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VOLUME 2 OF 2 APPENDIX D THROUGH H NSB KINGS BAY GA
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SUPPLEMENTAL RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT SITE 11, OLD CAMDEN COUNTY LANDFILL

NAVAL SUBMARINE BASE KINGS BAY, GEORGIA

VOLUME II – APPENDIX D through APPENDIX H

UNIT IDENTIFICATION CODE: N42237
CONTRACT NO. N62467-89-D-0317/094

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SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
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APPENDIX D

LETTER REPORT, BACKGROUND APPROACH

ASEA BROWN BOVERI

July 7, 1995

Commanding Officer
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, SC 29418

ATTN: Anthony Robinson
Code 18511

Subject: Letter Report:
Naval Submarine Base (NSB) Kings Bay, Georgia
Contract Task Order 094
Prime Contract Number N62467-89-D-0317
Site 11, Old Camden County Landfill

Dear Mr. Robinson:

The Supplemental Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Report, Corrective Measures Study (CMS), and Corrective Action Plan (CAP) for Site 11, Old Camden County Landfill, at Naval Submarine Base (NSB), Kings Bay, Georgia, are targeted for completion during late 1995 and early 1996. These tasks require that inorganic analytical data be evaluated to identify potential inorganic contaminants and their extent. This letter describes how inorganic analytical data from Site 11 and adjacent areas will be evaluated to assess the nature of potential inorganic contaminants associated with the site. The approach includes defining criteria for selecting groundwater and soil sampling locations that are representative of background conditions unaffected by activities at Site 11 (or other human activities), developing a conceptual model of inorganic contaminant transport at Site 11, selecting candidate locations, and performing statistical analyses on the soil and groundwater data to determine if the data from the selected locations are from the same distribution.

Attachment A presents equations used to mathematically model contaminant velocities in the surficial aquifer at Site 11. Contaminant transport calculations are based on groundwater flow velocity derived from site-specific data.

CRITERIA FOR SELECTION OF BACKGROUND SAMPLE LOCATIONS FOR GROUNDWATER

It is expected that the existing array of 35 monitoring wells provides locations that are unaffected by activities at the site or other human activities in sufficient numbers for development of a background data set and for delineation of the groundwater contamination. The background data set will not contain locations that are used for delineation.

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Two criteria will be used to select candidate groundwater sampling locations as representing background conditions unaffected by activities at Site 11. Both criteria must be met before a location will be selected as a candidate background location. One criterium is that the location must not be within the limits of the plume of groundwater contaminated with volatile organic compounds (VOCs). The second criterium is that groundwater samples from candidate locations must not contain organic compounds other than those that are artifacts of laboratory or sampling procedures and carbon disulfide. The second criterium is discussed in more detail in the following paragraphs.

While most organic chemicals are manmade, some are the result of natural processes in the environment. Carbon disulfide is an organic chemical that is naturally produced in the environment by microbial reduction of sulfates in soil (Howard, 1990). Sulfate, an oxide of sulfur, is a naturally occurring inorganic compound. Carbon disulfide has been detected in groundwater samples from 20 of the 35 total monitoring wells at Site 11. To evaluate for an association between VOCs released from the site and the occurrence of carbon disulfide, which is also a VOC, the 20 locations where carbon disulfide was detected were compared to the 19 locations where site-related VOCs have been detected. Of the 20 locations where carbon disulfide has been detected, 9 are at locations where no site-related VOCs have been detected, and 11 are at locations where site-related VOCs have been detected. This comparison indicates that 45 percent of the locations where carbon disulfide has been detected are not associated with VOCs released from the site. Because carbon disulfide is known to occur naturally (Howard, 1990) and does not appear at Site 11 in close association with other VOCs released from the site, the occurrence of carbon disulfide in groundwater samples is not representative of affects from site activities or impact of human activities.

Phthalate compounds are organic compounds that have been detected in groundwater samples from 31 of the 35 total groundwater monitoring locations at Site 11. The phthalates are not indicative of affects from activities at Site 11 or from other human activities because the phthalates are introduced into the sample either during sampling or during laboratory analyses and are not representative of *in-situ* groundwater. This conclusion is supported by analyzing the behavior of phthalates in the environment. This analysis includes evaluating travel times that would be required for a phthalate compound to migrate in groundwater to a particular monitoring well location and by evaluating the concentration of the compound that would be required in soil at the monitoring location to result in concentrations detected in groundwater samples. The details of this analysis are presented in Attachment B. With regard to calculating contaminant transport velocities, the initial tasks included calculating groundwater flow velocity, obtaining absorption coefficients from the literature, and performing comparative calculations.

Velocities and travel times were calculated for contaminants detected in samples from well KBA-11-18 that are known to be associated with the plume of VOC-contaminated groundwater. The calculated travel times were compared to actual travel time given the landfill operation began in 1978. The results of the comparison confirm that the equations and physical constants used to conceptualize transport of contaminants at Site 11 are realistic. Site-related VOCs detected in samples from well KBA-11-18 include acetone, 4-methyl-2-pentanone, and 1,1-dichloroethane. The details of the calculations for transport of site-related VOCs from the landfill to well KBA-11-18 are presented in Attachment B. The results are summarized below and appear reasonable for VOCs.

Calculated Versus Actual Travel Times for Volatile Organic Compound Contaminants at Location KBA-11-18

Volatile Organic Compound	Calculated Travel Time (years)	Actual Travel Time (years)
Acetone	12.15	17
4-Methyl-2-pentanone	12.85	17
1,1-Dichloroethane	15.77	17

Travel times for phthalate compounds detected at two monitoring locations, KBA-11-18 and KBA-11-19B, were also calculated and compared to actual travel times. As shown in the data below and in detail in Attachment B, the travel times are unrealistic and vary widely between compounds at a single location.

Calculated Versus Actual Travel Times for Phthalate Compounds

Location	Compound	Calculated Travel Time (years)	Actual Travel Time (years)
KBA-11-18	bis(2-ethylhexyl)phthalate	12,105	17
KBA-11-19B	bis(2-ethylhexyl)phthalate	5,158	17
	di-n-butylphthalate	76.6	17

These data support the conclusion that the detection of phthalates in groundwater samples is a result of sampling and laboratory procedures.

The likelihood that the phthalate compounds detected in groundwater are caused by soil contamination at the location was further investigated by calculating the concentration that would be required in the soil to result in the detected concentrations in groundwater. The results are summarized below and are presented in detail in Attachment B.

Calculated Concentrations of Phthalate in Soil

Location	Phthalate Compound	Groundwater Concentration (μg/ℓ)	Calculated Soil Concentration (μg/kg)
KBA-11-19B	bis(2-ethylhexyl)phthalate	570	5.7E+11
KBA-11-15	bis(2-ethylhexyl)phthalate	140	1.4E+11

Notes: μg/ℓ = micrograms per liter.
μg/kg = micrograms per kilogram.

The concentrations of bis(2-ethylhexyl)phthalate in soil required to result in the concentrations detected in groundwater samples at monitoring locations are extraordinary. This can be put in perspective by changing the units for soil concentrations from microgram of phthalate per kilogram of soil to kilogram of phthalate per kilogram of soil. At location KBA-11-19B, 570 kilograms of bis(2-ethylhexyl)phthalate would be needed per 1 kilogram of soil, which is impossible. These data provide further support to the consensus that the phthalate compounds detected in groundwater samples are the result of sampling or laboratory procedures where the sample matrix is contacting plastic items that have extraordinarily high concentrations of phthalate compounds because of the processes involved in the manufacture of the items.

CONCEPTUAL MODEL FOR TRANSPORT OF INORGANICS AT SITE 11

One of the criteria for selecting candidate background locations for groundwater is that the location must not be within the limits of the VOC plume. This criterium is based on the limits of the VOC plume defining the maximum limits of all contaminants in the plume. This is generally a reasonable assumption based on the behavior of VOCs in the environment. Compared to other chemical groups, VOCs are more soluble and their transport in groundwater is less retarded by adsorption to soil.

The conceptual model for transport of potential inorganic contaminants in groundwater at Site 11 describes the velocity of transport of inorganic constituents based on aquifer characteristics and compares the velocities to those of known VOC contaminants. The objective of developing the conceptual model is to assess whether or not the potential inorganic constituents of concern would travel faster than the VOC contaminants such that inorganic contaminants could be outside the limits of VOC contamination and, therefore, comprise the leading edge of the plume. A review of groundwater monitoring data from sampling the 35 monitoring wells at the site and in the subdivision downgradient of the site indicates that VOCs characteristic of the leading edge of the plume are methylene chloride, 4-methyl-2-pentanone, acetone, and 1,1-dichloroethane.

At Site 11, the fine-grained size sand comprising the surficial aquifer, low redox potential, and low pH of the groundwater provide an environment that favors high mobility of positively charged inorganic species and low mobility of negatively charged inorganic species (Mclean and Bledsoe, 1992). The inorganics of interest as potential contaminants at Site 11 are those included in the list of constituents in Appendix IX of Title 40, Code of Federal Regulations, Part 264. The list is presented in Attachment C and includes 19 inorganic constituents, four of which are negatively charged species in the environment.

Attachment D presents the physical data that were used to evaluate transport of potential inorganic contaminants in the surficial aquifer at Site 11. Included in Attachment D are worksheets listing the velocities of VOC contaminants and potential inorganic contaminants. The VOCs listed in Attachment D worksheets include all VOCs that have been detected at least one time at Site 11 since February 1992 when the RFI began. A third work sheet combines the velocities of both chemical groups and lists them in ascending order. Referring to the list of contaminants sorted by magnitude (Attachment D), the calculated velocities indicate that the potential inorganic contaminants will migrate slower than the VOC contaminants characteristic of the leading edge of the VOC plume and will not be on the leading edge of the plume. The calculations indicate that the leading edge of the plume should be characterized by such VOCs as methylene chloride, 4-methyl-2-pentanone, chloroethane, vinyl chloride, 2-butanone, and acetone. Based on site-specific data, the site conditions are consistent with those reflected by the calculated velocities for VOCs. This consistency supports using the calculated velocities for inorganics to evaluate the potential background locations.

SELECTION OF CANDIDATE BACKGROUND LOCATIONS FOR GROUNDWATER

The analytical data for January, April, and September 1994 for the 35 monitoring wells at Site 11 were used to compare to the two criteria specified for selection of candidate monitoring wells. Seven monitoring wells were selected as candidate background monitoring wells and are as follows:

- KBA-11-1,
- KBA-11-7,
- KBA-11B,
- KBA-11-20.
- KBA-11-4,
- KBA-11-11A,
- KBA-11-12, and

These seven monitoring locations are outside the VOC plume and the only organic compounds that have been detected in samples from the locations are phthalate compounds and carbon disulfide. Based on the analytical data for samples from these locations, there are no affects from site activities or other human activities. Historical information related to past property usage at the candidate background locations does not indicate that property usage would have resulted in releases of organic compounds to the environment. The analytical data from these seven locations will be analyzed using statistical methods to evaluate whether or not the data are from the same distribution.

SELECTION OF CANDIDATE BACKGROUND LOCATIONS FOR SOIL

Analytical data for subsurface soil samples were evaluated in comparison to the criteria required for selection of candidate background locations for groundwater. The only subsurface soil samples that satisfy both of the criteria established for groundwater are from boring locations KBA-11-1, KBA-11-4, and KBA-11-7. Samples from two other locations, KBA-11-11C and KBA-11-9, had low concentrations of fuel-related VOCs. The three samples from KBA-11-1, KBA-11-4, and KBA-11-7 alone are insufficient to describe a population. Additional subsurface soil samples will be collected at locations outside the limits of the VOC plume that are expected to be representative of background conditions unaffected by human activities. Ten subsurface soil samples will be collected from depths of 4 to 6 feet below land surface using a hand auger. The analytical program for the subsurface soil samples includes analyses of VOCs, semivolatile organic compounds, pesticides, polychlorinated biphenyl compounds, and inorganic constituents. Tentative sample locations are shown on the diagram in Attachment E. Actual sample locations will be selected in the field and will be away from roads, industrial areas, or buildings. The resulting data will be evaluated for organic contamination to determine if the data indicate that the location is representative of background. Any organic analytes detected will be evaluated on an individual basis to determine if the detections render the inorganic data unusable for definition of background.

STATISTICAL ANALYSIS OF POTENTIAL BACKGROUND ANALYTICAL DATA FROM CANDIDATE BACKGROUND LOCATIONS

The soil and groundwater inorganic analytical data from the candidate background locations will be evaluated using a statistical approach. The soil data will be compiled into one data set and groundwater data into another data set, then statistical analyses will be performed to evaluate the distribution of data within each set. The inorganic analytical data from candidate background locations will be evaluated for outlier values using the approach described in Section 8 of the "Interim Final Guidance for Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities" (U.S. Environmental Protection Agency [USEPA], 1989). If outlier values are identified that cannot be attributed to transcription errors, then the outlier values will be removed from the background data sets.

Because each candidate monitoring well has data from multiple sampling events, an analysis of variance (ANOVA) test will be performed to evaluate for significant differences between data from background wells. The ANOVA test will be done after outlier values have been removed from the data set. If the results of the ANOVA do not indicate that significant differences exist among the data for the candidate background wells, then the data are from the same distribution. If results of the ANOVA support the conclusion that significant differences exist among the background wells, then the source of the difference will be evaluated using a well to well comparison such as a Student's t-test or Mann U-test.

Unlike the groundwater data set, the soil sample data set is comprised of single measurements from multiple locations. Because multiple measurements were not taken at each location, an ANOVA test cannot be used to compare the individual background soil sample locations to one another. The test for outlier values, and subsequent removal of outlier values from the soil data set, will result in a group of data points that are statistically similar.

INORGANIC CONTAMINANT CHARACTERIZATION

Potential inorganic contaminants associated with disposal activities at Site 11 will also be evaluated using a statistical approach. Attachment C lists the inorganic analytes that will be evaluated and includes those inorganic analytes listed in Appendix IX of Title 40, Code of Federal Regulations, Part 264.

The inorganic analytical data for soil and groundwater samples from sample locations within the area of the VOC plume (hereafter referred to as site data) will be compared to the corresponding background data set using a statistical approach. The remainder of this letter report provides a fairly comprehensive description of the statistical approach that will be used.

This paragraph describes statistical methods to be used when nondetected values comprise less than 15 percent of the database. A one-tailed Student's t-test will be used for the comparison if both of the data sets being compared are normally distributed. If one or both of the data sets being compared are not normally distributed, then a one-sided Mann Whitney U-test will be used. The data will be tested for normality using probability plots of both non-transformed and log transformed data. For the t-test or U-test, the Type I experiment-wise error rate will be 5 percent (0.05).

If the percentage of nondetected values in the database is between 15 and 50 percent, then the nondetected values will either be tied to a zero prior to ranking, or one half of the detection limit will be used to rank the data. The Mann Whitney U-test will be used to compare the data sets because it is not sensitive to either of the aforementioned approaches for nondetected values as long as the position of the nondetected values in the ranking of data is not changed.

If more than 50 percent of the data are nondetected values, then a test for proportions will be used to determine whether the proportion of detected values in the site data are significantly greater than the proportion of detected values in the background data. If evidence of contamination is indicated by the test for proportions (i.e., the site data contain significantly more detected values), then the maximum value of the contaminant in the site data will be compared to the 95th percentile value of the background data to locate the abnormal data points where contamination is indicated.

The results of statistical comparisons between background and site data will determine whether or not inorganic contaminants are present. If inorganic contaminants are identified, then the horizontal and vertical extent of contamination will be determined relative to background concentrations. The results of the statistical comparisons will be incorporated into the Supplemental RFI report. Any corrective measures that are needed will be addressed in the site-specific CAP.

Sincerely,
ABB Environmental Services, Inc.

Theodore Taylor, P.G.
Task Order Manager

Laura B. Harris
RFI Technical Lead

Attachments

pc: Mike Maughon, SOUTHDIV
Sandi Mukherjee, NSB Kings Bay
Project file CTO 094

ATTACHMENT A

EQUATIONS FOR DESCRIBING CONTAMINANT TRANSPORT AND GROUNDWATER FLOW VELOCITY

ATTACHMENT A

EQUATIONS FOR DESCRIBING CONTAMINANT TRANSPORT AND GROUNDWATER FLOW VELOCITY

GLOSSARY OF VARIABLES

V_x = velocity of groundwater flow
K = hydraulic conductivity
i = hydraulic gradient
n = effective porosity of aquifer matrix
V_c = velocity of contaminant transport
ρ_b = bulk density of aquifer matrix
K_d = sorption coefficient
T_c = contaminant travel time
K_{oc} = octanol/water partition coefficient
f_{oc} = carbon content of aquifer matrix
C_s = concentration of contaminant adsorbed to soil
C_e = concentration of contaminant in groundwater

EQUATIONS

Groundwater Flow Velocity

1. $$V_x = \frac{Ki}{n}$$ (Domenico and Schwantz, 1990)

where

V_x = groundwater flow velocity
K = hydraulic conductivity
i = hydraulic gradient
n = effective porosity

Contaminant Velocity

2. $$V_c = \frac{V_x}{1+\left(\frac{\rho_b}{n}\right)K_d}$$ (Freeze and Cherry, 1979)

where

V_c = contaminant transport velocity
V_x = groundwater flow velocity
ρ_b = bulk density of aquifer matrix
n = effective porosity of aquifer matrix
K_d = contaminant sorption coefficient

Contaminant Travel Time

3. $$T_c = \frac{L}{V_c}$$ (by definition)

where

T_c = contaminant travel time
L = length of travel
V_c = contaminant transport velocity

Sorption Coefficient

4. $$K_d = K_{oc} \cdot f_c$$ (Dragun, 1988)

where

K_d = contaminant sorption coefficient
K_{oc} = contaminant octanol/water partition coefficient
f_{oc} = carbon content of aquifer matrix

5. $$K_d = \frac{C_s}{c_e}$$ (Dragun, 1988)

where

K_d = contaminant sorption coefficient
C_s = concentration of contaminant adsorbed to soil
C_e = concentration of contaminant in groundwater

Groundwater Flow Velocity

- From Domenico and Schwartz (1990):

$$V_x = \frac{Ki}{n}$$

- Site specific aquifer parameters:

  * From Interim Measure pumping tests data analyses, the hydraulic conductivity is 17.2 feet per day (ft/day).

  * Hydraulic gradient between well KBA-11-11B (east landfill boundary) and well KBA-11-20 (hydraulically downgradient of landfill and KBA-11-11B) is 0.0038 feet per foot (ft/ft).

  * Effective porosity of fine-grained sand is assumed to be 25 percent (Driscoll, 1986).

- Groundwater flow velocity is 0.26 ft/day or 95 feet per year.

Data for Contaminant Flow Velocity Calculations

- Site-specific data from Supplemental RFI samples

  * Total organic carbon content of aquifer matrix is 0.13 percent.

  * Dry bulk density of aquifer matrix is 1.93 grams per milliliter.

- Aquifer matrix is fine-grained sand. Effective porosity estimated to be 25 percent (Driscoll, 1986).

ATTACHMENT B

TRANSPORT OF VOCs AND PHTHALATES IN GROUNDWATER

ATTACHMENT B

TRANSPORT OF VOCs AND PHTHALATES IN GROUNDWATER

VOC TRANSPORT IN GROUNDWATER

Well KBA-11-18 is approximately 1,150 feet from the west margin of the landfill in the direction of groundwater flow. Three volatile organic compounds in samples from KBA-11-18 are:

- 1,1-DCA,
- 4-methyl-2-pentanone, and
- acetone.

Based on the calculated velocities (in Attachment D), how many years did it take for the chemicals to get from the landfill to well KBA-11-18?

Acetone: $$\frac{1{,}150\,feet}{94.65\ ft/yr} = 12.15\ years$$

4-methyl-2-pentanone: $$\frac{1{,}150\,feet}{89.46\ ft/yr} = 12.85\ year$$

1,1-DCA: $$\frac{1{,}150\,feet}{72.90\ ft/yr} = 15.77\ years$$

The landfill operated from 1978 to 1981. From January 1978 to January 1995 is 17 years for releases to have occurred. Based on calculated travel times (above), travel times for acetone, 4-methyl-2-pentanone, and 1,1-DCA are realistic relative to the 17-year limit.

PHTHALATE TRANSPORT IN GROUNDWATER

Velocities for transport of phthalate compounds in groundwater are presented on a worksheet table at the end of this attachment.

Well KBA-11-18 is approximately 1,150 feet downgradient of west margin of landfill. Bis(2-ethylhexyl)phthalate has been detected in samples from KBA-11-18. How long ago would the release have to have been for bis(2-ethylhexyl)phthalate to travel 1,150 feet.

$$\frac{1{,}150\,feet}{0.095\ ft/yr} = 12{,}105\ years$$

Similarly at well KBA-11-19B, approximately 490 feet downgradient of west boundary of landfill:

- bis(2-ethylhexyl)phthalate: $\frac{490\,feet}{0.095\ ft/yr} = 5{,}158\ years$, and
- di-n-butylphthalate: $\frac{490\ feet}{6.40\ ft/yr} = 76.6\ years$

These travel times, calculated for detected phthalates, are very unrealistic and inconsistent. The calculations support the conclusion that the detections are artifacts of sampling and laboratory procedures.

