51126471	0.5246	0.00766667	0.3	0.295
Maximum	0.11	0.059	0.755	0.322	0.31	0.173	0.104	0.7	0.406	0.755	0.052	0.009	0.79	0.605	0.019	0.336	0.79
Percent greater than or equal to the NRC site standard (0.10mg/L)	8.00%	0.00%	54.74%	100.00%	96.00%	100.00%	100.00%	84.42%	41.56%	56.20%	0.00%	0.00%	100.00%	100.00%	0.00%	100.00%	59.50%

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
DD	03-Jun-76	Selenium	Homestake	None	0.1
DD	27-Aug-76	Selenium	Homestake	None	0.11
DD	15-Sep-81	Selenium	Homestake	None	0.02
DD	24-Mar-82	Selenium	Homestake	Less Than	0.01
DD	26-May-82	Selenium	Homestake	None	0.1
DD	18-Nov-82	Selenium	Homestake	None	0.04
DD	18-Nov-82	Selenium	Homestake	None	0.04
DD	04-Mar-83	Selenium	Homestake	None	0.04
DD	28-Jun-83	Selenium	Homestake	None	0.01
DD	28-Jun-83	Selenium	NM EID	None	0.04
DD	14-Sep-83	Selenium	Homestake	None	0.01
DD	19-Dec-83	Selenium	Homestake	None	0.01
DD	07-Mar-84	Selenium	Homestake	None	0.01
DD	09-May-84	Selenium	Homestake	None	0.01
DD	09-May-84	Selenium	Controls for Env	None	0.03
DD	12-Sep-84	Selenium	Homestake	None	0.01
DD	12-Dec-84	Selenium	Homestake	None	0.01
DD	13-Mar-85	Selenium	Homestake	None	0.02
DD	06-Jun-85	Selenium	Homestake	None	0.1
DD	04-Sep-85	Selenium	Homestake	None	0.01
DD	16-Dec-85	Selenium	Homestake	None	0.01
DD	20-Mar-86	Selenium	Homestake	None	0.01
DD	30-Jun-86	Selenium	Homestake	None	0.01
DD	15-Sep-86	Selenium	Homestake	Less Than	0.01
DD	09-Dec-86	Selenium	Homestake	None	0.01
DD	19-Mar-87	Selenium	Homestake	None	0.01
DD	24-Jun-87	Selenium	Homestake	None	0.01
DD	15-Sep-87	Selenium	Homestake	None	0.01
DD	08-Dec-87	Selenium	Homestake	None	0.01
DD	24-Feb-88	Selenium	Homestake	None	0.01
DD	09-Jun-88	Selenium	Homestake	None	0.01
DD	11-Oct-88	Selenium	Homestake	None	0.02
DD	08-Dec-88	Selenium	Homestake	Less Than	0.01
DD	13-Dec-88	Selenium	Homestake	None	0.02
DD	13-Dec-88	Selenium	Barringer Lab	None	0.029
DD	11-Jan-89	Selenium	Homestake	None	0.01
DD	11-Jan-89	Selenium	Barringer Lab	None	0.031
DD	15-Feb-89	Selenium	Homestake	None	0.01
DD	15-Feb-89	Selenium	Barringer Lab	None	0.037
DD	29-Mar-89	Selenium	Homestake	Less Than	0.01
DD	13-Jun-89	Selenium	Homestake	Less Than	0.01
DD	15-Nov-89	Selenium	Homestake	Less Than	0.01
DD	13-Mar-90	Selenium	Homestake	Less Than	0.01
DD	12-Sep-90	Selenium	Homestake	None	0.01
DD	27-Feb-91	Selenium	Homestake	None	0.02

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
DD	16-Sep-91	Selenium	Homestake	None	0.01
DD	09-Mar-92	Selenium	Homestake	None	0.01
DD	22-Sep-92	Selenium	Homestake	None	0.01
DD	21-Oct-93	Selenium	Energy Lab	None	0.02
DD	09-Mar-94	Selenium	Energy Lab	None	0.015
DD	21-Oct-94	Selenium	Energy Lab	None	0.016
DD	10-Oct-95	Selenium	Energy Lab	None	0.017
DD	10-Oct-96	Selenium	Energy Lab	None	0.021
DD	14-Apr-97	Selenium	Energy Lab	None	0.018
DD	09-Sep-97	Selenium	Energy Lab	None	0.023
DD	01-Apr-98	Selenium	Energy Lab	None	0.031
ND	12-Jan-83	Selenium	Homestake	None	0.04
ND	06-Jan-84	Selenium	Homestake	None	0.02
ND	18-Dec-89	Selenium	Homestake	Less than	0.01
ND	17-Oct-90	Selenium	Homestake	None	0.01
ND	16-Sep-91	Selenium	Homestake	None	0.01
ND	18-Aug-92	Selenium	Homestake	None	0.02
ND	25-Aug-93	Selenium	Energy Laboratories	None	0.045
ND	14-Mar-94	Selenium	Energy Laboratories	None	0.024
ND	22-Aug-94	Selenium	Energy Laboratories	None	0.059
ND	22-Aug-95	Selenium	Energy Laboratories	None	0.042
ND	29-Jul-96	Selenium	Energy Laboratories	None	0.05
ND	11-Aug-97	Selenium	Energy Laboratories	None	0.04
ND	05-Aug-98	Selenium	Energy Laboratories	None	0.044
P	30-Mar-76	Selenium	Homestake	None	0.16
P	09-Apr-76	Selenium	Homestake	None	0.18
P	03-Jun-76	Selenium	Homestake	None	0.14
P	27-Aug-76	Selenium	Homestake	None	0.17
P	13-Jun-77	Selenium	Eberline	None	0.5
P	13-Jun-77	Selenium	Homestake	None	0.08
P	13-Jun-77	Selenium	NM EID	None	0.5
P	24-Aug-77	Selenium	Eberline	None	1.085
P	24-Aug-77	Selenium	Homestake	None	0.09
P	24-Aug-77	Selenium	NM EID	None	1.09
P	11-Oct-77	Selenium	NM EID	None	0.22
P	11-Oct-77	Selenium	Homestake	None	0.11
P	01-Feb-78	Selenium	NM Bureau of Mines	None	0.088
P	01-Feb-78	Selenium	NM EID	None	0.12
P	01-Feb-78	Selenium	Homestake	None	0.08
P	17-Apr-78	Selenium	Homestake	None	0.22
P	11-Jul-78	Selenium	NM EID	None	0.06
P	11-Jul-78	Selenium	Homestake	None	0.07
P	23-Oct-78	Selenium	Homestake	None	0.11
P	23-Oct-78	Selenium	NM EID	None	0.18
P	30-Jan-79	Selenium	Homestake	None	0.09
P	30-Jan-79	Selenium	NM EID	None	0.136
P	30-Apr-79	Selenium	Homestake	None	0.08
P	30-Apr-79	Selenium	NM EID	None	0.2
P	12-Jul-79	Selenium	Homestake	None	0.13
P	10-Sep-79	Selenium	Homestake	None	0.12
P	06-Nov-79	Selenium	Homestake	None	0.08
P	09-Jan-80	Selenium	Homestake	None	0.12

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
P	16-Apr-80	Selenium	Homestake	None	0.12
P	17-Apr-80	Selenium	NM EID	None	0.12
P	16-Jul-80	Selenium	Homestake	None	0.16
P	16-Jul-80	Selenium	NM EID	None	0.13
P	13-Oct-80	Selenium	Homestake	None	0.16
P	07-Jan-81	Selenium	Homestake	None	0.16
P	07-Jan-81	Selenium	NM EID	None	0.025
P	15-Apr-81	Selenium	Homestake	None	0.15
P	15-Apr-81	Selenium	NM EID	None	0.096
P	07-Jul-81	Selenium	Homestake	None	0.15
P	07-Oct-81	Selenium	Homestake	None	0.17
P	28-Dec-81	Selenium	NM EID	None	0.083
P	28-Dec-81	Selenium	Homestake	None	0.12
P	24-Mar-82	Selenium	Homestake	None	0.12
P	24-Mar-82	Selenium	NM EID	None	0.085
P	22-May-82	Selenium	Homestake	None	0.17
P	25-Aug-82	Selenium	Homestake	None	0.05
P	18-Nov-82	Selenium	Assaigai Lab	None	0.6
P	18-Nov-82	Selenium	Controls for	None	0.06
P	18-Nov-82	Selenium	Homestake	None	0.08
P	18-Nov-82	Selenium	Controls for	None	0.06
P	23-Feb-83	Selenium	Homestake	None	0.1
P	26-May-83	Selenium	Homestake	None	0.06
P	27-Jun-83	Selenium	Homestake	None	0.06
P	27-Jun-83	Selenium	NM EID	None	0.092
P	12-Sep-83	Selenium	Homestake	None	0.06
P	19-Dec-83	Selenium	Homestake	None	0.05
P	07-Mar-84	Selenium	Homestake	None	0.09
P	09-May-84	Selenium	Controls for	None	0.05
P	09-May-84	Selenium	Homestake	None	0.11
P	12-Sep-84	Selenium	Homestake	None	0.17
P	13-Dec-84	Selenium	Homestake	None	0.14
P	11-Mar-85	Selenium	Controls for	None	0.04
P	11-Mar-85	Selenium	Homestake	None	0.14
P	29-May-85	Selenium	Homestake	None	0.12
P	04-Sep-85	Selenium	Controls for	None	0.04
P	04-Sep-85	Selenium	Homestake	None	0.12
P	16-Dec-85	Selenium	Homestake	None	0.12
P	10-Mar-86	Selenium	Controls for	None	0.04
P	10-Mar-86	Selenium	Homestake	None	0.14
P	30-Jun-86	Selenium	Homestake	None	0.13
P	15-Sep-86	Selenium	Controls for	None	0.07
P	15-Sep-86	Selenium	Homestake	None	0.13
P	16-Dec-86	Selenium	Homestake	None	0.13
P	19-Mar-87	Selenium	Controls for	None	0.05
P	19-Mar-87	Selenium	Homestake	None	0.08
P	24-Jun-87	Selenium	Homestake	None	0.1
P	16-Sep-87	Selenium	Controls for	None	0.06
P	16-Sep-87	Selenium	Homestake	None	0.1
P	08-Dec-87	Selenium	Homestake	None	0.12
P	24-Feb-88	Selenium	Homestake	None	0.11
P	24-Feb-88	Selenium	Barringer	None	0.072

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
P	12-May-88	Selenium	Homestake	None	0.08
P	23-Aug-88	Selenium	Homestake	None	0.11
P	23-Aug-88	Selenium	Barringer	None	0.132
P	12-Oct-88	Selenium	Homestake	None	0.11
P	13-Dec-88	Selenium	Homestake	None	0.11
P	13-Dec-88	Selenium	Barringer	None	0.094
P	11-Jan-89	Selenium	Homestake	None	0.11
P	11-Jan-89	Selenium	Barringer	None	0.09
P	15-Feb-89	Selenium	Homestake	None	0.09
P	15-Feb-89	Selenium	Barringer	None	0.119
P	16-May-89	Selenium	Homestake	None	0.08
P	10-Aug-89	Selenium	Homestake	None	0.1
P	15-Nov-89	Selenium	Homestake	None	0.05
P	13-Mar-90	Selenium	Homestake	None	0.1
P	04-Jun-90	Selenium	Homestake	None	0.07
P	12-Sep-90	Selenium	Homestake	None	0.09
P	03-Dec-90	Selenium	Homestake	None	0.13
P	03-Dec-90	Selenium	Barringer	None	0.074
P	03-Jun-91	Selenium	Homestake	None	0.1
P	16-Sep-91	Selenium	Homestake	None	0.11
P	18-Nov-91	Selenium	Homestake	None	0.11
P	09-Mar-92	Selenium	Homestake	None	0.13
P	04-Jun-92	Selenium	Homestake	None	0.13
P	21-Sep-92	Selenium	Homestake	None	0.13
P	03-Dec-92	Selenium	Homestake	None	0.13
P	03-Mar-93	Selenium	Homestake	None	0.09
P	01-Jun-93	Selenium	Homestake	None	0.07
P	08-Sep-93	Selenium	Energy Laboratories	None	0.085
P	24-Nov-93	Selenium	Energy Laboratories	None	0.073
P	01-Mar-94	Selenium	Energy Laboratories	None	0.009
P	31-May-94	Selenium	Energy Laboratories	None	0.081
P	01-Sep-94	Selenium	Energy Laboratories	None	0.057
P	28-Nov-94	Selenium	Energy Laboratories	None	0.089
P	16-Mar-95	Selenium	Energy Laboratories	None	0.03
P	16-Mar-95	Selenium	Energy Laboratories	None	0.03
P	06-Jun-95	Selenium	Energy Laboratories	None	0.085
P	05-Sep-95	Selenium	Energy Laboratories	None	0.062
P	05-Dec-95	Selenium	Energy Laboratories	None	0.063
P	05-Dec-95	Selenium	Energy Laboratories	None	0.06
P	11-Mar-96	Selenium	Energy Laboratories	None	0.051
P	03-Jun-96	Selenium	Energy Laboratories	None	0.055
P	17-Sep-96	Selenium	Energy Laboratories	None	0.077
P	10-Oct-96	Selenium	Energy Laboratories	None	0.065
P	06-Mar-97	Selenium	Energy Laboratories	None	0.063
P	27-May-97	Selenium	Energy Laboratories	None	0.059
P	09-Sep-97	Selenium	Energy Laboratories	None	0.026
P	09-Sep-97	Selenium	Energy Laboratories	Quality Control	0.009
P	03-Nov-97	Selenium	Energy Laboratories	None	0.061
P	04-Mar-98	Selenium	Energy Laboratories	None	0.082
P	04-Mar-98	Selenium	Energy Laboratories	Quality Control	0.1
P	05-May-98	Selenium	Energy Laboratories	None	0.182
P	16-Sep-98	Selenium	Energy Laboratories	None	0.196

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
P	12-Nov-98	Selenium	Energy Laboratories	None	0.164
P	12-Nov-98	Selenium	ACZ Laboratories	Quality Control	0.15
P	12-Nov-98	Selenium	Energy Laboratories	Quality Control	0.152
P1	21-Sep-92	Selenium	Homestake	None	0.24
P1	21-Jan-93	Selenium	Energy Laboratories	None	0.216
P1	21-Jan-93	Selenium	Homestake	None	0.22
P1	13-Apr-93	Selenium	Homestake	None	0.24
P1	13-Jul-93	Selenium	Homestake	None	0.27
P1	21-Oct-93	Selenium	Energy Laboratories	None	0.144
P1	04-Jan-94	Selenium	Energy Laboratories	None	0.225
P1	07-Mar-94	Selenium	Energy Laboratories	None	0.171
P1	12-Apr-94	Selenium	Energy Laboratories	None	0.162
P1	06-Jul-94	Selenium	Energy Laboratories	None	0.292
P1	21-Oct-94	Selenium	Energy Laboratories	None	0.322
P1	04-Jan-95	Selenium	Energy Laboratories	None	0.238
P1	04-Jan-95	Selenium	Energy Laboratories	None	0.246
P1	12-Apr-95	Selenium	Energy Laboratories	None	0.167
P1	06-Jul-95	Selenium	Energy Laboratories	None	0.294
P1	03-Oct-95	Selenium	Energy Laboratories	None	0.214
P1	10-Jan-96	Selenium	Energy Laboratories	None	0.224
P1	10-Jan-96	Selenium	Energy Laboratories	None	0.22
P1	09-Apr-96	Selenium	Energy Laboratories	None	0.246
P1	09-Apr-96	Selenium	Energy Laboratories	None	0.267
P1	19-Jul-96	Selenium	Energy Laboratories	None	0.194
P1	19-Jul-96	Selenium	Energy Laboratories	None	0.204
P1	04-Nov-96	Selenium	Energy Laboratories	None	0.241
P1	04-Nov-96	Selenium	Energy Laboratories	None	0.266
P1	13-Jan-97	Selenium	Energy Laboratories	Quality Control	0.245
P1	13-Jan-97	Selenium	Energy Laboratories	None	0.237
P1	14-Apr-97	Selenium	Energy Laboratories	None	0.215
P1	14-Apr-97	Selenium	Energy Laboratories	Quality Control	0.209
P1	08-Jul-97	Selenium	Energy Laboratories	None	0.232
P1	03-Nov-97	Selenium	Energy Laboratories	None	0.225
P1	19-Jan-98	Selenium	Energy Laboratories	None	0.243
P1	19-Jan-98	Selenium	Energy Laboratories	Quality Control	0.239
P1	01-Apr-98	Selenium	Energy Laboratories	None	0.242
P1	01-Apr-98	Selenium	Energy Laboratories	Quality Control	0.253
P1	14-Jul-98	Selenium	Energy Laboratories	None	0.252
P1	28-Oct-98	Selenium	Energy Laboratories	None	0.24
P2	21-Sep-92	Selenium	Homestake	None	0.24
P2	08-Feb-93	Selenium	Energy Laboratories	None	0.11
P2	08-Feb-93	Selenium	Homestake	None	0.24
P2	04-May-93	Selenium	Energy Laboratories	None	0.245
P2	04-May-93	Selenium	Homestake	None	0.22
P2	12-Aug-93	Selenium	Homestake	None	0.22
P2	01-Nov-93	Selenium	Energy Laboratories	None	0.183
P2	01-Nov-93	Selenium	Energy Laboratories	None	0.169
P2	02-Feb-94	Selenium	Energy Laboratories	None	0.096
P2	07-Mar-94	Selenium	Energy Laboratories	None	0.194
P2	29-Apr-94	Selenium	Energy Laboratories	None	0.128
P2	29-Apr-94	Selenium	Energy Laboratories	None	0.132
P2	01-Aug-94	Selenium	Energy Laboratories	None	0.31

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
P2	01-Nov-94	Selenium	Energy Laboratories	None	0.299
P2	03-Feb-95	Selenium	Energy Laboratories	None	0.294
P2	05-May-95	Selenium	Energy Laboratories	None	0.244
P2	02-Aug-95	Selenium	Energy Laboratories	None	0.244
P2	02-Aug-95	Selenium	Energy Laboratories	None	0.252
P2	06-Nov-95	Selenium	Energy Laboratories	None	0.264
P2	12-Feb-96	Selenium	Energy Laboratories	None	0.221
P2	14-May-96	Selenium	Energy Laboratories	None	0.234
P2	14-May-96	Selenium	Energy Laboratories	None	0.232
P2	29-Jul-96	Selenium	Energy Laboratories	None	0.236
P2	03-Feb-97	Selenium	Energy Laboratories	None	0.194
P2	03-Feb-97	Selenium	Energy Laboratories	Quality Control	0.212
P2	29-Apr-97	Selenium	Energy Laboratories	None	0.233
P2	29-Apr-97	Selenium	Energy Laboratories	Quality Control	0.296
P2	28-Jul-97	Selenium	Energy Laboratories	None	0.276
P2	28-Jul-97	Selenium	Energy Laboratories	Quality Control	0.224
P2	13-Oct-97	Selenium	Energy Laboratories	None	0.217
P2	10-Feb-98	Selenium	Energy Laboratories	Quality Control	0.23
P2	10-Feb-98	Selenium	Energy Laboratories	None	0.3
P2	05-May-98	Selenium	Energy Laboratories	None	0.21
P2	04-Aug-98	Selenium	Energy Laboratories	None	0.209
P2	28-Oct-98	Selenium	Energy Laboratories	None	0.236
P3	23-Apr-98	Selenium	Energy Laboratories	None	0.173
P4	24-Apr-98	Selenium	Energy Laboratories	None	0.104
Q	07-Jan-76	Selenium	Homestake	Less than	0.05
Q	30-Mar-76	Selenium	Homestake	None	0.19
Q	09-Apr-76	Selenium	Homestake	None	0.3
Q	03-Jun-76	Selenium	Homestake	None	0.18
Q	27-Aug-76	Selenium	Homestake	None	0.23
Q	13-Jun-77	Selenium	Eberline	None	0.5
Q	13-Jun-77	Selenium	Homestake	None	0.09
Q	24-Aug-77	Selenium	Eberline	None	1.28
Q	24-Aug-77	Selenium	Homestake	None	0.12
Q	11-Oct-77	Selenium	Eberline	None	0.35
Q	11-Oct-77	Selenium	Homestake	None	0.12
Q	01-Feb-78	Selenium	Eberline	None	0.15
Q	01-Feb-78	Selenium	NM Bureau of Mines	None	0.16
Q	01-Feb-78	Selenium	Homestake	None	0.1
Q	17-Apr-78	Selenium	Homestake	None	0.22
Q	10-Jul-78	Selenium	NM EID	None	0.05
Q	10-Jul-78	Selenium	Homestake	None	0.11
Q	23-Oct-78	Selenium	Homestake	None	0.19
Q	23-Oct-78	Selenium	NM EID	None	0.24
Q	30-Jan-79	Selenium	Homestake	None	0.14
Q	30-Jan-79	Selenium	NM EID	None	0.194
Q	30-Apr-79	Selenium	Homestake	None	0.1
Q	30-Apr-79	Selenium	NM EID	None	0.2732
Q	12-Jul-79	Selenium	Homestake	None	0.18
Q	10-Sep-79	Selenium	Homestake	None	0.15
Q	06-Nov-79	Selenium	Homestake	None	0.14
Q	09-Jan-80	Selenium	Homestake	None	0.14
Q	16-Apr-80	Selenium	Homestake	None	0.16

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
Q	17-Apr-80	Selenium	NM EID	None	0.139
Q	16-Jul-80	Selenium	Homestake	None	0.18
Q	16-Jul-80	Selenium	NM EID	None	0.115
Q	13-Oct-80	Selenium	Homestake	None	0.2
Q	07-Jan-81	Selenium	Homestake	None	0.24
Q	07-Jan-81	Selenium	NM EID	None	0.08
Q	15-Apr-81	Selenium	Homestake	None	0.22
Q	15-Apr-81	Selenium	NM EID	None	0.106
Q	07-Jul-81	Selenium	Homestake	None	0.23
Q	07-Oct-81	Selenium	Homestake	None	0.2
Q	28-Dec-81	Selenium	Homestake	None	0.15
Q	28-Dec-81	Selenium	NM EID	None	0.074
Q	24-Mar-82	Selenium	Homestake	None	0.14
Q	24-Mar-82	Selenium	NM EID	None	0.116
Q	22-May-82	Selenium	Homestake	None	0.15
Q	25-Aug-82	Selenium	Homestake	None	0.04
Q	18-Nov-82	Selenium	Homestake	None	0.08
Q	23-Feb-83	Selenium	Homestake	None	0.09
Q	26-May-83	Selenium	Homestake	None	0.07
Q	28-Jun-83	Selenium	NM EID	None	0.078
Q	28-Jun-83	Selenium	Homestake	None	0.07
Q	21-Sep-83	Selenium	Homestake	None	0.1
Q	19-Dec-83	Selenium	Homestake	None	0.09
Q	07-Mar-84	Selenium	Homestake	None	0.07
Q	09-May-84	Selenium	Controls for	None	0.07
Q	09-May-84	Selenium	Homestake	None	0.16
Q	12-Sep-84	Selenium	Homestake	None	0.2
Q	12-Dec-84	Selenium	Homestake	None	0.14
Q	11-Mar-85	Selenium	Homestake	None	0.15
Q	29-May-85	Selenium	Homestake	None	0.15
Q	06-Sep-85	Selenium	Homestake	None	0.15
Q	16-Dec-85	Selenium	Homestake	None	0.16
Q	10-Mar-86	Selenium	Homestake	None	0.19
Q	30-Jun-86	Selenium	Homestake	None	0.2
Q	15-Sep-86	Selenium	Homestake	None	0.21
Q	15-Dec-86	Selenium	Homestake	None	0.2
Q	19-Mar-87	Selenium	Homestake	None	0.2
Q	19-Jun-87	Selenium	Homestake	None	0.16
Q	15-Sep-87	Selenium	Homestake	None	0.19
Q	08-Dec-87	Selenium	Homestake	None	0.22
Q	24-Feb-88	Selenium	Homestake	None	0.21
Q	12-May-88	Selenium	Homestake	None	0.17
Q	23-Aug-88	Selenium	Homestake	None	0.21
Q	03-Nov-88	Selenium	Homestake	None	0.23
Q	13-Dec-88	Selenium	Homestake	None	0.2
Q	13-Dec-88	Selenium	Barringer	None	0.215
Q	11-Jan-89	Selenium	Homestake	None	0.2
Q	11-Jan-89	Selenium	Barringer	None	0.158
Q	15-Feb-89	Selenium	Homestake	None	0.17
Q	15-Feb-89	Selenium	Barringer	None	0.19
Q	16-May-89	Selenium	Homestake	None	0.14
Q	15-Nov-89	Selenium	Homestake	None	0.15

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
Q	13-Mar-90	Selenium	Homestake	None	0.2
Q	12-Sep-90	Selenium	Homestake	None	0.23
Q	27-Feb-91	Selenium	Homestake	None	0.23
Q	16-Sep-91	Selenium	Homestake	None	0.17
Q	09-Mar-92	Selenium	Homestake	None	0.25
Q	16-Sep-92	Selenium	Homestake	None	0.21
Q	03-Mar-93	Selenium	Homestake	None	0.2
Q	08-Sep-93	Selenium	Energy Laboratories	None	0.07
Q	01-Mar-94	Selenium	Energy Laboratories	None	0.081
Q	01-Mar-94	Selenium	Energy Laboratories	None	0.118
Q	01-Sep-94	Selenium	Energy Laboratories	None	0.138
Q	16-Mar-95	Selenium	Energy Laboratories	None	0.096
Q	05-Sep-95	Selenium	Energy Laboratories	None	0.155
Q	11-Mar-96	Selenium	Energy Laboratories	None	0.201
Q	17-Sep-96	Selenium	Energy Laboratories	None	0.294
Q	06-Mar-97	Selenium	Energy Laboratories	None	0.197
Q	09-Sep-97	Selenium	Energy Laboratories	None	0.207
Q	04-Mar-98	Selenium	Energy Laboratories	None	0.2
R	07-Jan-76	Selenium	Homestake	Less than	0.05
R	30-Mar-76	Selenium	Homestake	None	0.11
R	09-Apr-76	Selenium	Homestake	None	0.08
R	03-Jun-76	Selenium	Homestake	None	0.09
R	01-Sep-76	Selenium	Homestake	None	0.08
R	13-Jun-77	Selenium	Eberline	None	0.4
R	13-Jun-77	Selenium	Homestake	None	0.05
R	24-Aug-77	Selenium	Eberline	None	0.091
R	24-Aug-77	Selenium	Homestake	None	0.06
R	11-Oct-77	Selenium	Eberline	None	0.13
R	11-Oct-77	Selenium	Homestake	None	0.06
R	01-Feb-78	Selenium	Eberline	None	0.043
R	01-Feb-78	Selenium	NM Bureau of Mines	None	0.072
R	01-Feb-78	Selenium	Homestake	None	0.05
R	17-Apr-78	Selenium	Homestake	None	0.16
R	10-Jul-78	Selenium	Homestake	None	0.07
R	10-Jul-78	Selenium	NM EID	None	0.03097
R	23-Oct-78	Selenium	Homestake	None	0.08
R	23-Oct-78	Selenium	NM EID	Less than	0.096
R	31-Jan-79	Selenium	Homestake	None	0.05
R	31-Jan-79	Selenium	NM EID	None	0.067
R	30-Apr-79	Selenium	Homestake	None	0.03
R	30-Apr-79	Selenium	NM EID	None	0.0891
R	12-Jul-79	Selenium	Homestake	None	0.05
R	10-Sep-79	Selenium	Homestake	None	0.05
R	06-Nov-79	Selenium	Homestake	None	0.03
R	07-Jan-80	Selenium	NM EID	None	0.037
R	09-Jan-80	Selenium	Homestake	None	0.06
R	16-Apr-80	Selenium	Homestake	None	0.05
R	17-Apr-80	Selenium	NM EID	None	0.044
R	16-Jul-80	Selenium	Homestake	None	0.06
R	16-Jul-80	Selenium	NM EID	None	0.053
R	13-Oct-80	Selenium	Homestake	None	0.09
R	07-Jan-81	Selenium	Homestake	None	0.06

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
R	15-Apr-81	Selenium	Homestake	None	0.1
R	15-Apr-81	Selenium	NM EID	None	0.047
R	07-Jul-81	Selenium	Homestake	None	0.11
R	28-Dec-81	Selenium	Homestake	None	0.08
R	28-Dec-81	Selenium	NM EID	None	0.048
R	24-Mar-82	Selenium	Homestake	None	0.07
R	24-Mar-82	Selenium	NM EID	None	0.04
R	22-May-82	Selenium	Homestake	None	0.04
R	25-Aug-82	Selenium	Homestake	None	0.06
R	18-Nov-82	Selenium	Homestake	None	0.07
R	23-Feb-83	Selenium	Homestake	None	0.07
R	26-May-83	Selenium	Homestake	None	0.05
R	28-Jun-83	Selenium	Homestake	None	0.04
R	28-Jun-83	Selenium	NM EID	None	0.045
R	12-Sep-83	Selenium	Homestake	None	0.03
R	20-Dec-83	Selenium	Homestake	None	0.05
R	07-Mar-84	Selenium	Homestake	None	0.09
R	09-May-84	Selenium	Controls for	None	0.03
R	09-May-84	Selenium	Homestake	None	0.06
R	12-Sep-84	Selenium	Homestake	None	0.1
R	12-Dec-84	Selenium	Homestake	None	0.1
R	11-Mar-85	Selenium	Controls for	None	0.02
R	11-Mar-85	Selenium	Homestake	None	0.1
R	29-May-85	Selenium	Homestake	None	0.1
R	05-Sep-85	Selenium	Controls for	None	0.03
R	05-Sep-85	Selenium	Homestake	None	0.1
R	16-Dec-85	Selenium	Homestake	None	0.09
R	10-Mar-86	Selenium	Controls for	None	0.02
R	10-Mar-86	Selenium	Homestake	None	0.1
R	30-Jun-86	Selenium	Homestake	None	0.1
R	15-Sep-86	Selenium	Controls for	None	0.05
R	15-Sep-86	Selenium	Homestake	None	0.09
R	15-Dec-86	Selenium	Homestake	None	0.1
R	19-Mar-87	Selenium	Controls for	None	0.04
R	19-Mar-87	Selenium	Homestake	None	0.09
R	19-Jun-87	Selenium	Homestake	None	0.09
R	15-Sep-87	Selenium	Controls for	None	0.04
R	15-Sep-87	Selenium	Homestake	None	0.09
R	08-Dec-87	Selenium	Homestake	None	0.11
R	24-Feb-88	Selenium	Homestake	None	0.09
R	24-Feb-88	Selenium	Barringer	None	0.066
R	12-May-88	Selenium	Homestake	None	0.09
R	22-Aug-88	Selenium	Homestake	None	0.1
R	22-Aug-88	Selenium	Barringer	None	0.142
R	03-Nov-88	Selenium	Homestake	None	0.12
R	13-Dec-88	Selenium	Homestake	None	0.1
R	13-Dec-88	Selenium	Barringer	None	0.074
R	11-Jan-89	Selenium	Homestake	None	0.09
R	11-Jan-89	Selenium	Barringer	None	0.091
R	15-Feb-89	Selenium	Homestake	None	0.09
R	15-Feb-89	Selenium	Barringer	None	0.099
R	16-May-89	Selenium	Homestake	None	0.11