PHTHALATE CONCENTRATIONS IN SOIL

If the phthalates in the groundwater samples are a result of soil contamination at the sample location, what would the concentration in soil be?

From Dragun, 1988 (page 234):

$$K_d = C_s/C_e$$

Assumption: conditions are at equilibrium.

KBA-11-19B, September 1994, bis(2-ethylhexyl)phthalate in groundwater at 570 μg/ℓ.

Convert units for K_d from milliliters per gram (mℓ/g) to liters per kilogram (ℓ/kg):

$$K_d = 1{,}000\ \text{m}\ell/\text{g} \times 1{,}000\ \ell/\text{m}\ell \times 1{,}000\ \text{g/kg} = 1.0\text{E}+09\ \ell/\text{kg}.$$

Calculate C_s:

$$1.0\text{E}+09\ \ell/\text{kg} = C_s/570\ \mu\text{g}/\ell$$

$$C_s = 5.7\text{E}+11\ \mu\text{g/kg}$$

Convert units to kilograms of phthalate per kilogram of soil:

$$5.7\text{E}+11\ \mu\text{g/kg} \times \text{mg}/1{,}000\ \mu\text{g} \times \text{g}/1{,}000\ \text{mg} \times \text{kg}/1{,}000\ \text{g} = 570\ \text{kg/kg}$$

Result: 570 kg phthalate for every 1 kg of soil (impossible).

KBA-11-15, September 1994, bis(2-ethylhexyl)phthalate in groundwater at 140 μg/ℓ.

Calculate C_s:

$$1.0\text{E}+09\ \ell/\text{kg} = C_s/140\ \mu\text{g}/\ell$$

$$C_s = 1.4\text{E}+11\ \mu\text{g/kg}$$

Convert units to kg of phthalate per kg of soil:

$$1.4\text{E}+11\ \mu\text{g/kg} \times \text{mg}/1{,}000\ \mu\text{g} \times \text{g}/1{,}000\ \text{mg} \times \text{kg}/1{,}000\ \text{g} = 140\ \text{kg/kg}$$

Result: 140 kg of phthalate for every 1 kg of soil (impossible)

Phthalate Velocities

Phthalate	[1]Log K_{oc} Unitless	K_{oc} (ml/g)	[2]K_d (ml/g)	[3]V_c Max (ft/yr)			
Bis(2-ethylhexyl)phthalate	5	1.00E+05	130.00	0.095			
Butylbenzylphthalate	1.83 - 2.5	6.76E+01	0.09	56.60			
Dimethylphthalate	1.63	4.27E+01	0.06	66.52			
Diethylphthalate	1.84	6.92E+01	0.09	56.07			
Di-n-butylphthalate	3.14	1.38E+03	1.79	6.40			
Di-n-octylphthalate	8.99	9.77E+08	1.27E+06	9.69E-06			

1. Montgomery, John H. and Linda M. Welkom, 1989. Groundwater Chemicals Desk Reference, Vol. 1, Lewis Publishers, Chelsea, MI.
2. Calculated using the reported K_{oc} values (Montgomery and Welkom, 1989) and total organic carbon content (f_{oc}) of 0.13% that is based on measurments on soil samples from the site.
3. Velocities calculated based on groundwater flow rate of 95 ft/yr using the equation for contaminant transport velocity presented in Attachment A.

Notes:
K_{oc} = octanol water partion coefficient in milliliters per gram.
K_d = sorption coefficient in milliliters per gram.
V_c = velocity in feet per year.

ATTACHMENT C

INORGANICS OF POTENTIAL CONCERN

ATTACHMENT C

APPENDIX IX INORGANIC ANALYTES

Analyte	Ionic Charge
Antimony	+
Arsenic	-
Barium	+
Beryllium	+
Cadmium	+
Chromium	+
Cobalt	+
Copper	+
Lead	+
Mercury	+
Nickel	+
Selenium	-
Silver	+
Thallium	+
Vanadium	+
Zinc	+
Cyanide	-
Sulfide	-
Tin	+

ATTACHMENT D

CONTAMINANT MIGRATION VELOCITIES FOR GROUNDWATER VELOCITY OF 95 FEET PER YEAR

ATTACHMENT D

CONTAMINANT MIGRATION VELOCITIES FOR GROUNDWATER VELOCITY OF 95 FEET PER YEAR

To support use of existing monitoring wells at Site 11 for determining background concentrations of inorganics two criteria are used, as described in this letter report. One of the criteria is that the candidate background location must not be within the VOC plume. The validity of this criterium is based on VOC contaminants migrating faster than inorganic contaminants. In this attachment, velocities are presented for VOC contaminants and potential inorganic contaminants of concern. The first two worksheets present VOC and inorganic velocities, respectively, and provide information related to the process of calculating the velocities. To facilitate comparison of velocities of VOC and inorganic constituents, the compounds were combined in a list and sorted according to velocity. The third work sheet in this attachment presents the combined list, sorted according to ascending velocity.

A review of groundwater analytical data from monitoring wells at the site indicates that samples from monitoring wells in the subdivision that are farthest from the landfill are characterized by compounds such as 4-methyl-2-pentanone, acetone, methylene chloride, and 1,1-dichloroethane. These compounds, having relatively high rates of transport, are on the leading edge of the plume of contaminated groundwater and appear towards the bottom of the combined, sorted, list of contaminant velocities presented on page D-3 of this attachment. These results of comparison of VOC and inorganic velocities to one another in consideration of known site conditions supports the conclusions that wells outside the VOC plume are unaffected by releases of inorganic constituents, if any, from the landfill.

Inorganic Velocities

Inorganic Analyte	[1]K_d (ml/g)	[2]K_d (ml/g)	[3]K_d (ml/g)	K_d Min	K_d Max	[4]Vc Max (ft/yr)	[4]Vc Min (ft/yr)	V_c Avg (ft/yr)
Antimony		45		45	45	0.27	0.27	0.27
Arsenic	1.0 - 8.3	200	1.0 - 8.3	1	200	10.89	0.06	5.48
Barium		60		60	60	0.20	0.20	0.20
Beryllium		650		650	650	0.02	0.02	0.02
Cadmium	1.3 - 27	6.5	1.26 - 26.8	1.26	27	8.86	0.45	4.65
Chromium	470 - 150,000	850	470 - 150,000	470	150,000	0.03	8.20E-05	0.01
Cobalt	0.2 - 3,800	45	0.2 - 3,800	0.2	3,800	37.34	3.24E-03	18.67
Copper	1.4 - 333	35	1.4 - 333	1.4	333	8.05	0.04	4.04
Lead	4.5 - 7,640	900	4.5 - 7,640	4.5	7,640	2.66	0.00	1.33
Mercury		10		10	10	1.21	1.21	1.21
Nickel		150		150	150	0.08	0.08	0.08
Selenium	1.2 - 8.6	300	1.2 - 8.6	1.2	300	9.26	0.04	4.65
Silver	10 - 1,000	45	10 - 1,000	10	1,000	1.21	0.01	0.61
Thallium	2,000 - 510,000	150,000		2,000	510,000	0.01	2.41E-05	0.00
Vanadium		1,000		1,000	1,000	0.01	0.01	0.01
Zinc	0.1 - 8,000	40	0.1 - 8,000	0.1	8,000	53.61	1.54E-03	26.81
Cyanide	No data	No data	No data	No data	No data	No data	No data	No data
Sulfide	No data	No data	No data	No data	No data	No data	No data	No data
Tin		250		250	250	0.05	0.05	0.05

1. Dragun, James, 1988. The Soil Chemistry of Hazardous Materials.
2. Baes, C.F., et al., 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally released Radionuclides through Agriculture, Oak Ridge National Laboratory, ORNL-5786. September.
3. Baes, C.F. and R.D. Sharp, 1983. A Proposal for Estimation of Soil Leaching Constants for use in Assessment Models, Journal of Environmental Quality, Vol. 12, no. 1.
4. Contaminant velocity (V_c) based on groundwater flow velocity of 95 ft/yr. Minimum and maximum V_c are calculated using maximum and minimum K_d, respectively.

Notes:
K_d = sorption coefficient in milliliters per gram
V_c = velocity in feet per year.

VOC Velocities

Volatile Organic Compounds	[1]Log K_{oc} Unitless	K_{oc} (ml/g)	[2]K_d (ml/g)	[3]V_c (ft/yr)		
Acetone	-0.43	0.37	0.0005	94.65		
Benzene	1.92	83.18	0.1081	51.78		
Bromomethane	No data	No data	No data	No data		
2-Butanone	0.09	1.23	0.0016	93.84		
Carbondisulfide	2.38 - 2.55	354.81	0.4613	20.83		
Chlorobenzene	1.68	331.13	0.4305	21.97		
Chloroform	1.64	43.65	0.0567	66.06		
Chloromethane	No data	No data	No data	No data		
Chloroethane	0.51	3.24	0.0042	92.01		
Dichlorodifluoromethane	2.56	363.08	0.4720	20.46		
1,1-Dichloroethane	1.48	30.20	0.0393	72.90		
1,1-Dichloroethene	1.81	64.57	0.0839	57.65		
1,2-Dichlorobenzene	2.72	524.81	0.6822	15.16		
1,2-Dichloroethane	1.15	19.01	0.0247	79.78		
cis-1,2-Dichloroethene[4]	1.69	48.98	0.0637	63.69		
trans-1,2-Dichloroethene[4]	1.56	36.31	0.0472	69.63		
1,2-Dichloropropane	1.71	51.29	0.0667	62.72		
1,3-Dichlorobenzene	2.23	169.82	0.2208	35.13		
Ethylbenzene	1.98	257.04	0.3342	26.54		
2-Hexanone	2.13	134.90	0.1754	40.36		
4-Methyl-2-Pentanone	0.79	6.17	0.0080	89.46		
Methylene Chloride	0.94	8.71	0.0113	87.36		
Toluene	2.06	151.36	0.1968	37.71		
Tetrachloroethene	2.42	263.03	0.3419	26.10		
Trichlorofluoromethane	2.2	158.49	0.2060	36.67		
Trichloroethene	2.025	105.93	0.1377	46.05		
Vinylchloride	0.39	2.45	0.0032	92.72		
o - Xylene	2.11	128.82	0.1675	41.43		
m - Xylene	3.2	1,584.89	2.0604	5.62		
p - Xylene	2.31	204.17	0.2654	31.16		

1. Montgomery, John H. and Linda M. Welkom, 1989. Groundwater Chemicals Desk Reference, Vol. 1, Lewis Publishers, Chelsea, MI.
2. Calculated using the reported K_{oc} values (Montgomery and Welkom, 1989) and total organic carbon content (f_{oc}) of 0.13% that is based on measurments on soil samples from the site.
3. Contaminant velocity based on groundwater velocity calcuated using gradient between KBA-11-11B and KBA-11-18. Groundwater velocity calculated to be 95 ft/yr using the equation for contaminant transport velocity presented in Attachment A.
4. Log K_{oc} value is from Handbook of Environmental Fate and Exposure Data, Vol. II (Howard, 1990).

Notes:
K_{oc} = octanol water partion coefficient in milliliters per gram.
K_d = sorption coefficient in milliliters per gram.
V_c = velocity in feet per year.

Inorganic and VOC Velocities

Analyte	[1]V_c Min (ft/yr)	Analyte	[2]V_c Avg (ft/yr)	Analyte	[3]Vc Max (ft/yr)
Thallium	2.41E-05	Thallium	0.003	Thallium	0.01
Chromium	8.20E-05	Vanadium	0.01	Vanadium	0.01
Zinc	1.54E-03	Chromium	0.01	Beryllium	0.02
Lead	0.00	Beryllium	0.02	Chromium	0.03
Cobalt	3.24E-03	Tin	0.05	Tin	0.05
Silver	0.01	Nickel	0.08	Nickel	0.08
Vanadium	0.01	Barium	0.20	Barium	0.20
Beryllium	0.02	Antimony	0.27	Antimony	0.27
Copper	0.04	Silver	0.61	Mercury	1.21
Selenium	0.04	Mercury	1.21	Silver	1.21
Tin	0.05	Lead	1.33	Lead	2.66
Arsenic	0.06	Copper	4.04	m - Xylene	5.62
Nickel	0.08	Selenium	4.65	Copper	8.05
Barium	0.20	Cadmium	4.65	Cadmium	8.86
Antimony	0.27	Arsenic	5.48	Selenium	9.26
Cadmium	0.45	m - Xylene	5.62	Arsenic	10.89
Mercury	1.21	1,2-Dichlorobenzene	15.16	1,2-Dichlorobenzene	15.16
m - Xylene	5.62	Cobalt	18.67	Dichlorodifluoromethane	20.46
1,2-Dichlorobenzene	15.16	Dichlorodifluoromethane	20.46	Carbondisulfide	20.83
Dichlorodifluoromethane	20.46	Carbondisulfide	20.83	Chlorobenzene	21.97
Carbondisulfide	20.83	Chlorobenzene	21.97	Tetrachloroethene	26.10
Chlorobenzene	21.97	Tetrachloroethene	26.10	Ethylbenzene	26.54
Tetrachloroethene	26.10	Ethylbenzene	26.54	p - Xylene	31.16
Ethylbenzene	26.54	Zinc	26.81	1,3-Dichlorobenzene	35.13
p - Xylene	31.16	p - Xylene	31.16	Trichlorofluoromethane	36.67
1,3-Dichlorobenzene	35.13	1,3-Dichlorobenzene	35.13	Cobalt	37.34
Trichlorofluoromethane	36.67	Trichlorofluoromethane	36.67	Toluene	37.71
Toluene	37.71	Toluene	37.71	2-Hexanone	40.36
2-Hexanone	40.36	2-Hexanone	40.36	o - Xylene	41.43
o - Xylene	41.43	o - Xylene	41.43	Trichloroethene	46.05
Trichloroethene	46.05	Trichloroethene	46.05	Benzene	51.78
Benzene	51.78	Benzene	51.78	Zinc	53.61
1,1-Dichloroethene	57.65	1,1-Dichloroethene	57.65	1,1-Dichloroethene	57.65
1,2-Dichloropropane	62.72	1,2-Dichloropropane	62.72	1,2-Dichloropropane	62.72
cis-1,2-Dichloroethene	63.69	cis-1,2-Dichloroethene	63.69	cis-1,2-Dichloroethene	63.69
Chloroform	66.06	Chloroform	66.06	Chloroform	66.06
trans-1,2-Dichloroethene	69.63	trans-1,2-Dichloroethene	69.63	trans-1,2-Dichloroethene	69.63
1,1-Dichloroethane	72.90	1,1-Dichloroethane	72.90	1,1-Dichloroethane	72.90
1,2-Dichloroethane	79.78	1,2-Dichloroethane	79.78	1,2-Dichloroethane	79.78
Methylene Chloride	87.36	Methylene Chloride	87.36	Methylene Chloride	87.36
4-Methyl-2-Pentanone	89.46	4-Methyl-2-Pentanone	89.46	4-Methyl-2-Pentanone	89.46
Chloroethane	92.01	Chloroethane	92.01	Chloroethane	92.01
Vinylchloride	92.72	Vinylchloride	92.72	Vinylchloride	92.72
2-Butanone	93.84	2-Butanone	93.84	2-Butanone	93.84
Acetone	94.65	Acetone	94.65	Acetone	94.65
Cyanide	No data	Cyanide	No data	Cyanide	No data
Sulfide	No data	Sulfide	No data	Sulfide	No data
Bromomethane	No data	Bromomethane	No data	Bromomethane	No data
Chloromethane	No data	Chloromethane	No data	Chloromethane	No data

Inorganic and VOC Velocities

1. The inorganic velocities listed are minimum velocities from the inorganic velocity worksheet.

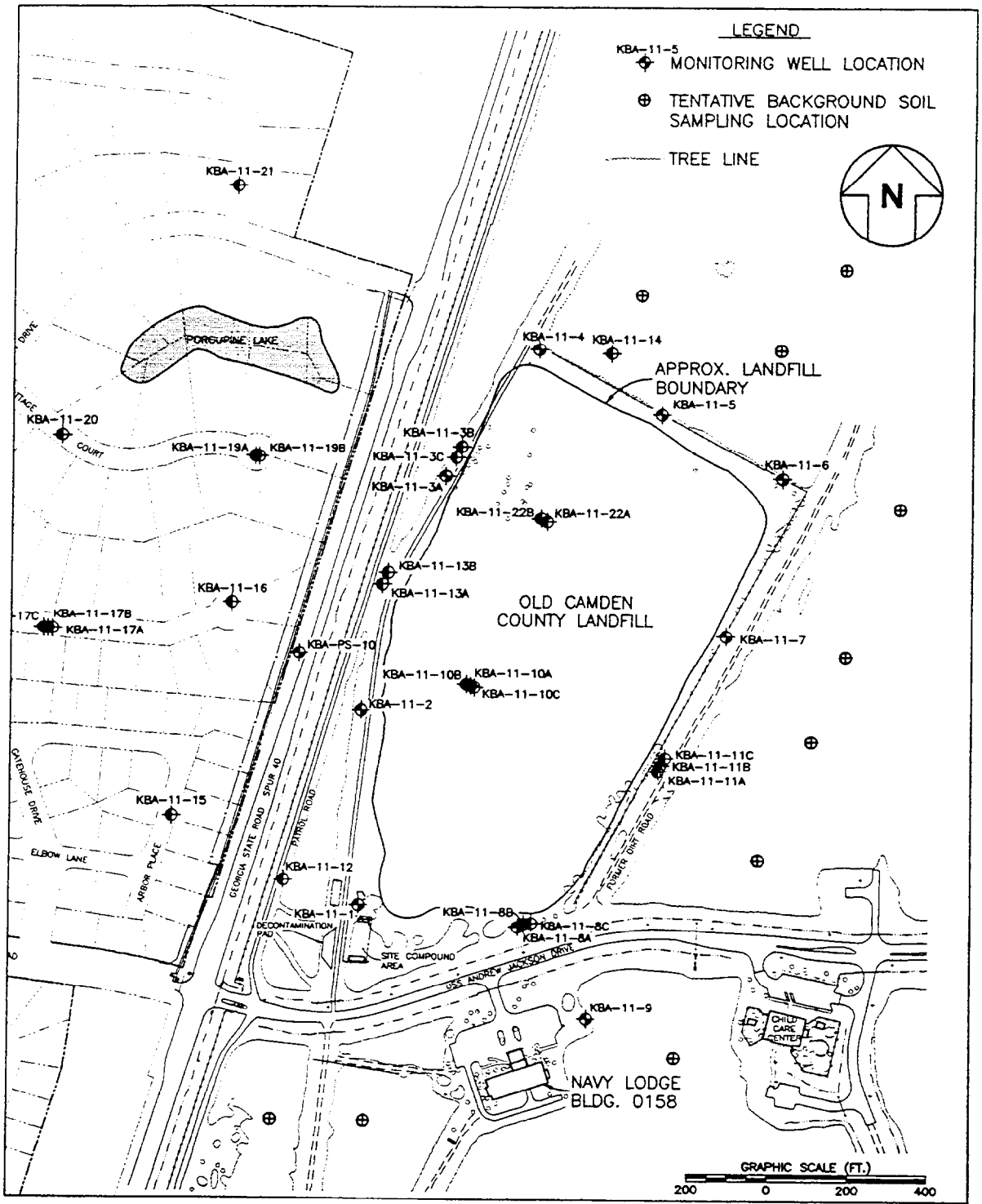
2. The inorganic velocities listed are average values calculated from the maximum and minimum values listed on this sheet.

3. The inorganic velocities listed are maximum velocities from the inorganic velocity worksheet.

V_c = contaminant transport velocity

ATTACHMENT E

TENTATIVE LOCATIONS FOR BACKGROUND SUBSURFACE SOIL SAMPLING



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DWN: DMF	PROJECT NO.: 08503.71	TITLE: TENTATIVE LOCATIONS FOR BACKGROUND SUBSURFACE SOIL SAMPLING	SITE 11 BAKGROUND APPROACH LETTER REPORT
CHKD: LBH			NAVAL SUBMARINE BASE KINGS BAY, GEORGIA
DATE: 7-30-95			

ATTACHMENT F

LIST OF ACRONYMS

ATTACHMENT F

LIST OF ACRONYMS

ANOVA	analysis of variance
C_c	concentration of contaminant in groundwater
C_s	concentration of contaminant adsorbed to soil
CAP	Corrective Action Plan
CMS	Corrective Measures Study
f_{oc}	carbon content of aquifer matrix
ft/day	feet per day
ft/ft	feet per foot
ft/year	feet per year
i	hydraulic gradient
K	hydraulic conductivity
K_d	sorption coefficient
kg	kilogram
K_{oc}	octanol/water partition coefficient
ℓ/kg	liters per kilogram
μg/kg	micrograms per kilogram
mℓ/g	milliliters per gram
μg/ℓ	micrograms per liter
n	effective porosity of aquifer matrix
NSB	Naval Submarine Base
ρ_b	bulk density of aquifer matrix
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
T_c	contaminant travel time
USEPA	U.S. Environmental Protection Agency
V_c	velocity of contaminant transport
V_x	velocity of groundwater flow
VOC	volatile organic compound

ATTACHMENT G

REFERENCES

ATTACHMENT G

REFERENCES

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APPENDIX E

DETERMINATION OF DISTRIBUTION

Background Wells

KINGS BAY - SITE 11

Determination of Distribution

Aluminum Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	20	U	154	5.04	1	5.00	-1.64
Jan	20	J	265	5.58	2	10.00	-1.28
Sep	12	U	355.5	5.87	3	15.00	-1.04
Sep	11A		565	6.34	4	20.00	-0.84
Jan	11A	J	572.5	6.35	5	25.00	-0.67
Sep	11B		701	6.55	6	30.00	-0.52
Jan	01	J	1590	7.37	7	35.00	-0.39
Apr	11A	J	2120	7.66	8	40.00	-0.25
Apr	04		2960	7.99	9	45.00	-0.13
Jan	12	J	4045	8.31	10	50.00	0.00
Apr	20		4290	8.36	11	55.00	0.13
Jan	04	J	5670	8.64	12	60.00	0.25
Apr	12		7445	8.92	13	65.00	0.39
Apr	07		12100	9.40	14	70.00	0.52
Apr	01	J	16700	9.72	15	75.00	0.67
Jan	07	J	28700	10.26	16	80.00	0.84
Sep	07		29100	10.28	17	85.00	1.04
Sep	04		29500	10.29	18	90.00	1.28
Sep	01		41100	10.62	19	95.00	1.64

% Non-detects: 11%

Normal Distribution	Log-Normal Distribution
Mean = 9891.21	Mean = 8.08
Standard Deviation = 12771.19	Standard Deviation = 1.76
Coefficient of Variance = 1.29	Coefficient of Variance = 0.22
Skew = 1.34	Skew = -0.15
Kurtosis = 0.57	Kurtosis = -1.2
R2 = 0.77	R2 = 0.97

Notes:

*Duplicate samples have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Iron Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	01	J	81.4	4.40	1	5.00	-1.64
Jan	04	J	161	5.08	2	10.00	-1.28
Jan	07		331	5.80	3	15.00	-1.04
Apr	04		388	5.96	4	20.00	-0.84
Apr	07		542	6.30	5	25.00	-0.67
Sep	20		574	6.35	6	30.00	-0.52
Sep	11A		678	6.52	7	35.00	-0.39
Sep	12		679.5	6.52	8	40.00	-0.25
Sep	11B		749	6.62	9	45.00	-0.13
Apr	01		968	6.88	10	50.00	0.00
Sep	07		1300	7.17	11	55.00	0.13
Apr	11A		1880	7.54	12	60.00	0.25
Sep	01		2630	7.87	13	65.00	0.39
Jan	20		2880	7.97	14	70.00	0.52
Apr	20		3120	8.05	15	75.00	0.67
Sep	04	J	3400	8.13	16	80.00	0.84
Jan	12		3805	8.24	17	85.00	1.04
Jan	11A		5340	8.58	18	90.00	1.28
Apr	12		5885	8.68	19	95.00	1.64

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 1862.73	Mean = 6.98
Standard Deviation = 1775.87	Standard Deviation = 1.2
Coefficient of Variance = 0.95	Coefficient of Variance = 0.17
Skew = 1.04	Skew = -0.44
Kurtosis = 0.11	Kurtosis = -0.42
R2 = 0.87	R2 = 0.96

Notes:

*Duplicate samples have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Manganese Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	07	J	5.4	1.69	1	5.00	-1.64
Jan	01	J	5.8	1.76	2	10.00	-1.28
Sep	12	J	6	1.79	3	15.00	-1.04
Sep	11A	J	6.9	1.93	4	20.00	-0.84
Apr	01	J	8.2	2.10	5	25.00	-0.67
Apr	07	J	8.9	2.19	6	30.00	-0.52
Sep	07	J	9.6	2.26	7	35.00	-0.39
Sep	01	J	9.8	2.28	8	40.00	-0.25
Sep	11B	J	13.2	2.58	9	45.00	-0.13
Apr	11A	J	14.9	2.70	10	50.00	0.00
Jan	12		20.2	3.01	11	55.00	0.13
Jan	04		25.5	3.24	12	60.00	0.25
Apr	12		26.55	3.28	13	65.00	0.39
Apr	20		29.2	3.37	14	70.00	0.52
Jan	20		31.2	3.44	15	75.00	0.67
Sep	20		32	3.47	16	80.00	0.84
Apr	04		39.7	3.68	17	85.00	1.04
Sep	04		42.6	3.75	18	90.00	1.28
Jan	11A		46.05	3.83	19	95.00	1.64

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 20.09	Mean = 2.76
Standard Deviation = 13.61	Standard Deviation = 0.74
Coefficient of Variance = 0.68	Coefficient of Variance = 0.27
Skew = 0.58	Skew = -0.02
Kurtosis = -1.03	Kurtosis = -1.58
R2 = 0.91	R2 = 0.95

Notes:

*Duplicate samples have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Antimony Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	04	U	1.8	0.59	1	4.55	-1.69
JAN	20	UJ	1.8	0.59	2	9.09	-1.34
SEP	01	U	2	0.69	3	13.64	-1.10
SEP	07	U	2	0.69	4	18.18	-0.91
SEP	11A*	U	2	0.69	5	22.73	-0.75
SEP	11B	U	2	0.69	6	27.27	-0.60
SEP	12*	U	2	0.69	7	31.82	-0.47
SEP	20	U	2	0.69	8	36.36	-0.35
JAN	01	J	2.3	0.83	9	40.91	-0.23
JAN	12	U	2.55	0.94	10	45.45	-0.11
APR	01	U	3	1.10	11	50.00	0.00
APR	04	U	3	1.10	12	54.55	0.11
APR	07	U	3	1.10	13	59.09	0.23
APR	11A	U	3	1.10	14	63.64	0.35
APR	12	U	3	1.10	15	68.18	0.47
APR	20	U	3	1.10	16	72.73	0.60
JAN	11A	UJ	3.85	1.35	17	77.27	0.75
APR	11B	U	6	1.79	18	81.82	0.91
JAN	11B	U	10.1	2.31	19	86.36	1.10
JAN	07		10.5	2.35	20	90.91	1.34
SEP	04	U	13	2.56	21	95.45	1.69

% Non-detects: 90%

Normal Distribution	Log-Normal Distribution
Mean = 3.9	Mean = 1.15
Standard Deviation = 3.23	Standard Deviation = 0.6
Coefficient of Variance = 0.83	Coefficient of Variance = 0.53
Skew = 1.99	Skew = 1.39
Kurtosis = 2.92	Kurtosis = 0.88
R2 = 0.64	R2 = 0.79

Notes:

*Duplicate samples have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Arsenic Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
APR	01	U	1	0.00	1	4.76	-1.67
APR	07	U	1	0.00	2	9.52	-1.31
APR	11A	U	1	0.00	3	14.29	-1.07
JAN	11B	UJ	1	0.00	4	19.05	-0.88
APR	04	J	1.2	0.18	5	23.81	-0.71
JAN	04	J	1.2	0.18	6	28.57	-0.57
JAN	01	U	1.3	0.26	7	33.33	-0.43
JAN	07	U	1.3	0.26	8	38.10	-0.30
JAN	11A**	J	1.4	0.34	9	42.86	-0.18
JAN	12***	J	2	0.69	10	47.62	-0.06
JAN	20	J	2.8	1.03	11	52.38	0.06
APR	20	J	2.9	1.06	12	57.14	0.18
SEP	01	U	3	1.10	13	61.90	0.30
SEP	07	U	3	1.10	14	66.67	0.43
SEP	11A*	U	3	1.10	15	71.43	0.57
SEP	11B	U	3	1.10	16	76.19	0.71
SEP	12*	U	3	1.10	17	80.95	0.88
SEP	20	U	3	1.10	18	85.71	1.07
SEP	04	UJ	3	1.10	19	90.48	1.31
APR	11B		8	2.08	20	95.24	1.67

% Non-Detects: 65%

Normal Distribution	Log-Normal Distribution
Mean = 2.36	Mean = 0.69
Standard Deviation = 1.6	Standard Deviation = 0.57
Coefficient of Variance = 0.68	Coefficient of Variance = 0.83
Skew = 2.37	Skew = 0.461
Kurtosis = 7.94	Kurtosis = -0.16
R2 = 0.66	R2 = 0.85

Notes:

*Duplicate values have been averaged.
**Duplicate values have been averaged (1.0 UJ + 1.8 J = 1.4J).
***Duplicate values have been averaged (2.7 J + 1.3 U = 2.0 J).
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Barium Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	04	J	5.1	1.63	1	4.55	-1.69
APR	04	J	6.7	1.90	2	9.09	-1.34
SEP	12*	J	14.25	2.66	3	13.64	-1.10
JAN	07	J	15.7	2.75	4	18.18	-0.91
JAN	01	J	16	2.77	5	22.73	-0.75
SEP	11A*	J	18.6	2.92	6	27.27	-0.60
SEP	11B	J	23.4	3.15	7	31.82	-0.47
SEP	04	J	27	3.30	8	36.36	-0.35
APR	07	J	31	3.43	9	40.91	-0.23
APR	01	J	31.9	3.46	10	45.45	-0.11
APR	11A	J	32	3.47	11	50.00	0.00
JAN	12*	J	32.55	3.48	12	54.55	0.11
SEP	20	J	33	3.50	13	59.09	0.23
JAN	11A*	J	35.15	3.56	14	63.64	0.35
JAN	20	J	39	3.66	15	68.18	0.47
SEP	07	J	39.8	3.68	16	72.73	0.60
JAN	11B	J	45	3.81	17	77.27	0.75
SEP	01	J	59.6	4.09	18	81.82	0.91
APR	20	J	63.7	4.15	19	86.36	1.10
APR	12*	J	68.45	4.23	20	90.91	1.34
APR	11B		81	4.39	21	95.45	1.69

% Non-Detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 34.23	Mean = 3.33
Standard Deviation = 20.2	Standard Deviation = 0.71
Coefficient of Variance = 0.59	Coefficient of Variance = 0.21
Skew = 0.77	Skew = -0.86
Kurtosis = 0.18	Kurtosis = 0.75
R2 = 0.94	R2 = 0.93

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Beryllium Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	04	UJ	0.12	-2.12	1	4.55	-1.69
JAN	11A*	J	0.14	-1.97	2	9.09	-1.34
JAN	01	U	0.14	-1.97	3	13.64	-1.10
JAN	12*	J	0.21	-1.56	4	18.18	-0.91
JAN	20	J	0.22	-1.51	5	22.73	-0.75
JAN	07	J	0.43	-0.84	6	27.27	-0.60
JAN	11B	J	0.51	-0.67	7	31.82	-0.47
SEP	20	J	1	0.00	8	36.36	-0.35
SEP	04	U	1	0.00	9	40.91	-0.23
SEP	07	U	1	0.00	10	45.45	-0.11
SEP	11A*	U	1	0.00	11	50.00	0.00
SEP	11B	U	1	0.00	12	54.55	0.11
SEP	12*	U	1	0.00	13	59.09	0.23
SEP	01	J	1.2	0.18	14	63.64	0.35
APR	01	U	2	0.69	15	68.18	0.47
APR	04	U	2	0.69	16	72.73	0.60
APR	07	U	2	0.69	17	77.27	0.75
APR	11A	U	2	0.69	18	81.82	0.91
APR	12*	U	2	0.69	19	86.36	1.10
APR	20	U	2	0.69	20	90.91	1.34
APR	11B	U	5	1.61	21	95.45	1.69

% Non-Detects: 67%

Normal Distribution	Log-Normal Distribution
Mean = 1.24	Mean = -0.22
Standard Deviation = 1.12	Standard Deviation = 1.06
Coefficient of Variance = 0.9	Coefficient of Variance = -4.75
Skew = 1.94	Skew = -0.52
Kurtosis = 5.63	Kurtosis = -0.69
R2 = 0.76	R2 = 0.91

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Cadmium Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
APR	01	U	3	1.10	1	4.76	-1.67
SEP	01	U	3	1.10	2	9.52	-1.31
SEP	04	U	3	1.10	3	14.29	-1.07
SEP	07	U	3	1.10	4	19.05	-0.88
APR	11A	U	3	1.10	5	23.81	-0.71
SEP	11A*	U	3	1.10	6	28.57	-0.57
SEP	11B	U	3	1.10	7	33.33	-0.43
APR	04	UJ	3	1.10	8	38.10	-0.30
APR	07	UJ	3	1.10	9	42.86	-0.18
APR	12*	UJ	3	1.10	10	47.62	-0.06
APR	20	UJ	3	1.10	11	52.38	0.06
JAN	01	U	3.1	1.13	12	57.14	0.18
JAN	07	U	3.1	1.13	13	61.90	0.30
JAN	12*	U	3.1	1.13	14	66.67	0.43
JAN	20	U	3.1	1.13	15	71.43	0.57
JAN	11A*	U	3.2	1.16	16	76.19	0.71
JAN	11B	U	3.2	1.16	17	80.95	0.88
JAN	04	J	3.5	1.25	18	85.71	1.07
APR	11B	U	5	1.61	19	90.48	1.31
SEP	12*		8.95	2.19	20	95.24	1.67

% Non-Detects: 90%

Normal Distribution	Log-Normal Distribution
Mean = 3.46	Mean = 1.2
Standard Deviation = 1.37	Standard Deviation = 0.26
Coefficient of Variance = 0.39	Coefficient of Variance = 0.22
Skew = 3.84	Skew = 3.42
Kurtosis = 15.36	Kurtosis = 12.14
R2 = 0.34	R2 = 0.41

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Chromium Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	U	2.3	0.83	1	4.55	-1.69
JAN	20	U	2.6	0.96	2	9.09	-1.34
APR	04	U	5	1.61	3	13.64	-1.10
JAN	04	J	5.7	1.74	4	18.18	-0.91
JAN	11A*	J	6.05	1.80	5	22.73	-0.75
JAN	12*	J	7	1.95	6	27.27	-0.60
SEP	11A*	U	8	2.08	7	31.82	-0.47
JAN	11B	J	9.7	2.27	8	36.36	-0.35
APR	07		10.4	2.34	9	40.91	-0.23
SEP	11B		12	2.48	10	45.45	-0.11
APR	12*		14.1	2.65	11	50.00	0.00
SEP	12*		15.75	2.76	12	54.55	0.11
SEP	20		16	2.77	13	59.09	0.23
SEP	07		17.2	2.84	14	63.64	0.35
APR	11A		18.1	2.90	15	68.18	0.47
APR	01		24.6	3.20	16	72.73	0.60
SEP	04		29.7	3.39	17	77.27	0.75
APR	20		40.6	3.70	18	81.82	0.91
SEP	07		41	3.71	19	86.36	1.10
APR	11B		41	3.71	20	90.91	1.34
SEP	01		45.5	3.82	21	95.45	1.69

% Non-Detects: 19%

Normal Distribution	Log-Normal Distribution
Mean = 17.73	Mean = 2.55
Standard Deviation = 13.89	Standard Deviation = 0.88
Coefficient of Variance = 0.78	Coefficient of Variance = 0.34
Skew = 0.92	Skew = -0.29
Kurtosis = -0.46	Kurtosis = -0.59
R2 = 0.88	R2 = 0.97

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Cobalt Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	U	1.6	0.47	1	4.55	-1.69
JAN	07	U	1.6	0.47	2	9.09	-1.34
JAN	20	U	1.6	0.47	3	13.64	-1.10
JAN	04	U	2.1	0.74	4	18.18	-0.91
JAN	11A*	U	2.1	0.74	5	22.73	-0.75
JAN	11B	U	2.1	0.74	6	27.27	-0.60
JAN	12*	J	2.5	0.92	7	31.82	-0.47
APR	01	U	9	2.20	8	36.36	-0.35
APR	04	U	9	2.20	9	40.91	-0.23
APR	07	U	9	2.20	10	45.45	-0.11
APR	11A	U	9	2.20	11	50.00	0.00
APR	12*	U	9	2.20	12	54.55	0.11
APR	20	U	9	2.20	13	59.09	0.23
SEP	01	U	14	2.64	14	63.64	0.35
SEP	04	U	14	2.64	15	68.18	0.47
SEP	07	U	14	2.64	16	72.73	0.60
SEP	11A*	U	14	2.64	17	77.27	0.75
SEP	11B	U	14	2.64	18	81.82	0.91
SEP	12*	U	14	2.64	19	86.36	1.10
SEP	20	U	14	2.64	20	90.91	1.34
APR	11B	U	50	3.91	21	95.45	1.69

% Non-Detects: 95%

Normal Distribution	Log-Normal Distribution
Mean = 10.27	Mean = 1.91
Standard Deviation = 10.42	Standard Deviation = 0.99
Coefficient of Variance = 1.01	Coefficient of Variance = 0.52
Skew = 2.88	Skew = -0.22
Kurtosis = 10.97	Kurtosis = -0.85
R2 = 0.61	R2 = 0.86

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Copper Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	U	1.7	0.53	1	4.55	-1.69
JAN	20	U	1.7	0.53	2	9.09	-1.34
JAN	07	J	2.3	0.83	3	13.64	-1.10
JAN	04	U	2.9	1.06	4	18.18	-0.91
JAN	12*	J	3.45	1.24	5	22.73	-0.75
SEP	11A*	J	4.6	1.53	6	27.27	-0.60
APR	04	UJ	6.6	1.89	7	31.82	-0.47
SEP	07	J	8.5	2.14	8	36.36	-0.35
SEP	11B	J	9.1	2.21	9	40.91	-0.23
APR	12**	J	9.4	2.24	10	45.45	-0.11
SEP	04	J	9.7	2.27	11	50.00	0.00
APR	11A	J	10.7	2.37	12	54.55	0.11
JAN	11A***	J	11.35	2.43	13	59.09	0.23
APR	01	J	11.9	2.48	14	63.64	0.35
SEP	01	J	14.2	2.65	15	68.18	0.47
SEP	12*	J	15	2.71	16	72.73	0.60
APR	07	J	16.9	2.83	17	77.27	0.75
APR	11B		18	2.89	18	81.82	0.91
JAN	11B	J	19.1	2.95	19	86.36	1.10
APR	20	J	20.3	3.01	20	90.91	1.34
SEP	20		28	3.33	21	95.45	1.69

% Non-Detects: 19%

Normal Distribution	Log-Normal Distribution
Mean = 10.73	Mean = 2.1
Standard Deviation = 7.06	Standard Deviation = 0.84
Coefficient of Variance = 0.66	Coefficient of Variance = 0.4
Skew = 0.64	Skew = -0.67
Kurtosis = 0.13	Kurtosis = -0.62
R2 = 0.95	R2 = 0.93

Notes:

*Duplicate values have been averaged.
**Duplicate values have been averaged (8.1 UJ + 10.7 J = 9.4 J).
***Duplicate values have been averaged (14.9 J + 7.89 U = 11.35 J).
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Cyanide Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	U	1.2	0.18	1	4.55	-1.69
JAN	04	U	1.2	0.18	2	9.09	-1.34
JAN	07	U	1.2	0.18	3	13.64	-1.10
JAN	11A*	U	1.2	0.18	4	18.18	-0.91
JAN	11B	U	1.2	0.18	5	22.73	-0.75
JAN	12*	U	1.2	0.18	6	27.27	-0.60
JAN	20	U	1.2	0.18	7	31.82	-0.47
APR	11B	U	5	1.61	8	36.36	-0.35
APR	01	U	10	2.30	9	40.91	-0.23
SEP	01	U	10	2.30	10	45.45	-0.11
APR	04	U	10	2.30	11	50.00	0.00
SEP	04	U	10	2.30	12	54.55	0.11
APR	07	U	10	2.30	13	59.09	0.23
SEP	07	U	10	2.30	14	63.64	0.35
APR	11A	U	10	2.30	15	68.18	0.47
SEP	11A*	U	10	2.30	16	72.73	0.60
SEP	11B	U	10	2.30	17	77.27	0.75
APR	12*	U	10	2.30	18	81.82	0.91
SEP	12*	U	10	2.30	19	86.36	1.10
APR	20	U	10	2.30	20	90.91	1.34
SEP	20	U	10	2.30	21	95.45	1.69