Table 32. Selenium Near Upgradient Background Data Set
(data not corrected for non-detects or duplicates) (continued)

Well Name	Sample_Date	Parameter Code	Lab_Code	Remark Code	Value
R	15-Nov-89	Selenium	Homestake	None	0.1
R	13-Mar-90	Selenium	Homestake	None	0.13
R	12-Sep-90	Selenium	Homestake	None	0.15
R	27-Feb-91	Selenium	Homestake	None	0.17
R	16-Sep-91	Selenium	Homestake	None	0.15
R	09-Mar-92	Selenium	Homestake	None	0.23
R	16-Sep-92	Selenium	Energy Laboratories	None	0.27
R	16-Sep-92	Selenium	Homestake	None	0.19
R	01-Jun-93	Selenium	Homestake	None	0.17
R	08-Sep-93	Selenium	Energy Laboratories	None	0.101
R	07-Mar-94	Selenium	Energy Laboratories	None	0.191
R	31-May-94	Selenium	Energy Laboratories	None	0.18
R	01-Sep-94	Selenium	Energy Laboratories	None	0.182
R	06-Jun-95	Selenium	Energy Laboratories	None	0.22
R	06-Jun-95	Selenium	Energy Laboratories	None	0.258
R	05-Sep-95	Selenium	Energy Laboratories	None	0.214
R	05-Sep-95	Selenium	Energy Laboratories	None	0.232
R	03-Jun-96	Selenium	Energy Laboratories	None	0.269
R	17-Sep-96	Selenium	Energy Laboratories	None	0.406
R	10-Oct-96	Selenium	Energy Laboratories	None	0.281
R	27-May-97	Selenium	Energy Laboratories	None	0.288
R	06-May-98	Selenium	Energy Laboratories	None	0.326

Table 33. Selenium Near Upgradient Background Data Set for Well DD
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Jun-76	Selenium	0.1
27-Aug-76	Selenium	0.11
15-Sep-81	Selenium	0.02
24-Mar-82	Selenium	0.005
26-May-82	Selenium	0.1
18-Nov-82	Selenium	0.04
04-Mar-83	Selenium	0.04
28-Jun-83	Selenium	0.025
14-Sep-83	Selenium	0.01
19-Dec-83	Selenium	0.01
07-Mar-84	Selenium	0.01
09-May-84	Selenium	0.02
12-Sep-84	Selenium	0.01
12-Dec-84	Selenium	0.01
13-Mar-85	Selenium	0.02
06-Jun-85	Selenium	0.1
04-Sep-85	Selenium	0.01
16-Dec-85	Selenium	0.01
20-Mar-86	Selenium	0.01
30-Jun-86	Selenium	0.01
15-Sep-86	Selenium	0.005
09-Dec-86	Selenium	0.01
19-Mar-87	Selenium	0.01
24-Jun-87	Selenium	0.01
15-Sep-87	Selenium	0.01
08-Dec-87	Selenium	0.01
24-Feb-88	Selenium	0.01
09-Jun-88	Selenium	0.01
11-Oct-88	Selenium	0.02
08-Dec-88	Selenium	0.005
13-Dec-88	Selenium	0.0245
11-Jan-89	Selenium	0.0205
15-Feb-89	Selenium	0.0235
29-Mar-89	Selenium	0.005
13-Jun-89	Selenium	0.005
15-Nov-89	Selenium	0.005
13-Mar-90	Selenium	0.005
12-Sep-90	Selenium	0.01
27-Feb-91	Selenium	0.02
16-Sep-91	Selenium	0.01
09-Mar-92	Selenium	0.01
22-Sep-92	Selenium	0.01
21-Oct-93	Selenium	0.02
09-Mar-94	Selenium	0.015
21-Oct-94	Selenium	0.016
10-Oct-95	Selenium	0.017
10-Oct-96	Selenium	0.021
14-Apr-97	Selenium	0.018
09-Sep-97	Selenium	0.023
01-Apr-98	Selenium	0.031

Table 34. Selenium Near Upgradient Background Data Set for Well ND
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
12-Jan-83	Selenium	0.04
06-Jan-84	Selenium	0.02
18-Dec-89	Selenium	0.005
17-Oct-90	Selenium	0.01
16-Sep-91	Selenium	0.01
18-Aug-92	Selenium	0.02
25-Aug-93	Selenium	0.045
14-Mar-94	Selenium	0.024
22-Aug-94	Selenium	0.059
22-Aug-95	Selenium	0.042
29-Jul-96	Selenium	0.05
11-Aug-97	Selenium	0.04
05-Aug-98	Selenium	0.044

Table 35. Selenium Near Upgradient Background Data Set for Well P
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
30-Mar-76	Selenium	0.16
09-Apr-76	Selenium	0.18
03-Jun-76	Selenium	0.14
27-Aug-76	Selenium	0.17
13-Jun-77	Selenium	0.36
24-Aug-77	Selenium	0.755
11-Oct-77	Selenium	0.165
01-Feb-78	Selenium	0.096
17-Apr-78	Selenium	0.22
11-Jul-78	Selenium	0.065
23-Oct-78	Selenium	0.145
30-Jan-79	Selenium	0.113
30-Apr-79	Selenium	0.14
12-Jul-79	Selenium	0.13
10-Sep-79	Selenium	0.12
06-Nov-79	Selenium	0.08
09-Jan-80	Selenium	0.12
16-Apr-80	Selenium	0.12
16-Jul-80	Selenium	0.145
13-Oct-80	Selenium	0.16
07-Jan-81	Selenium	0.0925
15-Apr-81	Selenium	0.123
07-Jul-81	Selenium	0.15
07-Oct-81	Selenium	0.17
28-Dec-81	Selenium	0.1015
24-Mar-82	Selenium	0.1025
22-May-82	Selenium	0.17
25-Aug-82	Selenium	0.05
18-Nov-82	Selenium	0.2
23-Feb-83	Selenium	0.1
26-May-83	Selenium	0.06
27-Jun-83	Selenium	0.076
12-Sep-83	Selenium	0.06
19-Dec-83	Selenium	0.05
07-Mar-84	Selenium	0.09
09-May-84	Selenium	0.08
12-Sep-84	Selenium	0.17
13-Dec-84	Selenium	0.14
11-Mar-85	Selenium	0.09
29-May-85	Selenium	0.12
04-Sep-85	Selenium	0.08
16-Dec-85	Selenium	0.12
10-Mar-86	Selenium	0.09
30-Jun-86	Selenium	0.13

Table 35. Selenium Near Upgradient Background Data Set for Well P (continued)
(corrected for non-detects and duplicates)

Sample Date	Parameter	Final Data Set
15-Sep-86	Selenium	0.1
16-Dec-86	Selenium	0.13
19-Mar-87	Selenium	0.065
24-Jun-87	Selenium	0.1
16-Sep-87	Selenium	0.08
08-Dec-87	Selenium	0.12
24-Feb-88	Selenium	0.091
12-May-88	Selenium	0.08
23-Aug-88	Selenium	0.121
12-Oct-88	Selenium	0.11
13-Dec-88	Selenium	0.102
11-Jan-89	Selenium	0.1
15-Feb-89	Selenium	0.1045
16-May-89	Selenium	0.08
10-Aug-89	Selenium	0.1
15-Nov-89	Selenium	0.05
13-Mar-90	Selenium	0.1
04-Jun-90	Selenium	0.07
12-Sep-90	Selenium	0.09
03-Dec-90	Selenium	0.102
03-Jun-91	Selenium	0.1
16-Sep-91	Selenium	0.11
18-Nov-91	Selenium	0.11
09-Mar-92	Selenium	0.13
04-Jun-92	Selenium	0.13
21-Sep-92	Selenium	0.13
03-Dec-92	Selenium	0.13
03-Mar-93	Selenium	0.09
01-Jun-93	Selenium	0.07
08-Sep-93	Selenium	0.085
24-Nov-93	Selenium	0.073
01-Mar-94	Selenium	0.009
31-May-94	Selenium	0.081
01-Sep-94	Selenium	0.057
28-Nov-94	Selenium	0.089
16-Mar-95	Selenium	0.03
06-Jun-95	Selenium	0.085
05-Sep-95	Selenium	0.062
05-Dec-95	Selenium	0.0615
11-Mar-96	Selenium	0.051
03-Jun-96	Selenium	0.055
17-Sep-96	Selenium	0.077
10-Oct-96	Selenium	0.065
06-Mar-97	Selenium	0.063
27-May-97	Selenium	0.059
09-Sep-97	Selenium	0.026
03-Nov-97	Selenium	0.061
04-Mar-98	Selenium	0.082
05-May-98	Selenium	0.182
16-Sep-98	Selenium	0.196
12-Nov-98	Selenium	0.164

Table 36. Selenium Near Upgradient Background Data Set for Well P1
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Sep-92	Selenium	0.24
21-Jan-93	Selenium	0.218
13-Apr-93	Selenium	0.24
13-Jul-93	Selenium	0.27
21-Oct-93	Selenium	0.144
04-Jan-94	Selenium	0.225
07-Mar-94	Selenium	0.171
12-Apr-94	Selenium	0.162
06-Jul-94	Selenium	0.292
21-Oct-94	Selenium	0.322
04-Jan-95	Selenium	0.242
12-Apr-95	Selenium	0.167
06-Jul-95	Selenium	0.294
03-Oct-95	Selenium	0.214
10-Jan-96	Selenium	0.222
09-Apr-96	Selenium	0.2565
19-Jul-96	Selenium	0.199
04-Nov-96	Selenium	0.2535
13-Jan-97	Selenium	0.237
14-Apr-97	Selenium	0.215
08-Jul-97	Selenium	0.232
03-Nov-97	Selenium	0.225
19-Jan-98	Selenium	0.243
01-Apr-98	Selenium	0.242
14-Jul-98	Selenium	0.252
28-Oct-98	Selenium	0.24

Table 37. Selenium Near Upgradient Background Data Set for Well P2
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Sep-92	Selenium	0.24
08-Feb-93	Selenium	0.175
04-May-93	Selenium	0.2325
12-Aug-93	Selenium	0.22
01-Nov-93	Selenium	0.176
02-Feb-94	Selenium	0.096
07-Mar-94	Selenium	0.194
29-Apr-94	Selenium	0.13
01-Aug-94	Selenium	0.31
01-Nov-94	Selenium	0.299
03-Feb-95	Selenium	0.294
05-May-95	Selenium	0.244
02-Aug-95	Selenium	0.248
06-Nov-95	Selenium	0.264
12-Feb-96	Selenium	0.221
14-May-96	Selenium	0.233
29-Jul-96	Selenium	0.236
03-Feb-97	Selenium	0.194
29-Apr-97	Selenium	0.233
28-Jul-97	Selenium	0.276
13-Oct-97	Selenium	0.217
10-Feb-98	Selenium	0.3
05-May-98	Selenium	0.21
04-Aug-98	Selenium	0.209
28-Oct-98	Selenium	0.236

Table 38. Selenium Near Upgradient Background Data Set for Wells P3 and P4
(corrected for non-detects and duplicates)

Name	Sample Date	Code	Final Data Set
P3	23-Apr-98	Selenium	0.173
P4	24-Apr-98	Selenium	0.104

Table 39. Selenium Near Upgradient Background Data Set for Well Q
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
07-Jan-76	Selenium	0.025
30-Mar-76	Selenium	0.19
09-Apr-76	Selenium	0.3
03-Jun-76	Selenium	0.18
27-Aug-76	Selenium	0.23
13-Jun-77	Selenium	0.295
24-Aug-77	Selenium	0.7
11-Oct-77	Selenium	0.235
01-Feb-78	Selenium	0.136666667
17-Apr-78	Selenium	0.22
10-Jul-78	Selenium	0.08
23-Oct-78	Selenium	0.215
30-Jan-79	Selenium	0.167
30-Apr-79	Selenium	0.1866
12-Jul-79	Selenium	0.18
10-Sep-79	Selenium	0.15
06-Nov-79	Selenium	0.14
09-Jan-80	Selenium	0.14
16-Apr-80	Selenium	0.1495
16-Jul-80	Selenium	0.1475
13-Oct-80	Selenium	0.2
07-Jan-81	Selenium	0.16
15-Apr-81	Selenium	0.163
07-Jul-81	Selenium	0.23
07-Oct-81	Selenium	0.2
28-Dec-81	Selenium	0.112
24-Mar-82	Selenium	0.128
22-May-82	Selenium	0.15
25-Aug-82	Selenium	0.04
18-Nov-82	Selenium	0.08
23-Feb-83	Selenium	0.09
26-May-83	Selenium	0.07
28-Jun-83	Selenium	0.074
21-Sep-83	Selenium	0.1
19-Dec-83	Selenium	0.09
07-Mar-84	Selenium	0.07
09-May-84	Selenium	0.115

Table 39. Selenium Near Upgradient Background Data Set for Well Q (continued)
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
12-Sep-84	Selenium	0.2
12-Dec-84	Selenium	0.14
11-Mar-85	Selenium	0.15
29-May-85	Selenium	0.15
06-Sep-85	Selenium	0.15
16-Dec-85	Selenium	0.16
10-Mar-86	Selenium	0.19
30-Jun-86	Selenium	0.2
15-Sep-86	Selenium	0.21
15-Dec-86	Selenium	0.2
19-Mar-87	Selenium	0.2
19-Jun-87	Selenium	0.16
15-Sep-87	Selenium	0.19
08-Dec-87	Selenium	0.22
24-Feb-88	Selenium	0.21
12-May-88	Selenium	0.17
23-Aug-88	Selenium	0.21
03-Nov-88	Selenium	0.23
13-Dec-88	Selenium	0.2075
11-Jan-89	Selenium	0.179
15-Feb-89	Selenium	0.18
16-May-89	Selenium	0.14
15-Nov-89	Selenium	0.15
13-Mar-90	Selenium	0.2
12-Sep-90	Selenium	0.23
27-Feb-91	Selenium	0.23
16-Sep-91	Selenium	0.17
09-Mar-92	Selenium	0.25
16-Sep-92	Selenium	0.21
03-Mar-93	Selenium	0.2
08-Sep-93	Selenium	0.07
01-Mar-94	Selenium	0.0995
01-Sep-94	Selenium	0.138
16-Mar-95	Selenium	0.096
05-Sep-95	Selenium	0.155
11-Mar-96	Selenium	0.201
17-Sep-96	Selenium	0.294
06-Mar-97	Selenium	0.197
09-Sep-97	Selenium	0.207
04-Mar-98	Selenium	0.2

Table 40. Selenium Near Upgradient Background Data Set for Well R
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
07-Jan-76	Selenium	0.025
30-Mar-76	Selenium	0.11
09-Apr-76	Selenium	0.08
03-Jun-76	Selenium	0.09
01-Sep-76	Selenium	0.08
13-Jun-77	Selenium	0.225
24-Aug-77	Selenium	0.0755
11-Oct-77	Selenium	0.095
01-Feb-78	Selenium	0.055
17-Apr-78	Selenium	0.16
10-Jul-78	Selenium	0.050485
23-Oct-78	Selenium	0.064
31-Jan-79	Selenium	0.0585
30-Apr-79	Selenium	0.05955
12-Jul-79	Selenium	0.05
10-Sep-79	Selenium	0.05
06-Nov-79	Selenium	0.03
07-Jan-80	Selenium	0.0485
16-Apr-80	Selenium	0.047
16-Jul-80	Selenium	0.0565
13-Oct-80	Selenium	0.09
07-Jan-81	Selenium	0.06
15-Apr-81	Selenium	0.0735
07-Jul-81	Selenium	0.11
28-Dec-81	Selenium	0.064
24-Mar-82	Selenium	0.055
22-May-82	Selenium	0.04
25-Aug-82	Selenium	0.06
18-Nov-82	Selenium	0.07
23-Feb-83	Selenium	0.07
26-May-83	Selenium	0.05
28-Jun-83	Selenium	0.0425
12-Sep-83	Selenium	0.03
20-Dec-83	Selenium	0.05
07-Mar-84	Selenium	0.09
09-May-84	Selenium	0.045

Table 40. Selenium Near Upgradient Background Data Set for Well R (continued)
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
12-Sep-84	Selenium	0.1
12-Dec-84	Selenium	0.1
11-Mar-85	Selenium	0.06
29-May-85	Selenium	0.1
05-Sep-85	Selenium	0.065
16-Dec-85	Selenium	0.09
10-Mar-86	Selenium	0.06
30-Jun-86	Selenium	0.1
15-Sep-86	Selenium	0.07
15-Dec-86	Selenium	0.1
19-Mar-87	Selenium	0.065
19-Jun-87	Selenium	0.09
15-Sep-87	Selenium	0.065
08-Dec-87	Selenium	0.11
24-Feb-88	Selenium	0.078
12-May-88	Selenium	0.09
22-Aug-88	Selenium	0.121
03-Nov-88	Selenium	0.12
13-Dec-88	Selenium	0.087
11-Jan-89	Selenium	0.0905
15-Feb-89	Selenium	0.0945
16-May-89	Selenium	0.11
15-Nov-89	Selenium	0.1
13-Mar-90	Selenium	0.13
12-Sep-90	Selenium	0.15
27-Feb-91	Selenium	0.17
16-Sep-91	Selenium	0.15
09-Mar-92	Selenium	0.23
16-Sep-92	Selenium	0.23
01-Jun-93	Selenium	0.17
08-Sep-93	Selenium	0.101
07-Mar-94	Selenium	0.191
31-May-94	Selenium	0.18
01-Sep-94	Selenium	0.182
06-Jun-95	Selenium	0.239
05-Sep-95	Selenium	0.223
03-Jun-96	Selenium	0.269
17-Sep-96	Selenium	0.406
10-Oct-96	Selenium	0.281
27-May-97	Selenium	0.288
06-May-98	Selenium	0.326

Table 41. Selenium Near Upgradient Background Groundwater Data Set Used in Statistical Analysis (all concentrations in mg/L)

Well ID								
DD	ND	P	P1	P2	P3	P4	Q	R
0.11	0.059	0.755	0.322	0.31	0.173	0.104	0.7	0.406
0.1	0.05	0.36	0.294	0.3			0.3	0.326
0.1	0.045	0.22	0.292	0.299			0.295	0.288
0.1	0.044	0.2	0.27	0.294			0.294	0.281
0.04	0.042	0.196	0.2565	0.276			0.25	0.269
0.04	0.04	0.182	0.2535	0.264			0.235	0.239
0.031	0.04	0.18	0.252	0.248			0.23	0.23
0.025	0.024	0.17	0.243	0.244			0.23	0.23
0.0245	0.02	0.17	0.242	0.24			0.23	0.225
0.0235	0.02	0.17	0.242	0.236			0.23	0.223
0.023	0.01	0.17	0.24	0.236			0.23	0.191
0.021	0.01	0.165	0.24	0.233			0.22	0.182
0.0205	0.005	0.164	0.24	0.233			0.22	0.18
0.02		0.16	0.237	0.2325			0.215	0.17
0.02		0.16	0.232	0.221			0.21	0.17
0.02		0.15	0.225	0.22			0.21	0.16
0.02		0.145	0.225	0.217			0.21	0.15
0.02		0.145	0.222	0.21			0.21	0.15
0.02		0.14	0.218	0.209			0.2075	0.13
0.018		0.14	0.215	0.194			0.207	0.121
0.017		0.14	0.214	0.194			0.201	0.12
0.016		0.13	0.199	0.176			0.2	0.11
0.015		0.13	0.171	0.175			0.2	0.11
0.01		0.13	0.167	0.13			0.2	0.11
0.01		0.13	0.162	0.096			0.2	0.11
0.01		0.13	0.144				0.2	0.101
0.01		0.13					0.2	0.1
0.01		0.13					0.2	0.1
0.01		0.123					0.2	0.1
0.01		0.121					0.2	0.1
0.01		0.12					0.197	0.1
0.01		0.12					0.19	0.1
0.01		0.12					0.19	0.095
0.01		0.12					0.19	0.0945
0.01		0.12					0.1866	0.0905
0.01		0.12					0.18	0.09
0.01		0.113					0.18	0.09
0.01		0.11					0.18	0.09
0.01		0.11					0.179	0.09
0.01		0.11					0.17	0.09
0.01		0.1045					0.17	0.09
0.01		0.1025					0.167	0.087
0.01		0.102					0.163	0.08
0.005		0.102					0.16	0.08
0.005		0.1015					0.16	0.078
0.005		0.1					0.16	0.0755

Table 41. Selenium Near Upgradient Background Groundwater Data Set Used in Statistical Analysis (continued) (all concentrations in mg/L)

Well ID								
DD	ND	P	P1	P2	P3	P4	Q	R
0.005		0.1					0.155	0.0735
0.005		0.1					0.15	0.07
0.005		0.1					0.15	0.07
0.005		0.1					0.15	0.07
		0.1					0.15	0.065
		0.1					0.15	0.065
		0.096					0.15	0.065
		0.0925					0.1495	0.064
		0.091					0.1475	0.064
		0.09					0.14	0.06
		0.09					0.14	0.06
		0.09					0.14	0.06
		0.09					0.14	0.06
		0.09					0.138	0.05955
		0.089					0.136666667	0.0585
		0.085					0.128	0.0565
		0.085					0.115	0.055
		0.082					0.112	0.055
		0.081					0.1	0.050485
		0.08					0.0995	0.05
		0.08					0.096	0.05
		0.08					0.09	0.05
		0.08					0.09	0.05
		0.08					0.08	0.0485
		0.08					0.08	0.047
		0.077					0.074	0.045
		0.076					0.07	0.0425
		0.073					0.07	0.04
		0.07					0.07	0.03
		0.07					0.04	0.03
		0.065					0.025	0.025
		0.065						
		0.065						
		0.063						
		0.062						
		0.0615						
		0.061						
		0.06						
		0.06						
		0.059						
		0.057						
		0.055						
		0.051						
		0.05						
		0.05						
		0.05						
		0.03						
		0.026						
		0.009						

Table 42. Selenium Near Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Selenium	0.755	0.7	1.1	**PASS**

Table 43. Selenium Near Upgradient Background Data Set, Coefficient of Variation Analysis

Parameter	Mean	Standard Deviation	Coefficient of Variation	Results
Selenium, normal	0.1267255	0.093143	0.73	**Pass**
Selenium, lognormal	-2.42326	0.998153	-0.41	**Pass**

Table 44. Selenium Near Upgradient Background Data Set, Studentized Range Test Analysis

Parameter	Range		Standard Deviation	Critical Values		W/S	Results
	Maximum	Minimum		Maximum	Minimum		
Selenium, normal	0.755	0.005[a]	0.09	6.94	5.47	8.05	**FAIL**

w = range of values
s = standard deviation
[a]Minimum value based on 0.5 of detection limit of 0.01

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis

Selenium - raw data			
Xi	Xi^2	Xi-Mean	abs(Xi-mean)
0.755	0.570025	0.628274516	0.628274516
0.7	0.49	0.573274516	0.573274516
0.406	0.164836	0.279274516	0.279274516
0.36	0.1296	0.233274516	0.233274516
0.326	0.106276	0.199274516	0.199274516
0.322	0.103684	0.195274516	0.195274516
0.31	0.0961	0.183274516	0.183274516
0.3	0.09	0.173274516	0.173274516
0.3	0.09	0.173274516	0.173274516
0.299	0.089401	0.172274516	0.172274516
0.295	0.087025	0.168274516	0.168274516
0.294	0.086436	0.167274516	0.167274516
0.294	0.086436	0.167274516	0.167274516
0.294	0.086436	0.167274516	0.167274516
0.292	0.085264	0.165274516	0.165274516
0.288	0.082944	0.161274516	0.161274516
0.281	0.078961	0.154274516	0.154274516
0.276	0.076176	0.149274516	0.149274516
0.27	0.0729	0.143274516	0.143274516
0.269	0.072361	0.142274516	0.142274516
0.264	0.069696	0.137274516	0.137274516
0.2565	0.0657923	0.129774516	0.129774516
0.2535	0.0642623	0.126774516	0.126774516
0.252	0.063504	0.125274516	0.125274516
0.25	0.0625	0.123274516	0.123274516
0.248	0.061504	0.121274516	0.121274516
0.244	0.059536	0.117274516	0.117274516
0.243	0.059049	0.116274516	0.116274516
0.242	0.058564	0.115274516	0.115274516
0.242	0.058564	0.115274516	0.115274516
0.24	0.0576	0.113274516	0.113274516
0.24	0.0576	0.113274516	0.113274516
0.24	0.0576	0.113274516	0.113274516
0.24	0.0576	0.113274516	0.113274516
0.239	0.057121	0.112274516	0.112274516
0.237	0.056169	0.110274516	0.110274516
0.236	0.055696	0.109274516	0.109274516
0.236	0.055696	0.109274516	0.109274516
0.235	0.055225	0.108274516	0.108274516
0.233	0.054289	0.106274516	0.106274516
0.233	0.054289	0.106274516	0.106274516
0.2325	0.0540563	0.105774516	0.105774516
0.232	0.053824	0.105274516	0.105274516
0.23	0.0529	0.103274516	0.103274516
0.23	0.0529	0.103274516	0.103274516
0.23	0.0529	0.103274516	0.103274516
0.23	0.0529	0.103274516	0.103274516

0.1267255 =mean
46.254802 = sum of Xi
9.0196 = sum of Xi^2
365 = count

3.1579379 = SSS
26.340378 = SAD

0.7758429 = alpha

-2.0 = Z

Critical value = 1.645

abs(Z)>critical value, thus failed test.

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.23	0.0529	0.103274516	0.103274516
0.23	0.0529	0.103274516	0.103274516
0.23	0.0529	0.103274516	0.103274516
0.225	0.050625	0.098274516	0.098274516
0.225	0.050625	0.098274516	0.098274516
0.225	0.050625	0.098274516	0.098274516
0.223	0.049729	0.096274516	0.096274516
0.222	0.049284	0.095274516	0.095274516
0.221	0.048841	0.094274516	0.094274516
0.22	0.0484	0.093274516	0.093274516
0.22	0.0484	0.093274516	0.093274516
0.22	0.0484	0.093274516	0.093274516
0.22	0.0484	0.093274516	0.093274516
0.218	0.047524	0.091274516	0.091274516
0.217	0.047089	0.090274516	0.090274516
0.215	0.046225	0.088274516	0.088274516
0.215	0.046225	0.088274516	0.088274516
0.214	0.045796	0.087274516	0.087274516
0.21	0.0441	0.083274516	0.083274516
0.21	0.0441	0.083274516	0.083274516
0.21	0.0441	0.083274516	0.083274516
0.21	0.0441	0.083274516	0.083274516
0.21	0.0441	0.083274516	0.083274516
0.209	0.043681	0.082274516	0.082274516
0.2075	0.0430563	0.080774516	0.080774516
0.207	0.042849	0.080274516	0.080274516
0.201	0.040401	0.074274516	0.074274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.2	0.04	0.073274516	0.073274516
0.199	0.039601	0.072274516	0.072274516
0.197	0.038809	0.070274516	0.070274516
0.196	0.038416	0.069274516	0.069274516
0.194	0.037636	0.067274516	0.067274516
0.194	0.037636	0.067274516	0.067274516
0.191	0.036481	0.064274516	0.064274516
0.19	0.0361	0.063274516	0.063274516
0.19	0.0361	0.063274516	0.063274516
0.19	0.0361	0.063274516	0.063274516
0.1866	0.0348196	0.059874516	0.059874516
0.182	0.033124	0.055274516	0.055274516

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.182	0.033124	0.055274516	0.055274516
0.18	0.0324	0.053274516	0.053274516
0.18	0.0324	0.053274516	0.053274516
0.18	0.0324	0.053274516	0.053274516
0.18	0.0324	0.053274516	0.053274516
0.18	0.0324	0.053274516	0.053274516
0.179	0.032041	0.052274516	0.052274516
0.176	0.030976	0.049274516	0.049274516
0.175	0.030625	0.048274516	0.048274516
0.173	0.029929	0.046274516	0.046274516
0.171	0.029241	0.044274516	0.044274516
0.17	0.0289	0.043274516	0.043274516
0.17	0.0289	0.043274516	0.043274516
0.17	0.0289	0.043274516	0.043274516
0.17	0.0289	0.043274516	0.043274516
0.17	0.0289	0.043274516	0.043274516
0.17	0.0289	0.043274516	0.043274516
0.17	0.0289	0.043274516	0.043274516
0.17	0.0289	0.043274516	0.043274516
0.167	0.027889	0.040274516	0.040274516
0.167	0.027889	0.040274516	0.040274516
0.165	0.027225	0.038274516	0.038274516
0.164	0.026896	0.037274516	0.037274516
0.163	0.026569	0.036274516	0.036274516
0.162	0.026244	0.035274516	0.035274516
0.16	0.0256	0.033274516	0.033274516
0.16	0.0256	0.033274516	0.033274516
0.16	0.0256	0.033274516	0.033274516
0.16	0.0256	0.033274516	0.033274516
0.16	0.0256	0.033274516	0.033274516
0.16	0.0256	0.033274516	0.033274516
0.155	0.024025	0.028274516	0.028274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.15	0.0225	0.023274516	0.023274516
0.1495	0.0223503	0.022774516	0.022774516
0.1475	0.0217563	0.020774516	0.020774516
0.145	0.021025	0.018274516	0.018274516
0.145	0.021025	0.018274516	0.018274516
0.144	0.020736	0.017274516	0.017274516
0.14	0.0196	0.013274516	0.013274516
0.14	0.0196	0.013274516	0.013274516