% Non-Detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 6.83	Mean = 1.56
Standard Deviation = 4.22	Standard Deviation = 1.01
Coefficient of Variance = 0.62	Coefficient of Variance = 0.65
Skew = -0.62	Skew = -0.7
Kurtosis = -1.73	Kurtosis = -1.62
R2 = 0.68	R2 = 0.67

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Lead Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
APR	04	UJ	1	0.00	1	4.55	-1.69
APR	11A	U	1	0.00	2	9.09	-1.34
SEP	11A*	U	1	0.00	3	13.64	-1.10
SEP	11B	U	1	0.00	4	18.18	-0.91
SEP	12*	U	1	0.00	5	22.73	-0.75
JAN	07	UJ	2	0.69	6	27.27	-0.60
JAN	01	U	2	0.69	7	31.82	-0.47
JAN	04	U	2	0.69	8	36.36	-0.35
JAN	12*	U	2	0.69	9	40.91	-0.23
JAN	20	J	2	0.69	10	45.45	-0.11
JAN	11A	J	3.3	1.19	11	50.00	0.00
JAN	11B		3.4	1.22	12	54.55	0.11
SEP	20		3.4	1.22	13	59.09	0.23
APR	12*	J	4.05	1.40	14	63.64	0.35
APR	07	J	5.3	1.67	15	68.18	0.47
APR	20	J	7.7	2.04	16	72.73	0.60
APR	11B	J	9.6	2.26	17	77.27	0.75
SEP	04		14.5	2.67	18	81.82	0.91
APR	01		16.3	2.79	19	86.36	1.10
SEP	07		18.3	2.91	20	90.91	1.34
SEP	01		34.4	3.54	21	95.45	1.69

% Non-Detects: 43%

Normal Distribution	Log-Normal Distribution
Mean = 6.44	Mean = 1.26
Standard Deviation = 8.3	Standard Deviation = 1.09
Coefficient of Variance = 1.29	Coefficient of Variance = 0.86
Skew = 2.29	Skew = 0.59
Kurtosis = 5.76	Kurtosis = -0.67
R2 = 0.67	R2 = 0.93

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

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Determination of Distribution

Mercury Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	U	0.13	-2.04	1	4.55	-1.69
JAN	04	U	0.13	-2.04	2	9.09	-1.34
JAN	07	U	0.13	-2.04	3	13.64	-1.10
JAN	11A*	U	0.13	-2.04	4	18.18	-0.91
JAN	11B	U	0.13	-2.04	5	22.73	-0.75
JAN	12*	U	0.13	-2.04	6	27.27	-0.60
JAN	20	U	0.13	-2.04	7	31.82	-0.47
APR	01	U	0.2	-1.61	8	36.36	-0.35
APR	04	U	0.2	-1.61	9	40.91	-0.23
SEP	04	U	0.2	-1.61	10	45.45	-0.11
APR	07	U	0.2	-1.61	11	50.00	0.00
APR	11A	U	0.2	-1.61	12	54.55	0.11
SEP	11A*	U	0.2	-1.61	13	59.09	0.23
APR	11B	U	0.2	-1.61	14	63.64	0.35
SEP	11B	U	0.2	-1.61	15	68.18	0.47
APR	12*	U	0.2	-1.61	16	72.73	0.60
SEP	12*	U	0.2	-1.61	17	77.27	0.75
APR	20	U	0.2	-1.61	18	81.82	0.91
SEP	20	U	0.2	-1.61	19	86.36	1.10
SEP	01		0.31	-1.17	20	90.91	1.34
SEP	07		0.33	-1.11	21	95.45	1.69

% Non-Detects: 90%

Normal Distribution	Log-Normal Distribution
Mean = 0.19	Mean = -1.71
Standard Deviation = 0.05	Standard Deviation = 0.28
Coefficient of Variance = 0.29	Coefficient of Variance = -0.16
Skew = 1.11	Skew = 0.33
Kurtosis = 1.74	Kurtosis = -0.09
R2 = 0.74	R2 = 0.78

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Nickel Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	04	U	3.9	1.36	1	4.76	-1.67
SEP	07	U	6	1.79	2	9.52	-1.31
SEP	11A*	U	6	1.79	3	14.29	-1.07
SEP	20	U	6	1.79	4	19.05	-0.88
JAN	01	U	7.3	1.99	5	23.81	-0.71
JAN	07	U	7.3	1.99	6	28.57	-0.57
JAN	20	U	7.3	1.99	7	33.33	-0.43
JAN	12**	J	7.35	1.99	8	38.10	-0.30
JAN	11A*	J	8.1	2.09	9	42.86	-0.18
JAN	11B	J	8.4	2.13	10	47.62	-0.06
SEP	01	J	9.5	2.25	11	52.38	0.06
SEP	12*	J	10.65	2.37	12	57.14	0.18
SEP	04	J	10.8	2.38	13	61.90	0.30
SEP	11B	J	11.7	2.46	14	66.67	0.43
APR	04	U	12	2.48	15	71.43	0.57
APR	07	U	12	2.48	16	76.19	0.71
APR	12*	U	12	2.48	17	80.95	0.88
APR	01	U	12.6	2.53	18	85.71	1.07
APR	20	J	13	2.56	19	90.48	1.31
APR	11A	U	19.8	2.99	20	95.24	1.67

% Non-Detects: 60%

Normal Distribution	Log-Normal Distribution
Mean = 9.59	Mean = 2.2
Standard Deviation = 3.59	Standard Deviation = 0.37
Coefficient of Variance = 0.37	Coefficient of Variance = 0.17
Skew = 1.03	Skew = -0.15
Kurtosis = 2.07	Kurtosis = 0.3
R2 = 0.89	R2 = 0.95

Notes:

*Duplicate values have been averaged.
**Duplicate values have been averaged (7.3 U + 7.4 J = 7.35 J).
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Selenium Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	U	1.5	0.41	1	4.76	-1.67
JAN	04	U	1.5	0.41	2	9.52	-1.31
JAN	07	U	1.5	0.41	3	14.29	-1.07
JAN	11A*	U	1.5	0.41	4	19.05	-0.88
JAN	11B	U	1.5	0.41	5	23.81	-0.71
JAN	12*	U	1.5	0.41	6	28.57	-0.57
APR	01	U	2	0.69	7	33.33	-0.43
APR	04	U	2	0.69	8	38.10	-0.30
APR	11A	U	2	0.69	9	42.86	-0.18
APR	12*	U	2	0.69	10	47.62	-0.06
APR	20	U	2	0.69	11	52.38	0.06
APR	07	J	2.5	0.92	12	57.14	0.18
SEP	01	U	4	1.39	13	61.90	0.30
SEP	04	U	4	1.39	14	66.67	0.43
SEP	07	U	4	1.39	15	71.43	0.57
SEP	11A*	U	4	1.39	16	76.19	0.71
SEP	11B	U	4	1.39	17	80.95	0.88
SEP	12*	U	4	1.39	18	85.71	1.07
SEP	20	U	4	1.39	19	90.48	1.31
APR	11B	UJ	5	1.61	20	95.24	1.67

% Non-Detects: 95%

Normal Distribution	Log-Normal Distribution
Mean = 2.73	Mean = 0.91
Standard Deviation = 1.22	Standard Deviation = 0.45
Coefficient of Variance = 0.45	Coefficient of Variance = 0.5
Skew = 0.43	Skew = 0.2
Kurtosis = -1.57	Kurtosis = -1.76
R2 = 0.82	R2 = 0.85

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Silver Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	11A*	U	2.2	0.79	1	5.00	-1.64
JAN	11B	U	2.2	0.79	2	10.00	-1.28
JAN	01	UJ	2.5	0.92	3	15.00	-1.04
JAN	07	UJ	2.5	0.92	4	20.00	-0.84
JAN	12*	UJ	2.5	0.92	5	25.00	-0.67
JAN	20	UJ	2.5	0.92	6	30.00	-0.52
APR	04	UJ	3	1.10	7	35.00	-0.39
APR	07	UJ	3	1.10	8	40.00	-0.25
APR	12*	UJ	3	1.10	9	45.00	-0.13
APR	20	UJ	3	1.10	10	50.00	0.00
APR	01	U	3	1.10	11	55.00	0.13
APR	11A	U	3	1.10	12	60.00	0.25
SEP	01	U	5	1.61	13	65.00	0.39
SEP	04	U	5	1.61	14	70.00	0.52
SEP	07	U	5	1.61	15	75.00	0.67
SEP	11A*	U	5	1.61	16	80.00	0.84
SEP	11B	U	5	1.61	17	85.00	1.04
SEP	12*	U	5	1.61	18	90.00	1.28
SEP	20	U	5	1.61	19	95.00	1.64

% Non-Detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 3.55	Mean = 1.22
Standard Deviation = 1.17	Standard Deviation = 0.32
Coefficient of Variance = 0.33	Coefficient of Variance = 0.27
Skew = 0.43	Skew = 0.28
Kurtosis = -1.78	Kurtosis = -1.69
R2 = 0.8	R2 = 0.84

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Sulfide Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	UJ	100	4.61	1	4.55	-1.69
JAN	04	UJ	100	4.61	2	9.09	-1.34
JAN	07	J	200	5.30	3	13.64	-1.10
JAN	11B	J	200	5.30	4	18.18	-0.91
JAN	20	J	200	5.30	5	22.73	-0.75
JAN	12*	J	300	5.70	6	27.27	-0.60
APR	01	U	1000	6.91	7	31.82	-0.47
SEP	01	U	1000	6.91	8	36.36	-0.35
APR	04	U	1000	6.91	9	40.91	-0.23
SEP	04	U	1000	6.91	10	45.45	-0.11
APR	07	U	1000	6.91	11	50.00	0.00
SEP	07	U	1000	6.91	12	54.55	0.11
APR	11A	U	1000	6.91	13	59.09	0.23
SEP	11A*	U	1000	6.91	14	63.64	0.35
APR	11B	U	1000	6.91	15	68.18	0.47
SEP	11B	U	1000	6.91	16	72.73	0.60
APR	12*	U	1000	6.91	17	77.27	0.75
SEP	12*	U	1000	6.91	18	81.82	0.91
APR	20	U	1000	6.91	19	86.36	1.10
SEP	20	U	1000	6.91	20	90.91	1.34
JAN	11A*	J	1550	7.35	21	95.45	1.69

% Non-Detects: 76%

Normal Distribution	Log-Normal Distribution
Mean = 792.86	Mean = 6.42
Standard Deviation = 414.21	Standard Deviation = 0.87
Coefficient of Variance = 0.52	Coefficient of Variance = 0.14
Skew = -0.66	Skew = -1.2
Kurtosis = -0.65	Kurtosis = -0.13
R2 = 0.72	R2 = 0.69

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Thallium Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
APR	04	UJ	1	0.00	1	4.55	-1.69
APR	07	UJ	1	0.00	2	9.09	-1.34
APR	12*	UJ	1	0.00	3	13.64	-1.10
APR	20	UJ	1	0.00	4	18.18	-0.91
APR	01	U	1	0.00	5	22.73	-0.75
APR	11A	U	1	0.00	6	27.27	-0.60
JAN	01	UJ	1.3	0.26	7	31.82	-0.47
JAN	07	UJ	1.3	0.26	8	36.36	-0.35
JAN	12*	UJ	1.3	0.26	9	40.91	-0.23
JAN	20	UJ	1.3	0.26	10	45.45	-0.11
JAN	04	U	1.3	0.26	11	50.00	0.00
JAN	11A*	U	1.4	0.34	12	54.55	0.11
JAN	11B	U	1.4	0.34	13	59.09	0.23
SEP	01	U	6	1.79	14	63.64	0.35
SEP	07	U	6	1.79	15	68.18	0.47
SEP	11A*	U	6	1.79	16	72.73	0.60
SEP	11B	U	6	1.79	17	77.27	0.75
SEP	12*	U	6	1.79	18	81.82	0.91
SEP	04	U	8.5	2.14	19	86.36	1.10
APR	11B	U	10	2.30	20	90.91	1.34
SEP	20	U	6	1.79	21	95.45	1.69

% Non-Detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 3.32	Mean = 0.82
Standard Deviation = 2.95	Standard Deviation = 0.88
Coefficient of Variance = 0.89	Coefficient of Variance = 1.08
Skew = 0.9	Skew = 0.54
Kurtosis = -0.59	Kurtosis = -1.68
R2 = 0.69	R2 = 0.76

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Tin Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	11B	U	12.4	2.52	1	14.29	-1.07
APR	04	U	13	2.56	2	28.57	-0.57
APR	07	U	13	2.56	3	42.86	-0.18
APR	11A	U	13	2.56	4	57.14	0.18
APR	12*	U	13	2.56	5	71.43	0.57
APR	20	U	13	2.56	6	85.71	1.07

% Non-Detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 12.9	Mean = 2.56
Standard Deviation = 0.24	Standard Deviation = 0.02
Coefficient of Variance = 0.02	Coefficient of Variance = 0.01
Skew = -2.45	Skew = -2.45
Kurtosis = 6	Kurtosis = 6
R2 = 0.46	R2 = 0.46

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Vanadium Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	11A*	U	1.5	0.41	1	4.76	-1.67
JAN	11B	J	1.9	0.64	2	9.52	-1.31
JAN	01	U	2.3	0.83	3	14.29	-1.07
JAN	20	U	2.3	0.83	4	19.05	-0.88
JAN	12*	J	3.05	1.12	5	23.81	-0.71
JAN	04	J	3.1	1.13	6	28.57	-0.57
APR	04	UJ	5	1.61	7	33.33	-0.43
APR	07	UJ	5	1.61	8	38.10	-0.30
APR	20	UJ	5	1.61	9	42.86	-0.18
APR	01	U	5	1.61	10	47.62	-0.06
APR	11A	U	5	1.61	11	52.38	0.06
JAN	07	J	5.6	1.72	12	57.14	0.18
APR	12*	J	6.2	1.82	13	61.90	0.30
SEP	11A*	U	7	1.95	14	66.67	0.43
SEP	11B	U	7	1.95	15	71.43	0.57
SEP	12*	U	7	1.95	16	76.19	0.71
SEP	20	U	7	1.95	17	80.95	0.88
SEP	07	J	12	2.48	18	85.71	1.07
SEP	01	J	13.7	2.62	19	90.48	1.31
SEP	04	J	16	2.77	20	95.24	1.67

% Non-Detects: 60%

Normal Distribution	Log-Normal Distribution
Mean = 6.03	Mean = 1.61
Standard Deviation = 3.88	Standard Deviation = 0.64
Coefficient of Variance = 0.64	Coefficient of Variance = 0.4
Skew = 1.33	Skew = -0.09
Kurtosis = 1.52	Kurtosis = -0.33
R2 = 0.85	R2 = 0.96

Notes:

*Duplicate values have been averaged.
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

KINGS BAY - SITE 11

Determination of Distribution

Zinc Ground Water Concentrations for Background Wells

Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
JAN	01	J	3.8	1.34	1	4.55	-1.69
JAN	04	U	4.3	1.46	2	9.09	-1.34
JAN	12*	J	13.5	2.60	3	13.64	-1.10
SEP	11A*	J	14.45	2.67	4	18.18	-0.91
JAN	20	J	14.8	2.69	5	22.73	-0.75
APR	11A	U	25.5	3.24	6	27.27	-0.60
JAN	11B	U	28.4	3.35	7	31.82	-0.47
JAN	07		34	3.53	8	36.36	-0.35
APR	01	U	34.2	3.53	9	40.91	-0.23
APR	07	U	34.6	3.54	10	45.45	-0.11
APR	12*	U	35.2	3.56	11	50.00	0.00
SEP	04		36	3.58	12	54.55	0.11
APR	20	U	38.4	3.65	13	59.09	0.23
SEP	01		39	3.66	14	63.64	0.35
SEP	07		41.9	3.74	15	68.18	0.47
SEP	12*		45.1	3.81	16	72.73	0.60
JAN	11A**	J	47.55	3.86	17	77.27	0.75
APR	11B	J	59	4.08	18	81.82	0.91
APR	04	U	64.7	4.17	19	86.36	1.10
SEP	20		73	4.29	20	90.91	1.34
SEP	11B		88	4.48	21	95.45	1.69

% Non-Detects: 38%

Normal Distribution	Log-Normal Distribution
Mean = 36.92	Mean = 3.37
Standard Deviation = 21.58	Standard Deviation = 0.82
Coefficient of Variance = 0.58	Coefficient of Variance = 0.24
Skew = 0.58	Skew = -1.33
Kurtosis = 0.39	Kurtosis = 1.63
R2 = 0.95	R2 = 0.85

Notes:

*Duplicate values have been averaged.
**Duplicate values have been averaged (62.4 J + 32.7 UJ = 47.55 J).
Outlier data points have been removed for this analysis.
U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R^2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.

Onsite Characterization Wells

KINGS BAY - SITE 11

Determination of Distribution

Aluminum Ground Water Concentrations for Onsite Wells

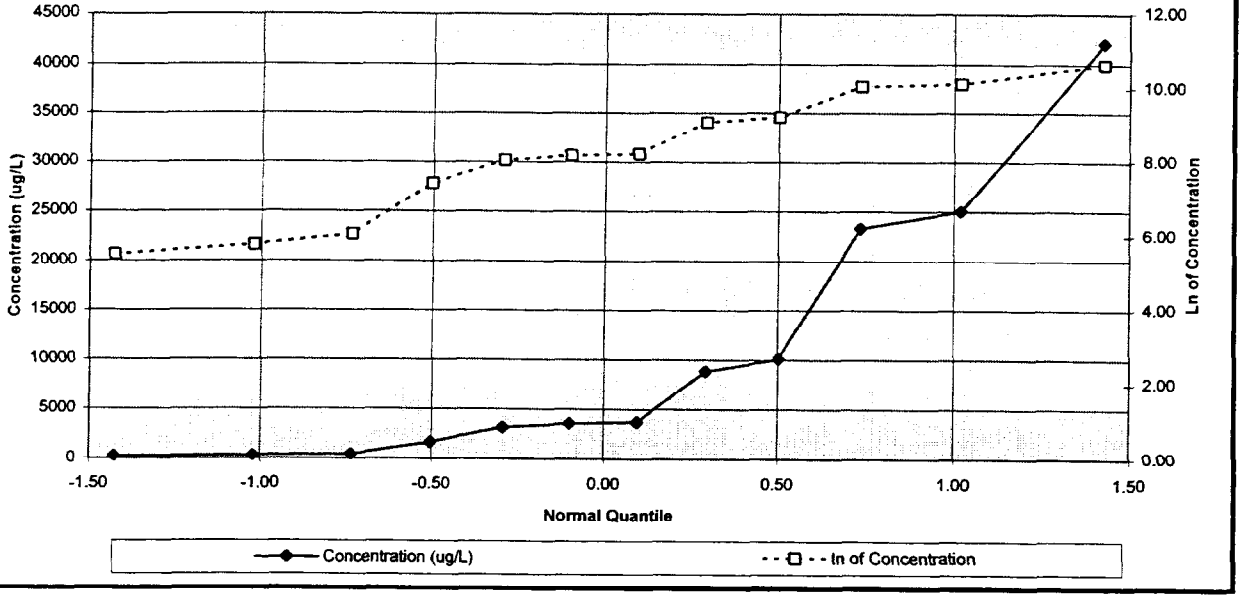
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10B	U	248	5.51	1	7.69	-1.43
Sep	KBA-11-22B		320	5.77	2	15.38	-1.02
Apr	KBA-11-22B	J	423	6.05	3	23.08	-0.74
Jan	KBA-11-22B	J	1675	7.42	4	30.77	-0.50
Apr	KBA-11-22A	J	3150	8.06	5	38.46	-0.29
Jan	KBA-11-22A	J	3580	8.18	6	46.15	-0.10
Jan	KBA-11-10B	J	3750	8.23	7	53.85	0.10
Sep	KBA-11-22A		8840	9.09	8	61.54	0.29
Jan	KBA-11-10A	J	10100	9.22	9	69.23	0.50
Apr	KBA-11-10B	J	23300	10.06	10	76.92	0.74
Apr	KBA-11-10A		25050	10.13	11	84.62	1.02
Sep	KBA-11-10A		42100	10.65	12	92.31	1.43

% Non-detects: 8%

Normal Distribution	Log-Normal Distribution
Mean = 10211	Mean = 8.2
Standard Deviation = 13183	Standard Deviation = 1.74
Coefficient of Variance = 1.29	Coefficient of Variance = 0.21
Skew = 1.6	Skew = -0.29
Kurtosis = 1.98	Kurtosis = -1.09
R2 = 0.76	R2 = 0.96

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Antimony Ground Water Concentrations for Onsite Wells

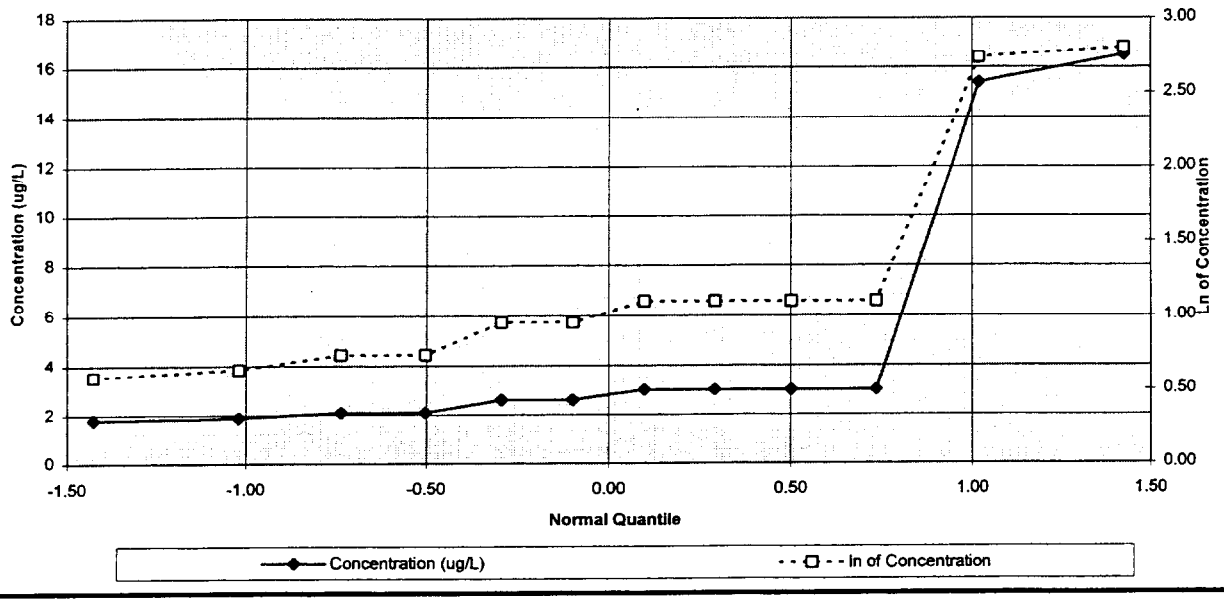
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10B	U	1.8	0.59	1	7.69	-1.43
Jan	KBA-11-22B	UJ	1.9	0.64	2	15.38	-1.02
Jan	KBA-11-10A	U	2.1	0.74	3	23.08	-0.74
Jan	KBA-11-22A	U	2.1	0.74	4	30.77	-0.50
Sep	KBA-11-22B	J	2.6	0.96	5	38.46	-0.29
Sep	KBA-11-10B	J	2.6	0.96	6	46.15	-0.10
Apr	KBA-11-10A	U	3.0	1.10	7	53.85	0.10
Apr	KBA-11-10B	U	3.0	1.10	8	61.54	0.29
Apr	KBA-11-22A	U	3.0	1.10	9	69.23	0.50
Apr	KBA-11-22B	U	3.0	1.10	10	76.92	0.74
Sep	KBA-11-22A	J	15.4	2.73	11	84.62	1.02
Sep	KBA-11-10A	J	16.5	2.80	12	92.31	1.43

% Non-detects: 67%

Normal Distribution	Log-Normal Distribution
Mean = 4.75	Mean = 1.21
Standard Deviation = 5.26	Standard Deviation = 0.75
Coefficient of Variance = 1.11	Coefficient of Variance = 0.62
Skew = 2.03	Skew = 1.77
Kurtosis = 2.63	Kurtosis = 2
R2 = 0.54	R2 = 0.68

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Arsenic Ground Water Concentrations for Background Wells

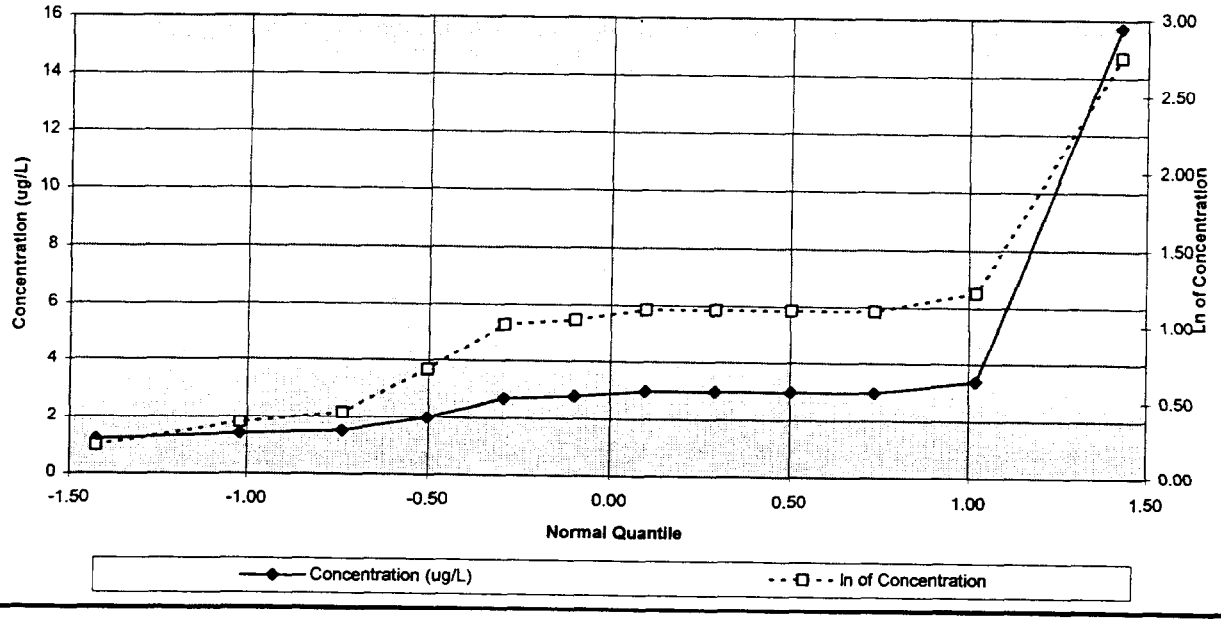
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-22A	J	1.2	0.18	1	7.69	-1.43
Apr	KBA-11-22B	J	1.4	0.34	2	15.38	-1.02
Jan	KBA-11-22A	J	1.5	0.41	3	23.08	-0.74
Apr	KBA-11-10A	J	2.0	0.69	4	30.77	-0.50
Jan	KBA-11-22B	J	2.7	0.99	5	38.46	-0.29
Jan	KBA-11-10A	J	2.8	1.03	6	46.15	-0.10
Sep	KBA-11-10A	UJ	3.0	1.10	7	53.85	0.10
Sep	KBA-11-22A	UJ	3.0	1.10	8	61.54	0.29
Sep	KBA-11-10B	U	3.0	1.10	9	69.23	0.50
Sep	KBA-11-22B	U	3.0	1.10	10	76.92	0.74
Jan	KBA-11-10B	J	3.4	1.22	11	84.62	1.02
Apr	KBA-11-10B		15.7	2.75	12	92.31	1.43

% Non-detects: 33%

Normal Distribution	Log-Normal Distribution
Mean = 3.56	Mean = 1
Standard Deviation = 3.9	Standard Deviation = 0.66
Coefficient of Variance = 1.09	Coefficient of Variance = 0.65
Skew = 3.24	Skew = 1.67
Kurtosis = 10.9	Kurtosis = 4.7
R2 = 0.45	R2 = 0.76

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Barium Ground Water Concentrations for Background Wells

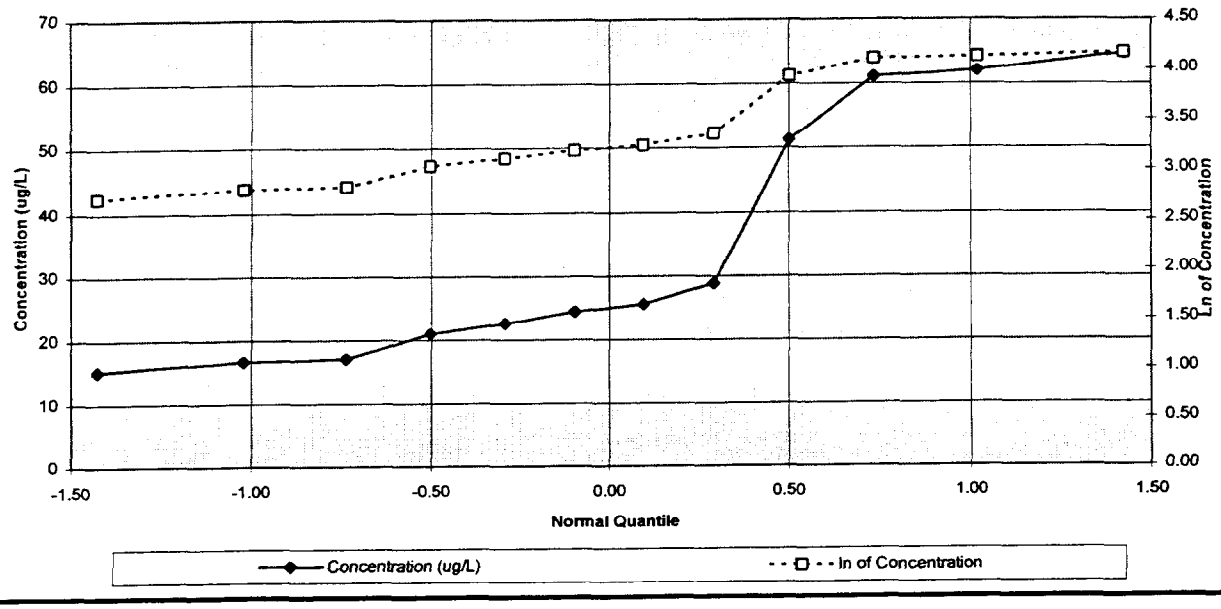
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-22A	J	15.3	2.73	1	7.69	-1.43
Apr	KBA-11-22A	J	16.7	2.82	2	15.38	-1.02
Sep	KBA-11-22A	J	17.1	2.84	3	23.08	-0.74
Jan	KBA-11-10B	J	21.0	3.04	4	30.77	-0.50
Sep	KBA-11-22B	J	22.6	3.12	5	38.46	-0.29
Sep	KBA-11-10B	J	24.4	3.19	6	46.15	-0.10
Apr	KBA-11-22B	J	25.6	3.24	7	53.85	0.10
Jan	KBA-11-22B	J	28.8	3.36	8	61.54	0.29
Apr	KBA-11-10B	J	51.2	3.94	9	69.23	0.50
Jan	KBA-11-10A	J	61.1	4.11	10	76.92	0.74
Apr	KBA-11-10A	J	62.0	4.13	11	84.62	1.02
Sep	KBA-11-10A	J	64.7	4.17	12	92.31	1.43

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 34.21	Mean = 3.39
Standard Deviation = 19.49	Standard Deviation = 0.55
Coefficient of Variance = 0.57	Coefficient of Variance = 0.16
Skew = 0.76	Skew = 0.46
Kurtosis = -1.37	Kurtosis = -1.51
R2 = 0.83	R2 = 0.9

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Beryllium Ground Water Concentrations for Background Wells

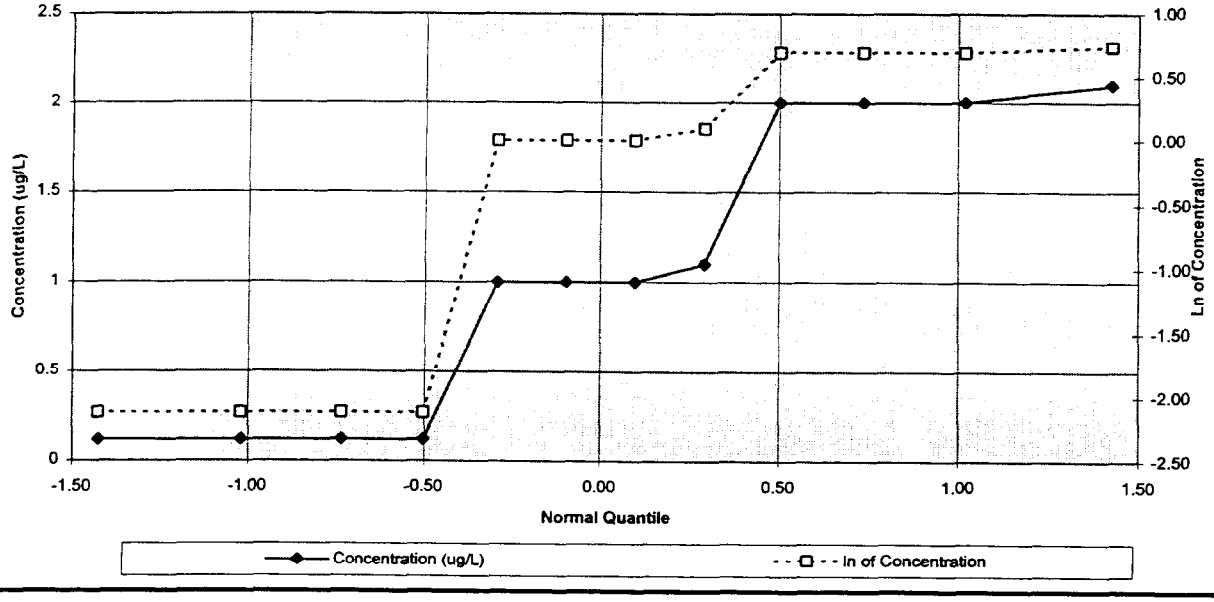
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10A	UJ	0.12	-2.12	1	7.69	-1.43
Jan	KBA-11-10B	UJ	0.12	-2.12	2	15.38	-1.02
Jan	KBA-11-22A	UJ	0.12	-2.12	3	23.08	-0.74
Jan	KBA-11-22B	UJ	0.12	-2.12	4	30.77	-0.50
Sep	KBA-11-10B	U	1.0	0.00	5	38.46	-0.29
Sep	KBA-11-22A	U	1.0	0.00	6	46.15	-0.10
Sep	KBA-11-22B	U	1.0	0.00	7	53.85	0.10
Sep	KBA-11-10A	J	1.1	0.10	8	61.54	0.29
Apr	KBA-11-10A	U	2.0	0.69	9	69.23	0.50
Apr	KBA-11-22A	U	2.0	0.69	10	76.92	0.74
Apr	KBA-11-22B	U	2.0	0.69	11	84.62	1.02
Apr	KBA-11-10B	J	2.1	0.74	12	92.31	1.43

% Non-detects: 83%

Normal Distribution	Log-Normal Distribution
Mean = 1.06	Mean = -0.46
Standard Deviation = 0.81	Standard Deviation = 1.26
Coefficient of Variance = 0.77	Coefficient of Variance = -2.71
Skew = 0.07	Skew = -0.62
Kurtosis = -1.64	Kurtosis = -1.65
R2 = 0.87	R2 = 0.79

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cadmium Ground Water Concentrations for Background Wells

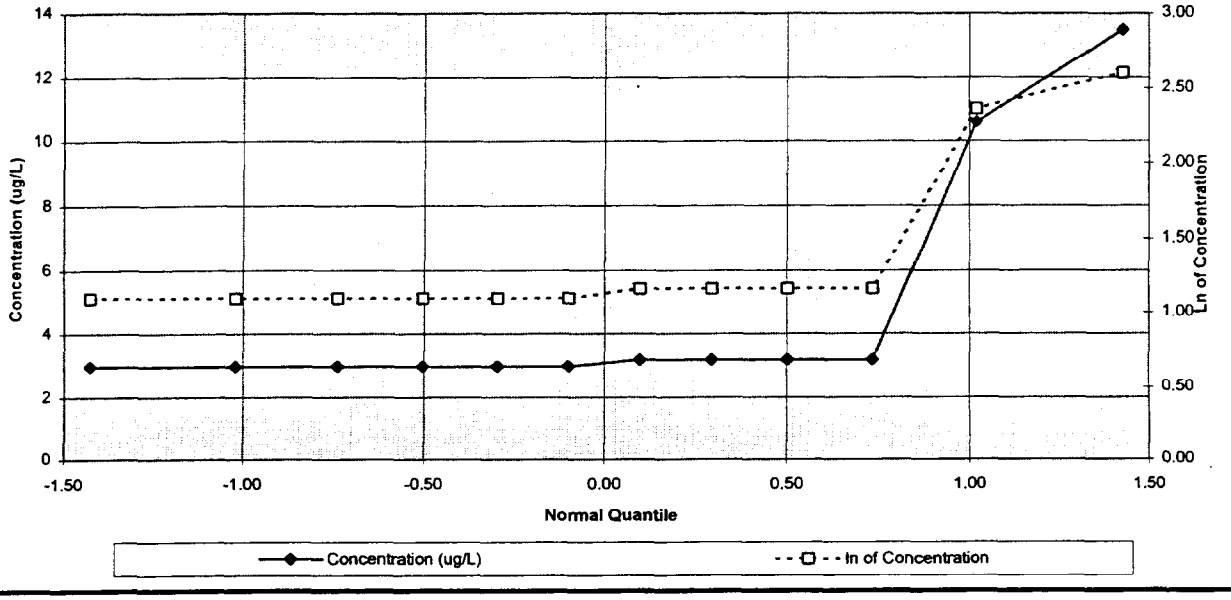
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-10A	UJ	3.0	1.10	1	7.69	-1.43
Sep	KBA-11-10A	U	3.0	1.10	2	15.38	-1.02
Apr	KBA-11-10B	U	3.0	1.10	3	23.08	-0.74
Apr	KBA-11-22A	U	3.0	1.10	4	30.77	-0.50
Sep	KBA-11-22A	U	3.0	1.10	5	38.46	-0.29
Apr	KBA-11-22B	U	3.0	1.10	6	46.15	-0.10
Jan	KBA-11-10A	U	3.2	1.16	7	53.85	0.10
Jan	KBA-11-10B	U	3.2	1.16	8	61.54	0.29
Jan	KBA-11-22A	U	3.2	1.16	9	69.23	0.50
Jan	KBA-11-22B	U	3.2	1.16	10	76.92	0.74
Sep	KBA-11-22B		10.6	2.36	11	84.62	1.02
Sep	KBA-11-10B		13.5	2.60	12	92.31	1.43

% Non-detects: 83%

Normal Distribution	Log-Normal Distribution
Mean = 4.58	Mean = 1.35
Standard Deviation = 3.55	Standard Deviation = 0.53
Coefficient of Variance = 0.78	Coefficient of Variance = 0.39
Skew = 2.19	Skew = 2.08
Kurtosis = 3.64	Kurtosis = 2.92
R2 = 0.48	R2 = 0.51

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Chromium Ground Water Concentrations for Background Wells

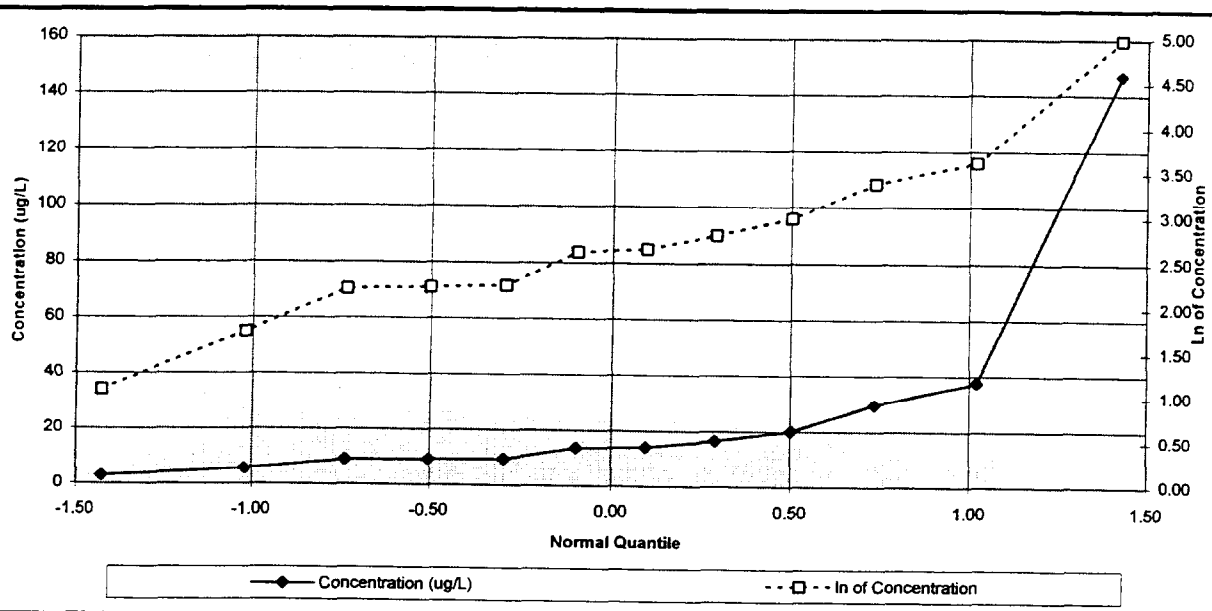
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10A	U	2.9	1.06	1	7.69	-1.43
Jan	KBA-11-22B	J	5.6	1.72	2	15.38	-1.02
Apr	KBA-11-22B	J	9.0	2.20	3	23.08	-0.74
Jan	KBA-11-22A	J	9.2	2.22	4	30.77	-0.50
Sep	KBA-11-22B	J	9.4	2.24	5	38.46	-0.29
Jan	KBA-11-10B		13.7	2.62	6	46.15	-0.10
Sep	KBA-11-10B		14.2	2.65	7	53.85	0.10
Apr	KBA-11-10A		16.6	2.81	8	61.54	0.29
Apr	KBA-11-22A		20.1	3.00	9	69.23	0.50
Sep	KBA-11-22A		29.6	3.39	10	76.92	0.74
Sep	KBA-11-10A		37.6	3.63	11	84.62	1.02
Apr	KBA-11-10B		147	4.99	12	92.31	1.43