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.14	0.0196	0.013274516	0.013274516
0.14	0.0196	0.013274516	0.013274516
0.14	0.0196	0.013274516	0.013274516
0.14	0.0196	0.013274516	0.013274516
0.14	0.0196	0.013274516	0.013274516
0.138	0.019044	0.011274516	0.011274516
0.1366667	0.0186778	0.009941183	0.009941183
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.13	0.0169	0.003274516	0.003274516
0.128	0.016384	0.001274516	0.001274516
0.123	0.015129	-0.00372548	0.003725484
0.121	0.014641	-0.00572548	0.005725484
0.121	0.014641	-0.00572548	0.005725484
0.12	0.0144	-0.00672548	0.006725484
0.12	0.0144	-0.00672548	0.006725484
0.12	0.0144	-0.00672548	0.006725484
0.12	0.0144	-0.00672548	0.006725484
0.12	0.0144	-0.00672548	0.006725484
0.12	0.0144	-0.00672548	0.006725484
0.12	0.0144	-0.00672548	0.006725484
0.115	0.013225	-0.01172548	0.011725484
0.113	0.012769	-0.01372548	0.013725484
0.112	0.012544	-0.01472548	0.014725484
0.11	0.0121	-0.01672548	0.016725484
0.11	0.0121	-0.01672548	0.016725484
0.11	0.0121	-0.01672548	0.016725484
0.11	0.0121	-0.01672548	0.016725484
0.11	0.0121	-0.01672548	0.016725484
0.11	0.0121	-0.01672548	0.016725484
0.11	0.0121	-0.01672548	0.016725484
0.11	0.0121	-0.01672548	0.016725484
0.1045	0.0109203	-0.02222548	0.022225484
0.104	0.010816	-0.02272548	0.022725484
0.1025	0.0105063	-0.02422548	0.024225484
0.102	0.010404	-0.02472548	0.024725484
0.102	0.010404	-0.02472548	0.024725484
0.1015	0.0103023	-0.02522548	0.025225484
0.101	0.010201	-0.02572548	0.025725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.1	0.01	-0.02672548	0.026725484
0.0995	0.0099003	-0.02722548	0.027225484
0.096	0.009216	-0.03072548	0.030725484
0.096	0.009216	-0.03072548	0.030725484
0.096	0.009216	-0.03072548	0.030725484
0.095	0.009025	-0.03172548	0.031725484
0.0945	0.0089303	-0.03222548	0.032225484
0.0925	0.0085563	-0.03422548	0.034225484
0.091	0.008281	-0.03572548	0.035725484
0.0905	0.0081903	-0.03622548	0.036225484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.09	0.0081	-0.03672548	0.036725484
0.089	0.007921	-0.03772548	0.037725484
0.087	0.007569	-0.03972548	0.039725484
0.085	0.007225	-0.04172548	0.041725484
0.085	0.007225	-0.04172548	0.041725484
0.082	0.006724	-0.04472548	0.044725484
0.081	0.006561	-0.04572548	0.045725484
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484
0.08	0.0064	-0.04672548	0.046725484
0.078	0.006084	-0.04872548	0.048725484
0.077	0.005929	-0.04972548	0.049725484
0.076	0.005776	-0.05072548	0.050725484
0.0755	0.0057003	-0.05122548	0.051225484
0.074	0.005476	-0.05272548	0.052725484
0.0735	0.0054023	-0.05322548	0.053225484
0.073	0.005329	-0.05372548	0.053725484
0.07	0.0049	-0.05672548	0.056725484
0.07	0.0049	-0.05672548	0.056725484
0.07	0.0049	-0.05672548	0.056725484
0.07	0.0049	-0.05672548	0.056725484
0.07	0.0049	-0.05672548	0.056725484
0.07	0.0049	-0.05672548	0.056725484
0.07	0.0049	-0.05672548	0.056725484
0.07	0.0049	-0.05672548	0.056725484
0.065	0.004225	-0.06172548	0.061725484
0.065	0.004225	-0.06172548	0.061725484
0.065	0.004225	-0.06172548	0.061725484
0.065	0.004225	-0.06172548	0.061725484
0.065	0.004225	-0.06172548	0.061725484
0.065	0.004225	-0.06172548	0.061725484
0.064	0.004096	-0.06272548	0.062725484
0.064	0.004096	-0.06272548	0.062725484
0.063	0.003969	-0.06372548	0.063725484
0.062	0.003844	-0.06472548	0.064725484
0.0615	0.0037823	-0.06522548	0.065225484
0.061	0.003721	-0.06572548	0.065725484
0.06	0.0036	-0.06672548	0.066725484
0.06	0.0036	-0.06672548	0.066725484
0.06	0.0036	-0.06672548	0.066725484
0.06	0.0036	-0.06672548	0.066725484
0.06	0.0036	-0.06672548	0.066725484
0.06	0.0036	-0.06672548	0.066725484
0.05955	0.0035462	-0.06717548	0.067175484
0.059	0.003481	-0.06772548	0.067725484
0.059	0.003481	-0.06772548	0.067725484
0.0585	0.0034223	-0.06822548	0.068225484
0.057	0.003249	-0.06972548	0.069725484
0.0565	0.0031923	-0.07022548	0.070225484
0.055	0.003025	-0.07172548	0.071725484
0.055	0.003025	-0.07172548	0.071725484
0.055	0.003025	-0.07172548	0.071725484
0.051	0.002601	-0.07572548	0.075725484
0.050485	0.0025487	-0.07624048	0.076240484

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.05	0.0025	-0.07672548	0.076725484
0.05	0.0025	-0.07672548	0.076725484
0.05	0.0025	-0.07672548	0.076725484
0.05	0.0025	-0.07672548	0.076725484
0.05	0.0025	-0.07672548	0.076725484
0.05	0.0025	-0.07672548	0.076725484
0.05	0.0025	-0.07672548	0.076725484
0.05	0.0025	-0.07672548	0.076725484
0.0485	0.0023523	-0.07822548	0.078225484
0.047	0.002209	-0.07972548	0.079725484
0.045	0.002025	-0.08172548	0.081725484
0.045	0.002025	-0.08172548	0.081725484
0.044	0.001936	-0.08272548	0.082725484
0.0425	0.0018063	-0.08422548	0.084225484
0.042	0.001764	-0.08472548	0.084725484
0.04	0.0016	-0.08672548	0.086725484
0.04	0.0016	-0.08672548	0.086725484
0.04	0.0016	-0.08672548	0.086725484
0.04	0.0016	-0.08672548	0.086725484
0.04	0.0016	-0.08672548	0.086725484
0.04	0.0016	-0.08672548	0.086725484
0.031	0.000961	-0.09572548	0.095725484
0.03	0.0009	-0.09672548	0.096725484
0.03	0.0009	-0.09672548	0.096725484
0.03	0.0009	-0.09672548	0.096725484
0.026	0.000676	-0.10072548	0.100725484
0.025	0.000625	-0.10172548	0.101725484
0.025	0.000625	-0.10172548	0.101725484
0.025	0.000625	-0.10172548	0.101725484
0.0245	0.0006003	-0.10222548	0.102225484
0.024	0.000576	-0.10272548	0.102725484
0.0235	0.0005523	-0.10322548	0.103225484
0.023	0.000529	-0.10372548	0.103725484
0.021	0.000441	-0.10572548	0.105725484
0.0205	0.0004203	-0.10622548	0.106225484
0.02	0.0004	-0.10672548	0.106725484
0.02	0.0004	-0.10672548	0.106725484
0.02	0.0004	-0.10672548	0.106725484
0.02	0.0004	-0.10672548	0.106725484
0.02	0.0004	-0.10672548	0.106725484
0.02	0.0004	-0.10672548	0.106725484
0.02	0.0004	-0.10672548	0.106725484
0.02	0.0004	-0.10672548	0.106725484
0.018	0.000324	-0.10872548	0.108725484
0.017	0.000289	-0.10972548	0.109725484
0.016	0.000256	-0.11072548	0.110725484
0.015	0.000225	-0.11172548	0.111725484
0.01	0.0001	-0.11672548	0.116725484

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.01	0.0001	-0.11672548	0.116725484
0.009	0.000081	-0.11772548	0.117725484
0.005	0.000025	-0.12172548	0.121725484
0.005	0.000025	-0.12172548	0.121725484
0.005	0.000025	-0.12172548	0.121725484
0.005	0.000025	-0.12172548	0.121725484
0.005	0.000025	-0.12172548	0.121725484
0.005	0.000025	-0.12172548	0.121725484
0.005	0.000025	-0.12172548	0.121725484
0.005	0.000025	-0.12172548	0.121725484

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	Xi^2	Xi-Mean	abs(Xi-mean)
-0.281038	0.0789821	2.142225983	2.142225983
-0.356675	0.127217	2.066588569	2.066588569
-0.901402	0.8125258	1.521861394	1.521861394
-1.021651	1.0437713	1.401612266	1.401612266
-1.120858	1.2563224	1.302405616	1.302405616
-1.133204	1.2841507	1.29005978	1.29005978
-1.171183	1.3716696	1.252080532	1.252080532
-1.203973	1.4495505	1.219290709	1.219290709
-1.203973	1.4495505	1.219290709	1.219290709
-1.207312	1.4576016	1.215951808	1.215951808
-1.22078	1.4903036	1.202483591	1.202483591
-1.224176	1.4986057	1.199088002	1.199088002
-1.224176	1.4986057	1.199088002	1.199088002
-1.224176	1.4986057	1.199088002	1.199088002
-1.231001	1.5153646	1.192262036	1.192262036
-1.244795	1.5495141	1.178468714	1.178468714
-1.269401	1.6113779	1.153862904	1.153862904
-1.287354	1.6572814	1.1359091	1.1359091
-1.309333	1.7143537	1.113930193	1.113930193
-1.313044	1.7240843	1.110219614	1.110219614
-1.331806	1.7737077	1.091457337	1.091457337
-1.360627	1.8513048	1.062636899	1.062636899
-1.372391	1.8834583	1.050872057	1.050872057
-1.378326	1.8997831	1.044937322	1.044937322
-1.386294	1.9218121	1.036969152	1.036969152
-1.394327	1.9441465	1.02893698	1.02893698
-1.410587	1.9897558	1.012676459	1.012676459
-1.414694	2.0013586	1.008569678	1.008569678
-1.418818	2.0130432	1.00444596	1.00444596
-1.418818	2.0130432	1.00444596	1.00444596
-1.427116	2.0366611	0.996147158	0.996147158
-1.427116	2.0366611	0.996147158	0.996147158
-1.427116	2.0366611	0.996147158	0.996147158
-1.427116	2.0366611	0.996147158	0.996147158
-1.431292	2.048596	0.991971786	0.991971786
-1.439695	2.0727221	0.983568375	0.983568375
-1.443923	2.084915	0.979340039	0.979340039
-1.443923	2.084915	0.979340039	0.979340039
-1.44817	2.0971957	0.975093748	0.975093748
-1.456717	2.1220239	0.966546688	0.966546688
-1.456717	2.1220239	0.966546688	0.966546688
-1.458865	2.1282872	0.964398459	0.964398459
-1.461018	2.1345733	0.962245606	0.962245606
-1.469676	2.1599475	0.953587543	0.953587543
-1.469676	2.1599475	0.953587543	0.953587543
-1.469676	2.1599475	0.953587543	0.953587543
-1.469676	2.1599475	0.953587543	0.953587543

-2.423264 =mean
-884.4912 = sum of Xi
2506.0121 = sum of Xi^2
365 = count

362.65693 = SSS
278.48302 = SAD

0.7654279 = alpha

-2.9 = Z

Critical value = 1.645

abs(Z)>critical value, thus failed test.

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
-1.469676	2.1599475	0.953587543	0.953587543
-1.469676	2.1599475	0.953587543	0.953587543
-1.469676	2.1599475	0.953587543	0.953587543
-1.491655	2.2250343	0.931608636	0.931608636
-1.491655	2.2250343	0.931608636	0.931608636
-1.491655	2.2250343	0.931608636	0.931608636
-1.500584	2.2517509	0.922680006	0.922680006
-1.505078	2.2652595	0.918185616	0.918185616
-1.509593	2.2788697	0.913670936	0.913670936
-1.514128	2.2925828	0.909135781	0.909135781
-1.514128	2.2925828	0.909135781	0.909135781
-1.514128	2.2925828	0.909135781	0.909135781
-1.514128	2.2925828	0.909135781	0.909135781
-1.52326	2.3203217	0.900003297	0.900003297
-1.527858	2.3343498	0.895405588	0.895405588
-1.537117	2.3627294	0.886146262	0.886146262
-1.537117	2.3627294	0.886146262	0.886146262
-1.541779	2.3770833	0.881484249	0.881484249
-1.560648	2.4356214	0.862615765	0.862615765
-1.560648	2.4356214	0.862615765	0.862615765
-1.560648	2.4356214	0.862615765	0.862615765
-1.560648	2.4356214	0.862615765	0.862615765
-1.560648	2.4356214	0.862615765	0.862615765
-1.565421	2.450543	0.857842486	0.857842486
-1.572624	2.4731461	0.850639574	0.850639574
-1.575036	2.4807399	0.848227027	0.848227027
-1.60445	2.574261	0.818813142	0.818813142
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.609438	2.5902904	0.813825601	0.813825601
-1.61445	2.6064503	0.808813059	0.808813059
-1.624552	2.6391677	0.798711963	0.798711963
-1.629641	2.6557285	0.793622893	0.793622893
-1.639897	2.6892626	0.783366393	0.783366393
-1.639897	2.6892626	0.783366393	0.783366393
-1.655482	2.7406202	0.767781662	0.767781662
-1.660731	2.7580281	0.762532306	0.762532306
-1.660731	2.7580281	0.762532306	0.762532306
-1.660731	2.7580281	0.762532306	0.762532306
-1.678788	2.8183291	0.744475523	0.744475523
-1.703749	2.9027593	0.719514921	0.719514921

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
-1.703749	2.9027593	0.719514921	0.719514921
-1.714798	2.9405336	0.708465085	0.708465085
-1.714798	2.9405336	0.708465085	0.708465085
-1.714798	2.9405336	0.708465085	0.708465085
-1.714798	2.9405336	0.708465085	0.708465085
-1.714798	2.9405336	0.708465085	0.708465085
-1.720369	2.9596711	0.70289404	0.70289404
-1.737271	3.0181115	0.685992229	0.685992229
-1.742969	3.037942	0.680294208	0.680294208
-1.754464	3.0781428	0.668799829	0.668799829
-1.766092	3.11908	0.657171791	0.657171791
-1.771957	3.139831	0.651306671	0.651306671
-1.771957	3.139831	0.651306671	0.651306671
-1.771957	3.139831	0.651306671	0.651306671
-1.771957	3.139831	0.651306671	0.651306671
-1.771957	3.139831	0.651306671	0.651306671
-1.771957	3.139831	0.651306671	0.651306671
-1.771957	3.139831	0.651306671	0.651306671
-1.771957	3.139831	0.651306671	0.651306671
-1.789761	3.2032461	0.633502047	0.633502047
-1.789761	3.2032461	0.633502047	0.633502047
-1.80181	3.2465186	0.621453708	0.621453708
-1.807889	3.2684621	0.615374662	0.615374662
-1.814005	3.2906144	0.609258435	0.609258435
-1.820159	3.3129786	0.603104569	0.603104569
-1.832581	3.3583548	0.590682049	0.590682049
-1.832581	3.3583548	0.590682049	0.590682049
-1.832581	3.3583548	0.590682049	0.590682049
-1.832581	3.3583548	0.590682049	0.590682049
-1.832581	3.3583548	0.590682049	0.590682049
-1.832581	3.3583548	0.590682049	0.590682049
-1.86433	3.475727	0.558933351	0.558933351
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.89712	3.5990642	0.526143528	0.526143528
-1.900459	3.611744	0.522804627	0.522804627
-1.913927	3.663117	0.50933641	0.50933641
-1.931022	3.7288442	0.492241977	0.492241977
-1.931022	3.7288442	0.492241977	0.492241977
-1.937942	3.7556191	0.485321534	0.485321534
-1.966113	3.8655998	0.457150657	0.457150657
-1.966113	3.8655998	0.457150657	0.457150657

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
-1.966113	3.8655998	0.457150657	0.457150657
-1.966113	3.8655998	0.457150657	0.457150657
-1.966113	3.8655998	0.457150657	0.457150657
-1.966113	3.8655998	0.457150657	0.457150657
-1.966113	3.8655998	0.457150657	0.457150657
-1.980502	3.9223866	0.442761919	0.442761919
-1.99021	3.9609375	0.433053105	0.433053105
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.040221	4.162501	0.383042685	0.383042685
-2.055725	4.2260053	0.367538498	0.367538498
-2.095571	4.3914175	0.32769259	0.32769259
-2.111965	4.460395	0.31129878	0.31129878
-2.111965	4.460395	0.31129878	0.31129878
-2.120264	4.4955175	0.302999977	0.302999977
-2.120264	4.4955175	0.302999977	0.302999977
-2.120264	4.4955175	0.302999977	0.302999977
-2.120264	4.4955175	0.302999977	0.302999977
-2.120264	4.4955175	0.302999977	0.302999977
-2.120264	4.4955175	0.302999977	0.302999977
-2.120264	4.4955175	0.302999977	0.302999977
-2.162823	4.677804	0.260440363	0.260440363
-2.180367	4.7540023	0.242896053	0.242896053
-2.189256	4.7928436	0.234007105	0.234007105
-2.207275	4.8720625	0.2159886	0.2159886
-2.207275	4.8720625	0.2159886	0.2159886
-2.207275	4.8720625	0.2159886	0.2159886
-2.207275	4.8720625	0.2159886	0.2159886
-2.207275	4.8720625	0.2159886	0.2159886
-2.207275	4.8720625	0.2159886	0.2159886
-2.207275	4.8720625	0.2159886	0.2159886
-2.207275	4.8720625	0.2159886	0.2159886
-2.258568	5.1011303	0.164695306	0.164695306
-2.263364	5.1228183	0.159899133	0.159899133
-2.277892	5.1887942	0.145371033	0.145371033
-2.282782	5.2110958	0.140481047	0.140481047
-2.282782	5.2110958	0.140481047	0.140481047
-2.287696	5.2335552	0.135567033	0.135567033
-2.292635	5.2561742	0.130628751	0.130628751
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.302585	5.3018981	0.12067842	0.12067842
-2.307598	5.3250068	0.115665878	0.115665878
-2.343407	5.4915568	0.079856426	0.079856426
-2.343407	5.4915568	0.079856426	0.079856426
-2.343407	5.4915568	0.079856426	0.079856426
-2.353878	5.5407435	0.069385126	0.069385126
-2.359155	5.5656144	0.064108069	0.064108069
-2.380547	5.6670023	0.042716879	0.042716879
-2.396896	5.7451093	0.026367741	0.026367741
-2.402405	5.7715518	0.020858085	0.020858085
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.407946	5.7982021	0.015317905	0.015317905
-2.419119	5.8521363	0.004144604	0.004144604
-2.441847	5.9626176	-0.01858365	0.018583647
-2.465104	6.0767378	-0.04184051	0.041840509
-2.465104	6.0767378	-0.04184051	0.041840509
-2.501036	6.2551812	-0.07777252	0.077772519
-2.513306	6.3167077	-0.09004261	0.090042611
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131
-2.525729	6.3793052	-0.10246513	0.102465131
-2.551046	6.507838	-0.12778294	0.127782939
-2.56395	6.5738389	-0.14068634	0.140686344
-2.577022	6.6410421	-0.15375843	0.153758426
-2.583623	6.6751059	-0.16035911	0.16035911
-2.60369	6.7792026	-0.18042667	0.180426673
-2.61047	6.814553	-0.18720636	0.18720636
-2.617296	6.8502375	-0.19403232	0.194032325
-2.65926	7.0716639	-0.23599652	0.235996524
-2.65926	7.0716639	-0.23599652	0.235996524
-2.65926	7.0716639	-0.23599652	0.235996524
-2.65926	7.0716639	-0.23599652	0.235996524
-2.65926	7.0716639	-0.23599652	0.235996524
-2.65926	7.0716639	-0.23599652	0.235996524
-2.65926	7.0716639	-0.23599652	0.235996524
-2.65926	7.0716639	-0.23599652	0.235996524
-2.733368	7.4713007	-0.3101045	0.310104496
-2.733368	7.4713007	-0.3101045	0.310104496
-2.733368	7.4713007	-0.3101045	0.310104496
-2.733368	7.4713007	-0.3101045	0.310104496
-2.733368	7.4713007	-0.3101045	0.310104496
-2.733368	7.4713007	-0.3101045	0.310104496
-2.748872	7.5562983	-0.32560868	0.325608682
-2.748872	7.5562983	-0.32560868	0.325608682
-2.764621	7.6431268	-0.34135704	0.341357039
-2.780621	7.7318526	-0.35735738	0.357357381
-2.788718	7.7769487	-0.36545459	0.365454591
-2.796881	7.8225456	-0.3736179	0.373617902
-2.813411	7.9152799	-0.3901472	0.390147204
-2.813411	7.9152799	-0.3901472	0.390147204
-2.813411	7.9152799	-0.3901472	0.390147204
-2.813411	7.9152799	-0.3901472	0.390147204
-2.813411	7.9152799	-0.3901472	0.390147204
-2.813411	7.9152799	-0.3901472	0.390147204
-2.820939	7.9576967	-0.39767547	0.39767547
-2.830218	8.010133	-0.40695432	0.406954322
-2.830218	8.010133	-0.40695432	0.406954322
-2.838729	8.0583796	-0.41546501	0.415465012
-2.864704	8.2065291	-0.4414405	0.441440498
-2.873515	8.2570864	-0.45025113	0.450251128
-2.900422	8.4124483	-0.47715858	0.477158581
-2.900422	8.4124483	-0.47715858	0.477158581
-2.900422	8.4124483	-0.47715858	0.477158581
-2.97593	8.8561573	-0.55266613	0.552666133
-2.986079	8.9166679	-0.5628155	0.562815503

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
-2.995732	8.9744119	-0.57246876	0.57246876
-2.995732	8.9744119	-0.57246876	0.57246876
-2.995732	8.9744119	-0.57246876	0.57246876
-2.995732	8.9744119	-0.57246876	0.57246876
-2.995732	8.9744119	-0.57246876	0.57246876
-2.995732	8.9744119	-0.57246876	0.57246876
-2.995732	8.9744119	-0.57246876	0.57246876
-2.995732	8.9744119	-0.57246876	0.57246876
-3.026191	9.1578349	-0.60292797	0.602927968
-3.057608	9.3489647	-0.63434416	0.634344164
-3.101093	9.6167765	-0.67782928	0.677829276
-3.101093	9.6167765	-0.67782928	0.677829276
-3.123566	9.7566623	-0.70030213	0.700302132
-3.158251	9.9745507	-0.73498769	0.73498769
-3.170086	10.049443	-0.74682215	0.746822148
-3.218876	10.361162	-0.79561231	0.795612312
-3.218876	10.361162	-0.79561231	0.795612312
-3.218876	10.361162	-0.79561231	0.795612312
-3.218876	10.361162	-0.79561231	0.795612312
-3.218876	10.361162	-0.79561231	0.795612312
-3.218876	10.361162	-0.79561231	0.795612312
-3.473768	12.067065	-1.05050456	1.050504561
-3.506558	12.295948	-1.08329438	1.083294384
-3.506558	12.295948	-1.08329438	1.083294384
-3.506558	12.295948	-1.08329438	1.083294384
-3.649659	13.320009	-1.22639523	1.226395228
-3.688879	13.607832	-1.26561594	1.265615941
-3.688879	13.607832	-1.26561594	1.265615941
-3.688879	13.607832	-1.26561594	1.265615941
-3.709082	13.75729	-1.28581865	1.285818648
-3.729701	13.910673	-1.30643794	1.306437935
-3.750755	14.068162	-1.32749134	1.327491345
-3.772261	14.229954	-1.34899755	1.34899755
-3.863233	14.924568	-1.43996933	1.439969328
-3.88733	15.111338	-1.46406688	1.46406688
-3.912023	15.303924	-1.48875949	1.488759492
-3.912023	15.303924	-1.48875949	1.488759492
-3.912023	15.303924	-1.48875949	1.488759492
-3.912023	15.303924	-1.48875949	1.488759492
-3.912023	15.303924	-1.48875949	1.488759492
-3.912023	15.303924	-1.48875949	1.488759492
-3.912023	15.303924	-1.48875949	1.488759492
-3.912023	15.303924	-1.48875949	1.488759492
-4.017384	16.13937	-1.59412001	1.594120008
-4.074542	16.601892	-1.65127842	1.651278422
-4.135167	17.099602	-1.71190304	1.711903044
-4.199705	17.637523	-1.77644156	1.776441565
-4.60517	21.207592	-2.18190667	2.181906673

Table 45. Selenium Near Upgradient Background Data Set, Geary's Test Analysis (continued)

Selenium - lognormal data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.60517	21.207592	-2.18190667	2.181906673
-4.710531	22.189099	-2.28726719	2.287267188
-5.298317	28.072167	-2.87505385	2.875053853
-5.298317	28.072167	-2.87505385	2.875053853
-5.298317	28.072167	-2.87505385	2.875053853
-5.298317	28.072167	-2.87505385	2.875053853
-5.298317	28.072167	-2.87505385	2.875053853
-5.298317	28.072167	-2.87505385	2.875053853
-5.298317	28.072167	-2.87505385	2.875053853
-5.298317	28.072167	-2.87505385	2.875053853

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis

Selenium	Normal (xi-avg)^3
0.005	-0.001803618
0.005	-0.001803618
0.005	-0.001803618
0.005	-0.001803618
0.005	-0.001803618
0.005	-0.001803618
0.005	-0.001803618
0.005	-0.001803618
0.009	-0.001631592
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.01	-0.001590366
0.015	-0.001394623
0.016	-0.001357509
0.017	-0.00132106
0.018	-0.001285269
0.02	-0.001215638
0.02	-0.001215638
0.02	-0.001215638
0.02	-0.001215638
0.02	-0.001215638
0.02	-0.001215638
0.02	-0.001215638
0.02	-0.001215638
0.0205	-0.001198633
0.021	-0.001181787
0.023	-0.00111598
0.0235	-0.001099919

	Normal
standard deviation =	0.0931432
mean =	0.127
count =	365
sum of (xi-avg)^3 =	0.512824
1/n =	0.0027397
standard deviation cubed =	0.0008081
((n-1)/n)^(3/2) =	0.9958932
coef. of skewness =	1.7
acceptable range -1 to 1	**Fail**

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Normal (xi-avg)^3
0.024	-0.001084013
0.0245	-0.001068261
0.025	-0.001052663
0.025	-0.001052663
0.025	-0.001052663
0.026	-0.001021923
0.03	-0.000904946
0.03	-0.000904946
0.03	-0.000904946
0.031	-0.000877168
0.04	-0.000652289
0.04	-0.000652289
0.04	-0.000652289
0.04	-0.000652289
0.04	-0.000652289
0.04	-0.000652289
0.042	-0.000608194
0.0425	-0.00059749
0.044	-0.000566132
0.045	-0.000545849
0.045	-0.000545849
0.047	-0.000506747
0.0485	-0.000478679
0.05	-0.000451668
0.05	-0.000451668
0.05	-0.000451668
0.05	-0.000451668
0.05	-0.000451668
0.05	-0.000451668
0.05	-0.000451668
0.05	-0.000451668
0.050485	-0.000443156
0.051	-0.000434236
0.055	-0.000368995
0.055	-0.000368995
0.055	-0.000368995
0.0565	-0.000346325
0.057	-0.00033898
0.0585	-0.00031757
0.059	-0.000310639
0.059	-0.000310639
0.05955	-0.000303132
0.06	-0.000297081
0.06	-0.000297081
0.06	-0.000297081
0.06	-0.000297081
0.06	-0.000297081
0.06	-0.000297081
0.061	-0.000283924
0.0615	-0.000277493
0.062	-0.00027116
0.063	-0.000258785
0.064	-0.000246793
0.064	-0.000246793
0.065	-0.000235176
0.065	-0.000235176
0.065	-0.000235176
0.065	-0.000235176

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Normal (xi-avg)^3
0.065	-0.000235176
0.065	-0.000235176
0.07	-0.00018253
0.07	-0.00018253
0.07	-0.00018253
0.07	-0.00018253
0.07	-0.00018253
0.07	-0.00018253
0.07	-0.00018253
0.07	-0.00018253
0.073	-0.000155075
0.0735	-0.000150785
0.074	-0.000146576
0.0755	-0.000134418
0.076	-0.00013052
0.077	-0.000122952
0.078	-0.000115683
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.08	-0.000102014
0.081	-9.56038E-05
0.082	-8.94675E-05
0.085	-7.26447E-05
0.085	-7.26447E-05
0.087	-6.26913E-05
0.089	-5.36914E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.09	-4.95339E-05
0.0905	-4.75382E-05
0.091	-4.55968E-05
0.0925	-4.00912E-05
0.0945	-3.34656E-05
0.095	-3.19319E-05
0.096	-2.90066E-05
0.096	-2.90066E-05
0.096	-2.90066E-05
0.0995	-2.01803E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Normal (xi-avg)^3
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.1	-1.90887E-05
0.101	-1.70251E-05
0.1015	-1.60516E-05
0.102	-1.51159E-05
0.102	-1.51159E-05
0.1025	-1.42173E-05
0.104	-1.17365E-05
0.1045	-1.09788E-05
0.11	-4.67882E-06
0.11	-4.67882E-06
0.11	-4.67882E-06
0.11	-4.67882E-06
0.11	-4.67882E-06
0.11	-4.67882E-06
0.11	-4.67882E-06
0.11	-4.67882E-06
0.11	-4.67882E-06
0.112	-3.19307E-06
0.113	-2.58573E-06
0.115	-1.6121E-06
0.12	-3.04208E-07
0.12	-3.04208E-07
0.12	-3.04208E-07
0.12	-3.04208E-07
0.12	-3.04208E-07
0.12	-3.04208E-07
0.12	-3.04208E-07
0.121	-1.87688E-07
0.121	-1.87688E-07
0.123	-5.17069E-08
0.128	2.07031E-09
0.13	3.51108E-08
0.13	3.51108E-08
0.13	3.51108E-08
0.13	3.51108E-08
0.13	3.51108E-08
0.13	3.51108E-08
0.13	3.51108E-08
0.13	3.51108E-08
0.13	3.51108E-08
0.1366667	9.82458E-07
0.138	1.43316E-06
0.14	2.33914E-06
0.14	2.33914E-06
0.14	2.33914E-06
0.14	2.33914E-06

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Normal (xi-avg)^3
0.14	2.33914E-06
0.14	2.33914E-06
0.14	2.33914E-06
0.144	5.15487E-06
0.145	6.10292E-06
0.145	6.10292E-06
0.1475	8.96588E-06
0.1495	1.18127E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.15	1.26079E-05
0.155	2.2604E-05
0.16	3.68413E-05
0.16	3.68413E-05
0.16	3.68413E-05
0.16	3.68413E-05
0.16	3.68413E-05
0.16	3.68413E-05
0.162	4.38918E-05
0.163	4.77315E-05
0.164	5.17888E-05
0.165	5.60698E-05
0.167	6.53267E-05
0.167	6.53267E-05
0.17	8.10395E-05
0.17	8.10395E-05
0.17	8.10395E-05
0.17	8.10395E-05
0.17	8.10395E-05
0.17	8.10395E-05
0.17	8.10395E-05
0.17	8.10395E-05
0.171	8.67884E-05
0.173	9.9089E-05
0.175	0.0001125
0.176	0.000119637
0.179	0.000142847
0.18	0.000151202
0.18	0.000151202
0.18	0.000151202
0.18	0.000151202
0.18	0.000151202
0.182	0.000168879
0.182	0.000168879
0.1866	0.000214648
0.19	0.00025333
0.19	0.00025333
0.19	0.00025333
0.191	0.000265532
0.194	0.000304475
0.194	0.000304475
0.196	0.000332446

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Normal (xi-avg)^3
0.197	0.000347051
0.199	0.000377534
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.2	0.000393422
0.201	0.00040975
0.207	0.000517289
0.2075	0.000527015
0.209	0.000556924
0.21	0.000577479
0.21	0.000577479
0.21	0.000577479
0.21	0.000577479
0.21	0.000577479
0.214	0.000664756
0.215	0.000687869
0.215	0.000687869
0.217	0.000735691
0.218	0.000760411
0.22	0.000811501
0.22	0.000811501
0.22	0.000811501
0.22	0.000811501
0.221	0.000837882
0.222	0.000864829
0.223	0.000892348
0.225	0.000949124
0.225	0.000949124
0.225	0.000949124
0.23	0.001101487
0.23	0.001101487
0.23	0.001101487
0.23	0.001101487
0.23	0.001101487
0.23	0.001101487
0.23	0.001101487
0.232	0.001166728
0.2325	0.001183432
0.233	0.001200293
0.233	0.001200293
0.235	0.001269342
0.236	0.001304838
0.236	0.001304838
0.237	0.00134099
0.239	0.001415284
0.24	0.001453438
0.24	0.001453438
0.24	0.001453438
0.24	0.001453438
0.242	0.001531792
0.242	0.001531792

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Normal (xi-avg)^3
0.243	0.001572004
0.244	0.001612913
0.248	0.001783646
0.25	0.001873354
0.252	0.001966021
0.2535	0.002037492
0.2565	0.002185588
0.264	0.002586841
0.269	0.002879926
0.27	0.00294108
0.276	0.003326266
0.281	0.00367183
0.288	0.004194665
0.292	0.004514583
0.294	0.004680469
0.294	0.004680469
0.294	0.004680469
0.295	0.004764914
0.299	0.005112851
0.3	0.005202404
0.3	0.005202404
0.31	0.006156108
0.322	0.007446235
0.326	0.007913257
0.36	0.012694099
0.406	0.021781808
0.7	0.188403041
0.755	0.247998088

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Lognormal (xi-avg)^3
-5.298317	-23.7650073
-5.298317	-23.7650073
-5.298317	-23.7650073
-5.298317	-23.7650073
-5.298317	-23.7650073
-5.298317	-23.7650073
-5.298317	-23.7650073
-5.298317	-23.7650073
-4.710531	-11.96604688
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.60517	-10.3874396
-4.199705	-5.605995933
-4.135167	-5.016923655
-4.074542	-4.502574602
-4.017384	-4.051007414
-3.912023	-3.299693723
-3.912023	-3.299693723
-3.912023	-3.299693723
-3.912023	-3.299693723
-3.912023	-3.299693723
-3.912023	-3.299693723
-3.912023	-3.299693723
-3.912023	-3.299693723
-3.88733	-3.138215392
-3.863233	-2.9857932
-3.772261	-2.454898173
-3.750755	-2.339349413

Lognormal	
standard deviation =	0.9981534
mean =	-2.423
count =	365
sum of (xi-avg)^3 =	-391.1539
1/n =	0.0027397
standard deviation cubed =	0.9944705
((n-1)/n)^(3/2) =	0.9958932
coef. of skewness =	-1.1
acceptable range -1 to 1	**Fail**

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Lognormal (xi-avg)^3
-3.729701	-2.229802243
-3.709082	-2.125882027
-3.688879	-2.027242997
-3.688879	-2.027242997
-3.688879	-2.027242997
-3.649659	-1.844553923
-3.506558	-1.271274908
-3.506558	-1.271274908
-3.506558	-1.271274908
-3.473768	-1.159294639
-3.218876	-0.503621758
-3.218876	-0.503621758
-3.218876	-0.503621758
-3.218876	-0.503621758
-3.218876	-0.503621758
-3.218876	-0.503621758
-3.170086	-0.416535064
-3.158251	-0.397045425
-3.123566	-0.343444326
-3.101093	-0.311430374
-3.101093	-0.311430374
-3.057608	-0.255255346
-3.026191	-0.219177662
-2.995732	-0.187609738
-2.995732	-0.187609738
-2.995732	-0.187609738
-2.995732	-0.187609738
-2.995732	-0.187609738
-2.995732	-0.187609738
-2.995732	-0.187609738
-2.995732	-0.187609738
-2.986079	-0.178278165
-2.97593	-0.168806263
-2.900422	-0.108639614
-2.900422	-0.108639614
-2.900422	-0.108639614
-2.873515	-0.091277645
-2.864704	-0.086023383
-2.838729	-0.071713904
-2.830218	-0.067396446
-2.830218	-0.067396446
-2.820939	-0.062890697
-2.813411	-0.059386194
-2.813411	-0.059386194
-2.813411	-0.059386194
-2.813411	-0.059386194
-2.813411	-0.059386194
-2.813411	-0.059386194
-2.796881	-0.052153449
-2.788718	-0.04880904
-2.780621	-0.045636073
-2.764621	-0.039776502
-2.748872	-0.034521363

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Lognormal (xi-avg)^3
-2.748872	-0.034521363
-2.733368	-0.029821136
-2.733368	-0.029821136
-2.733368	-0.029821136
-2.733368	-0.029821136
-2.733368	-0.029821136
-2.733368	-0.029821136
-2.65926	-0.013143675
-2.65926	-0.013143675
-2.65926	-0.013143675
-2.65926	-0.013143675
-2.65926	-0.013143675
-2.65926	-0.013143675
-2.65926	-0.013143675
-2.65926	-0.013143675
-2.617296	-0.007305034
-2.61047	-0.006560875
-2.60369	-0.005873571
-2.583623	-0.004123642
-2.577022	-0.003635103
-2.56395	-0.002784555
-2.551046	-0.002086501
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.525729	-0.001075792
-2.513306	-0.000730036
-2.501036	-0.000470412
-2.465104	-7.32472E-05
-2.465104	-7.32472E-05
-2.441847	-6.4179E-06
-2.419119	7.11949E-08
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.407946	3.59417E-06
-2.402405	9.07451E-06
-2.396896	1.83324E-05

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Lognormal (xi-avg)^3
-2.380547	7.79468E-05
-2.359155	0.000263474
-2.353878	0.000334041
-2.343407	0.000509248
-2.343407	0.000509248
-2.343407	0.000509248
-2.307598	0.001547447
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.302585	0.001757474
-2.292635	0.002229032
-2.287696	0.002491508
-2.282782	0.002772383
-2.282782	0.002772383
-2.277892	0.003072088
-2.263364	0.004088258
-2.258568	0.004467285
-2.207275	0.0100761
-2.207275	0.0100761
-2.207275	0.0100761
-2.207275	0.0100761
-2.207275	0.0100761
-2.207275	0.0100761
-2.207275	0.0100761
-2.207275	0.0100761
-2.189256	0.012814071
-2.180367	0.014330501
-2.162823	0.017665457
-2.120264	0.027818121
-2.120264	0.027818121
-2.120264	0.027818121
-2.120264	0.027818121
-2.120264	0.027818121
-2.120264	0.027818121
-2.120264	0.027818121
-2.111965	0.030167009
-2.111965	0.030167009
-2.095571	0.035188428
-2.055725	0.049648772

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Lognormal (xi-avg)^3
-2.040221	0.056200673
-2.040221	0.056200673
-2.040221	0.056200673
-2.040221	0.056200673
-2.040221	0.056200673
-2.040221	0.056200673
-2.040221	0.056200673
-2.040221	0.056200673
-2.040221	0.056200673
-1.99021	0.081212611
-1.980502	0.086798213
-1.966113	0.095538418
-1.966113	0.095538418
-1.966113	0.095538418
-1.966113	0.095538418
-1.966113	0.095538418
-1.966113	0.095538418
-1.966113	0.095538418
-1.937942	0.114311174
-1.931022	0.119271296
-1.931022	0.119271296
-1.913927	0.132133874
-1.900459	0.142895406
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.89712	0.145650741
-1.86433	0.174614407
-1.832581	0.206092088
-1.832581	0.206092088
-1.832581	0.206092088
-1.832581	0.206092088
-1.832581	0.206092088
-1.832581	0.206092088
-1.820159	0.219370314
-1.814005	0.226154197
-1.807889	0.233033754
-1.80181	0.24000835
-1.789761	0.254240109
-1.789761	0.254240109
-1.771957	0.276284537
-1.771957	0.276284537
-1.771957	0.276284537
-1.771957	0.276284537
-1.771957	0.276284537
-1.771957	0.276284537
-1.771957	0.276284537
-1.771957	0.276284537

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Lognormal (xi-avg)^3
-1.766092	0.283815911
-1.754464	0.299149623
-1.742969	0.314840302
-1.737271	0.322817885
-1.720369	0.347271852
-1.714798	0.355594763
-1.714798	0.355594763
-1.714798	0.355594763
-1.714798	0.355594763
-1.714798	0.355594763
-1.703749	0.372494114
-1.703749	0.372494114
-1.678788	0.412620945
-1.660731	0.443378617
-1.660731	0.443378617
-1.660731	0.443378617
-1.655482	0.452598599
-1.639897	0.480722897
-1.639897	0.480722897
-1.629641	0.499853298
-1.624552	0.509530948
-1.61445	0.529108166
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.609438	0.539006549
-1.60445	0.548977334
-1.575036	0.610290092
-1.572624	0.61551232
-1.565421	0.631280908
-1.560648	0.64187753
-1.560648	0.64187753
-1.560648	0.64187753
-1.560648	0.64187753
-1.560648	0.64187753
-1.541779	0.684926027
-1.537117	0.695850959
-1.537117	0.695850959
-1.527858	0.717892474
-1.52326	0.729008012
-1.514128	0.751426058
-1.514128	0.751426058
-1.514128	0.751426058
-1.514128	0.751426058
-1.509593	0.762727544
-1.505078	0.774089996
-1.500584	0.785512913

Table 46. Selenium Near Upgradient Background Data Set, Coefficient of Skewness Analysis (continued)

Selenium	Lognormal (xi-avg)^3
-1.491655	0.808538153
-1.491655	0.808538153
-1.491655	0.808538153
-1.469676	0.867125
-1.469676	0.867125
-1.469676	0.867125
-1.469676	0.867125
-1.469676	0.867125
-1.469676	0.867125
-1.469676	0.867125
-1.461018	0.890959185
-1.458865	0.896952663
-1.456717	0.902959997
-1.456717	0.902959997
-1.44817	0.927126759
-1.443923	0.939291801
-1.443923	0.939291801
-1.439695	0.951510684
-1.431292	0.976108198
-1.427116	0.988485949
-1.427116	0.988485949
-1.427116	0.988485949
-1.427116	0.988485949
-1.418818	1.013397269
-1.418818	1.013397269
-1.414694	1.02592998
-1.410587	1.038513493
-1.394327	1.089347218
-1.386294	1.115058137
-1.378326	1.140960798
-1.372391	1.160511725
-1.360627	1.199926588
-1.331806	1.300230335
-1.313044	1.368442919
-1.309333	1.38220967
-1.287354	1.465651565
-1.269401	1.536252608
-1.244795	1.636643811
-1.231001	1.694787088
-1.224176	1.72406316
-1.224176	1.72406316
-1.224176	1.72406316
-1.22078	1.738751332
-1.207312	1.797831924
-1.203973	1.812682714
-1.203973	1.812682714
-1.171183	1.962893733
-1.133204	2.146987452
-1.120858	2.209219054
-1.021651	2.753491044
-0.901402	3.524725498
-0.356675	8.825962312
-0.281038	9.830958163

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis

Selenium - raw data					
Selenium	Count	*i*/(n+1)	Mi	Mi * Xi (normal)	Mi^2
0.005	1	0.00273224	-2.778324	-0.013891622	7.7190866
0.005	2	0.00546448	-2.544948	-0.01272474	6.4767607
0.005	3	0.00819672	-2.400047	-0.012000237	5.7602274
0.005	4	0.01092896	-2.292836	-0.011464181	5.2570976
0.005	5	0.0136612	-2.206871	-0.011034354	4.8702783
0.005	6	0.01639344	-2.134675	-0.010673375	4.5568374
0.005	7	0.01912568	-2.072147	-0.010360736	4.2937942
0.005	8	0.02185792	-2.016805	-0.010084023	4.0675004
0.009	9	0.02459016	-1.967019	-0.017703169	3.8691628
0.01	10	0.0273224	-1.92169	-0.019216895	3.6928907
0.01	11	0.03005464	-1.879989	-0.018799892	3.5343594
0.01	12	0.03278689	-1.841327	-0.018413266	3.3904836
0.01	13	0.03551913	-1.805229	-0.018052287	3.2588508
0.01	14	0.03825137	-1.77135	-0.017713501	3.1376811
0.01	15	0.04098361	-1.739381	-0.017393813	3.0254474
0.01	16	0.04371585	-1.709104	-0.017091043	2.9210373
0.01	17	0.04644809	-1.680314	-0.016803142	2.8234558
0.01	18	0.04918033	-1.652852	-0.01652852	2.7319198
0.01	19	0.05191257	-1.626586	-0.016265858	2.6457814
0.01	20	0.05464481	-1.601393	-0.016013928	2.5644589
0.01	21	0.05737705	-1.577182	-0.01577182	2.4875032
0.01	22	0.06010929	-1.553858	-0.015538581	2.4144749
0.01	23	0.06284153	-1.531348	-0.015313481	2.3450269
0.01	24	0.06557377	-1.509593	-0.015095929	2.2788709
0.01	25	0.06830601	-1.488529	-0.014885291	2.2157187
0.01	26	0.07103825	-1.468102	-0.014681018	2.1553229
0.01	27	0.07377049	-1.44827	-0.014482703	2.0974868
0.01	28	0.07650273	-1.428998	-0.014289981	2.0420355
0.01	29	0.07923497	-1.410235	-0.014102352	1.9887633
0.01	30	0.08196721	-1.391959	-0.013919589	1.9375496
0.01	31	0.08469945	-1.374137	-0.013741374	1.8882535
0.015	32	0.08743169	-1.356743	-0.020351149	1.8407523
0.016	33	0.09016393	-1.339745	-0.021435917	1.7949162
0.017	34	0.09289617	-1.323128	-0.022493182	1.7506686
0.018	35	0.09562842	-1.306871	-0.02352368	1.7079121
0.02	36	0.09836066	-1.29095	-0.025819008	1.666553
0.02	37	0.1010929	-1.275348	-0.025506961	1.6265126
0.02	38	0.10382514	-1.260055	-0.025201098	1.5877383
0.02	39	0.10655738	-1.245048	-0.024900964	1.5501451
0.02	40	0.10928962	-1.230314	-0.024606288	1.5136735
0.02	41	0.11202186	-1.215847	-0.024316932	1.478283
0.02	42	0.1147541	-1.201627	-0.024032533	1.4439067
0.02	43	0.11748634	-1.187645	-0.023752909	1.4105018
0.0205	44	0.12021858	-1.173894	-0.024064825	1.3780269
0.021	45	0.12295082	-1.160361	-0.024367573	1.3464368
0.023	46	0.12568306	-1.147037	-0.02638184	1.3156928
0.0235	47	0.1284153	-1.133915	-0.026646998	1.2857628
0.024	48	0.13114754	-1.120984	-0.026903617	1.2566052
0.0245	49	0.13387978	-1.108237	-0.027151818	1.2281903
0.025	50	0.13661202	-1.095668	-0.027391707	1.200489
0.025	51	0.13934426	-1.08327	-0.02708174	1.173473
0.025	52	0.1420765	-1.071037	-0.026775922	1.14712
0.026	53	0.14480874	-1.058961	-0.027532988	1.1213985
0.03	54	0.14754098	-1.047038	-0.031411128	1.0962877
0.03	55	0.15027322	-1.035262	-0.031057857	1.0717672
0.03	56	0.15300546	-1.023627	-0.030708816	1.0478126
0.031	57	0.1557377	-1.012131	-0.031376067	1.0244095

Selenium - normal
982.92282 = (sum of Mi*Xi)^2
364 = count -1
0.0086757 = standard deviation ^2
354.90912 = sum of Mi^2

0.88 = W statistic

FAIL

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - raw data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (normal)	Mi^2
0.04	58	0.15846995	-1.000767	-0.040030682	1.0015347
0.04	59	0.16120219	-0.98953	-0.039581209	0.9791701
0.04	60	0.16393443	-0.978416	-0.039136648	0.9572983
0.04	61	0.16666667	-0.96742	-0.038696817	0.9359023
0.04	62	0.16939891	-0.956543	-0.038261715	0.9149742
0.04	63	0.17213115	-0.945777	-0.037831069	0.8944936
0.042	64	0.17486339	-0.93512	-0.039275028	0.8744489
0.0425	65	0.17759563	-0.924567	-0.03929411	0.8548247
0.044	66	0.18032787	-0.914117	-0.040221157	0.8356103
0.045	67	0.18306011	-0.903765	-0.04066942	0.816791
0.045	68	0.18579235	-0.893508	-0.040207863	0.7983567
0.047	69	0.18852459	-0.883347	-0.041517296	0.7803014
0.0485	70	0.19125683	-0.873274	-0.042353793	0.7626076
0.05	71	0.19398907	-0.86329	-0.043164505	0.7452698
0.05	72	0.19672131	-0.85339	-0.042669512	0.7282749
0.05	73	0.19945355	-0.843575	-0.042178726	0.711618
0.05	74	0.20218579	-0.833838	-0.041691919	0.6952865
0.05	75	0.20491803	-0.824182	-0.041209091	0.6792757
0.05	76	0.20765027	-0.8146	-0.040730015	0.6635736
0.05	77	0.21038251	-0.805094	-0.04025469	0.648176
0.05	78	0.21311475	-0.79566	-0.039783004	0.6330749
0.050485	79	0.21584699	-0.786297	-0.039696195	0.6182627
0.051	80	0.21857923	-0.777	-0.039626975	0.6037282
0.055	81	0.22131148	-0.76777	-0.042227373	0.5894714
0.055	82	0.22404372	-0.758607	-0.041723399	0.575485
0.055	83	0.22677596	-0.749505	-0.041222802	0.5617585
0.0565	84	0.2295082	-0.740467	-0.041836407	0.5482919
0.057	85	0.23224044	-0.731488	-0.041694839	0.5350753
0.0585	86	0.23497268	-0.722569	-0.042270259	0.5221053
0.059	87	0.23770492	-0.713704	-0.042108558	0.5093739
0.059	88	0.24043716	-0.704897	-0.041588926	0.4968798
0.05955	89	0.2431694	-0.696143	-0.041455325	0.4846153
0.06	90	0.24590164	-0.687444	-0.041246631	0.472579
0.06	91	0.24863388	-0.678795	-0.040727673	0.460762
0.06	92	0.25136612	-0.670198	-0.040211853	0.4491648
0.06	93	0.25409836	-0.661648	-0.039698898	0.4377785
0.06	94	0.2568306	-0.653147	-0.039188808	0.4266007
0.06	95	0.25956284	-0.644693	-0.038681583	0.4156291
0.061	96	0.26229508	-0.636285	-0.038813371	0.4048583
0.0615	97	0.26502732	-0.627922	-0.038617201	0.394286
0.062	98	0.26775956	-0.619602	-0.038415346	0.3839071
0.063	99	0.2704918	-0.611326	-0.038513535	0.3737194
0.064	100	0.27322404	-0.60309	-0.038597791	0.3637181
0.064	101	0.27595628	-0.594896	-0.03807334	0.3539012
0.065	102	0.27868852	-0.586742	-0.038138251	0.3442665
0.065	103	0.28142077	-0.578625	-0.03761063	0.334807
0.065	104	0.28415301	-0.570549	-0.03708567	0.3255259
0.065	105	0.28688525	-0.562507	-0.036562926	0.3164136
0.065	106	0.28961749	-0.554503	-0.036042695	0.3074736
0.065	107	0.29234973	-0.546534	-0.035524681	0.2986989
0.07	108	0.29508197	-0.538598	-0.037701875	0.290088
0.07	109	0.29781421	-0.530697	-0.037148789	0.2816393
0.07	110	0.30054645	-0.52283	-0.03659809	0.2733511
0.07	111	0.30327869	-0.514995	-0.036049619	0.2652194
0.07	112	0.30601093	-0.507189	-0.035503217	0.2572405
0.07	113	0.30874317	-0.499416	-0.034959123	0.2494164
0.07	114	0.31147541	-0.491673	-0.034417099	0.2417422
0.07	115	0.31420765	-0.483958	-0.033877063	0.2342154
0.073	116	0.31693989	-0.476273	-0.034767916	0.2268358
0.0735	117	0.31967213	-0.468616	-0.034443277	0.219601
0.074	118	0.32240437	-0.460986	-0.034113	0.2125085
0.0755	119	0.32513661	-0.453383	-0.034230425	0.2055562
0.076	120	0.32786885	-0.445806	-0.033881247	0.1987429
0.077	121	0.33060109	-0.438254	-0.033745532	0.1920663
0.078	122	0.33333333	-0.430728	-0.033596752	0.1855263

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - raw data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (normal)	Mi^2
0.08	123	0.33606557	-0.423224	-0.033857941	0.1791188
0.08	124	0.33879781	-0.415746	-0.033259676	0.1728447
0.08	125	0.34153005	-0.40829	-0.032663229	0.166701
0.08	126	0.3442623	-0.400858	-0.032068601	0.1606867
0.08	127	0.34699454	-0.393447	-0.031475793	0.1548009
0.08	128	0.34972678	-0.386058	-0.030884621	0.1490406
0.08	129	0.35245902	-0.378691	-0.030295269	0.1434068
0.08	130	0.35519126	-0.371342	-0.029707371	0.137895
0.08	131	0.3579235	-0.364015	-0.029121202	0.1325069
0.08	132	0.36065574	-0.356706	-0.028536488	0.1272392
0.081	133	0.36338798	-0.349418	-0.028302828	0.1220927
0.082	134	0.36612022	-0.342147	-0.028056083	0.1170648
0.085	135	0.36885246	-0.334894	-0.028466002	0.1121541
0.085	136	0.3715847	-0.327659	-0.027851024	0.1073605
0.087	137	0.37431694	-0.320441	-0.027878378	0.1026825
0.089	138	0.37704918	-0.31324	-0.027878378	0.0981194
0.09	139	0.37978142	-0.306055	-0.027544968	0.0936698
0.09	140	0.38251366	-0.298886	-0.02689975	0.0893329
0.09	141	0.3852459	-0.291732	-0.026255861	0.0851074
0.09	142	0.38797814	-0.284592	-0.025613303	0.0809928
0.09	143	0.39071038	-0.277469	-0.024972178	0.0769888
0.09	144	0.39344262	-0.270358	-0.024332178	0.0730932
0.09	145	0.39617486	-0.26326	-0.023693406	0.0693059
0.09	146	0.3989071	-0.256177	-0.023055964	0.0656268
0.09	147	0.40163934	-0.249106	-0.022419545	0.0620538
0.09	148	0.40437158	-0.242048	-0.021784354	0.0585874
0.09	149	0.40710383	-0.235002	-0.021150186	0.055226
0.09	150	0.40983607	-0.227967	-0.020517041	0.051969
0.09	151	0.41256831	-0.220944	-0.019884919	0.0488161
0.0905	152	0.41530055	-0.213931	-0.019360787	0.0457666
0.091	153	0.41803279	-0.206928	-0.018830469	0.0428193
0.0925	154	0.42076503	-0.199936	-0.018494126	0.0399746
0.0945	155	0.42349727	-0.192955	-0.018234246	0.0372316
0.095	156	0.42622951	-0.185983	-0.017668344	0.0345895
0.096	157	0.42896175	-0.179018	-0.017185739	0.0320475
0.096	158	0.43169399	-0.172063	-0.016518024	0.0296056
0.096	159	0.43442623	-0.165116	-0.015851183	0.0272635
0.0995	160	0.43715847	-0.158177	-0.015738616	0.02502
0.1	161	0.43989071	-0.151247	-0.01512467	0.0228756
0.1	162	0.44262295	-0.144322	-0.014432203	0.0208288
0.1	163	0.44535519	-0.137405	-0.013740532	0.0188802
0.1	164	0.44808743	-0.130494	-0.01304943	0.0170288
0.1	165	0.45081967	-0.123591	-0.012359124	0.0152748
0.1	166	0.45355191	-0.116693	-0.011669272	0.0136172
0.1	167	0.45628415	-0.109799	-0.010979875	0.0120558
0.1	168	0.45901639	-0.102912	-0.01029116	0.0105908
0.1	169	0.46174863	-0.096029	-0.0096029	0.0092216
0.1	170	0.46448087	-0.089151	-0.008915094	0.0079479
0.1	171	0.46721311	-0.082277	-0.008227744	0.0067696
0.1	172	0.46994536	-0.075407	-0.007540734	0.0056863
0.1	173	0.4726776	-0.068541	-0.006854066	0.0046978
0.1	174	0.47540984	-0.061677	-0.006167738	0.0038041
0.1	175	0.47814208	-0.054818	-0.005481752	0.003005
0.1	176	0.48087432	-0.04796	-0.004795993	0.0023002
0.1	177	0.48360656	-0.041103	-0.004110348	0.0016895
0.101	178	0.4863388	-0.03425	-0.003459294	0.0011731
0.1015	179	0.48907104	-0.027399	-0.002780951	0.0007507
0.102	180	0.49180328	-0.020548	-0.002095871	0.0004222
0.102	181	0.49453552	-0.013698	-0.001397209	0.0001876
0.1025	182	0.49726776	-0.006848	-0.000701971	4.69E-05
0.104	183	0.5	0	0	0
0.1045	184	0.50273224	0.0068485	0.000715668	4.69E-05
0.11	185	0.50546448	0.0136981	0.001506794	0.0001876
0.11	186	0.50819672	0.0205478	0.002260253	0.0004222
0.11	187	0.51092896	0.0273985	0.003013838	0.0007507

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - raw data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (normal)	Mi^2
0.11	188	0.5136612	0.0342504	0.003767548	0.0011731
0.11	189	0.51639344	0.0411035	0.004521382	0.0016895
0.11	190	0.51912568	0.0479599	0.005275592	0.0023002
0.11	191	0.52185792	0.0548175	0.006029927	0.003005
0.11	192	0.52459016	0.0616774	0.006784512	0.0038041
0.112	193	0.5273224	0.0685407	0.007676554	0.0046978
0.113	194	0.53005464	0.0754073	0.00852103	0.0056863
0.115	195	0.53278689	0.0822774	0.009461905	0.0067696
0.12	196	0.53551913	0.0891509	0.010698113	0.0079479
0.12	197	0.53825137	0.096029	0.01152348	0.0092216
0.12	198	0.54098361	0.1029116	0.012349392	0.0105908
0.12	199	0.54371585	0.1097987	0.01317585	0.0120558
0.12	200	0.54644809	0.1166927	0.014003126	0.0136172
0.12	201	0.54918033	0.1235912	0.014830948	0.0152748
0.12	202	0.55191257	0.1304943	0.015659316	0.0170288
0.121	203	0.55464481	0.1374053	0.016626044	0.0188802
0.121	204	0.55737705	0.144322	0.017462966	0.0208288
0.123	205	0.56010929	0.1512467	0.018603344	0.0228756
0.128	206	0.56284153	0.158177	0.020246662	0.02502
0.13	207	0.56557377	0.1651165	0.021465144	0.0272635
0.13	208	0.56830601	0.1720628	0.022368158	0.0296056
0.13	209	0.57103825	0.1790181	0.023272355	0.0320475
0.13	210	0.57377049	0.1859826	0.024177734	0.0345895
0.13	211	0.57650273	0.192955	0.025084148	0.0372316
0.13	212	0.57923497	0.1999365	0.025991744	0.0399746
0.13	213	0.58196721	0.2069282	0.02690067	0.0428193
0.13	214	0.58469945	0.2139313	0.027811075	0.0457666
0.13	215	0.58743169	0.2209435	0.028722661	0.0488161
0.1366667	216	0.59016393	0.2279671	0.031155507	0.051969
0.138	217	0.59289617	0.2350021	0.032430285	0.055226
0.14	218	0.59562842	0.2420484	0.033886772	0.0585874
0.14	219	0.59836066	0.2491061	0.034874847	0.0620538
0.14	220	0.6010929	0.2561774	0.035864832	0.0656268
0.14	221	0.60382514	0.2632601	0.036856409	0.0693059
0.14	222	0.60655738	0.2703575	0.037850054	0.0730932
0.14	223	0.60928962	0.2774686	0.03884561	0.0769888
0.14	224	0.61202186	0.2845923	0.039842917	0.0809928
0.144	225	0.6147541	0.2917318	0.042009378	0.0851074
0.145	226	0.61748634	0.2988861	0.043338486	0.0893329
0.145	227	0.62021858	0.3060552	0.044378004	0.0936698
0.1475	228	0.62295082	0.3132402	0.046202931	0.0981194
0.1495	229	0.62568306	0.3204411	0.047905949	0.1026825
0.15	230	0.6284153	0.3276591	0.049148866	0.1073605
0.15	231	0.63114754	0.3348941	0.050234121	0.1121541
0.15	232	0.63387978	0.3421474	0.051322104	0.1170648
0.15	233	0.63661202	0.3494176	0.052412645	0.1220927
0.15	234	0.63934426	0.3567061	0.053505914	0.1272392
0.15	235	0.6420765	0.364015	0.054602253	0.1325069
0.15	236	0.64480874	0.3713421	0.055701321	0.137895
0.15	237	0.64754098	0.3786909	0.056803628	0.1434068
0.15	238	0.65027322	0.3860578	0.057908665	0.1490406
0.155	239	0.65300546	0.3934474	0.060984348	0.1548009
0.16	240	0.6557377	0.4008575	0.064137203	0.1606867
0.16	241	0.65846995	0.4082904	0.065326458	0.166701
0.16	242	0.66120219	0.4157459	0.066519351	0.1728447
0.16	243	0.66393443	0.4232243	0.067715882	0.1791188
0.16	244	0.66666667	0.4307276	0.068916415	0.1855263
0.16	245	0.66939891	0.4382537	0.070120586	0.1920663
0.162	246	0.67213115	0.4458059	0.072220553	0.1987429
0.163	247	0.67486339	0.4533831	0.073901447	0.2055562
0.164	248	0.67759563	0.4609865	0.075601783	0.2125085
0.165	249	0.68032787	0.468616	0.077321641	0.219601
0.167	250	0.68306011	0.4762728	0.07953756	0.2268358
0.167	251	0.68579235	0.483958	0.080820994	0.2342154
0.17	252	0.68852459	0.4916728	0.083584382	0.2417422