% Non-detects: 8%

Normal Distribution	Log-Normal Distribution
Mean = 26.24	Mean = 2.71
Standard Deviation = 39.31	Standard Deviation = 1
Coefficient of Variance = 1.5	Coefficient of Variance = 0.37
Skew = 3.09	Skew = 0.78
Kurtosis = 10.05	Kurtosis = 1.69
R2 = 0.51	R2 = 0.92

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cobalt Ground Water Concentrations for Background Wells

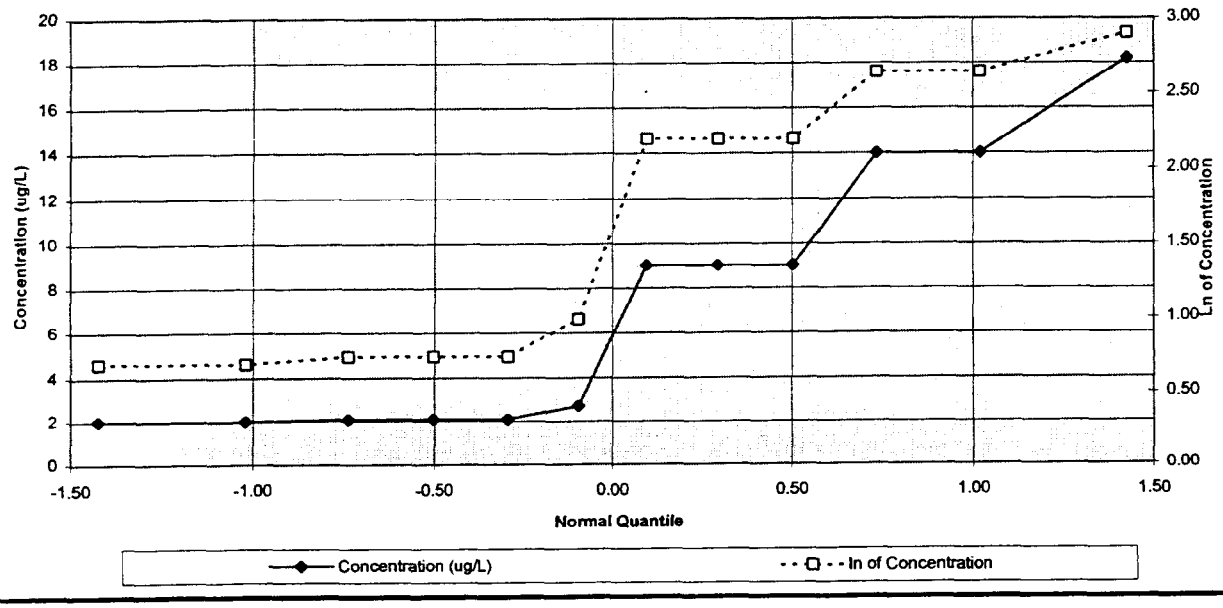
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10B	U	2.0	0.69	1	7.69	-1.43
Sep	KBA-11-22B	U	2.0	0.69	2	15.38	-1.02
Jan	KBA-11-10A	U	2.1	0.74	3	23.08	-0.74
Jan	KBA-11-10B	U	2.1	0.74	4	30.77	-0.50
Jan	KBA-11-22B	U	2.1	0.74	5	38.46	-0.29
Jan	KBA-11-22A	J	2.7	0.99	6	46.15	-0.10
Apr	KBA-11-10A	U	9.0	2.20	7	53.85	0.10
Apr	KBA-11-22A	U	9.0	2.20	8	61.54	0.29
Apr	KBA-11-22B	U	9.0	2.20	9	69.23	0.50
Sep	KBA-11-10A	U	14.0	2.64	10	76.92	0.74
Sep	KBA-11-22A	U	14.0	2.64	11	84.62	1.02
Apr	KBA-11-10B	J	18.2	2.90	12	92.31	1.43

% Non-detects: 83%

Normal Distribution	Log-Normal Distribution
Mean = 7.18	Mean = 1.61
Standard Deviation = 5.84	Standard Deviation = 0.91
Coefficient of Variance = 0.81	Coefficient of Variance = 0.56
Skew = 0.67	Skew = 0.15
Kurtosis = -0.93	Kurtosis = -2.07
R2 = 0.85	R2 = 0.84

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Copper Ground Water Concentrations for Background Wells

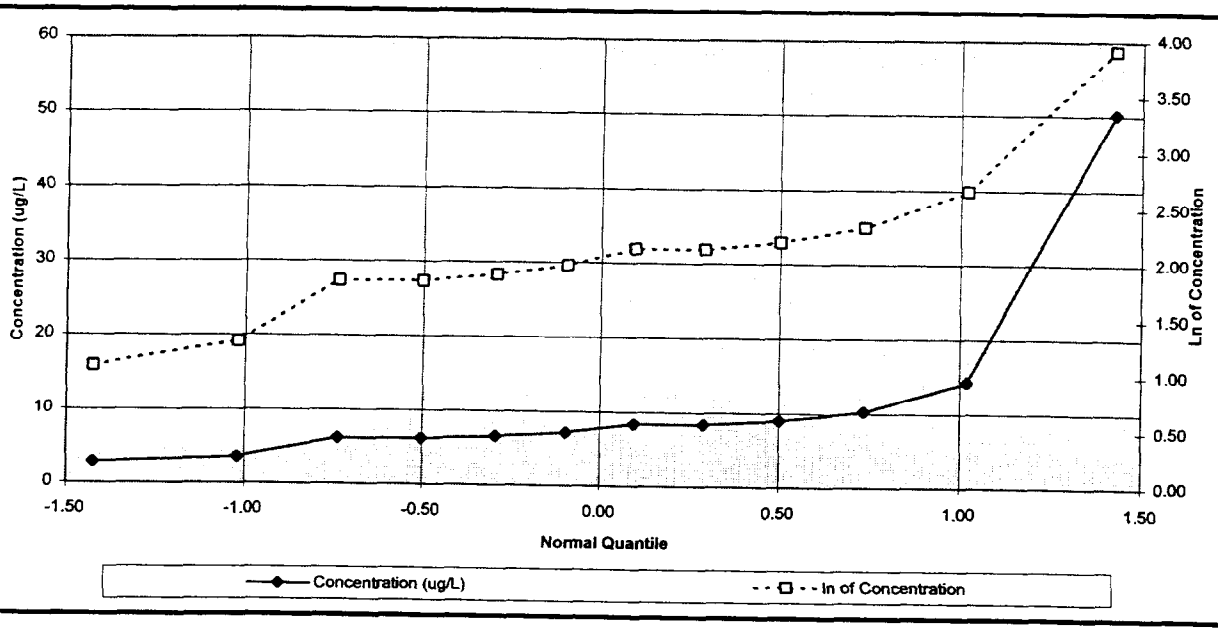
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10A	U	2.9	1.06	1	7.69	-1.43
Sep	KBA-11-10B	U	3.6	1.28	2	15.38	-1.02
Jan	KBA-11-10B	U	6.2	1.82	3	23.08	-0.74
Jan	KBA-11-22A	U	6.2	1.82	4	30.77	-0.50
Sep	KBA-11-22B	J	6.6	1.89	5	38.46	-0.29
Apr	KBA-11-10A	UJ	7.2	1.97	6	46.15	-0.10
Apr	KBA-11-22B	J	8.4	2.13	7	53.85	0.10
Apr	KBA-11-22A	J	8.4	2.13	8	61.54	0.29
Jan	KBA-11-22B	J	9.0	2.20	9	69.23	0.50
Sep	KBA-11-22A	J	10.3	2.33	10	76.92	0.74
Sep	KBA-11-10A	J	14.3	2.66	11	84.62	1.02
Apr	KBA-11-10B		50.2	3.92	12	92.31	1.43

% Non-detects: 42%

Normal Distribution	Log-Normal Distribution
Mean = 11.11	Mean = 2.1
Standard Deviation = 12.67	Standard Deviation = 0.72
Coefficient of Variance = 1.14	Coefficient of Variance = 0.34
Skew = 3.13	Skew = 1.32
Kurtosis = 10.31	Kurtosis = 3.52
R2 = 0.5	R2 = 0.84

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cyanide Ground Water Concentrations for Background Wells

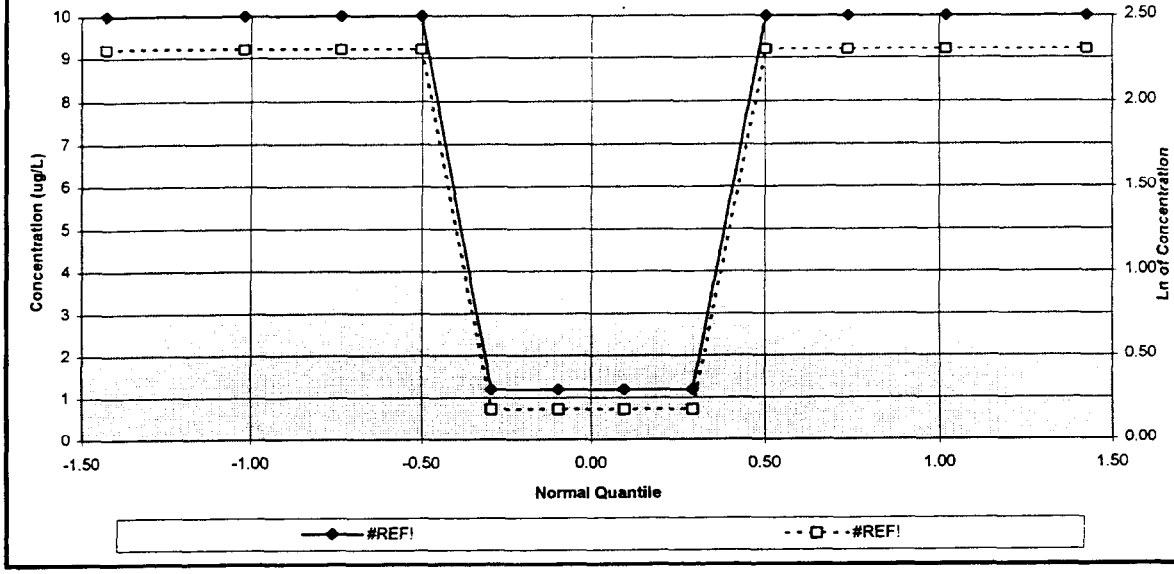
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-10B	U	10	2.30	1	7.69	-1.43
Apr	KBA-11-22A	U	10	2.30	2	15.38	-1.02
Apr	KBA-11-22B	U	10	2.30	3	23.08	-0.74
Apr	KBA-11-10A	U	10	2.30	4	30.77	-0.50
Jan	KBA-11-10A	U	1.2	0.18	5	38.46	-0.29
Jan	KBA-11-22A	U	1.2	0.18	6	46.15	-0.10
Jan	KBA-11-10B	U	1.2	0.18	7	53.85	0.10
Jan	KBA-11-22B	U	1.2	0.18	8	61.54	0.29
Sep	KBA-11-10A	U	10	2.30	9	69.23	0.50
Sep	KBA-11-22A	U	10	2.30	10	76.92	0.74
Sep	KBA-11-10B	UJ	10	2.30	11	84.62	1.02
Sep	KBA-11-22B	UJ	10	2.30	12	92.31	1.43

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 6.8	Mean = 1.53
Standard Deviation = 4.44	Standard Deviation = 1.07
Coefficient of Variance = 0.65	Coefficient of Variance = 0.7
Skew = -0.66	Skew = -0.66
Kurtosis = -1.96	Kurtosis = -1.96
R2 = 0.02	R2 = 0.02

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Iron Ground Water Concentrations for Onsite Wells

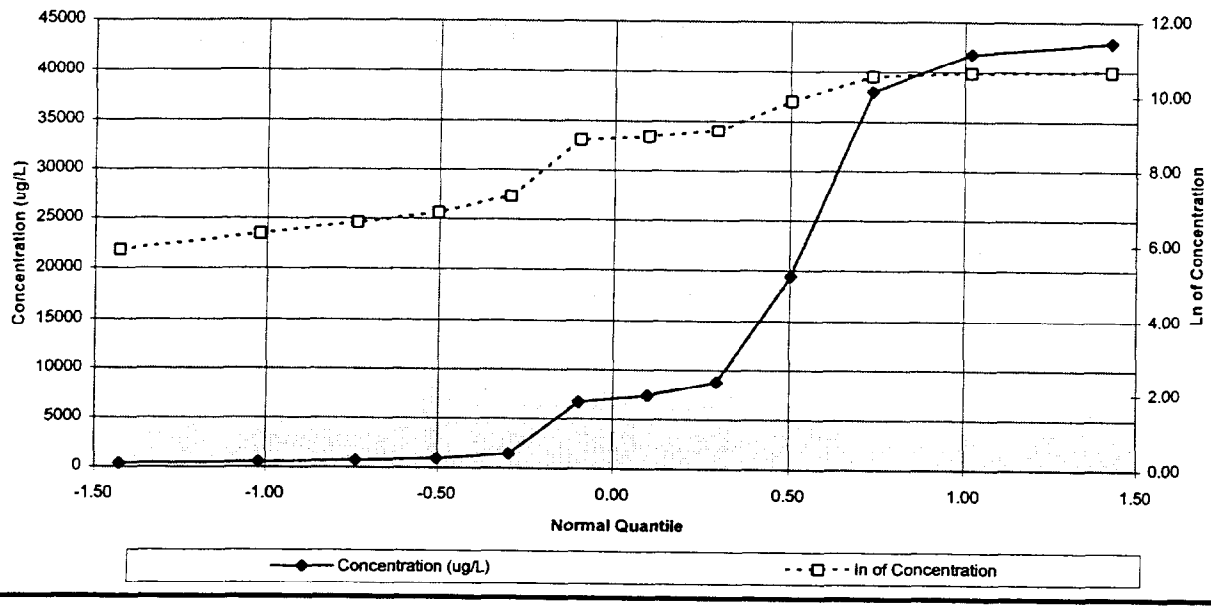
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10B		344	5.84	1	7.69	-1.43
Sep	KBA-11-22B		527	6.27	2	15.38	-1.02
Apr	KBA-11-22B		712	6.57	3	23.08	-0.74
Jan	KBA-11-22B	J	927	6.83	4	30.77	-0.50
Jan	KBA-11-10B	J	1460	7.29	5	38.46	-0.29
Sep	KBA-11-22A	J	6680	8.81	6	46.15	-0.10
Apr	KBA-11-10B		7390	8.91	7	53.85	0.10
Apr	KBA-11-22A		8770	9.08	8	61.54	0.29
Jan	KBA-11-22A	J	19400	9.87	9	69.23	0.50
Sep	KBA-11-10A	J	38000	10.55	10	76.92	0.74
Jan	KBA-11-10A	J	41800	10.64	11	84.62	1.02
Apr	KBA-11-10A		42900	10.67	12	92.31	1.43

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 14076	Mean = 8.44
Standard Deviation = 17084	Standard Deviation = 1.81
Coefficient of Variance = 1.21	Coefficient of Variance = 0.21
Skew = 1.02	Skew = -0.11
Kurtosis = -0.76	Kurtosis = -1.66
R2 = 0.79	R2 = 0.94

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Lead Ground Water Concentrations for Background Wells

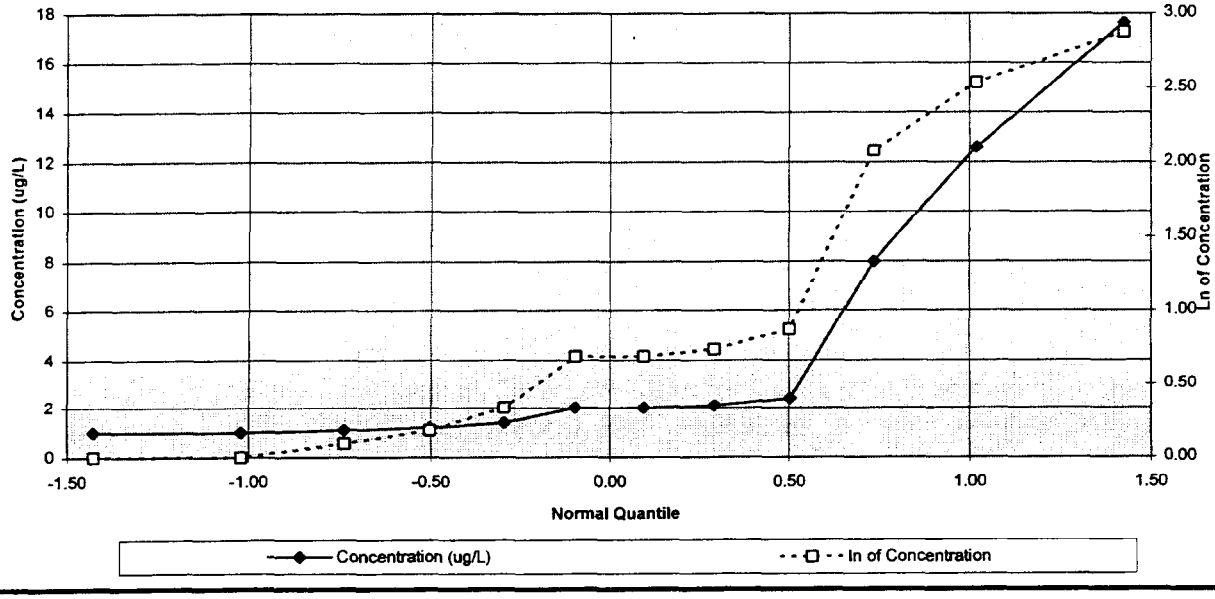
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10B	UJ	1.0	0.00	1	7.69	-1.43
Sep	KBA-11-22B	UJ	1.0	0.00	2	15.38	-1.02
Apr	KBA-11-22A	J	1.1	0.10	3	23.08	-0.74
Apr	KBA-11-22B	J	1.2	0.18	4	30.77	-0.50
Sep	KBA-11-22A	J	1.4	0.34	5	38.46	-0.29
Jan	KBA-11-10A	U	2.0	0.69	6	46.15	-0.10
Jan	KBA-11-22A	U	2.0	0.69	7	53.85	0.10
Jan	KBA-11-10B	J	2.1	0.74	8	61.54	0.29
Jan	KBA-11-22B	J	2.4	0.88	9	69.23	0.50
Apr	KBA-11-10A	J	8.0	2.08	10	76.92	0.74
Apr	KBA-11-10B		12.6	2.53	11	84.62	1.02
Sep	KBA-11-10A		17.6	2.87	12	92.31	1.43

% Non-detects: 33%

Normal Distribution	Log-Normal Distribution
Mean = 4.37	Mean = 0.92
Standard Deviation = 5.46	Standard Deviation = 1.01
Coefficient of Variance = 1.25	Coefficient of Variance = 1.09
Skew = 1.81	Skew = 1.1
Kurtosis = 2.34	Kurtosis = -0.18
R2 = 0.66	R2 = 0.84

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Manganese Ground Water Concentrations for Onsite Wells