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - raw data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (normal)	Mi^2
0.17	253	0.69125683	0.499416	0.084900728	0.2494164
0.17	254	0.69398907	0.5071888	0.086222099	0.2572405
0.17	255	0.69672131	0.5149946	0.087549074	0.2652194
0.17	256	0.69945355	0.5228299	0.088881075	0.2733511
0.17	257	0.70218579	0.530697	0.090218487	0.2816393
0.17	258	0.70491803	0.5385982	0.091561697	0.290088
0.17	259	0.70765027	0.5465336	0.092910705	0.2986989
0.171	260	0.71038251	0.554503	0.094820014	0.3074736
0.173	261	0.71311475	0.5625066	0.097313634	0.3164136
0.175	262	0.71584699	0.5705488	0.099846034	0.3255259
0.176	263	0.71857923	0.5786251	0.101838014	0.334807
0.179	264	0.72131148	0.5867423	0.105026875	0.3442665
0.18	265	0.72404372	0.5948959	0.107081269	0.3539012
0.18	266	0.72677596	0.6030905	0.108556287	0.3637181
0.18	267	0.7295082	0.611326	0.110038673	0.3737194
0.18	268	0.73224044	0.6196024	0.111528425	0.3839071
0.18	269	0.73497268	0.627922	0.113025953	0.394286
0.182	270	0.73770492	0.6362848	0.115803828	0.4048583
0.182	271	0.74043716	0.644693	0.117334134	0.4156291
0.1866	272	0.7431694	0.6531468	0.121877193	0.4266007
0.19	273	0.74590164	0.6616483	0.125713177	0.4377785
0.19	274	0.74863388	0.6701976	0.127337535	0.4491648
0.19	275	0.75136612	0.6787945	0.128970964	0.460762
0.191	276	0.75409836	0.6874438	0.131301774	0.472579
0.194	277	0.7568306	0.6961432	0.135051773	0.4846153
0.194	278	0.75956284	0.704897	0.136750027	0.4968798
0.196	279	0.76229508	0.7137044	0.139886056	0.5093739
0.197	280	0.76502732	0.7225685	0.142346	0.5221053
0.199	281	0.76775956	0.7314884	0.145566191	0.5350753
0.2	282	0.7704918	0.7404674	0.148093477	0.5482919
0.2	283	0.77322404	0.7495055	0.149901098	0.5617585
0.2	284	0.77595628	0.7586073	0.151721451	0.575485
0.2	285	0.77868852	0.7677704	0.153554083	0.5894714
0.2	286	0.78142077	0.7769995	0.155399903	0.6037282
0.2	287	0.78415301	0.7862968	0.157259365	0.6182627
0.2	288	0.78688525	0.7956601	0.159132014	0.6330749
0.2	289	0.78961749	0.8050938	0.161018761	0.648176
0.2	290	0.79234973	0.8146003	0.16292006	0.6635736
0.2	291	0.79508197	0.8241818	0.164836365	0.6792757
0.201	292	0.79781421	0.8338384	0.167601515	0.6952865
0.207	293	0.80054645	0.8435745	0.174619927	0.711618
0.2075	294	0.80327869	0.8533902	0.177078476	0.7282749
0.209	295	0.80601093	0.8632901	0.18042763	0.7452698
0.21	296	0.80874317	0.8732741	0.183387556	0.7626076
0.21	297	0.81147541	0.8833467	0.185502813	0.7803014
0.21	298	0.81420765	0.8935081	0.187636692	0.7983567
0.21	299	0.81693989	0.9037649	0.189790626	0.816791
0.21	300	0.81967213	0.9141172	0.191964614	0.8356103
0.214	301	0.82240437	0.9245673	0.197857403	0.8548247
0.215	302	0.82513661	0.9351197	0.201050739	0.8744489
0.215	303	0.82786885	0.9457767	0.203341995	0.8944936
0.217	304	0.83060109	0.9565429	0.207569801	0.9149742
0.218	305	0.83333333	0.9674204	0.210897651	0.9359023
0.22	306	0.83606557	0.9784162	0.215251566	0.9572983
0.22	307	0.83879781	0.9895302	0.217696652	0.9791701
0.22	308	0.84153005	1.000767	0.220168749	1.0015347
0.22	309	0.8442623	1.0121312	0.222668859	1.0244095
0.221	310	0.84699454	1.0236272	0.226221609	1.0478126
0.222	311	0.84972678	1.0352619	0.229828142	1.0717672
0.223	312	0.85245902	1.0470376	0.233489382	1.0962877
0.225	313	0.85519126	1.0589611	0.238266239	1.1213985
0.225	314	0.8579235	1.0710369	0.240983297	1.14712
0.225	315	0.86065574	1.0832696	0.243735656	1.173473
0.23	316	0.86338798	1.0956683	0.252003701	1.200489
0.23	317	0.86612022	1.1082375	0.254894621	1.2281903

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - raw data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (normal)	Mi^2
0.23	318	0.86885246	1.1209841	0.257826332	1.2566052
0.23	319	0.8715847	1.1339148	0.260800402	1.2857628
0.23	320	0.87431694	1.1470365	0.263818401	1.3156928
0.23	321	0.87704918	1.1603606	0.266882944	1.3464368
0.23	322	0.87978142	1.1738939	0.269995599	1.3780269
0.232	323	0.88251366	1.1876455	0.275533748	1.4105018
0.2325	324	0.8852459	1.2016267	0.279378202	1.4439067
0.233	325	0.88797814	1.2158466	0.283292263	1.478283
0.233	326	0.89071038	1.2303144	0.286663258	1.5136735
0.235	327	0.89344262	1.2450482	0.292586333	1.5501451
0.236	328	0.89617486	1.2600549	0.297372953	1.5877383
0.236	329	0.8989071	1.275348	0.300982138	1.6265126
0.237	330	0.90163934	1.2909504	0.30595525	1.666553
0.239	331	0.90437158	1.3068711	0.312342199	1.7079121
0.24	332	0.90710383	1.3231283	0.317550803	1.7506686
0.24	333	0.90983607	1.3397448	0.321538755	1.7949162
0.24	334	0.91256831	1.3567433	0.325618385	1.8407523
0.24	335	0.91530055	1.3741374	0.329792965	1.8882535
0.242	336	0.91803279	1.3919589	0.336854055	1.9375496
0.242	337	0.92076503	1.4102352	0.341276918	1.9887633
0.243	338	0.92349727	1.4289981	0.347246532	2.0420355
0.244	339	0.92622951	1.4482703	0.353377945	2.0974868
0.248	340	0.92896175	1.4681018	0.364089246	2.1553229
0.25	341	0.93169399	1.4885291	0.372132263	2.2157187
0.252	342	0.93442623	1.5095929	0.380417423	2.2788709
0.2535	343	0.93715847	1.5313481	0.388196734	2.3450269
0.2565	344	0.93989071	1.5538581	0.398564591	2.4144749
0.264	345	0.94262295	1.577182	0.41637606	2.4875032
0.269	346	0.94535519	1.6013928	0.430774662	2.5644589
0.27	347	0.94808743	1.6265858	0.439178166	2.6457814
0.276	348	0.95081967	1.652852	0.456187154	2.7319198
0.281	349	0.95355191	1.6803142	0.47216829	2.8234558
0.288	350	0.95628415	1.7091043	0.492222025	2.9210373
0.292	351	0.95901639	1.7393813	0.507899349	3.0254474
0.294	352	0.96174863	1.7713501	0.520776921	3.1376811
0.294	353	0.96448087	1.8052287	0.530737252	3.2588508
0.294	354	0.96721311	1.8413266	0.541350018	3.3904836
0.295	355	0.96994536	1.8799892	0.554596818	3.5343594
0.299	356	0.9726776	1.9216895	0.574585174	3.6928907
0.3	357	0.97540984	1.9670188	0.590105628	3.8691628
0.3	358	0.97814208	2.0168045	0.60504135	4.0675004
0.31	359	0.98087432	2.0721473	0.642365649	4.2937942
0.322	360	0.98360656	2.134675	0.687365355	4.5568374
0.326	361	0.9863388	2.2068707	0.719439849	4.8702783
0.36	362	0.98907104	2.2928361	0.825421012	5.2570976
0.406	363	0.99180328	2.4000474	0.974419236	5.7602274
0.7	364	0.99453552	2.5449481	1.781463652	6.4767607
0.755	365	0.99726776	2.7783244	2.097634933	7.7190866

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - lognormal data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (lognormal	Mi^2
-5.298317	1	0.00273224	-2.778324	14.7204445	7.7190866
-5.298317	2	0.00546448	-2.544948	13.48394258	6.4767607
-5.298317	3	0.00819672	-2.400047	12.71621271	5.7602274
-5.298317	4	0.01092896	-2.292836	12.14817356	5.2570976
-5.298317	5	0.0136612	-2.206871	11.69270138	4.8702783
-5.298317	6	0.01639344	-2.134675	11.3101857	4.5568374
-5.298317	7	0.01912568	-2.072147	10.97889378	4.2937942
-5.298317	8	0.02185792	-2.016805	10.68567031	4.0675004
-4.710531	9	0.02459016	-1.967019	9.265702265	3.8691628
-4.60517	10	0.0273224	-1.92169	8.849707401	3.6928907
-4.60517	11	0.03005464	-1.879989	8.657670275	3.5343594
-4.60517	12	0.03278689	-1.841327	8.479622331	3.3904836
-4.60517	13	0.03551913	-1.805229	8.313385612	3.2588508
-4.60517	14	0.03825137	-1.77135	8.157368536	3.1376811
-4.60517	15	0.04098361	-1.739381	8.010147054	3.0254474
-4.60517	16	0.04371585	-1.709104	7.870715954	2.9210373
-4.60517	17	0.04644809	-1.680314	7.738132852	2.8234558
-4.60517	18	0.04918033	-1.652852	7.611664782	2.7319198
-4.60517	19	0.05191257	-1.626586	7.490704428	2.6457814
-4.60517	20	0.05464481	-1.601393	7.374686361	2.5644589
-4.60517	21	0.05737705	-1.577182	7.263191742	2.4875032
-4.60517	22	0.06010929	-1.553858	7.155780791	2.4144749
-4.60517	23	0.06284153	-1.531348	7.052118438	2.3450269
-4.60517	24	0.06557377	-1.509593	6.951932439	2.2788709
-4.60517	25	0.06830601	-1.488529	6.854929607	2.2157187
-4.60517	26	0.07103825	-1.468102	6.76085864	2.1553229
-4.60517	27	0.07377049	-1.44827	6.66953106	2.0974868
-4.60517	28	0.07650273	-1.428998	6.580779333	2.0420355
-4.60517	29	0.07923497	-1.410235	6.494373097	1.9887633
-4.60517	30	0.08196721	-1.391959	6.410207643	1.9375496
-4.60517	31	0.08469945	-1.374137	6.328136379	1.8882535
-4.199705	32	0.08743169	-1.356743	5.697921596	1.8407523
-4.135167	33	0.09016393	-1.339745	5.540067945	1.7949162
-4.074542	34	0.09289617	-1.323128	5.391141926	1.7506686
-4.017384	35	0.09562842	-1.306871	5.250202529	1.7079121
-3.912023	36	0.09836066	-1.29095	5.05022775	1.666553
-3.912023	37	0.1010929	-1.275348	4.989190874	1.6265126
-3.912023	38	0.10382514	-1.260055	4.929363706	1.5877383
-3.912023	39	0.10655738	-1.245048	4.870657297	1.5501451
-3.912023	40	0.10928962	-1.230314	4.813018277	1.5136735
-3.912023	41	0.11202186	-1.215847	4.756419962	1.478283
-3.912023	42	0.1147541	-1.201627	4.700791192	1.4439067
-3.912023	43	0.11748634	-1.187645	4.646096387	1.4105018
-3.88733	44	0.12021858	-1.173894	4.563313461	1.3780269
-3.863233	45	0.12295082	-1.160361	4.482743276	1.3464368
-3.772261	46	0.12568306	-1.147037	4.326921232	1.3156928
-3.750755	47	0.1284153	-1.133915	4.253036419	1.2857628
-3.729701	48	0.13114754	-1.120984	4.180935844	1.2566052
-3.709082	49	0.13387978	-1.108237	4.110543883	1.2281903
-3.688879	50	0.13661202	-1.095668	4.041788159	1.200489
-3.688879	51	0.13934426	-1.08327	3.9960509	1.173473
-3.688879	52	0.1420765	-1.071037	3.95092593	1.14712
-3.649659	53	0.14480874	-1.058961	3.864846493	1.1213985
-3.506558	54	0.14754098	-1.047038	3.671497914	1.0962877
-3.506558	55	0.15027322	-1.035262	3.630205801	1.0717672
-3.506558	56	0.15300546	-1.023627	3.589408014	1.0478126
-3.473768	57	0.1557377	-1.012131	3.515908976	1.0244095

Selenium - lognormal
116081.62 = (sum of Mi*Xi)^2
364 = count -1
0.9963102 = standard deviation ^2
354.90912 = sum of Mi^2

0.90 = W statistic

FAIL

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - lognormal data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (lognormal	Mi^2
-3.218876	58	0.15846995	-1.000767	3.22134484	1.0015347
-3.218876	59	0.16120219	-0.98953	3.185174953	0.9791701
-3.218876	60	0.16393443	-0.978416	3.149400286	0.9572983
-3.218876	61	0.16666667	-0.96742	3.1140062	0.9359023
-3.218876	62	0.16939891	-0.956543	3.078992696	0.9149742
-3.218876	63	0.17213115	-0.945777	3.044337817	0.8944936
-3.170086	64	0.17486339	-0.93512	2.9644096	0.8744489
-3.158251	65	0.17759563	-0.924567	2.920015796	0.8548247
-3.123566	66	0.18032787	-0.914117	2.855305108	0.8356103
-3.101093	67	0.18306011	-0.903765	2.802658768	0.816791
-3.101093	68	0.18579235	-0.893508	2.770851398	0.7983567
-3.057608	69	0.18852459	-0.883347	2.700927741	0.7803014
-3.026191	70	0.19125683	-0.873274	2.642694567	0.7626076
-2.995732	71	0.19398907	-0.86329	2.586186006	0.7452698
-2.995732	72	0.19672131	-0.85339	2.556528706	0.7282749
-2.995732	73	0.19945355	-0.843575	2.527123432	0.711618
-2.995732	74	0.20218579	-0.833838	2.497956561	0.6952865
-2.995732	75	0.20491803	-0.824182	2.469028092	0.6792757
-2.995732	76	0.20765027	-0.8146	2.440324404	0.6635736
-2.995732	77	0.21038251	-0.805094	2.411845495	0.648176
-2.995732	78	0.21311475	-0.79566	2.383584554	0.6330749
-2.986079	79	0.21584699	-0.786297	2.347944445	0.6182627
-2.97593	80	0.21857923	-0.777	2.312295888	0.6037282
-2.900422	81	0.22131148	-0.76777	2.226858278	0.5894714
-2.900422	82	0.22404372	-0.758607	2.200281249	0.575485
-2.900422	83	0.22677596	-0.749505	2.173882279	0.5617585
-2.873515	84	0.2295082	-0.740467	2.127743872	0.5482919
-2.864704	85	0.23224044	-0.731488	2.09549775	0.5350753
-2.838729	86	0.23497268	-0.722569	2.051175896	0.5221053
-2.830218	87	0.23770492	-0.713704	2.019938828	0.5093739
-2.830218	88	0.24043716	-0.704897	1.995012195	0.4968798
-2.820939	89	0.2431694	-0.696143	1.96377738	0.4846153
-2.813411	90	0.24590164	-0.687444	1.934061878	0.472579
-2.813411	91	0.24863388	-0.678795	1.90972786	0.460762
-2.813411	92	0.25136612	-0.670198	1.885540972	0.4491648
-2.813411	93	0.25409836	-0.661648	1.86148842	0.4377785
-2.813411	94	0.2568306	-0.653147	1.837570204	0.4266007
-2.813411	95	0.25956284	-0.644693	1.813786324	0.4156291
-2.796881	96	0.26229508	-0.636285	1.77961304	0.4048583
-2.788718	97	0.26502732	-0.627922	1.751097347	0.394286
-2.780621	98	0.26775956	-0.619602	1.72287927	0.3839071
-2.764621	99	0.2704918	-0.611326	1.69008431	0.3737194
-2.748872	100	0.27322404	-0.60309	1.657818664	0.3637181
-2.748872	101	0.27595628	-0.594896	1.6352929	0.3539012
-2.733368	102	0.27868852	-0.586742	1.603782679	0.3442665
-2.733368	103	0.28142077	-0.578625	1.581595274	0.334807
-2.733368	104	0.28415301	-0.570549	1.559519739	0.3255259
-2.733368	105	0.28688525	-0.562507	1.537537428	0.3164136
-2.733368	106	0.28961749	-0.554503	1.515660771	0.3074736
-2.733368	107	0.29234973	-0.546534	1.493877338	0.2986989
-2.65926	108	0.29508197	-0.538598	1.432272709	0.290088
-2.65926	109	0.29781421	-0.530697	1.41126127	0.2816393
-2.65926	110	0.30054645	-0.52283	1.390340528	0.2733511
-2.65926	111	0.30327869	-0.514995	1.369504436	0.2652194
-2.65926	112	0.30601093	-0.507189	1.348746948	0.2572405
-2.65926	113	0.30874317	-0.499416	1.328077134	0.2494164
-2.65926	114	0.31147541	-0.491673	1.307485923	0.2417422
-2.65926	115	0.31420765	-0.483958	1.286970294	0.2342154
-2.617296	116	0.31693989	-0.476273	1.246546861	0.2268358
-2.61047	117	0.31967213	-0.468616	1.223307971	0.219601
-2.60369	118	0.32240437	-0.460986	1.200265986	0.2125085
-2.583623	119	0.32513661	-0.453383	1.171370857	0.2055562
-2.577022	120	0.32786885	-0.445806	1.148851536	0.1987429
-2.56395	121	0.33060109	-0.438254	1.12366042	0.1920663
-2.551046	122	0.33333333	-0.430728	1.098806105	0.1855263

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - lognormal data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (lognormal	Mi^2
-2.525729	123	0.33606557	-0.423224	1.068949648	0.1791188
-2.525729	124	0.33879781	-0.415746	1.05006144	0.1728447
-2.525729	125	0.34153005	-0.40829	1.031230661	0.166701
-2.525729	126	0.3442623	-0.400858	1.012457311	0.1606867
-2.525729	127	0.34699454	-0.393447	0.993741388	0.1548009
-2.525729	128	0.34972678	-0.386058	0.975077152	0.1490406
-2.525729	129	0.35245902	-0.378691	0.956470343	0.1434068
-2.525729	130	0.35519126	-0.371342	0.937909478	0.137895
-2.525729	131	0.3579235	-0.364015	0.919403169	0.1325069
-2.525729	132	0.36065574	-0.356706	0.900942804	0.1272392
-2.513306	133	0.36338798	-0.349418	0.878193476	0.1220927
-2.501036	134	0.36612022	-0.342147	0.855722874	0.1170648
-2.465104	135	0.36885246	-0.334894	0.825548889	0.1121541
-2.465104	136	0.3715847	-0.327659	0.807713787	0.1073605
-2.441847	137	0.37431694	-0.320441	0.782468267	0.1026825
-2.419119	138	0.37704918	-0.31324	0.757765308	0.0981194
-2.407946	139	0.37978142	-0.306055	0.736964272	0.0936698
-2.407946	140	0.38251366	-0.298886	0.719701489	0.0893329
-2.407946	141	0.3852459	-0.291732	0.702474293	0.0851074
-2.407946	142	0.38797814	-0.284592	0.685282685	0.0809928
-2.407946	143	0.39071038	-0.277469	0.668129402	0.0769888
-2.407946	144	0.39344262	-0.270358	0.651006232	0.0730932
-2.407946	145	0.39617486	-0.26326	0.633915912	0.0693059
-2.407946	146	0.3989071	-0.256177	0.61686118	0.0656268
-2.407946	147	0.40163934	-0.249106	0.599833822	0.0620538
-2.407946	148	0.40437158	-0.242048	0.582839316	0.0585874
-2.407946	149	0.40710383	-0.235002	0.565872184	0.055226
-2.407946	150	0.40983607	-0.227967	0.548932427	0.051969
-2.407946	151	0.41256831	-0.220944	0.532020046	0.0488161
-2.402405	152	0.41530055	-0.213931	0.513949822	0.0457666
-2.396896	153	0.41803279	-0.206928	0.495985411	0.0428193
-2.380547	154	0.42076503	-0.199936	0.475958148	0.0399746
-2.359155	155	0.42349727	-0.192955	0.455210804	0.0372316
-2.353878	156	0.42622951	-0.185983	0.437780356	0.0345895
-2.343407	157	0.42896175	-0.179018	0.419512322	0.0320475
-2.343407	158	0.43169399	-0.172063	0.40321308	0.0296056
-2.343407	159	0.43442623	-0.165116	0.386935151	0.0272635
-2.307598	160	0.43715847	-0.158177	0.365008974	0.02502
-2.302585	161	0.43989071	-0.151247	0.348258386	0.0228756
-2.302585	162	0.44262295	-0.144322	0.332313755	0.0208288
-2.302585	163	0.44535519	-0.137405	0.316387448	0.0188802
-2.302585	164	0.44808743	-0.130494	0.300474229	0.0170288
-2.302585	165	0.45081967	-0.123591	0.284579335	0.0152748
-2.302585	166	0.45355191	-0.116693	0.268694912	0.0136172
-2.302585	167	0.45628415	-0.109799	0.25282096	0.0120558
-2.302585	168	0.45901639	-0.102912	0.236962714	0.0105908
-2.302585	169	0.46174863	-0.096029	0.221114939	0.0092216
-2.302585	170	0.46448087	-0.089151	0.205277636	0.0079479
-2.302585	171	0.46721311	-0.082277	0.189450803	0.0067696
-2.302585	172	0.46994536	-0.075407	0.173631823	0.0056863
-2.302585	173	0.4726776	-0.068541	0.157820696	0.0046978
-2.302585	174	0.47540984	-0.061677	0.142017423	0.0038041
-2.302585	175	0.47814208	-0.054818	0.126222003	0.003005
-2.302585	176	0.48087432	-0.04796	0.110431818	0.0023002
-2.302585	177	0.48360656	-0.041103	0.094644252	0.0016895
-2.292635	178	0.4863388	-0.03425	0.078523735	0.0011731
-2.287696	179	0.48907104	-0.027399	0.062679516	0.0007507
-2.282782	180	0.49180328	-0.020548	0.046906064	0.0004222
-2.282782	181	0.49453552	-0.013698	0.031269844	0.0001876
-2.277892	182	0.49726776	-0.006848	0.015600136	4.69E-05
-2.263364	183	0.5	0	0	0
-2.258568	184	0.50273224	0.0068485	-0.015467793	4.69E-05
-2.207275	185	0.50546448	0.0136981	-0.030235532	0.0001876
-2.207275	186	0.50819672	0.0205478	-0.045354553	0.0004222
-2.207275	187	0.51092896	0.0273985	-0.060476083	0.0007507

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - lognormal data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (lognormal	Mi^2
-2.207275	188	0.5136612	0.0342504	-0.075600123	0.0011731
-2.207275	189	0.51639344	0.0411035	-0.090726672	0.0016895
-2.207275	190	0.51912568	0.0479599	-0.105860749	0.0023002
-2.207275	191	0.52185792	0.0548175	-0.120997335	0.003005
-2.207275	192	0.52459016	0.0616774	-0.136138941	0.0038041
-2.189256	193	0.5273224	0.0685407	-0.150053074	0.0046978
-2.180367	194	0.53005464	0.0754073	-0.164415716	0.0056863
-2.162823	195	0.53278689	0.0822774	-0.177951548	0.0067696
-2.120264	196	0.53551913	0.0891509	-0.189023497	0.0079479
-2.120264	197	0.53825137	0.096029	-0.203606783	0.0092216
-2.120264	198	0.54098361	0.1029116	-0.218199711	0.0105908
-2.120264	199	0.54371585	0.1097987	-0.232802281	0.0120558
-2.120264	200	0.54644809	0.1166927	-0.247419314	0.0136172
-2.120264	201	0.54918033	0.1235912	-0.262045989	0.0152748
-2.120264	202	0.55191257	0.1304943	-0.276682306	0.0170288
-2.111965	203	0.55464481	0.1374053	-0.290195196	0.0188802
-2.111965	204	0.55737705	0.144322	-0.304803037	0.0208288
-2.095571	205	0.56010929	0.1512467	-0.316948177	0.0228756
-2.055725	206	0.56284153	0.158177	-0.325168508	0.02502
-2.040221	207	0.56557377	0.1651165	-0.336874101	0.0272635
-2.040221	208	0.56830601	0.1720628	-0.351046017	0.0296056
-2.040221	209	0.57103825	0.1790181	-0.365236489	0.0320475
-2.040221	210	0.57377049	0.1859826	-0.379445516	0.0345895
-2.040221	211	0.57650273	0.192955	-0.39367078	0.0372316
-2.040221	212	0.57923497	0.1999365	-0.407914599	0.0399746
-2.040221	213	0.58196721	0.2069282	-0.422179294	0.0428193
-2.040221	214	0.58469945	0.2139313	-0.436467183	0.0457666
-2.040221	215	0.58743169	0.2209435	-0.450773628	0.0488161
-1.99021	216	0.59016393	0.2279671	-0.453702536	0.051969
-1.980502	217	0.59289617	0.2350021	-0.465421959	0.055226
-1.966113	218	0.59562842	0.2420484	-0.475894417	0.0585874
-1.966113	219	0.59836066	0.2491061	-0.48977061	0.0620538
-1.966113	220	0.6010929	0.2561774	-0.503673626	0.0656268
-1.966113	221	0.60382514	0.2632601	-0.517598994	0.0693059
-1.966113	222	0.60655738	0.2703575	-0.531553419	0.0730932
-1.966113	223	0.60928962	0.2774686	-0.545534667	0.0769888
-1.966113	224	0.61202186	0.2845923	-0.559540503	0.0809928
-1.937942	225	0.6147541	0.2917318	-0.565359291	0.0851074
-1.931022	226	0.61748634	0.2988861	-0.57715551	0.0893329
-1.931022	227	0.62021858	0.3060552	-0.590999181	0.0936698
-1.913927	228	0.62295082	0.3132402	-0.599518922	0.0981194
-1.900459	229	0.62568306	0.3204411	-0.608985196	0.1026825
-1.89712	230	0.6284153	0.3276591	-0.621608643	0.1073605
-1.89712	231	0.63114754	0.3348941	-0.635334364	0.1121541
-1.89712	232	0.63387978	0.3421474	-0.649094593	0.1170648
-1.89712	233	0.63661202	0.3494176	-0.662887174	0.1220927
-1.89712	234	0.63934426	0.3567061	-0.676714263	0.1272392
-1.89712	235	0.6420765	0.364015	-0.690580174	0.1325069
-1.89712	236	0.64480874	0.3713421	-0.704480594	0.137895
-1.89712	237	0.64754098	0.3786909	-0.718421992	0.1434068
-1.89712	238	0.65027322	0.3860578	-0.732397899	0.1490406
-1.86433	239	0.65300546	0.3934474	-0.73351587	0.1548009
-1.832581	240	0.6557377	0.4008575	-0.734604054	0.1606867
-1.832581	241	0.65846995	0.4082904	-0.748225348	0.166701
-1.832581	242	0.66120219	0.4157459	-0.761888311	0.1728447
-1.832581	243	0.66393443	0.4232243	-0.775592942	0.1791188
-1.832581	244	0.66666667	0.4307276	-0.789343408	0.1855263
-1.832581	245	0.66939891	0.4382537	-0.803135542	0.1920663
-1.820159	246	0.67213115	0.4458059	-0.811437562	0.1987429
-1.814005	247	0.67486339	0.4533831	-0.822439262	0.2055562
-1.807889	248	0.67759563	0.4609865	-0.833412326	0.2125085
-1.80181	249	0.68032787	0.468616	-0.844356918	0.219601
-1.789761	250	0.68306011	0.4762728	-0.852414735	0.2268358
-1.789761	251	0.68579235	0.483958	-0.866169464	0.2342154
-1.771957	252	0.68852459	0.4916728	-0.871223045	0.2417422

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - lognormal data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (lognormal	Mi^2
-1.771957	253	0.69125683	0.499416	-0.88494368	0.2494164
-1.771957	254	0.69398907	0.5071888	-0.898716692	0.2572405
-1.771957	255	0.69672131	0.5149946	-0.912548123	0.2652194
-1.771957	256	0.69945355	0.5228299	-0.926431931	0.2733511
-1.771957	257	0.70218579	0.530697	-0.940372144	0.2816393
-1.771957	258	0.70491803	0.5385982	-0.954372792	0.290088
-1.771957	259	0.70765027	0.5465336	-0.968433874	0.2986989
-1.766092	260	0.71038251	0.554503	-0.979303165	0.3074736
-1.754464	261	0.71311475	0.5625066	-0.986897326	0.3164136
-1.742969	262	0.71584699	0.5705488	-0.994448982	0.3255259
-1.737271	263	0.71857923	0.5786251	-1.00522873	0.334807
-1.720369	264	0.72131148	0.5867423	-1.009413571	0.3442665
-1.714798	265	0.72404372	0.5948959	-1.020126618	0.3539012
-1.714798	266	0.72677596	0.6030905	-1.034178614	0.3637181
-1.714798	267	0.7295082	0.611326	-1.048300793	0.3737194
-1.714798	268	0.73224044	0.6196024	-1.062493154	0.3839071
-1.714798	269	0.73497268	0.627922	-1.076759596	0.394286
-1.703749	270	0.73770492	0.6362848	-1.084069276	0.4048583
-1.703749	271	0.74043716	0.644693	-1.098394869	0.4156291
-1.678788	272	0.7431694	0.6531468	-1.096495002	0.4266007
-1.660731	273	0.74590164	0.6616483	-1.098819981	0.4377785
-1.660731	274	0.74863388	0.6701976	-1.113017987	0.4491648
-1.660731	275	0.75136612	0.6787945	-1.127295291	0.460762
-1.655482	276	0.75409836	0.6874438	-1.138050807	0.472579
-1.639897	277	0.7568306	0.6961432	-1.141603165	0.4846153
-1.639897	278	0.75956284	0.704897	-1.155958638	0.4968798
-1.629641	279	0.76229508	0.7137044	-1.163081626	0.5093739
-1.624552	280	0.76502732	0.7225685	-1.173849825	0.5221053
-1.61445	281	0.76775956	0.7314884	-1.180951778	0.5350753
-1.609438	282	0.7704918	0.7404674	-1.191736283	0.5482919
-1.609438	283	0.77322404	0.7495055	-1.206282549	0.5617585
-1.609438	284	0.77595628	0.7586073	-1.22093128	0.575485
-1.609438	285	0.77868852	0.7677704	-1.235678816	0.5894714
-1.609438	286	0.78142077	0.7769995	-1.250532475	0.6037282
-1.609438	287	0.78415301	0.7862968	-1.265495918	0.6182627
-1.609438	288	0.78688525	0.7956601	-1.280565484	0.6330749
-1.609438	289	0.78961749	0.8050938	-1.295748493	0.648176
-1.609438	290	0.79234973	0.8146003	-1.311048604	0.6635736
-1.609438	291	0.79508197	0.8241818	-1.326469476	0.6792757
-1.60445	292	0.79781421	0.8338384	-1.337852306	0.6952865
-1.575036	293	0.80054645	0.8435745	-1.328660657	0.711618
-1.572624	294	0.80327869	0.8533902	-1.342061933	0.7282749
-1.565421	295	0.80601093	0.8632901	-1.351412471	0.7452698
-1.560648	296	0.80874317	0.8732741	-1.362873219	0.7626076
-1.560648	297	0.81147541	0.8833467	-1.378593084	0.7803014
-1.560648	298	0.81420765	0.8935081	-1.39445134	0.7983567
-1.560648	299	0.81693989	0.9037649	-1.410458633	0.816791
-1.560648	300	0.81967213	0.9141172	-1.426614963	0.8356103
-1.541779	301	0.82240437	0.9245673	-1.425478695	0.8548247
-1.537117	302	0.82513661	0.9351197	-1.437388646	0.8744489
-1.537117	303	0.82786885	0.9457767	-1.45376971	0.8944936
-1.527858	304	0.83060109	0.9565429	-1.461461594	0.9149742
-1.52326	305	0.83333333	0.9674204	-1.473633037	0.9359023
-1.514128	306	0.83606557	0.9784162	-1.481447118	0.9572983
-1.514128	307	0.83879781	0.9895302	-1.498275172	0.9791701
-1.514128	308	0.84153005	1.000767	-1.515289133	1.0015347
-1.514128	309	0.8442623	1.0121312	-1.532495887	1.0244095
-1.509593	310	0.84699454	1.0236272	-1.545260011	1.0478126
-1.505078	311	0.84972678	1.0352619	-1.558149808	1.0717672
-1.500584	312	0.85245902	1.0470376	-1.571167333	1.0962877
-1.491655	313	0.85519126	1.0589611	-1.579604431	1.1213985
-1.491655	314	0.8579235	1.0710369	-1.597617381	1.14712
-1.491655	315	0.86065574	1.0832696	-1.615864353	1.173473
-1.469676	316	0.86338798	1.0956683	-1.610277323	1.200489
-1.469676	317	0.86612022	1.1082375	-1.628749999	1.2281903

Table 47. Selenium Near Upgradient Background Data, Shapiro-Francia Test of Normality Analysis (continued)

Selenium - lognormal data					
Selenium	Count	i/(n+1)	Mi	Mi * Xi (lognormal	Mi^2
-1.469676	318	0.86885246	1.1209841	-1.647483324	1.2566052
-1.469676	319	0.8715847	1.1339148	-1.666487324	1.2857628
-1.469676	320	0.87431694	1.1470365	-1.685772022	1.3156928
-1.469676	321	0.87704918	1.1603606	-1.705354128	1.3464368
-1.469676	322	0.87978142	1.1738939	-1.725243666	1.3780269
-1.461018	323	0.88251366	1.1876455	-1.735171294	1.4105018
-1.458865	324	0.8852459	1.2016267	-1.753011162	1.4439067
-1.456717	325	0.88797814	1.2158466	-1.771144233	1.478283
-1.456717	326	0.89071038	1.2303144	-1.792219702	1.5136735
-1.44817	327	0.89344262	1.2450482	-1.803041195	1.5501451
-1.443923	328	0.89617486	1.2600549	-1.81942283	1.5877383
-1.443923	329	0.8989071	1.275348	-1.841504973	1.6265126
-1.439695	330	0.90163934	1.2909504	-1.858575046	1.666553
-1.431292	331	0.90437158	1.3068711	-1.870513832	1.7079121
-1.427116	332	0.90710383	1.3231283	-1.888258101	1.7506686
-1.427116	333	0.90983607	1.3397448	-1.911971735	1.7949162
-1.427116	334	0.91256831	1.3567433	-1.936230509	1.8407523
-1.427116	335	0.91530055	1.3741374	-1.961053894	1.8882535
-1.418818	336	0.91803279	1.3919589	-1.974935725	1.9375496
-1.418818	337	0.92076503	1.4102352	-2.000866455	1.9887633
-1.414694	338	0.92349727	1.4289981	-2.021594768	2.0420355
-1.410587	339	0.92622951	1.4482703	-2.042911291	2.0974868
-1.394327	340	0.92896175	1.4681018	-2.047013293	2.1553229
-1.386294	341	0.93169399	1.4885291	-2.06353943	2.2157187
-1.378326	342	0.93442623	1.5095929	-2.080711499	2.2788709
-1.372391	343	0.93715847	1.5313481	-2.101608996	2.3450269
-1.360627	344	0.93989071	1.5538581	-2.114220625	2.4144749
-1.331806	345	0.94262295	1.577182	-2.100500791	2.4875032
-1.313044	346	0.94535519	1.6013928	-2.102699041	2.5644589
-1.309333	347	0.94808743	1.6265858	-2.129742985	2.6457814
-1.287354	348	0.95081967	1.652852	-2.127806325	2.7319198
-1.269401	349	0.95355191	1.6803142	-2.132991868	2.8234558
-1.244795	350	0.95628415	1.7091043	-2.127484086	2.9210373
-1.231001	351	0.95901639	1.7393813	-2.141180989	3.0254474
-1.224176	352	0.96174863	1.7713501	-2.16844338	3.1376811
-1.224176	353	0.96448087	1.8052287	-2.209916827	3.2588508
-1.224176	354	0.96721311	1.8413266	-2.254106925	3.3904836
-1.22078	355	0.96994536	1.8799892	-2.295053086	3.5343594
-1.207312	356	0.9726776	1.9216895	-2.320078283	3.6928907
-1.203973	357	0.97540984	1.9670188	-2.368237094	3.8691628
-1.203973	358	0.97814208	2.0168045	-2.428177771	4.0675004
-1.171183	359	0.98087432	2.0721473	-2.426863599	4.2937942
-1.133204	360	0.98360656	2.134675	-2.419021696	4.5568374
-1.120858	361	0.9863388	2.2068707	-2.473588458	4.8702783
-1.021651	362	0.98907104	2.2928361	-2.342478906	5.2570976
-0.901402	363	0.99180328	2.4000474	-2.163407794	5.7602274
-0.356675	364	0.99453552	2.5449481	-0.907719212	6.4767607
-0.281038	365	0.99726776	2.7783244	-0.78081343	7.7190866

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.005	-5.298317367	1	0.00190	-2.8948	-0.014474	8.3799394	15.33763532
0.005	-5.298317367	2	0.00460	-2.6042	-0.013021	6.7817241	13.79774229
0.005	-5.298317367	3	0.00734	-2.4401	-0.0122	5.9540067	12.92833591
0.005	-5.298317367	4	0.01008	-2.3234	-0.011617	5.3981651	12.31008495
0.005	-5.298317367	5	0.01282	-2.2317	-0.011159	4.9806469	11.82444714
0.005	-5.298317367	6	0.01555	-2.1557	-0.010779	4.6471318	11.42169254
0.005	-5.298317367	7	0.01829	-2.0904	-0.010452	4.3698516	11.0757033
0.005	-5.298317367	8	0.02103	-2.0330	-0.010165	4.1330256	10.77139662
0.009	-4.710530702	9	0.02376	-1.9816	-0.017834	3.9265863	9.334206667
0.01	-4.605170186	10	0.02650	-1.9349	-0.019349	3.7438554	8.910564531
0.01	-4.605170186	11	0.02924	-1.8921	-0.018921	3.5800908	8.713501352
0.01	-4.605170186	12	0.03197	-1.8525	-0.018525	3.4318732	8.531223146
0.01	-4.605170186	13	0.03471	-1.8157	-0.018157	3.2965906	8.361384423
0.01	-4.605170186	14	0.03745	-1.7811	-0.017811	3.1722843	8.202226063
0.01	-4.605170186	15	0.04019	-1.7485	-0.017485	3.0573601	8.052282135
0.01	-4.605170186	16	0.04292	-1.7177	-0.017177	2.9505991	7.910442718
0.01	-4.605170186	17	0.04566	-1.6885	-0.016885	2.8509543	7.775723543
0.01	-4.605170186	18	0.04840	-1.6606	-0.016606	2.7575954	7.647349761
0.01	-4.605170186	19	0.05113	-1.6340	-0.01634	2.6698163	7.524651231
0.01	-4.605170186	20	0.05387	-1.6084	-0.016084	2.5870398	7.407083464
0.01	-4.605170186	21	0.05661	-1.5839	-0.015839	2.5087494	7.294143854
0.01	-4.605170186	22	0.05934	-1.5603	-0.015603	2.4345276	7.185434506
0.01	-4.605170186	23	0.06208	-1.5375	-0.015375	2.3639926	7.080578466
0.01	-4.605170186	24	0.06482	-1.5155	-0.015155	2.2968371	6.979282547
0.01	-4.605170186	25	0.06756	-1.4942	-0.014942	2.2327688	6.881253562
0.01	-4.605170186	26	0.07029	-1.4736	-0.014736	2.1715363	6.78624021
0.01	-4.605170186	27	0.07303	-1.4536	-0.014536	2.1129262	6.694033071
0.01	-4.605170186	28	0.07577	-1.4341	-0.014341	2.0567481	6.604443668
0.01	-4.605170186	29	0.07850	-1.4152	-0.014152	2.0028197	6.517283524
0.01	-4.605170186	30	0.08124	-1.3968	-0.013968	1.9509795	6.432385104
0.01	-4.605170186	31	0.08398	-1.3788	-0.013788	1.9010979	6.349622757
0.015	-4.199705078	32	0.08671	-1.3613	-0.020419	1.8530506	5.716924153
0.016	-4.135166557	33	0.08945	-1.3441	-0.021506	1.8067122	5.558242552
0.017	-4.074541935	34	0.09219	-1.3274	-0.022566	1.7619866	5.408540536
0.018	-4.017383521	35	0.09493	-1.3110	-0.023598	1.7187693	5.266863807
0.02	-3.912023005	36	0.09766	-1.2950	-0.0259	1.6769895	5.066016216

Normal

31.613 =sum X(i)*M(i)
360.147 =sum M(i)^2
0.09 = standard deviation
18.9775 = square root of sum Mi^2

0.937 = Fillibens's Statistic

Lognormal

343.168 =sum X(i)*M(i)
360.147 =sum M(i)^2
1.00 = standard deviation
18.9775 = square root of sum Mi^2

0.950 = Fillibens's Statistic

.987+ is acceptable value

Normal - Fail
Lognormal - Fail

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis (continued)

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.02	-3.912023005	37	0.10040	-1.2793	-0.025586	1.6365498	5.00456128
0.02	-3.912023005	38	0.10314	-1.2639	-0.025278	1.5973909	4.944324946
0.02	-3.912023005	39	0.10587	-1.2488	-0.024976	1.5594444	4.88524495
0.02	-3.912023005	40	0.10861	-1.2340	-0.024679	1.5226385	4.827250134
0.02	-3.912023005	41	0.11135	-1.2194	-0.024388	1.4869209	4.770296022
0.02	-3.912023005	42	0.11408	-1.2051	-0.024102	1.4522409	4.71433814
0.02	-3.912023005	43	0.11682	-1.1910	-0.023821	1.4185442	4.659323119
0.0205	-3.887330393	44	0.11956	-1.1772	-0.024133	1.3857943	4.576156188
0.021	-3.863232841	45	0.12230	-1.1636	-0.024435	1.3539401	4.495216519
0.023	-3.772261063	46	0.12503	-1.1502	-0.026454	1.3229427	4.338826287
0.0235	-3.750754858	47	0.12777	-1.1370	-0.026719	1.2927644	4.264600698
0.024	-3.729701449	48	0.13051	-1.1240	-0.026976	1.2633738	4.1921808
0.0245	-3.709082161	49	0.13324	-1.1112	-0.027224	1.2347405	4.121490535
0.025	-3.688879454	50	0.13598	-1.0986	-0.027464	1.2068301	4.052448724
0.025	-3.688879454	51	0.13872	-1.0861	-0.027153	1.179614	4.006493388
0.025	-3.688879454	52	0.14145	-1.0738	-0.026845	1.1530648	3.961150342
0.026	-3.649658741	53	0.14419	-1.0617	-0.027604	1.1271557	3.874754739
0.03	-3.506557897	54	0.14693	-1.0497	-0.031491	1.1018656	3.680826312
0.03	-3.506557897	55	0.14967	-1.0379	-0.031136	1.0771739	3.63935082
0.03	-3.506557897	56	0.15240	-1.0262	-0.030786	1.053056	3.598377627
0.031	-3.473768074	57	0.15514	-1.0146	-0.031454	1.0294879	3.524613051
0.04	-3.218875825	58	0.15788	-1.0032	-0.040129	1.0064603	3.229256545
0.04	-3.218875825	59	0.16061	-0.9919	-0.039678	0.9839458	3.192932962
0.04	-3.218875825	60	0.16335	-0.9808	-0.039231	0.9619312	3.157011917
0.04	-3.218875825	61	0.16609	-0.9697	-0.03879	0.9403994	3.121478773
0.04	-3.218875825	62	0.16882	-0.9588	-0.038353	0.919338	3.08632621
0.04	-3.218875825	63	0.17156	-0.9480	-0.037921	0.8987307	3.051539591
0.042	-3.170085661	64	0.17430	-0.9373	-0.039367	0.8785573	2.971365262
0.0425	-3.158251203	65	0.17704	-0.9267	-0.039386	0.8588152	2.926823414
0.044	-3.123565645	66	0.17977	-0.9162	-0.040314	0.8394848	2.861917225
0.045	-3.101092789	67	0.18251	-0.9058	-0.040763	0.8205517	2.809103445
0.045	-3.101092789	68	0.18525	-0.8956	-0.0403	0.8020136	2.777190309
0.047	-3.057607677	69	0.18798	-0.8854	-0.041612	0.7838485	2.707059577
0.0485	-3.026191481	70	0.19072	-0.8752	-0.042449	0.7660545	2.648660189
0.05	-2.995732274	71	0.19346	-0.8652	-0.043261	0.7486183	2.591989409
0.05	-2.995732274	72	0.19619	-0.8553	-0.042765	0.7315267	2.562229937
0.05	-2.995732274	73	0.19893	-0.8454	-0.042272	0.7147786	2.532729302
0.05	-2.995732274	74	0.20167	-0.8357	-0.041784	0.6983574	2.50346707
0.05	-2.995732274	75	0.20441	-0.8260	-0.041299	0.6822586	2.47444324
0.05	-2.995732274	76	0.20714	-0.8164	-0.040819	0.6664718	2.445647596
0.05	-2.995732274	77	0.20988	-0.8068	-0.040342	0.6509908	2.417076732
0.05	-2.995732274	78	0.21262	-0.7974	-0.039869	0.6358097	2.388727241
0.050485	-2.986079017	79	0.21535	-0.7880	-0.039781	0.6209187	2.352982296
0.051	-2.975929646	80	0.21809	-0.7787	-0.039712	0.6063104	2.317235419
0.055	-2.900422094	81	0.22083	-0.7694	-0.042317	0.5919809	2.231593342
0.055	-2.900422094	82	0.22356	-0.7602	-0.041812	0.5779196	2.20493058
0.055	-2.900422094	83	0.22630	-0.7511	-0.04131	0.5641264	2.178459068
0.0565	-2.873514641	84	0.22904	-0.7420	-0.041924	0.5505908	2.132199798
0.057	-2.864704011	85	0.23178	-0.7330	-0.041782	0.5373096	2.099868364
0.0585	-2.838728525	86	0.23451	-0.7241	-0.042358	0.5242729	2.055429425
0.059	-2.830217835	87	0.23725	-0.7152	-0.042196	0.5114808	2.024112036
0.059	-2.830217835	88	0.23999	-0.7063	-0.041675	0.4989271	1.999117834

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis (continued)

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.05955	-2.820938983	89	0.24272	-0.6976	-0.04154	0.4866038	1.967802211
0.06	-2.813410717	90	0.24546	-0.6888	-0.041331	0.4745098	1.9380088
0.06	-2.813410717	91	0.24820	-0.6802	-0.04081	0.4626376	1.913610812
0.06	-2.813410717	92	0.25093	-0.6716	-0.040293	0.450983	1.889353557
0.06	-2.813410717	93	0.25367	-0.6630	-0.039779	0.4395449	1.865240234
0.06	-2.813410717	94	0.25641	-0.6545	-0.039268	0.4283162	1.841261247
0.06	-2.813410717	95	0.25914	-0.6460	-0.038759	0.4172945	1.817416596
0.061	-2.796881415	96	0.26188	-0.6376	-0.038891	0.4064745	1.783161569
0.0615	-2.788718104	97	0.26462	-0.6292	-0.038694	0.3958552	1.754578452
0.062	-2.780620894	98	0.26736	-0.6208	-0.038491	0.3854287	1.726290204
0.063	-2.764620553	99	0.27009	-0.6125	-0.038589	0.3751943	1.6934159
0.064	-2.748872196	100	0.27283	-0.6043	-0.038674	0.3651498	1.661078149
0.064	-2.748872196	101	0.27557	-0.5961	-0.038148	0.3552903	1.638499259
0.065	-2.733368009	102	0.27830	-0.5879	-0.038213	0.3456126	1.606915018
0.065	-2.733368009	103	0.28104	-0.5798	-0.037684	0.3361134	1.584677894
0.065	-2.733368009	104	0.28378	-0.5717	-0.037158	0.3267894	1.562543316
0.065	-2.733368009	105	0.28651	-0.5636	-0.036634	0.3176401	1.540514393
0.065	-2.733368009	106	0.28925	-0.5556	-0.036112	0.3086599	1.518581802
0.065	-2.733368009	107	0.29199	-0.5476	-0.035593	0.2998483	1.49674865
0.07	-2.659260037	108	0.29473	-0.5396	-0.037774	0.2912011	1.4350178
0.07	-2.659260037	109	0.29746	-0.5317	-0.03722	0.2827167	1.41395799
0.07	-2.659260037	110	0.30020	-0.5238	-0.036668	0.2743934	1.392988876
0.07	-2.659260037	111	0.30294	-0.5160	-0.036118	0.2662274	1.372104412
0.07	-2.659260037	112	0.30567	-0.5082	-0.035571	0.258217	1.351304599
0.07	-2.659260037	113	0.30841	-0.5004	-0.035025	0.2503609	1.330589437
0.07	-2.659260037	114	0.31115	-0.4926	-0.034482	0.2426542	1.309949855
0.07	-2.659260037	115	0.31388	-0.4849	-0.033941	0.2350976	1.2893919
0.073	-2.617295838	116	0.31662	-0.4772	-0.034833	0.2276878	1.24888562
0.0735	-2.610469873	117	0.31936	-0.4695	-0.034508	0.2204232	1.225596115
0.074	-2.603690186	118	0.32210	-0.4618	-0.034177	0.2133017	1.202503786
0.0755	-2.583622623	119	0.32483	-0.4542	-0.034294	0.2063219	1.173550288
0.076	-2.577021939	120	0.32757	-0.4466	-0.033944	0.1994825	1.150987313
0.077	-2.563949857	121	0.33031	-0.4391	-0.033808	0.1927794	1.125744555
0.078	-2.551046452	122	0.33304	-0.4315	-0.033659	0.1862124	1.100836248
0.08	-2.525728644	123	0.33578	-0.4240	-0.033921	0.1797815	1.070925186
0.08	-2.525728644	124	0.33852	-0.4165	-0.033321	0.1734824	1.051996778
0.08	-2.525728644	125	0.34125	-0.4090	-0.032723	0.1673152	1.033128671
0.08	-2.525728644	126	0.34399	-0.4016	-0.032128	0.1612779	1.014317991
0.08	-2.525728644	127	0.34673	-0.3942	-0.031533	0.1553686	0.995561869
0.08	-2.525728644	128	0.34947	-0.3868	-0.030941	0.1495862	0.976860304
0.08	-2.525728644	129	0.35220	-0.3794	-0.03035	0.1439299	0.958213296
0.08	-2.525728644	130	0.35494	-0.3720	-0.029761	0.1383978	0.939617973
0.08	-2.525728644	131	0.35768	-0.3647	-0.029174	0.1329883	0.921071465
0.08	-2.525728644	132	0.36041	-0.3574	-0.028588	0.127702	0.902579514
0.081	-2.513306124	133	0.36315	-0.3501	-0.028354	0.1225356	0.879784991
0.082	-2.501036032	134	0.36589	-0.3428	-0.028107	0.1174884	0.857269656
0.085	-2.465104022	135	0.36862	-0.3355	-0.028517	0.1125595	0.827039819
0.085	-2.465104022	136	0.37136	-0.3283	-0.027901	0.1077482	0.809171086
0.087	-2.44184716	137	0.37410	-0.3210	-0.027929	0.1030523	0.783875729
0.089	-2.419118909	138	0.37684	-0.3138	-0.027928	0.0984723	0.759126667
0.09	-2.407945609	139	0.37957	-0.3066	-0.027594	0.0940062	0.738286493
0.09	-2.407945609	140	0.38231	-0.2994	-0.026948	0.0896533	0.720990859

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis (continued)

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.09	-2.407945609	141	0.38505	-0.2923	-0.026303	0.0854122	0.703730813
0.09	-2.407945609	142	0.38778	-0.2851	-0.025659	0.0812829	0.686509093
0.09	-2.407945609	143	0.39052	-0.2780	-0.025017	0.0772635	0.669320222
0.09	-2.407945609	144	0.39326	-0.2708	-0.024375	0.0733535	0.652164202
0.09	-2.407945609	145	0.39599	-0.2637	-0.023736	0.0695527	0.635043769
0.09	-2.407945609	146	0.39873	-0.2566	-0.023097	0.06586	0.617956186
0.09	-2.407945609	147	0.40147	-0.2495	-0.022459	0.0622744	0.600898717
0.09	-2.407945609	148	0.40421	-0.2425	-0.021823	0.0587951	0.58387136
0.09	-2.407945609	149	0.40694	-0.2354	-0.021188	0.0554217	0.566874115
0.09	-2.407945609	150	0.40968	-0.2284	-0.020553	0.0521527	0.549901508
0.09	-2.407945609	151	0.41242	-0.2213	-0.01992	0.0489885	0.532959014
0.0905	-2.402405428	152	0.41515	-0.2143	-0.019395	0.0459283	0.514856586
0.091	-2.396895772	153	0.41789	-0.2073	-0.018864	0.0429709	0.496862846
0.0925	-2.380546634	154	0.42063	-0.2003	-0.018527	0.0401157	0.476797122
0.0945	-2.359155444	155	0.42336	-0.1933	-0.018266	0.0373629	0.456012737
0.095	-2.353878387	156	0.42610	-0.1863	-0.017699	0.034711	0.438548382
0.096	-2.343407088	157	0.42884	-0.1793	-0.017216	0.0321599	0.420247626
0.096	-2.343407088	158	0.43158	-0.1724	-0.016547	0.0297097	0.403921743
0.096	-2.343407088	159	0.43431	-0.1654	-0.015879	0.0273589	0.387611844
0.0995	-2.307597635	160	0.43705	-0.1585	-0.015766	0.0251078	0.365649093
0.1	-2.302585093	161	0.43979	-0.1515	-0.015151	0.0229554	0.3488657
0.1	-2.302585093	162	0.44252	-0.1446	-0.014458	0.0209021	0.33289751
0.1	-2.302585093	163	0.44526	-0.1376	-0.013765	0.0189462	0.31693979
0.1	-2.302585093	164	0.44800	-0.1307	-0.013072	0.0170885	0.301000394
0.1	-2.302585093	165	0.45073	-0.1238	-0.012381	0.0153282	0.285076705
0.1	-2.302585093	166	0.45347	-0.1169	-0.01169	0.0136647	0.269163487
0.1	-2.302585093	167	0.45621	-0.1100	-0.010999	0.012098	0.253263357
0.1	-2.302585093	168	0.45895	-0.1031	-0.010309	0.0106278	0.237376317
0.1	-2.302585093	169	0.46168	-0.0962	-0.00962	0.0092539	0.221502364
0.1	-2.302585093	170	0.46442	-0.0893	-0.008931	0.0079757	0.205636265
0.1	-2.302585093	171	0.46716	-0.0824	-0.008242	0.0067932	0.189780637
0.1	-2.302585093	172	0.46989	-0.0755	-0.007554	0.005706	0.173932863
0.1	-2.302585093	173	0.47263	-0.0687	-0.006866	0.0047142	0.158095559
0.1	-2.302585093	174	0.47537	-0.0618	-0.006178	0.0038173	0.14226349
0.1	-2.302585093	175	0.47810	-0.0549	-0.005491	0.0030154	0.126441893
0.1	-2.302585093	176	0.48084	-0.0480	-0.004804	0.0023081	0.110622913
0.1	-2.302585093	177	0.48358	-0.0412	-0.004118	0.0016954	0.094809169
0.101	-2.292634762	178	0.48632	-0.0343	-0.003465	0.0011771	0.078659269
0.1015	-2.287696481	179	0.48905	-0.0274	-0.002786	0.0007533	0.06278875
0.102	-2.282782466	180	0.49179	-0.0206	-0.002099	0.0004237	0.046986516
0.102	-2.282782466	181	0.49453	-0.0137	-0.0014	0.0001883	0.031324344
0.1025	-2.27789248	182	0.49726	-0.0069	-0.000703	4.707E-05	0.015628622
0.104	-2.26336438	183	0.50000	0.0000	0	0	0
0.1045	-2.258568208	184	0.50274	0.0069	0.000717	4.707E-05	-0.015496038
0.11	-2.207274913	185	0.50547	0.0137	0.0015094	0.0001883	-0.030288229
0.11	-2.207274913	186	0.50821	0.0206	0.0022641	0.0004237	-0.045432344
0.11	-2.207274913	187	0.51095	0.0274	0.0030191	0.0007533	-0.060581477
0.11	-2.207274913	188	0.51368	0.0343	0.0037741	0.0011771	-0.075730611
0.11	-2.207274913	189	0.51642	0.0412	0.0045293	0.0016954	-0.090884763
0.11	-2.207274913	190	0.51916	0.0480	0.0052847	0.0023081	-0.106043934
0.11	-2.207274913	191	0.52190	0.0549	0.0060404	0.0030154	-0.121208123
0.11	-2.207274913	192	0.52463	0.0618	0.0067963	0.0038173	-0.136374822

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis (continued)

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.112	-2.189256408	193	0.52737	0.0687	0.0076899	0.0047142	-0.150314408
0.113	-2.18036746	194	0.53011	0.0755	0.0085358	0.005706	-0.164700777
0.115	-2.162823151	195	0.53284	0.0824	0.0094784	0.0067932	-0.178261363
0.12	-2.120263536	196	0.53558	0.0893	0.0107168	0.0079757	-0.18935373
0.12	-2.120263536	197	0.53832	0.0962	0.0115437	0.0092539	-0.203963531
0.12	-2.120263536	198	0.54105	0.1031	0.0123709	0.0106278	-0.218580564
0.12	-2.120263536	199	0.54379	0.1100	0.0131989	0.012098	-0.233209649
0.12	-2.120263536	200	0.54653	0.1169	0.0140275	0.0136647	-0.247850787
0.12	-2.120263536	201	0.54927	0.1238	0.0148569	0.0153282	-0.262503977
0.12	-2.120263536	202	0.55200	0.1307	0.0156867	0.0170885	-0.277166808
0.121	-2.111964733	203	0.55474	0.1376	0.0166551	0.0189462	-0.290701812
0.121	-2.111964733	204	0.55748	0.1446	0.0174936	0.0209021	-0.305338466
0.123	-2.095570924	205	0.56021	0.1515	0.0186358	0.0229554	-0.317500891
0.128	-2.055725015	206	0.56295	0.1585	0.0202822	0.0251078	-0.325738757
0.13	-2.040220829	207	0.56569	0.1654	0.0215027	0.0273589	-0.337463244
0.13	-2.040220829	208	0.56842	0.1724	0.0224075	0.0297097	-0.351662994
0.13	-2.040220829	209	0.57116	0.1793	0.0233131	0.0321599	-0.36587666
0.13	-2.040220829	210	0.57390	0.1863	0.0242202	0.034711	-0.380111202
0.13	-2.040220829	211	0.57664	0.1933	0.0251283	0.0373629	-0.394364299
0.13	-2.040220829	212	0.57937	0.2003	0.0260376	0.0401157	-0.408633633
0.13	-2.040220829	213	0.58211	0.2073	0.0269483	0.0429709	-0.422926161
0.13	-2.040220829	214	0.58485	0.2143	0.0278601	0.0459283	-0.437237245
0.13	-2.040220829	215	0.58758	0.2213	0.0287734	0.0489885	-0.451569204
0.13666667	-1.990210408	216	0.59032	0.2284	0.0312105	0.0521527	-0.454503499
0.138	-1.980501594	217	0.59306	0.2354	0.0324877	0.0554217	-0.466246033
0.14	-1.966112856	218	0.59579	0.2425	0.0339468	0.0587951	-0.476737092
0.14	-1.966112856	219	0.59853	0.2495	0.0349368	0.0622744	-0.490640107
0.14	-1.966112856	220	0.60127	0.2566	0.0359285	0.06586	-0.50456771
0.14	-1.966112856	221	0.60401	0.2637	0.036922	0.0695527	-0.518519901
0.14	-1.966112856	222	0.60674	0.2708	0.0379174	0.0733535	-0.532498914
0.14	-1.966112856	223	0.60948	0.2780	0.0389148	0.0772635	-0.546506984
0.14	-1.966112856	224	0.61222	0.2851	0.0399142	0.0812829	-0.560541878
0.144	-1.937941979	225	0.61495	0.2923	0.0420845	0.0854122	-0.566370553
0.145	-1.931021537	226	0.61769	0.2994	0.0434161	0.0896533	-0.578189504
0.145	-1.931021537	227	0.62043	0.3066	0.0444576	0.0940062	-0.592059519
0.1475	-1.913927103	228	0.62316	0.3138	0.0462859	0.0984723	-0.600595984
0.1495	-1.900458886	229	0.62590	0.3210	0.0479921	0.1030523	-0.610080605
0.15	-1.897119985	230	0.62864	0.3283	0.0492375	0.1077482	-0.622730167
0.15	-1.897119985	231	0.63138	0.3355	0.0503248	0.1125595	-0.636481769
0.15	-1.897119985	232	0.63411	0.3428	0.0514149	0.1174884	-0.650267879
0.15	-1.897119985	233	0.63685	0.3501	0.0525076	0.1225356	-0.664088498
0.15	-1.897119985	234	0.63959	0.3574	0.0536031	0.127702	-0.677943625
0.15	-1.897119985	235	0.64232	0.3647	0.0547013	0.1329883	-0.691833261
0.15	-1.897119985	236	0.64506	0.3720	0.0558028	0.1383978	-0.705763875
0.15	-1.897119985	237	0.64780	0.3794	0.0569071	0.1439299	-0.719731155
0.15	-1.897119985	238	0.65053	0.3868	0.0580146	0.1495862	-0.733737256
0.155	-1.864330162	239	0.65327	0.3942	0.0610961	0.1553686	-0.734859632
0.16	-1.832581464	240	0.65601	0.4016	0.0642551	0.1612779	-0.735954099
0.16	-1.832581464	241	0.65875	0.4090	0.0654467	0.1673152	-0.749602478
0.16	-1.832581464	242	0.66148	0.4165	0.066642	0.1734824	-0.763292525
0.16	-1.832581464	243	0.66422	0.4240	0.067841	0.1797815	-0.777026324
0.16	-1.832581464	244	0.66696	0.4315	0.0690437	0.1862124	-0.790801791