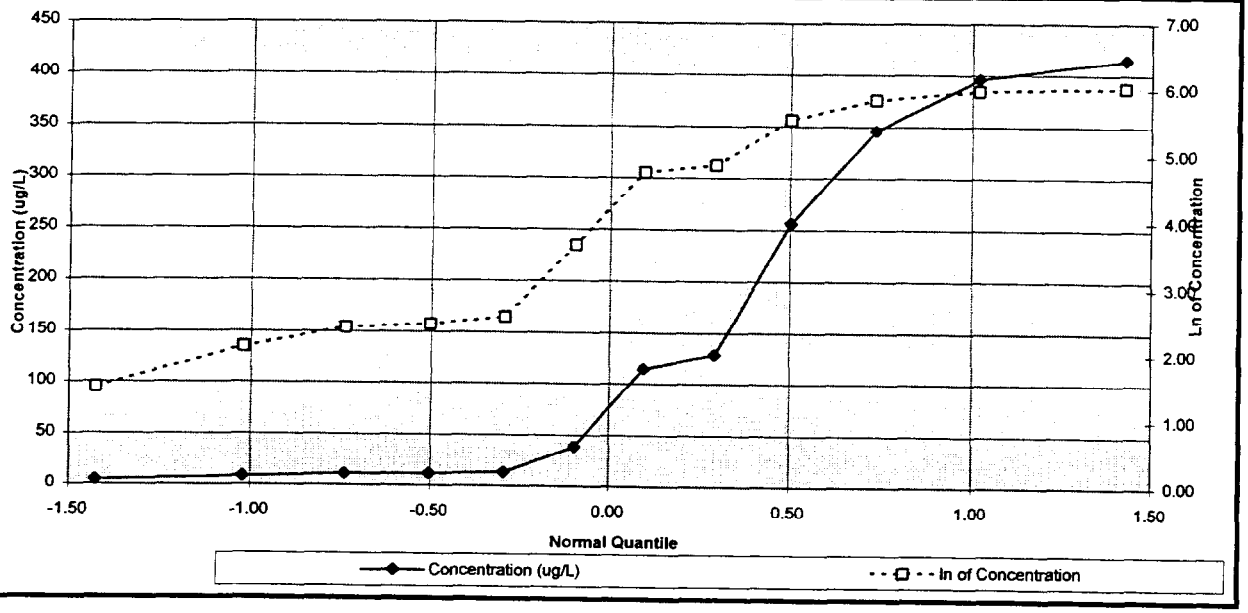
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10B	J	4.4	1.48	1	7.69	-1.43
Jan	KBA-11-10B	J	8.2	2.10	2	15.38	-1.02
Sep	KBA-11-22B	J	11.0	2.40	3	23.08	-0.74
Apr	KBA-11-22B	J	11.6	2.45	4	30.77	-0.50
Jan	KBA-11-22B	J	13.0	2.56	5	38.46	-0.29
Apr	KBA-11-10B		38.6	3.65	6	46.15	-0.10
Sep	KBA-11-22A		115	4.74	7	53.85	0.10
Apr	KBA-11-22A		129	4.86	8	61.54	0.29
Jan	KBA-11-22A		256	5.55	9	69.23	0.50
Sep	KBA-11-10A		346	5.85	10	76.92	0.74
Apr	KBA-11-10A		396	5.98	11	84.62	1.02
Jan	KBA-11-10A		415	6.03	12	92.31	1.43

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 145.32	Mean = 3.97
Standard Deviation = 163.14	Standard Deviation = 1.71
Coefficient of Variance = 1.12	Coefficient of Variance = 0.43
Skew = 0.78	Skew = -0.08
Kurtosis = -1.18	Kurtosis = -1.83
R2 = 0.83	R2 = 0.92

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Mercury Ground Water Concentrations for Background Wells

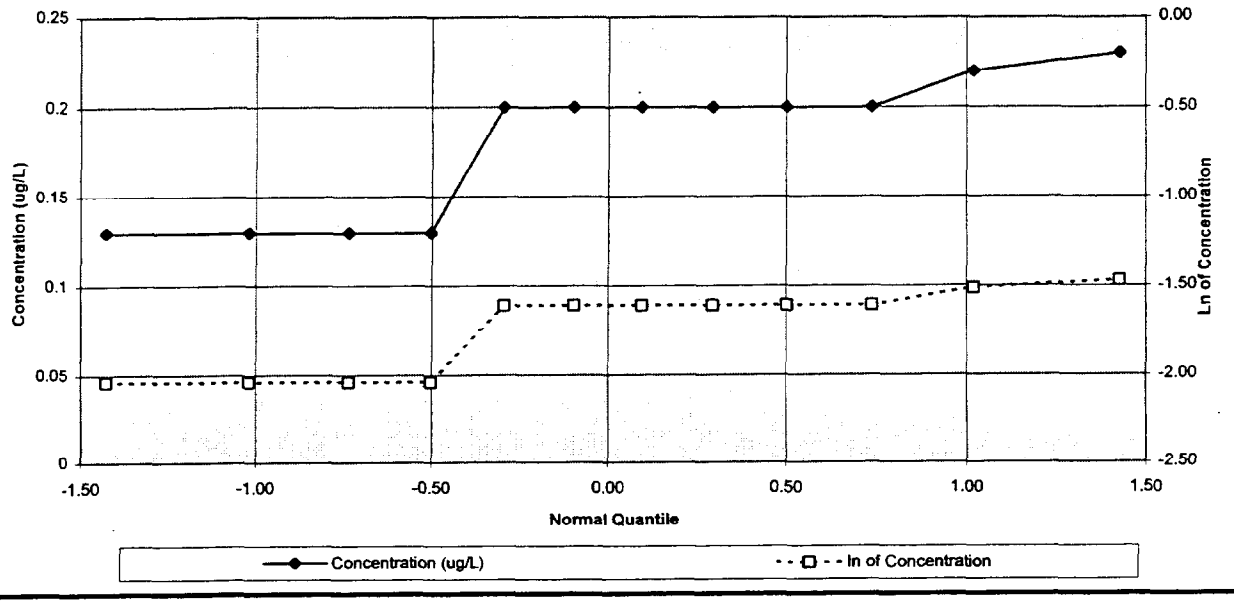
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10A	U	0.13	-2.04	1	7.69	-1.43
Jan	KBA-11-10B	U	0.13	-2.04	2	15.38	-1.02
Jan	KBA-11-22A	U	0.13	-2.04	3	23.08	-0.74
Jan	KBA-11-22B	U	0.13	-2.04	4	30.77	-0.50
Apr	KBA-11-10B	U	0.20	-1.61	5	38.46	-0.29
Sep	KBA-11-10B	U	0.20	-1.61	6	46.15	-0.10
Apr	KBA-11-22A	U	0.20	-1.61	7	53.85	0.10
Sep	KBA-11-22A	U	0.20	-1.61	8	61.54	0.29
Apr	KBA-11-22B	U	0.20	-1.61	9	69.23	0.50
Sep	KBA-11-22B	U	0.20	-1.61	10	76.92	0.74
Apr	KBA-11-10A		0.22	-1.51	11	84.62	1.02
Sep	KBA-11-10A		0.23	-1.47	12	92.31	1.43

% Non-detects: 83%

Normal Distribution	Log-Normal Distribution
Mean = 0.18	Mean = -1.73
Standard Deviation = 0.04	Standard Deviation = 0.23
Coefficient of Variance = 0.21	Coefficient of Variance = -0.13
Skew = -0.57	Skew = -0.67
Kurtosis = -1.53	Kurtosis = -1.59
R2 = 0.79	R2 = 0.76

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Nickel Ground Water Concentrations for Background Wells

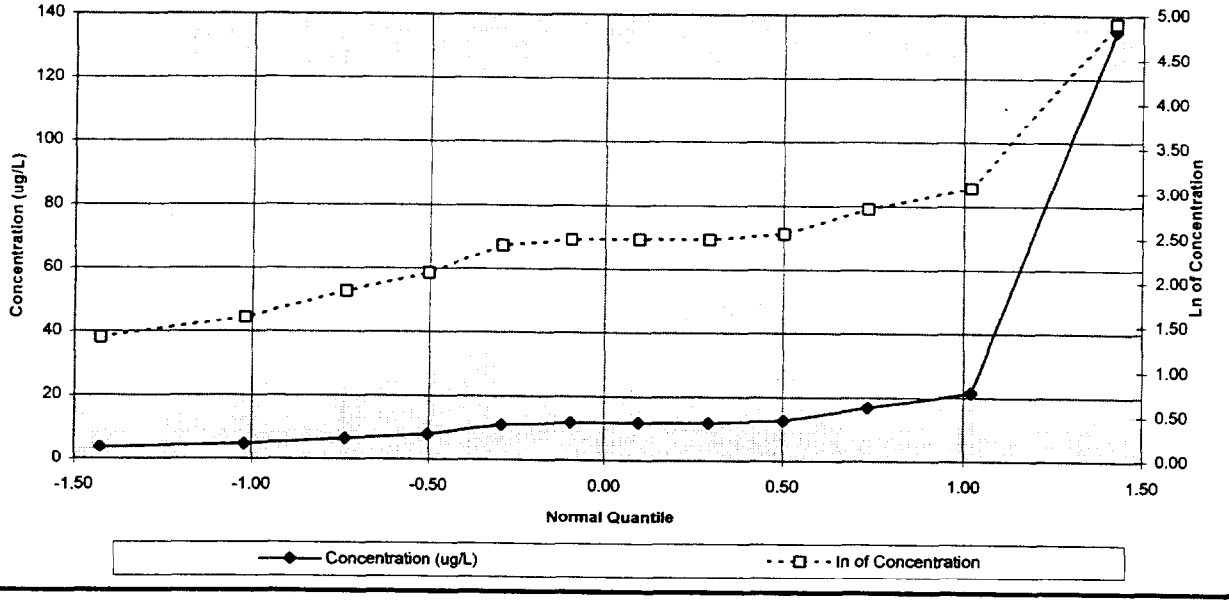
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10A	U	3.9	1.36	1	7.69	-1.43
Jan	KBA-11-22B	J	4.9	1.59	2	15.38	-1.02
Sep	KBA-11-22B	J	6.6	1.89	3	23.08	-0.74
Sep	KBA-11-10B	J	8.1	2.09	4	30.77	-0.50
Jan	KBA-11-10B	J	11.1	2.41	5	38.46	-0.29
Sep	KBA-11-10A	J	11.9	2.48	6	46.15	-0.10
Apr	KBA-11-10A	U	12.0	2.48	7	53.85	0.10
Apr	KBA-11-22A	U	12.0	2.48	8	61.54	0.29
Apr	KBA-11-22B	U	12.8	2.55	9	69.23	0.50
Sep	KBA-11-22A	J	16.9	2.83	10	76.92	0.74
Jan	KBA-11-22A	J	21.4	3.06	11	84.62	1.02
Apr	KBA-11-10B		135	4.91	12	92.31	1.43

% Non-detects: 33%

Normal Distribution	Log-Normal Distribution
Mean = 21.38	Mean = 2.51
Standard Deviation = 36.11	Standard Deviation = 0.9
Coefficient of Variance = 1.69	Coefficient of Variance = 0.36
Skew = 3.35	Skew = 1.7
Kurtosis = 11.43	Kurtosis = 4.56
R2 = 0.4	R2 = 0.8

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Selenium Ground Water Concentrations for Background Wells

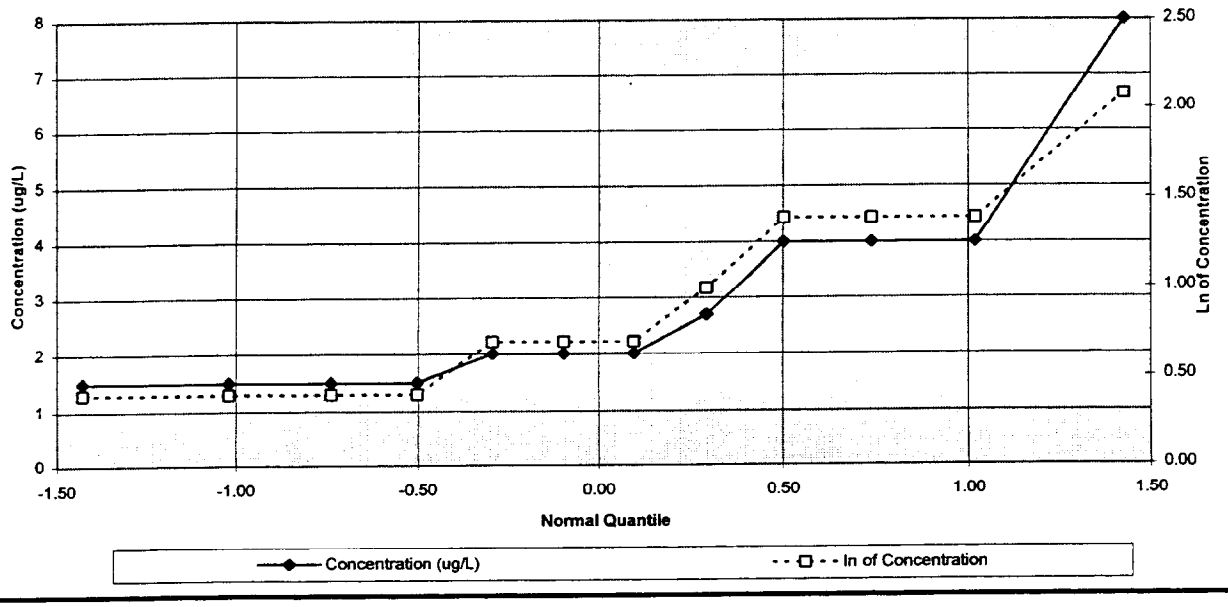
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10A	UJ	1.5	0.41	1	7.69	-1.43
Jan	KBA-11-22A	UJ	1.5	0.41	2	15.38	-1.02
Jan	KBA-11-22B	UJ	1.5	0.41	3	23.08	-0.74
Jan	KBA-11-10B	U	1.5	0.41	4	30.77	-0.50
Apr	KBA-11-10B	UJ	2.0	0.69	5	38.46	-0.29
Apr	KBA-11-22A	U	2.0	0.69	6	46.15	-0.10
Apr	KBA-11-22B	U	2.0	0.69	7	53.85	0.10
Apr	KBA-11-10A	J	2.7	0.99	8	61.54	0.29
Sep	KBA-11-10B	U	4.0	1.39	9	69.23	0.50
Sep	KBA-11-22A	U	4.0	1.39	10	76.92	0.74
Sep	KBA-11-22B	U	4.0	1.39	11	84.62	1.02
Sep	KBA-11-10A		8.0	2.08	12	92.31	1.43

% Non-detects: 83%

Normal Distribution	Log-Normal Distribution
Mean = 2.89	Mean = 0.91
Standard Deviation = 1.91	Standard Deviation = 0.54
Coefficient of Variance = 0.66	Coefficient of Variance = 0.59
Skew = 1.96	Skew = 0.95
Kurtosis = 4.36	Kurtosis = 0.18
R2 = 0.72	R2 = 0.86

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Silver Ground Water Concentrations for Background Wells

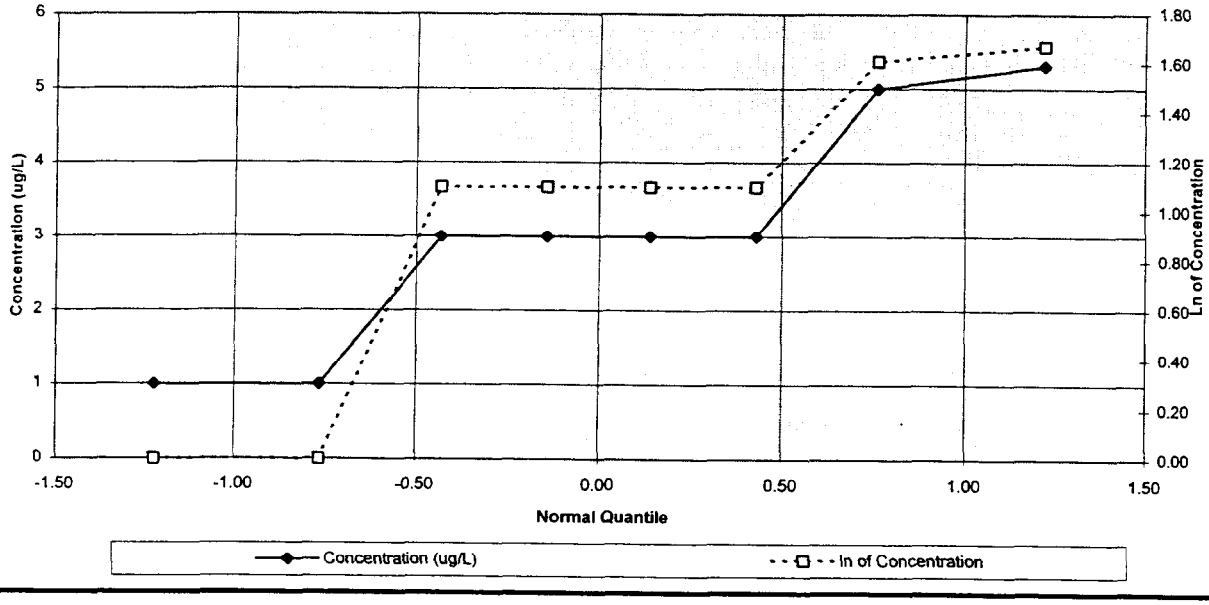
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10B	U	1.0	0.00	1	11.11	-1.22
Sep	KBA-11-22B	U	1.0	0.00	2	22.22	-0.76
Apr	KBA-11-10A	UJ	3.0	1.10	3	33.33	-0.43
Apr	KBA-11-10B	U	3.0	1.10	4	44.44	-0.14
Apr	KBA-11-22A	U	3.0	1.10	5	55.56	0.14
Apr	KBA-11-22B	U	3.0	1.10	6	66.67	0.43
Sep	KBA-11-10A	U	5.0	1.61	7	77.78	0.76
Sep	KBA-11-22A	J	5.3	1.67	8	88.89	1.22

% Non-detects: 88%

Normal Distribution	Log-Normal Distribution
Mean = 3.04	Mean = 0.96
Standard Deviation = 1.57	Standard Deviation = 0.64
Coefficient of Variance = 0.52	Coefficient of Variance = 0.66
Skew = 0.11	Skew = -0.83
Kurtosis = -0.65	Kurtosis = -0.48
R2 = 0.88	R2 = 0.82

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Sulfide Ground Water Concentrations for Background Wells

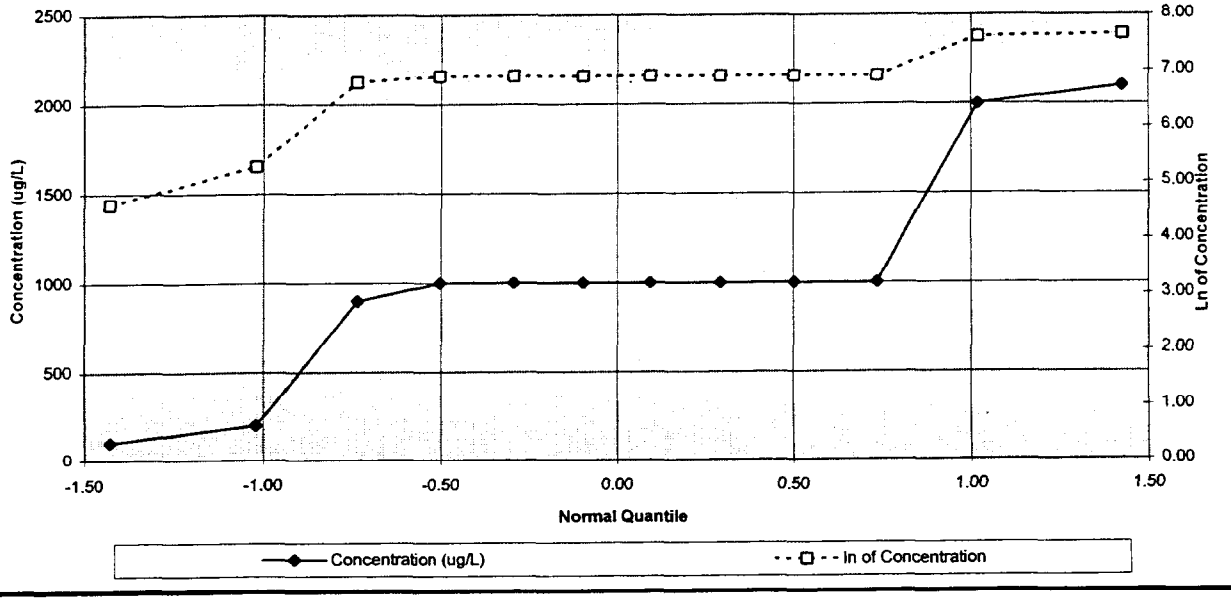
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-22A	UJ	100	4.61	1	7.69	-1.43
Jan	KBA-11-10A	J	200	5.30	2	15.38	-1.02
Jan	KBA-11-10B	J	900	6.80	3	23.08	-0.74
Apr	KBA-11-10A	U	1000	6.91	4	30.77	-0.50
Sep	KBA-11-10A	U	1000	6.91	5	38.46	-0.29
Sep	KBA-11-10B	U	1000	6.91	6	46.15	-0.10
Apr	KBA-11-22A	U	1000	6.91	7	53.85	0.10
Sep	KBA-11-22A	U	1000	6.91	8	61.54	0.29
Apr	KBA-11-22B	U	1000	6.91	9	69.23	0.50
Sep	KBA-11-22B	U	1000	6.91	10	76.92	0.74
Apr	KBA-11-10B		2000	7.60	11	84.62	1.02
Jan	KBA-11-22B	J	2100	7.65	12	92.31	1.43