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis (continued)

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.16	-1.832581464	245	0.66969	0.4391	0.0702506	0.1927794	-0.804625176
0.162	-1.820158944	246	0.67243	0.4466	0.0723548	0.1994825	-0.812946068
0.163	-1.814005078	247	0.67517	0.4542	0.0740389	0.2063219	-0.823969477
0.164	-1.807888851	248	0.67790	0.4618	0.0757427	0.2133017	-0.834966157
0.165	-1.801809805	249	0.68064	0.4695	0.0774663	0.2204232	-0.845936251
0.167	-1.789761467	250	0.68338	0.4772	0.0796868	0.2276878	-0.854014027
0.167	-1.789761467	251	0.68612	0.4849	0.0809731	0.2350976	-0.867799277
0.17	-1.771956842	252	0.68885	0.4926	0.0837419	0.2426542	-0.872864848
0.17	-1.771956842	253	0.69159	0.5004	0.0850613	0.2503609	-0.886617714
0.17	-1.771956842	254	0.69433	0.5082	0.0863856	0.258217	-0.900420943
0.17	-1.771956842	255	0.69706	0.5160	0.0877153	0.2662274	-0.914280577
0.17	-1.771956842	256	0.69980	0.5238	0.0890504	0.2743934	-0.928196617
0.17	-1.771956842	257	0.70254	0.5317	0.0903909	0.2827167	-0.942169062
0.17	-1.771956842	258	0.70527	0.5396	0.0917372	0.2912011	-0.956201941
0.17	-1.771956842	259	0.70801	0.5476	0.0930893	0.2998483	-0.970295255
0.171	-1.766091722	260	0.71075	0.5556	0.0950028	0.3086599	-0.98119051
0.173	-1.754463684	261	0.71349	0.5636	0.0975021	0.3176401	-0.988808148
0.175	-1.742969305	262	0.71622	0.5717	0.1000396	0.3267894	-0.996377008
0.176	-1.737271284	263	0.71896	0.5798	0.1020365	0.3361134	-1.007187978
0.179	-1.720369473	264	0.72170	0.5879	0.105232	0.3456126	-1.011385051
0.18	-1.714798428	265	0.72443	0.5961	0.1072912	0.3552903	-1.022126805
0.18	-1.714798428	266	0.72717	0.6043	0.1087697	0.3651498	-1.036211943
0.18	-1.714798428	267	0.72991	0.6125	0.1102556	0.3751943	-1.050367263
0.18	-1.714798428	268	0.73264	0.6208	0.1117492	0.3854287	-1.064596664
0.18	-1.714798428	269	0.73538	0.6292	0.1132506	0.3958552	-1.078900147
0.182	-1.703748592	270	0.73812	0.6376	0.1160347	0.4064745	-1.086230899
0.182	-1.703748592	271	0.74086	0.6460	0.117569	0.4172945	-1.100593293
0.1866	-1.678787991	272	0.74359	0.6545	0.122122	0.4283162	-1.098697481
0.19	-1.660731207	273	0.74633	0.6630	0.1259666	0.4395449	-1.101034643
0.19	-1.660731207	274	0.74907	0.6716	0.127595	0.450983	-1.115268522
0.19	-1.660731207	275	0.75180	0.6802	0.1292332	0.4626376	-1.129587363
0.191	-1.655481851	276	0.75454	0.6888	0.1315697	0.4745098	-1.140373276
0.194	-1.63989712	277	0.75728	0.6976	0.1353286	0.4866038	-1.14394292
0.194	-1.63989712	278	0.76001	0.7063	0.1370315	0.4989271	-1.158337545
0.196	-1.62964062	279	0.76275	0.7152	0.1401751	0.5114808	-1.165484561
0.197	-1.62455155	280	0.76549	0.7241	0.1426412	0.5242729	-1.176284041
0.199	-1.614450454	281	0.76822	0.7330	0.1458698	0.5373096	-1.183414908
0.2	-1.609437912	282	0.77096	0.7420	0.1484036	0.5505908	-1.194232019
0.2	-1.609437912	283	0.77370	0.7511	0.1502167	0.5641264	-1.208822199
0.2	-1.609437912	284	0.77644	0.7602	0.152042	0.5779196	-1.223511184
0.2	-1.609437912	285	0.77917	0.7694	0.1538806	0.5919809	-1.238306292
0.2	-1.609437912	286	0.78191	0.7787	0.1557319	0.6063104	-1.253203865
0.2	-1.609437912	287	0.78465	0.7880	0.1575968	0.6209187	-1.268211221
0.2	-1.609437912	288	0.78738	0.7974	0.1594753	0.6358097	-1.28332836
0.2	-1.609437912	289	0.79012	0.8068	0.161368	0.6509908	-1.298558941
0.2	-1.609437912	290	0.79286	0.8164	0.1632754	0.6664718	-1.313908455
0.2	-1.609437912	291	0.79559	0.8260	0.1651979	0.6822586	-1.329378729
0.201	-1.604450371	292	0.79833	0.8357	0.1679712	0.6983574	-1.340803617
0.207	-1.575036486	293	0.80107	0.8454	0.1750073	0.7147786	-1.331607999
0.2075	-1.572623939	294	0.80381	0.8553	0.1774734	0.7315267	-1.345054821
0.209	-1.565421027	295	0.80654	0.8652	0.1808325	0.7486183	-1.354445041
0.21	-1.560647748	296	0.80928	0.8752	0.1838015	0.7660545	-1.365949771

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis (continued)

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.21	-1.560647748	297	0.81202	0.8854	0.185924	0.7838485	-1.381722863
0.21	-1.560647748	298	0.81475	0.8956	0.188066	0.8020136	-1.397641443
0.21	-1.560647748	299	0.81749	0.9058	0.190227	0.8205517	-1.413701964
0.21	-1.560647748	300	0.82023	0.9162	0.1924092	0.8394848	-1.429918619
0.214	-1.541779264	301	0.82296	0.9267	0.1983187	0.8588152	-1.428802004
0.215	-1.537117251	302	0.82570	0.9373	0.2015225	0.8785573	-1.440761321
0.215	-1.537117251	303	0.82844	0.9480	0.203823	0.8987307	-1.45720879
0.217	-1.527857925	304	0.83118	0.9588	0.2080642	0.919338	-1.464942488
0.218	-1.523260216	305	0.83391	0.9697	0.2114037	0.9403994	-1.477169263
0.22	-1.514127733	306	0.83665	0.9808	0.2157718	0.9619312	-1.485027555
0.22	-1.514127733	307	0.83939	0.9919	0.2182269	0.9839458	-1.501924463
0.22	-1.514127733	308	0.84212	1.0032	0.2207095	1.0064603	-1.519010722
0.22	-1.514127733	309	0.84486	1.0146	0.2232201	1.0294879	-1.536289773
0.221	-1.509592577	310	0.84760	1.0262	0.2267869	1.053056	-1.549121479
0.222	-1.505077897	311	0.85033	1.0379	0.2304071	1.0771739	-1.562075015
0.223	-1.500583508	312	0.85307	1.0497	0.2340826	1.1018656	-1.575159293
0.225	-1.491654877	313	0.85581	1.0617	0.2388771	1.1271557	-1.583654038
0.225	-1.491654877	314	0.85855	1.0738	0.2416069	1.1530648	-1.601751778
0.225	-1.491654877	315	0.86128	1.0861	0.2443726	1.179614	-1.620086933
0.23	-1.46967597	316	0.86402	1.0986	0.2526684	1.2068301	-1.614524569
0.23	-1.46967597	317	0.86676	1.1112	0.2555734	1.2347405	-1.633087469
0.23	-1.46967597	318	0.86949	1.1240	0.2585198	1.2633738	-1.651914361
0.23	-1.46967597	319	0.87223	1.1370	0.2615095	1.2927644	-1.67101861
0.23	-1.46967597	320	0.87497	1.1502	0.2645443	1.3229427	-1.690410241
0.23	-1.46967597	321	0.87770	1.1636	0.2676255	1.3539401	-1.71009928
0.23	-1.46967597	322	0.88044	1.1772	0.2707555	1.3857943	-1.730099092
0.232	-1.461017907	323	0.88318	1.1910	0.2763182	1.4185442	-1.740111064
0.2325	-1.458865054	324	0.88592	1.2051	0.2801833	1.4522409	-1.758063068
0.233	-1.456716825	325	0.88865	1.2194	0.2841187	1.4869209	-1.776311251
0.233	-1.456716825	326	0.89139	1.2340	0.2875109	1.5226385	-1.797519207
0.235	-1.448169765	327	0.89413	1.2488	0.2934626	1.5594444	-1.808441316
0.236	-1.443923474	328	0.89686	1.2639	0.2982755	1.5973909	-1.824945007
0.236	-1.443923474	329	0.89960	1.2793	0.3019094	1.6365498	-1.847178173
0.237	-1.439695138	330	0.90234	1.2950	0.3069118	1.6769895	-1.864385487
0.239	-1.431291727	331	0.90507	1.3110	0.3133334	1.7187693	-1.876449822
0.24	-1.427116356	332	0.90781	1.3274	0.3185756	1.7619866	-1.894351999
0.24	-1.427116356	333	0.91055	1.3441	0.3225936	1.8067122	-1.918244101
0.24	-1.427116356	334	0.91329	1.3613	0.3267043	1.8530506	-1.942687834
0.24	-1.427116356	335	0.91602	1.3788	0.3309127	1.9010979	-1.967712402
0.242	-1.418817553	336	0.91876	1.3968	0.3380195	1.9509795	-1.981768431
0.242	-1.418817553	337	0.92150	1.4152	0.3424809	2.0028197	-2.007924982
0.243	-1.414693836	338	0.92423	1.4341	0.3484952	2.0567481	-2.028864378
0.244	-1.410587054	339	0.92697	1.4536	0.3546762	2.1129262	-2.050416381
0.248	-1.394326533	340	0.92971	1.4736	0.3654561	2.1715363	-2.054698176
0.25	-1.386294361	341	0.93244	1.4942	0.3735613	2.2327688	-2.07146373
0.252	-1.378326191	342	0.93518	1.5155	0.3819141	2.2968371	-2.088897379
0.2535	-1.372391456	343	0.93792	1.5375	0.3897634	2.3639926	-2.110090398
0.2565	-1.360626614	344	0.94066	1.5603	0.4002163	2.4345276	-2.122982003
0.264	-1.331806176	345	0.94339	1.5839	0.4181504	2.5087494	-2.109452081
0.269	-1.313043899	346	0.94613	1.6084	0.4326671	2.5870398	-2.111936229
0.27	-1.30933332	347	0.94887	1.6340	0.4411685	2.6698163	-2.139394676
0.276	-1.287354413	348	0.95160	1.6606	0.4583258	2.7575954	-2.137781899

Table 48. Selenium Near Upgradient Background Data Set, Filliben's Statistic Analysis (continued)

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.281	-1.26940061	349	0.95434	1.6885	0.474462	2.8509543	-2.143353624
0.288	-1.244794799	350	0.95708	1.7177	0.4947065	2.9505991	-2.138222379
0.292	-1.231001477	351	0.95981	1.7485	0.510571	3.0573601	-2.152444057
0.294	-1.224175512	352	0.96255	1.7811	0.5236407	3.1722843	-2.180367692
0.294	-1.224175512	353	0.96529	1.8157	0.5338016	3.2965906	-2.222676175
0.294	-1.224175512	354	0.96803	1.8525	0.5446443	3.4318732	-2.26782378
0.295	-1.220779923	355	0.97076	1.8921	0.5581733	3.5800908	-2.30985329
0.299	-1.207311706	356	0.97350	1.9349	0.5785364	3.7438554	-2.336032856
0.3	-1.203972804	357	0.97624	1.9816	0.5944685	3.9265863	-2.385746254
0.3	-1.203972804	358	0.97897	2.0330	0.6098953	4.1330256	-2.447657944
0.31	-1.171182982	359	0.98171	2.0904	0.6480299	4.3698516	-2.44826316
0.322	-1.133203733	360	0.98445	2.1557	0.6941421	4.6471318	-2.44287077
0.326	-1.120857898	361	0.98718	2.2317	0.727546	4.9806469	-2.501459245
0.36	-1.021651248	362	0.98992	2.3234	0.8364223	5.3981651	-2.373699569
0.406	-0.901402119	363	0.99266	2.4401	0.9906738	5.9540067	-2.19949629
0.7	-0.356674944	364	0.99540	2.6042	1.8229221	6.7817241	-0.928843747
0.755	-0.28103753	365	0.99810	2.8948	2.1855834	8.3799394	-0.813550953

Figure 2. Selenium Near Upgradient Background Data Set, Histogram (normal)

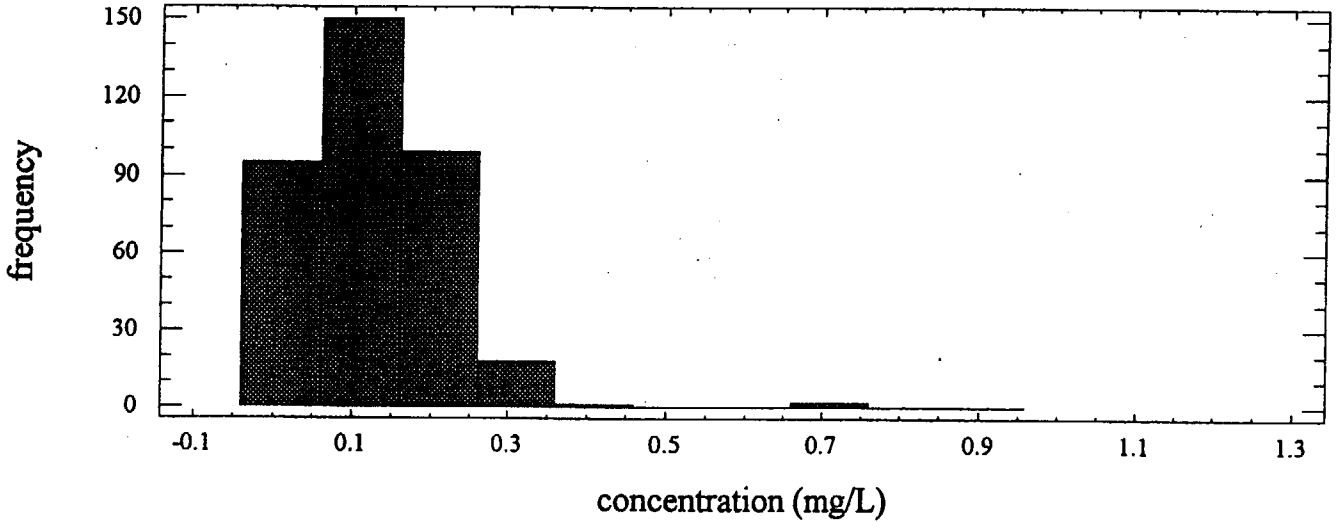

Figure 3. Selenium Near Upgradient Background Data Set, Histogram (lognormal)

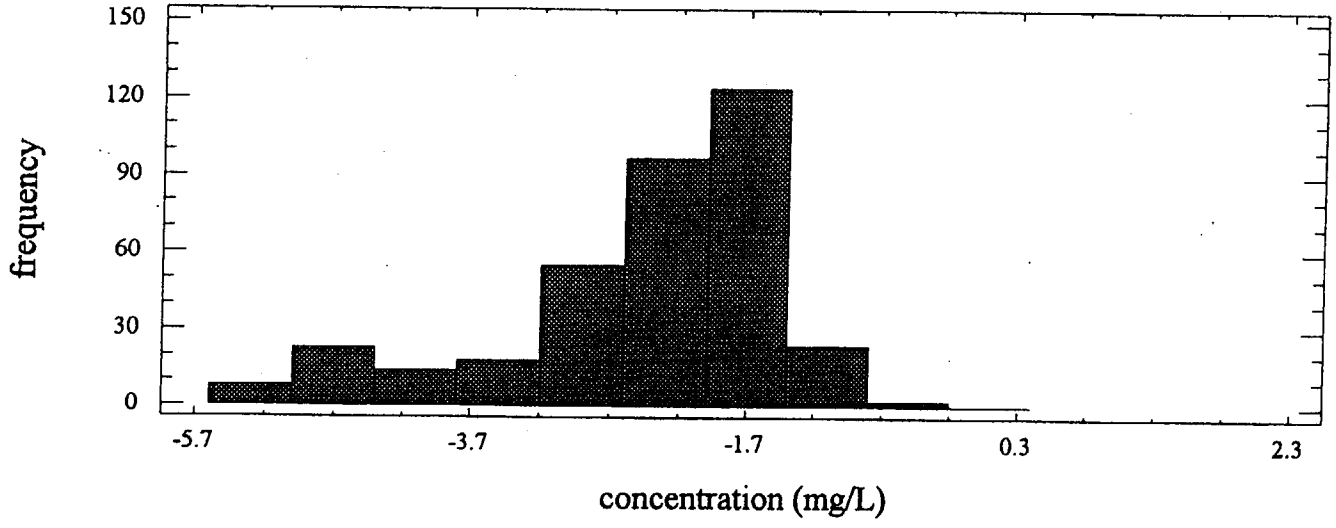

Figure 4. Selenium Near Upgradient Data Set, Probability Plot (normal)

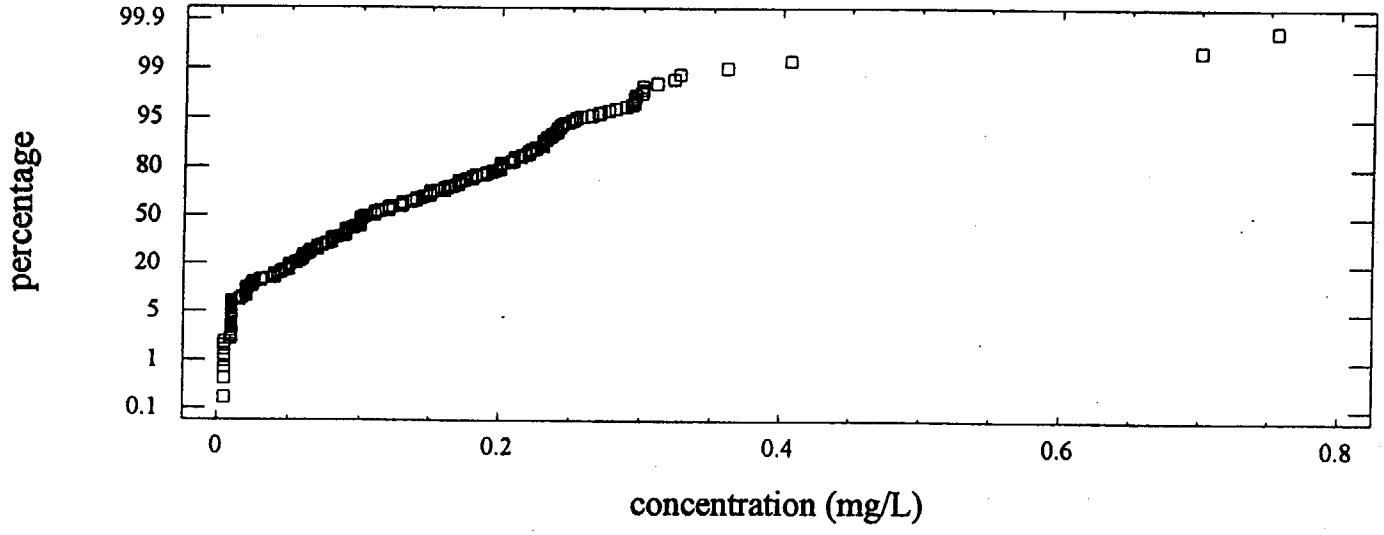

Figure 5. Selenium Near Upgradient Data Set, Probability Plot (lognormal)

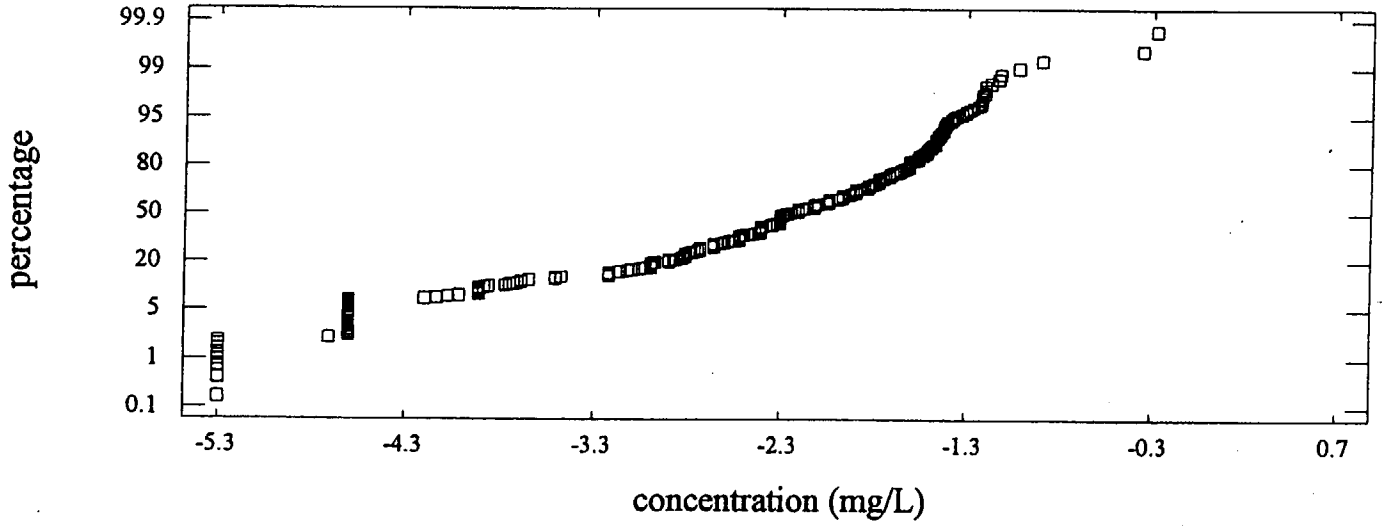

Table 49. Selenium Near Upgradient Background Data Set, Distribution Summary

Parameter	Distribution Type (tested)	Coefficient of Variation	Studentized Range Test	Geary's Test	Coefficient of Skewness (-1 to 1)	Shapiro-Francia Test	Filliben's Statistic	Histogram	Probability Plot	Number of Samples	Distribution Type (determined)
Selenium	Normal	Pass	Fail	Fail	Fail	Fail	Fail	Nonparametric	Nonparametric	365	Nonparametric
Selenium	Lognormal	Pass	NA	Fail	Fail	Fail	Fail	Nonparametric	Nonparametric	365	

NA - not applicable

Table 50. Selenium Near Upgradient Background Data Set, T_n Statisitic Analysis

Parameter	Distribution	Maximum Observation	Mean	Standard Deviation	T_n Statistic	N	Upper 5% Critical Value	Pass or Fail T_n Statistic
Selenium	Lognormal	-0.28104	-2.42326	0.998153	2.146	365	3.34+	Pass

N - number of samples

Table 51. Selenium Near Upgradient Background Data Set, 95th Percentile Calculation

Parameter	Distribution	95th Percentile (mg/L)	Sample #
Selenium	Nonparametric	0.27	365

SD = standard deviation

Table 52. Selenium Near Upgradient Background Data Set, Summary Table

Parameter	Distribution	95th Percentile (mg/L)	Range (normal)	Sample #
Selenium	Nonparametric	0.27	0.009 to 0.755	365

SD = standard deviation

ND = non-detect, concentration reported as the minimum detectable activity (MDA)

Table 53. Selenium Far Upgradient Background Data Set (data not corrected for non-detects or duplicates)

Well Name	Sample Date	Parameter Code	Lab Code	Remark Code	Value
0914	10-Jan-83	Selenium	Homestake	Less Than	0.01
0914	14-Mar-94	Selenium	Energy Laboratories	None	0.031
0914	12-May-94	Selenium	Energy Laboratories	None	0.052
0914	24-Jan-96	Selenium	Energy Laboratories	Less Than	0.01
0914	22-May-97	Selenium	Energy Laboratories	None	0.007
0914	12-May-98	Selenium	Energy Laboratories	Less Than	0.005
0916	21-Feb-94	Selenium	Energy Laboratories	None	0.008
0916	26-Apr-94	Selenium	Energy Laboratories	None	0.009
0916	29-Jan-96	Selenium	Energy Laboratories	Less Than	0.01
0916	28-May-97	Selenium	Energy Laboratories	None	0.008
0916	12-May-98	Selenium	Energy Laboratories	None	0.007
0920	03-Nov-81	Selenium	Homestake	None	0.79
0920	30-Aug-82	Selenium	Homestake	None	0.32
0920	05-Jan-83	Selenium	Homestake	None	0.37
0920	31-Aug-83	Selenium	Homestake	None	0.48
0920	14-Dec-89	Selenium	Homestake	None	0.51
0920	09-May-90	Selenium	Homestake	None	0.58
0920	21-May-91	Selenium	Homestake	None	0.73
0920	06-May-92	Selenium	Homestake	None	0.76
0920	06-May-93	Selenium	Homestake	None	0.57
0920	28-Feb-94	Selenium	Energy Laboratories	None	0.407
0920	29-Apr-94	Selenium	Energy Laboratories	None	0.367
0920	29-Apr-94	Selenium	Energy Laboratories	None	0.326
0920	11-May-94	Selenium	Energy Laboratories	None	0.516
0920	10-May-95	Selenium	Energy Laboratories	None	0.492
0920	24-Jan-96	Selenium	Energy Laboratories	None	0.394
0920	20-May-96	Selenium	Energy Laboratories	None	0.507
0920	23-May-97	Selenium	Energy Laboratories	None	0.495
0920	12-May-98	Selenium	Energy Laboratories	None	0.424
0921	28-Feb-94	Selenium	Energy Laboratories	None	0.415
0921	16-May-94	Selenium	Energy Laboratories	None	0.547
0921	24-Jan-96	Selenium	Energy Laboratories	None	0.534
0921	23-May-97	Selenium	Energy Laboratories	None	0.605
0921	12-May-98	Selenium	Energy Laboratories	None	0.522
0922	03-Nov-81	Selenium	Homestake	Less Than	0.01
0922	04-Mar-94	Selenium	Energy Laboratories	Less Than	0.005
0922	16-May-94	Selenium	Energy Laboratories	None	0.019
0922	24-Jan-96	Selenium	Energy Laboratories	None	0.011
0922	23-May-97	Selenium	Energy Laboratories	None	0.006
0922	12-May-98	Selenium	Energy Laboratories	Quality Control Less Than	0.005
0922	12-May-98	Selenium	Energy Laboratories	Less Than	0.005
0950	28-Feb-94	Selenium	Energy Laboratories	None	0.276
0950	11-May-94	Selenium	Energy Laboratories	None	0.288
0950	25-Jan-96	Selenium	Energy Laboratories	None	0.336

Table 54. Selenium Far Upgradient Background Data Set for Well 914
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
10-Jan-83	Selenium	0.005
14-Mar-94	Selenium	0.031
12-May-94	Selenium	0.052
24-Jan-96	Selenium	0.005
22-May-97	Selenium	0.007
12-May-98	Selenium	0.0025

Table 55. Selenium Far Upgradient Background Data Set for Well 916
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
21-Feb-94	Selenium	0.008
26-Apr-94	Selenium	0.009
29-Jan-96	Selenium	0.005
28-May-97	Selenium	0.008
12-May-98	Selenium	0.007

Table 56. Selenium Far Upgradient Background Data Set for Well 920
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Selenium	0.79
30-Aug-82	Selenium	0.32
05-Jan-83	Selenium	0.37
31-Aug-83	Selenium	0.48
14-Dec-89	Selenium	0.51
09-May-90	Selenium	0.58
21-May-91	Selenium	0.73
06-May-92	Selenium	0.76
06-May-93	Selenium	0.57
28-Feb-94	Selenium	0.407
29-Apr-94	Selenium	0.3465
11-May-94	Selenium	0.516
10-May-95	Selenium	0.492
24-Jan-96	Selenium	0.394
20-May-96	Selenium	0.507
23-May-97	Selenium	0.495
12-May-98	Selenium	0.424

Table 57. Selenium Far Upgradient Background Data Set for Well 921
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Selenium	0.415
16-May-94	Selenium	0.547
24-Jan-96	Selenium	0.534
23-May-97	Selenium	0.605
12-May-98	Selenium	0.522

Table 58. Selenium Far Upgradient Background Data Set for Well 922
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
03-Nov-81	Selenium	0.005
04-Mar-94	Selenium	0.0025
16-May-94	Selenium	0.019
24-Jan-96	Selenium	0.011
23-May-97	Selenium	0.006
12-May-98	Selenium	0.0025

Table 59. Selenium Far Upgradient Background Data Set for Well 950
(corrected for non-detects and duplicates)

Sample Date	Parameter Code	Final Data Set
28-Feb-94	Selenium	0.276
11-May-94	Selenium	0.288
25-Jan-96	Selenium	0.336

Table 60. Selenium Far Upgradient Background Groundwater Data Set Used in Statistical Analysis (all concentrations in mg/L)

Well ID					
914	**916**	**920**	**921**	**922**	**950**
0.005	0.009	0.79	0.415	0.005	0.276
0.031	0.008	0.76	0.547	0.0025	0.288
0.052	0.008	0.73	0.534	0.019	0.336
0.005	0.007	0.58	0.605	0.011	
0.007	0.005	0.57	0.522	0.006	
0.0025		0.516		0.0025	
		0.51			
		0.507			
		0.495			
		0.492			
		0.48			
		0.424			
		0.407			
		0.394			
		0.37			
		0.3465			
		0.32			

Table 61. Selenium Far Upgradient Background Data Set, A Priori Screening

Parameter	Maximum Value	Next Maximum Value	Multiplicative Factor	Results
Selenium	0.79	0.76	1.0	**PASS**

Table 62. Selenium Far Upgradient Background Data Set, Coefficient of Variation Analysis

Parameter	Mean	Standard Deviation	Coefficient of Variation	Results
Selenium, normal	0.2952381	0.2598118	0.88	**Pass**
Selenium, lognormal	-2.436615	2.1405601	-0.88	**Pass**

Table 63. Selenium Far Upgradient Background Data Set, Studentized Range Test Analysis

Parameter	Range		Standard Deviation	Critical Values		W/S	Results
	Maximum	Minimum		Maximum	Minimum		
Selenium, normal	0.79	0.0025[a]	0.26	5.26	3.75	3.03	**FAIL**

w = range of values
s = standard deviation
[a]Concentration is 0.5 of detection limit.

Table 64. Selenium Far Upgradient Background Data Set, Geary's Test Analysis

Selenium - raw data			
Xi	**Xi^2**	**Xi-Mean**	**abs(Xi-mean)**
0.79	0.6241	0.4947619	0.494761905
0.76	0.5776	0.4647619	0.464761905
0.73	0.5329	0.4347619	0.434761905
0.605	0.366025	0.3097619	0.309761905
0.58	0.3364	0.2847619	0.284761905
0.57	0.3249	0.2747619	0.274761905
0.547	0.299209	0.2517619	0.251761905
0.534	0.285156	0.2387619	0.238761905
0.522	0.272484	0.2267619	0.226761905
0.516	0.266256	0.2207619	0.220761905
0.51	0.2601	0.2147619	0.214761905
0.507	0.257049	0.2117619	0.211761905
0.495	0.245025	0.1997619	0.199761905
0.492	0.242064	0.1967619	0.196761905
0.48	0.2304	0.1847619	0.184761905
0.424	0.179776	0.1287619	0.128761905
0.415	0.172225	0.1197619	0.119761905
0.407	0.165649	0.1117619	0.111761905
0.394	0.155236	0.0987619	0.098761905
0.37	0.1369	0.0747619	0.074761905
0.3465	0.1200623	0.0512619	0.051261905
0.336	0.112896	0.0407619	0.040761905
0.32	0.1024	0.0247619	0.024761905
0.288	0.082944	-0.007238	0.007238095
0.276	0.076176	-0.019238	0.019238095
0.052	0.002704	-0.243238	0.243238095
0.031	0.000961	-0.264238	0.264238095
0.019	0.000361	-0.276238	0.276238095
0.011	0.000121	-0.284238	0.284238095
0.009	0.000081	-0.286238	0.286238095
0.008	0.000064	-0.287238	0.287238095
0.008	0.000064	-0.287238	0.287238095
0.007	0.000049	-0.288238	0.288238095
0.007	0.000049	-0.288238	0.288238095
0.006	0.000036	-0.289238	0.289238095
0.005	0.000025	-0.290238	0.290238095
0.005	0.000025	-0.290238	0.290238095
0.005	0.000025	-0.290238	0.290238095
0.005	0.000025	-0.290238	0.290238095
0.0025	6.25E-06	-0.292738	0.292738095
0.0025	6.25E-06	-0.292738	0.292738095
0.0025	6.25E-06	-0.292738	0.292738095

0.2952381 =mean
12.4 = sum of Xi
6.428541 = sum of Xi^2
42 = count

2.7675886 = SSS
9.7200476 = SAD

0.9015566 = alpha

3.2 = Z

Critical value = 1.645

abs(Z)>critical value,
thus failed test.

Table 64. Selenium Far Upgradient Background Data Set, Geary's Test Analysis

(continued)

Selenium - lognormal data			
Xi	Xi^2	Xi-Mean	abs(Xi-mean)
-0.235722	0.055565	2.2008929	2.200892851
-0.274437	0.0753156	2.1621783	2.162178338
-0.314711	0.0990429	2.1219044	2.121904439
-0.502527	0.2525332	1.9340884	1.934088363
-0.544727	0.2967277	1.891888	1.891888009
-0.562119	0.3159777	1.8744963	1.874496266
-0.603306	0.3639787	1.8333087	1.833308707
-0.627359	0.3935799	1.8092557	1.809255744
-0.650088	0.422614	1.7865275	1.786527493
-0.661649	0.4377788	1.7749667	1.774966671
-0.673345	0.4533929	1.7632706	1.763270631
-0.679244	0.4613728	1.7573709	1.757370909
-0.703198	0.4944867	1.7334177	1.733417668
-0.709277	0.5030732	1.7273386	1.727338622
-0.733969	0.5387107	1.702646	1.702646009
-0.858022	0.7362015	1.5785934	1.57859336
-0.879477	0.7734794	1.5571384	1.557138425
-0.898942	0.8080969	1.5376731	1.537673091
-0.931404	0.8675141	1.5052108	1.505210814
-0.994252	0.9885376	1.4423629	1.442362911
-1.059872	1.1233296	1.3767427	1.376742724
-1.090644	1.1895046	1.3459711	1.345971065
-1.139434	1.2983105	1.2971809	1.297180901
-1.244795	1.5495141	1.1918204	1.191820385
-1.287354	1.6572814	1.1492608	1.149260771
-2.956512	8.7409606	-0.519896	0.519896376
-3.473768	12.067065	-1.037153	1.03715289
-3.963316	15.707876	-1.526701	1.526701116
-4.50986	20.338837	-2.073245	2.073244822
-4.710531	22.189099	-2.273916	2.273915518
-4.828314	23.312614	-2.391699	2.391698553
-4.828314	23.312614	-2.391699	2.391698553
-4.961845	24.619907	-2.52523	2.525229946
-4.961845	24.619907	-2.52523	2.525229946
-5.115996	26.173413	-2.679381	2.679380626
-5.298317	28.072167	-2.861702	2.861702182
-5.298317	28.072167	-2.861702	2.861702182
-5.298317	28.072167	-2.861702	2.861702182
-5.298317	28.072167	-2.861702	2.861702182
-5.991465	35.897647	-3.554849	3.554849363
-5.991465	35.897647	-3.554849	3.554849363
-5.991465	35.897647	-3.554849	3.554849363

-2.436615 =mean
-102.3378 = sum of Xi
437.21982 = sum of Xi^2
42 = count

187.86189 = SSS
84.11101 = SAD

0.9469103 = alpha

4.5 = Z

Critical value = 1.645

abs(Z)>critical value, thus failed test.

Table 65. Selenium Far Upgradient Background Data Set, Coefficient of Skewness Analysis

Selenium	Normal (xi-avg)^3
0.0025	-0.025086364
0.0025	-0.025086364
0.0025	-0.025086364
0.005	-0.024449121
0.005	-0.024449121
0.005	-0.024449121
0.005	-0.024449121
0.006	-0.024197276
0.007	-0.023947167
0.007	-0.023947167
0.008	-0.023698787
0.008	-0.023698787
0.009	-0.02345213
0.011	-0.022963964
0.019	-0.021079034
0.031	-0.018449572
0.052	-0.014391126
0.276	-7.1201E-06
0.288	-3.79204E-07
0.32	1.51828E-05
0.336	6.77272E-05
0.3465	0.000134705
0.37	0.00041787
0.394	0.000963315
0.407	0.001395987
0.415	0.001717735
0.424	0.002134824
0.48	0.00630721
0.492	0.007617686
0.495	0.007971463
0.507	0.009496061
0.51	0.009905394
0.516	0.010759012
0.522	0.011660315
0.534	0.013611159
0.547	0.015957691
0.57	0.020742904
0.58	0.023091156
0.605	0.02972241
0.73	0.082177788
0.76	0.100390258
0.79	0.121112441

Normal	
standard deviation =	0.2598118
mean =	0.295
count =	42
sum of (xi-avg)^3 =	0.0844822
1/n =	0.0238095
standard deviation cubed =	0.0175379
((n-1)/n)^(3/2) =	0.9644992
coef. of skewness =	0.1
acceptable range -1 to 1	Pass

Table 65. Selenium Far Upgradient Background Data Set, Coefficient of Skewness Analysis

(continued)

Selenium	Lognormal (xi-avg)^3
-5.99146455	-44.92246786
-5.99146455	-44.92246786
-5.99146455	-44.92246786
-5.29831737	-23.43545038
-5.29831737	-23.43545038
-5.29831737	-23.43545038
-5.29831737	-23.43545038
-5.11599581	-19.2354893
-4.96184513	-16.10285167
-4.96184513	-16.10285167
-4.82831374	-13.68104661
-4.82831374	-13.68104661
-4.7105307	-11.75771628
-4.50986001	-8.911519633
-3.9633163	-3.558459841
-3.47376807	-1.115650967
-2.95651156	-0.140523957
-1.28735441	1.517943993
-1.2447948	1.692904379
-1.13943428	2.18273814
-1.09064412	2.438412474
-1.05987246	2.609506419
-0.99425227	3.000707328
-0.93140437	3.410295325
-0.89894209	3.635733507
-0.87947676	3.775562515
-0.85802182	3.93378677
-0.73396918	4.935976623
-0.70927656	5.153858023
-0.70319752	5.208463874
-0.67924428	5.427380858
-0.67334455	5.482225833
-0.66164851	5.592044355
-0.65008769	5.702024932
-0.62735944	5.922429236
-0.60330648	6.16178873
-0.56211892	6.586485482
-0.54472718	6.771521685
-0.50252682	7.234840078
-0.31471074	9.553829009
-0.27443685	10.10821653
-0.23572233	10.66096945

Lognormal	
standard deviation =	2.1405601
mean =	-2.437
count =	42
sum of (xi-avg)^3 =	-204.0967
1/n =	0.0238095
standard deviation cubed =	9.8080406
((n-1)/n)^(3/2) =	0.9644992
coef. of skewness =	-0.5
acceptable range -1 to 1	**Pass**

Table 66. Selenium Far Upgradient Background Data Set, Shapiro-Wilk Test of Normality Analysis

Selenium - raw data				
X(i)	X(n-i+1)	X(n-i+1)-X(i)	An-i+1	Bi
0.0025	0.79	0.7875	0.3917	0.30846375
0.0025	0.76	0.7575	0.2701	0.20460075
0.0025	0.73	0.7275	0.2345	0.17059875
0.005	0.605	0.6	0.2085	0.1251
0.005	0.58	0.575	0.1874	0.107755
0.005	0.57	0.565	0.1694	0.095711
0.005	0.547	0.542	0.1535	0.083197
0.006	0.534	0.528	0.1392	0.0734976
0.007	0.522	0.515	0.1259	0.0648385
0.007	0.516	0.509	0.1136	0.0578224
0.008	0.51	0.502	0.102	0.051204
0.008	0.507	0.499	0.0909	0.0453591
0.009	0.495	0.486	0.0804	0.0390744
0.011	0.492	0.481	0.0701	0.0337181
0.019	0.48	0.461	0.0602	0.0277522
0.031	0.424	0.393	0.0506	0.0198858
0.052	0.415	0.363	0.0411	0.0149193
0.276	0.407	0.131	0.0318	0.0041658
0.288	0.394	0.106	0.0227	0.0024062
0.32	0.37	0.05	0.0136	0.00068
0.336	0.3465	0.0105	0.0045	0.00004725
0.3465	0.336	-0.0105		
0.37	0.32	-0.05		
0.394	0.288	-0.106		
0.407	0.276	-0.131		
0.415	0.052	-0.363		
0.424	0.031	-0.393		
0.48	0.019	-0.461		
0.492	0.011	-0.481		
0.495	0.009	-0.486		
0.507	0.008			
0.51	0.008			
0.516	0.007			
0.522	0.007			
0.534	0.006			
0.547	0.005			
0.57	0.005			
0.58	0.005			
0.605	0.005			
0.73	0.0025			
0.76	0.0025			
0.79	0.0025			

1.5307969 =sum of B
0.259811781 = standard deviation
41 = count - 1

0.8467079 = W statistic
.942 is acceptable low value
Fails Shapiro-Wilk test

Table 66. Selenium Far Upgradient Background Data Set, Shapiro-Wilk (continued) Test of Normality Analysis

Selenium - log data				
X(i)	X(n-i+1)	X(n-i+1)-X(i)	An-i+1	Bi
-5.991465	-0.235722334	5.755742214	0.3917	2.254524225
-5.991465	-0.274436846	5.717027701	0.2701	1.544169182
-5.991465	-0.314710745	5.676753802	0.2345	1.331198767
-5.298317	-0.502526821	4.795790546	0.2085	0.999922329
-5.298317	-0.544727175	4.753590191	0.1874	0.890822802
-5.298317	-0.562118918	4.736198448	0.1694	0.802312017
-5.298317	-0.603306477	4.69501089	0.1535	0.720684172
-5.115996	-0.62735944	4.48863637	0.1392	0.624818183
-4.961845	-0.650087691	4.311757439	0.1259	0.542850262
-4.961845	-0.661648514	4.300196616	0.1136	0.488502336
-4.828314	-0.673344553	4.154969184	0.102	0.423806857
-4.828314	-0.679244275	4.149069462	0.0909	0.377150414
-4.710531	-0.703197516	4.007333185	0.0804	0.322189588
-4.50986	-0.709276562	3.800583444	0.0701	0.266420899
-3.963316	-0.733969175	3.229347125	0.0602	0.194406697
-3.473768	-0.858021824	2.615746251	0.0506	0.13235676
-2.956512	-0.879476759	2.077034802	0.0411	0.08536613
-1.287354	-0.898942094	0.38841232	0.0318	0.012351512
-1.244795	-0.93140437	0.313390429	0.0227	0.007113963
-1.139434	-0.994252273	0.14518201	0.0136	0.001974475
-1.090644	-1.05987246	0.030771659	0.0045	0.000138472
-1.059872	-1.090644119	-0.030771659		
-0.994252	-1.139434283	-0.14518201		
-0.931404	-1.244794799	-0.313390429		
-0.898942	-1.287354413	-0.38841232		
-0.879477	-2.95651156	-2.077034802		
-0.858022	-3.473768074	-2.615746251		
-0.733969	-3.9633163	-3.229347125		
-0.709277	-4.509860006	-3.800583444		
-0.703198	-4.710530702	-4.007333185		
-0.679244	-4.828313737			
-0.673345	-4.828313737			
-0.661649	-4.96184513			
-0.650088	-4.96184513			
-0.627359	-5.11599581			
-0.603306	-5.298317367			
-0.562119	-5.298317367			
-0.544727	-5.298317367			
-0.502527	-5.298317367			
-0.314711	-5.991464547			
-0.274437	-5.991464547			
-0.235722	-5.991464547			

12.02308004 =sum of B
2.140560062 = standard deviation
41 = count - 1

0.769471934 = W statistic
.942 is acceptable low value
Fails Shapiro-Wilk test

Table 67. Selenium Far Upgradient Background Data, Filliben's Statistic Analysis

Selenium	Ln(Selenium)	Count	m(i)	M(i)	X(i)*Mi	Mi^2	X(i)*Mi (log)
0.0025	-5.991464547	1	0.01637	-2.1353	-0.005338	4.559517	12.79358962
0.0025	-5.991464547	2	0.03971	-1.7540	-0.004385	3.076553	10.50909205
0.0025	-5.991464547	3	0.06332	-1.5275	-0.003819	2.3332451	9.151940237
0.005	-5.298317367	4	0.08692	-1.3599	-0.0068	1.8494619	7.205442664
0.005	-5.298317367	5	0.11053	-1.2237	-0.006119	1.4975087	6.483696109
0.005	-5.298317367	6	0.13413	-1.1071	-0.005535	1.2256013	5.865601761
0.005	-5.298317367	7	0.15774	-1.0038	-0.005019	1.007624	5.318476165
0.006	-5.11599581	8	0.18134	-0.9103	-0.005462	0.8285874	4.656926109
0.007	-4.96184513	9	0.20495	-0.8241	-0.005769	0.6791183	4.088988734
0.007	-4.96184513	10	0.22855	-0.7436	-0.005205	0.5529892	3.689788935
0.008	-4.828313737	11	0.25215	-0.6677	-0.005342	0.445858	3.223990613
0.008	-4.828313737	12	0.27576	-0.5955	-0.004764	0.3546076	2.875209565
0.009	-4.710530702	13	0.29936	-0.5262	-0.004736	0.2769218	2.478839691
0.011	-4.509860006	14	0.32297	-0.4594	-0.005054	0.2110645	2.071909088
0.019	-3.9633163	15	0.34657	-0.3946	-0.007497	0.1557039	1.56389834
0.031	-3.473768074	16	0.37018	-0.3314	-0.010273	0.109818	1.151165183
0.052	-2.95651156	17	0.39378	-0.2695	-0.014013	0.0726194	0.79672035
0.276	-1.287354413	18	0.41738	-0.2086	-0.057571	0.0435095	0.268528226
0.288	-1.244794799	19	0.44099	-0.1485	-0.042757	0.0220408	0.184803938
0.32	-1.139434283	20	0.46459	-0.0889	-0.028438	0.0078975	0.101259091
0.336	-1.090644119	21	0.48820	-0.0296	-0.009942	0.0008755	0.032270127
0.3465	-1.05987246	22	0.51180	0.0296	0.0102523	0.0008755	-0.031359651
0.37	-0.994252273	23	0.53541	0.0889	0.0328811	0.0078975	-0.088357076
0.394	-0.93140437	24	0.55901	0.1485	0.0584938	0.0220408	-0.138277567
0.407	-0.898942094	25	0.58262	0.2086	0.0848958	0.0435095	-0.187509611
0.415	-0.879476759	26	0.60622	0.2695	0.1118341	0.0726194	-0.237001282
0.424	-0.858021824	27	0.62982	0.3314	0.1405085	0.109818	-0.284338168
0.48	-0.733969175	28	0.65343	0.3946	0.1894048	0.1557039	-0.289619371
0.492	-0.709276562	29	0.67703	0.4594	0.2260335	0.2110645	-0.32585414
0.495	-0.703197516	30	0.70064	0.5262	0.2604856	0.2769218	-0.370046185
0.507	-0.679244275	31	0.72424	0.5955	0.3019131	0.3546076	-0.404482754
0.51	-0.673344553	32	0.74785	0.6677	0.3405403	0.445858	-0.449609664
0.516	-0.661648514	33	0.77145	0.7436	0.3837143	0.5529892	-0.49202329
0.522	-0.650087691	34	0.79505	0.8241	0.4301731	0.6791183	-0.535728378
0.534	-0.62735944	35	0.81866	0.9103	0.486083	0.8285874	-0.57106508
0.547	-0.603306477	36	0.84226	1.0038	0.5490812	1.007624	-0.60560191
0.57	-0.562118918	37	0.86587	1.1071	0.6310292	1.2256013	-0.622304307
0.58	-0.544727175	38	0.88947	1.2237	0.7097619	1.4975087	-0.666597567
0.605	-0.502526821	39	0.91308	1.3599	0.8227693	1.8494619	-0.683410967
0.73	-0.314710745	40	0.93668	1.5275	1.1150723	2.3332451	-0.480719515
0.76	-0.274436846	41	0.96029	1.7540	1.333048	3.076553	-0.481365124
0.79	-0.235722334	42	0.98363	2.1353	1.686889	4.559517	-0.503338504

Normal

9.661 =sum X(i)*M(i)
38.622 =sum M(i)^2
0.26 = standard deviation
6.2147 = square root of sum Mi^2

0.934 = Fillibens's Statistic

Lognormal

76.064 =sum X(i)*M(i)
38.622 =sum M(i)^2
2.14 = standard deviation
6.2147 = square root of sum Mi^2

0.893 = Fillibens's Statistic

.973 is acceptable value

Normal - Fail
Lognormal - Fail

Figure 6. Selenium Far Upgradient Background Data Set, Histogram (normal)

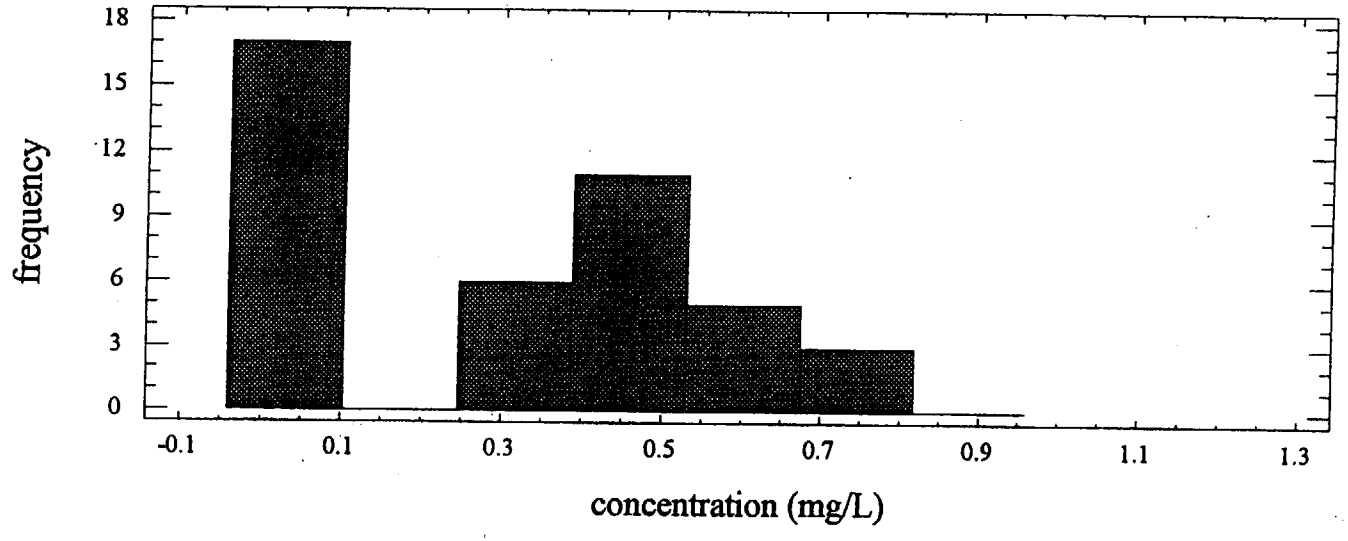

Figure 7. Selenium Far Upgradient Background Data Set, Histogram (lognormal)

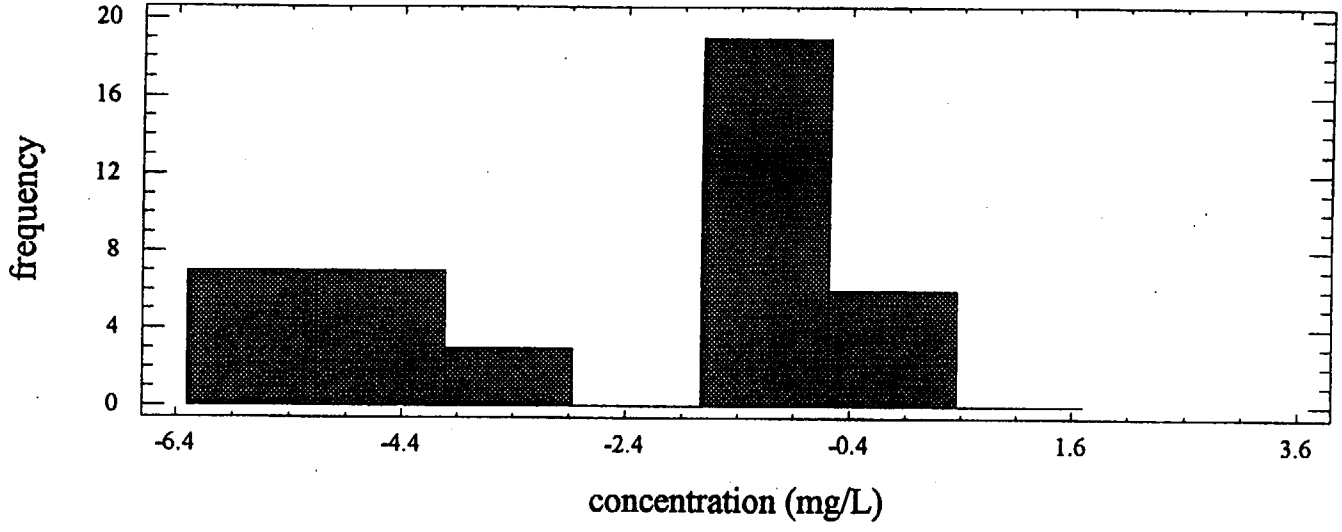

Figure 8. Selenium Far Upgradient Data Set, Probability Plot (normal)

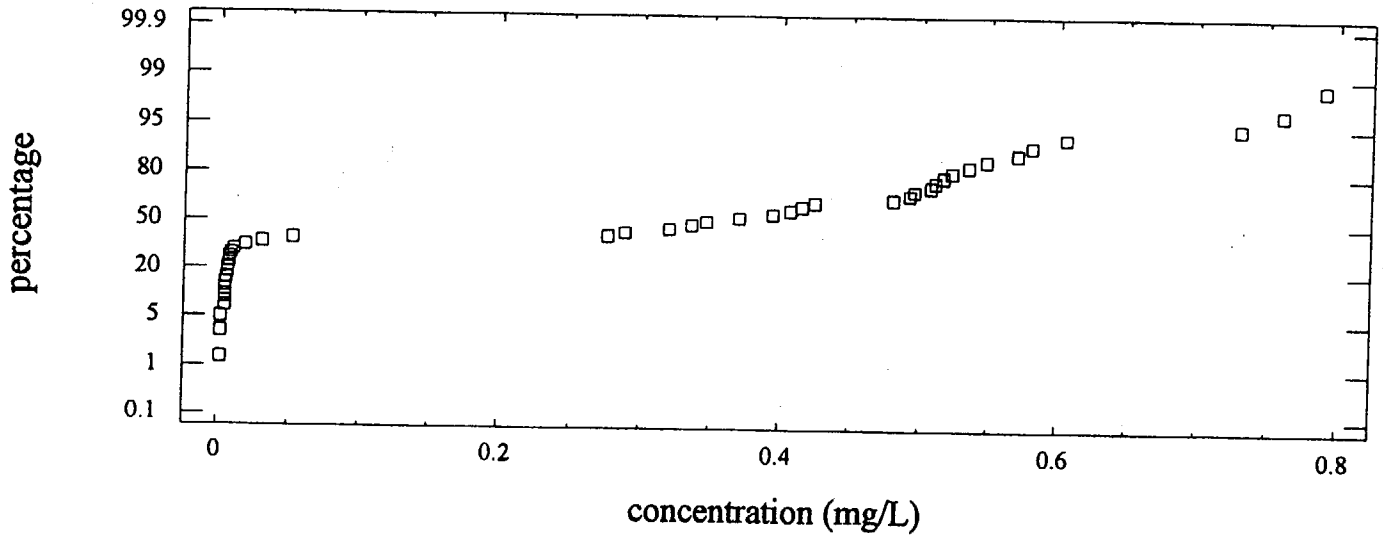

Figure 9. Selenium Far Upgradient Data Set, Probability Plot (lognormal)

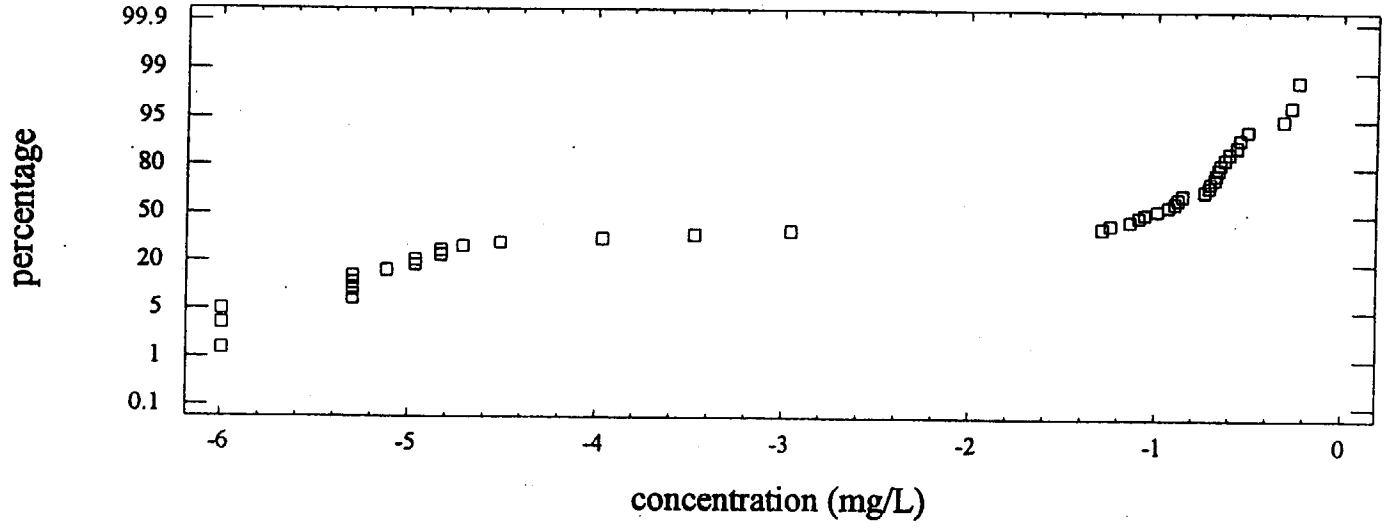

Table 68. Selenium Far Upgradient Background Data Set, Distribution Summary

Parameter	Distribution Type (tested)	Coefficient of Variation	Studentized Range Test	Geary's Test	Coefficient of Skewness (-1 to 1)	Shapiro-Wilk Test	Filliben's Statistic	Histogram	Probability Plot	Number of Samples	Distribution Type (determined)
Selenium	Normal	Pass	Fail	Fail	Pass	Fail	Fail	Nonparametric	Nonparametric	42	Nonparametric
Selenium	Lognormal	Pass	NA	Fail	Pass	Fail	Fail	Nonparametric	Nonparametric	42	

NA - not applicable

Table 69. Selenium Far Upgradient Background Data Set, T_n Statisitic Analysis

Parameter	Distribution	Maximum Observation	Mean	Standard Deviation	T_n Statistic	N	Upper 5% Critical Value	Pass or Fail T_n Statistic
Selenium	Normal	0.79	0.295238095	0.259811781	1.904	42	2.887	Pass

ND - concentration was non-detect
N - number of samples

Table 70. Selenium Far Upgradient Background Data Set, 95th Percentile Calculation

Parameter	Distribution	95th Percentile (pCi/g)	Sample #
Selenium	Nonparmetric	0.72	42

SD = standard deviation

Table 71. Selenium Far Upgradient Background Data Set, Summary Table

Parameter	Distribution	Mean	SD	95th Percentile (pCi/g)	Range (normal)	Sample #
Selenium	Nonparmetric	0.295238095	0.259811781	0.72	<0.005 to 0.79	42

SD = standard deviation
ND = non-detect, concentration reported as the minimum detecatable activity (MDA)

Table 72. Selenium Upgradient Background Data, Comparison Statistics Results

Comparison of Medians

Median of sample 1: 0.34125
Median of sample 2: 0.104

Mann-Whitney (Wilcoxon) W test to compare medians

Null hypothesis: median1 = median2
Alt. hypothesis: median1 NE median2

Average rank of sample 1: 243.119
Average rank of sample 2: 199.499

W = 6022.0
P-value = 0.0228734

The StatAdvisor

This option runs a Mann-Whitney W test option to compare the medians of the two samples. This test is constructed by combining the two samples, sorting the data from smallest to largest, and comparing the average ranks of the two samples in the combined data. Since the P-value is less than 0.05, there is a statistically significant difference between the medians at the 95.0% confidence level.