% Non-detects: 67%

Normal Distribution	Log-Normal Distribution
Mean = 1025	Mean = 6.69
Standard Deviation = 577.02	Standard Deviation = 0.87
Coefficient of Variance = 0.56	Coefficient of Variance = 0.13
Skew = 0.46	Skew = -1.66
Kurtosis = 0.85	Kurtosis = 2.57
R2 = 0.78	R2 = 0.69

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Thallium Ground Water Concentrations for Background Wells

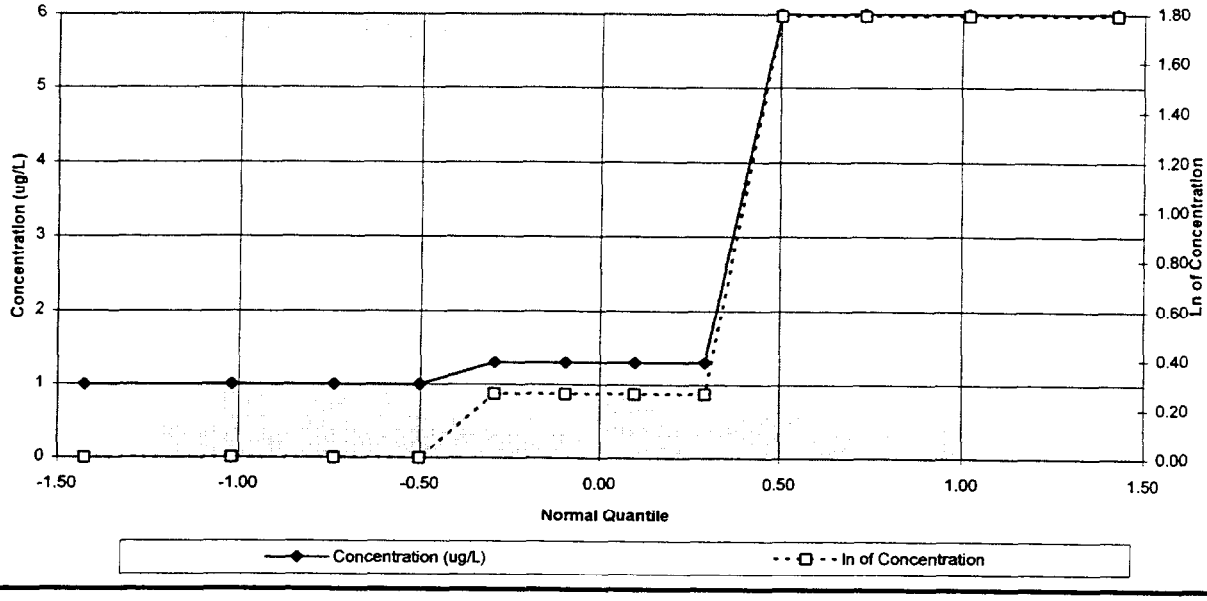
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-10B	U	1.0	0.00	1	7.69	-1.43
Apr	KBA-11-22A	U	1.0	0.00	2	15.38	-1.02
Apr	KBA-11-22B	U	1.0	0.00	3	23.08	-0.74
Apr	KBA-11-10A	J	1.0	0.00	4	30.77	-0.50
Jan	KBA-11-10A	UJ	1.3	0.26	5	38.46	-0.29
Jan	KBA-11-10B	UJ	1.3	0.26	6	46.15	-0.10
Jan	KBA-11-22A	UJ	1.3	0.26	7	53.85	0.10
Jan	KBA-11-22B	UJ	1.3	0.26	8	61.54	0.29
Sep	KBA-11-10A	U	6.0	1.79	9	69.23	0.50
Sep	KBA-11-10B	U	6.0	1.79	10	76.92	0.74
Sep	KBA-11-22A	U	6.0	1.79	11	84.62	1.02
Sep	KBA-11-22B	U	6.0	1.79	12	92.31	1.43

% Non-detects: 92%

Normal Distribution	Log-Normal Distribution
Mean = 2.77	Mean = 0.68
Standard Deviation = 2.39	Standard Deviation = 0.83
Coefficient of Variance = 0.86	Coefficient of Variance = 1.21
Skew = 0.8	Skew = 0.75
Kurtosis = -1.65	Kurtosis = -1.65
R2 = 0.68	R2 = 0.73

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Tin Ground Water Concentrations for Background Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-10A	J	13.4	2.60	1	50.00	0.00

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Only one measurement.	Only one measurement.

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.

KINGS BAY - SITE 11

Determination of Distribution

Vanadium Ground Water Concentrations for Background Wells

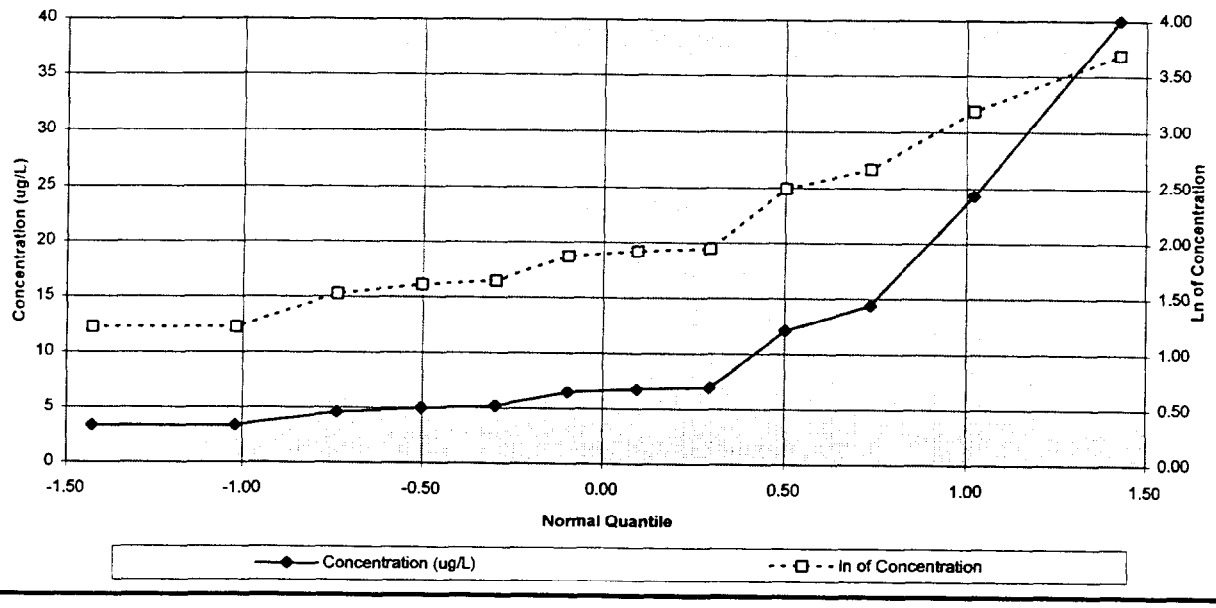
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10B	J	3.4	1.22	1	7.69	-1.43
Jan	KBA-11-22A	J	3.4	1.22	2	15.38	-1.02
Jan	KBA-11-10A	J	4.6	1.53	3	23.08	-0.74
Apr	KBA-11-22A	U	5.0	1.61	4	30.77	-0.50
Apr	KBA-11-22B	J	5.2	1.65	5	38.46	-0.29
Jan	KBA-11-22B	J	6.5	1.87	6	46.15	-0.10
Sep	KBA-11-22B	J	6.8	1.92	7	53.85	0.10
Sep	KBA-11-22A	U	7.0	1.95	8	61.54	0.29
Jan	KBA-11-10B	J	12.1	2.49	9	69.23	0.50
Apr	KBA-11-10A	J	14.4	2.67	10	76.92	0.74
Sep	KBA-11-10A	J	24.3	3.19	11	84.62	1.02
Apr	KBA-11-10B	J	40.0	3.69	12	92.31	1.43

% Non-detects: 17%

Normal Distribution	Log-Normal Distribution
Mean = 11.06	Mean = 2.08
Standard Deviation = 10.92	Standard Deviation = 0.77
Coefficient of Variance = 0.99	Coefficient of Variance = 0.37
Skew = 2.08	Skew = 0.96
Kurtosis = 4.23	Kurtosis = 0.14
R2 = 0.69	R2 = 0.91

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Zinc Ground Water Concentrations for Background Wells

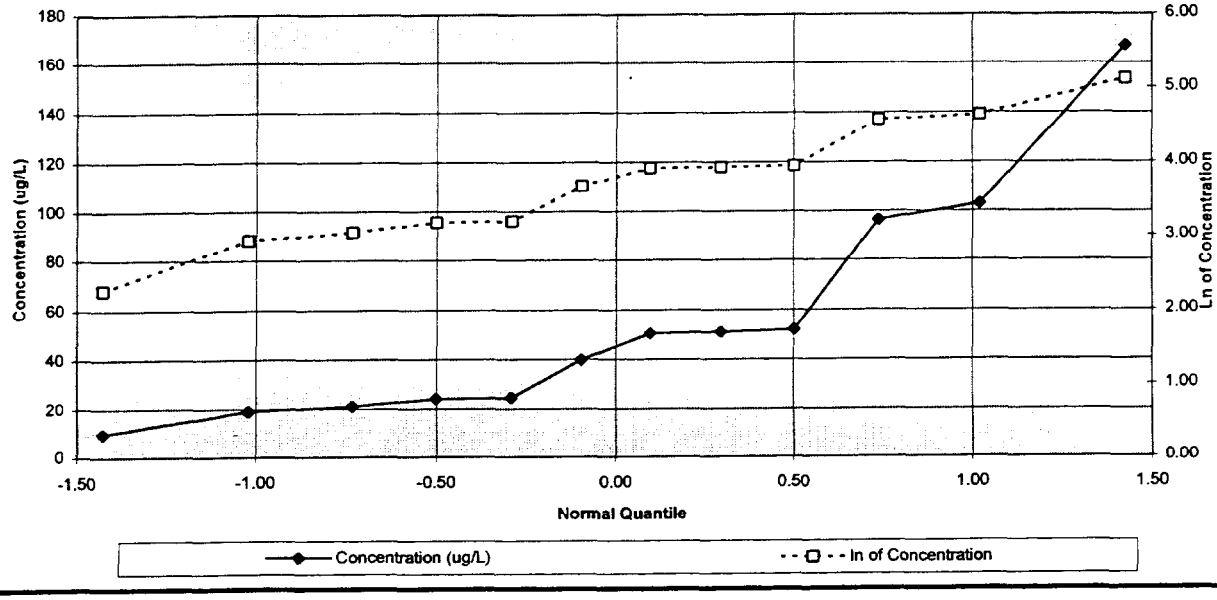
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-22A	U	9.7	2.27	1	7.69	-1.43
Apr	KBA-11-22A	U	19.0	2.94	2	15.38	-1.02
Sep	KBA-11-10B		21.2	3.05	3	23.08	-0.74
Sep	KBA-11-22B		24.2	3.19	4	30.77	-0.50
Jan	KBA-11-10B		24.6	3.20	5	38.46	-0.29
Apr	KBA-11-22B		39.8	3.68	6	46.15	-0.10
Jan	KBA-11-22B		50.4	3.92	7	53.85	0.10
Jan	KBA-11-10A		51.0	3.93	8	61.54	0.29
Sep	KBA-11-22A		52.0	3.95	9	69.23	0.50
Apr	KBA-11-10B		96.3	4.57	10	76.92	0.74
Apr	KBA-11-10A		103	4.63	11	84.62	1.02
Sep	KBA-11-10A		167	5.12	12	92.31	1.43

% Non-detects: 17%

Normal Distribution	Log-Normal Distribution
Mean = 54.85	Mean = 3.71
Standard Deviation = 45.92	Standard Deviation = 0.82
Coefficient of Variance = 0.84	Coefficient of Variance = 0.22
Skew = 1.53	Skew = 0.07
Kurtosis = 2.18	Kurtosis = -0.44
R2 = 0.82	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



Characterization Wells Adjacent to Landfill

KINGS BAY - SITE 11

Determination of Distribution

Aluminum Ground Water Concentrations for Characterization Wells Adjacent to Landfill

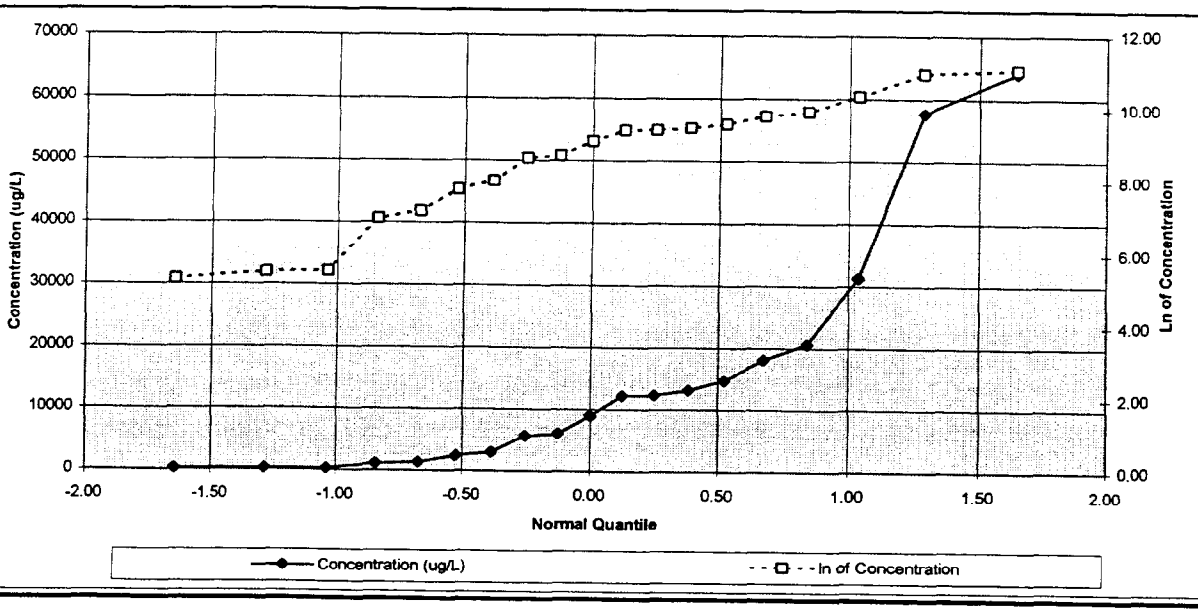
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-13A	U	198	5.29	1	5.00	-1.64
Sep	KBA-11-8B	U	240	5.48	2	10.00	-1.28
Sep	KBA-11-3B	U	248	5.51	3	15.00	-1.04
Apr	KBA-11-8B	J	1060	6.97	4	20.00	-0.84
Jan	KBA-11-8B	J	1310	7.18	5	25.00	-0.67
Jan	KBA-11-6	J	2380	7.77	6	30.00	-0.52
Jan	KBA-11-2	J	3010	8.01	7	35.00	-0.39
Jan	KBA-11-3B	J	5660	8.64	8	40.00	-0.25
Apr	KBA-11-6		6060	8.71	9	45.00	-0.13
Jan	KBA-11-5	J	8970	9.10	10	50.00	0.00
Apr	KBA-11-3A	J	12200	9.41	11	55.00	0.13
Jan	KBA-11-3A	J	12300	9.42	12	60.00	0.25
Apr	KBA-11-3B	J	13100	9.48	13	65.00	0.39
Sep	KBA-11-6		14700	9.60	14	70.00	0.52
Sep	KBA-11-2		18200	9.81	15	75.00	0.67
Apr	KBA-11-2	J	20700	9.94	16	80.00	0.84
Sep	KBA-11-3A		31300	10.35	17	85.00	1.04
Sep	KBA-11-5		57700	10.96	18	90.00	1.28
Apr	KBA-11-5		64100	11.07	19	95.00	1.64

% Non-detects: 16%

Normal Distribution	Log-Normal Distribution
Mean = 14391.37	Mean = 8.56
Standard Deviation = 18404.67	Standard Deviation = 1.78
Coefficient of Variance = 1.28	Coefficient of Variance = 0.21
Skew = 1.91	Skew = -0.62
Kurtosis = 3.15	Kurtosis = -0.55
R2 = 0.73	R2 = 0.94

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Antimony Ground Water Concentrations for Characterization Wells Adjacent to Landfill

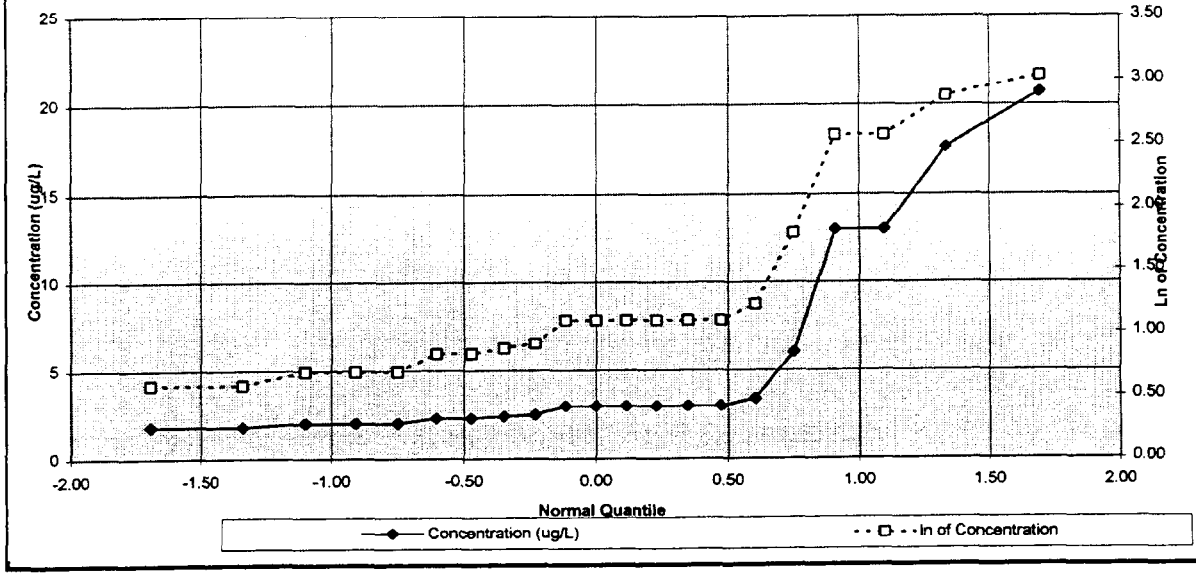
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-3A	U	1.8	0.59	1	4.55	-1.69
Jan	KBA-11-5	U	1.8	0.59	2	9.09	-1.34
Sep	KBA-11-3B	U	2.0	0.69	3	13.64	-1.10
Sep	KBA-11-6	U	2.0	0.69	4	18.18	-0.91
Sep	KBA-11-8B	U	2.0	0.69	5	22.73	-0.75
Jan	KBA-11-3B	UJ	2.3	0.83	6	27.27	-0.60
Jan	KBA-11-6	U	2.3	0.83	7	31.82	-0.47
Jan	KBA-11-13A	J	2.4	0.88	8	36.36	-0.35
Jan	KBA-11-8B	U	2.5	0.92	9	40.91	-0.23
Apr	KBA-11-2	U	3.0	1.10	10	45.45	-0.11
Apr	KBA-11-3A	U	3.0	1.10	11	50.00	0.00
Apr	KBA-11-3B	U	3.0	1.10	12	54.55	0.11
Apr	KBA-11-5	U	3.0	1.10	13	59.09	0.23
Apr	KBA-11-6	U	3.0	1.10	14	63.64	0.35
Apr	KBA-11-8B	U	3.0	1.10	15	68.18	0.47
Jan	KBA-11-2	J	3.4	1.22	16	72.73	0.60
Apr	KBA-11-13A	U	6.0	1.79	17	77.27	0.75
Sep	KBA-11-13A	U	13.0	2.56	18	81.82	0.91
Sep	KBA-11-2	U	13.0	2.56	19	86.36	1.10
Sep	KBA-11-3A	J	17.6	2.87	20	90.91	1.34
Sep	KBA-11-5	J	20.7	3.03	21	95.45	1.69

% Non-detects: 81%

Normal Distribution	Log-Normal Distribution
Mean = 5.28	Mean = 1.3
Standard Deviation = 5.63	Standard Deviation = 0.78
Coefficient of Variance = 1.07	Coefficient of Variance = 0.6
Skew = 1.89	Skew = 1.34
Kurtosis = 2.39	Kurtosis = 0.44
R2 = 0.62	R2 = 0.78

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Arsenic Ground Water Concentrations for Characterization Wells Adjacent to Landfill

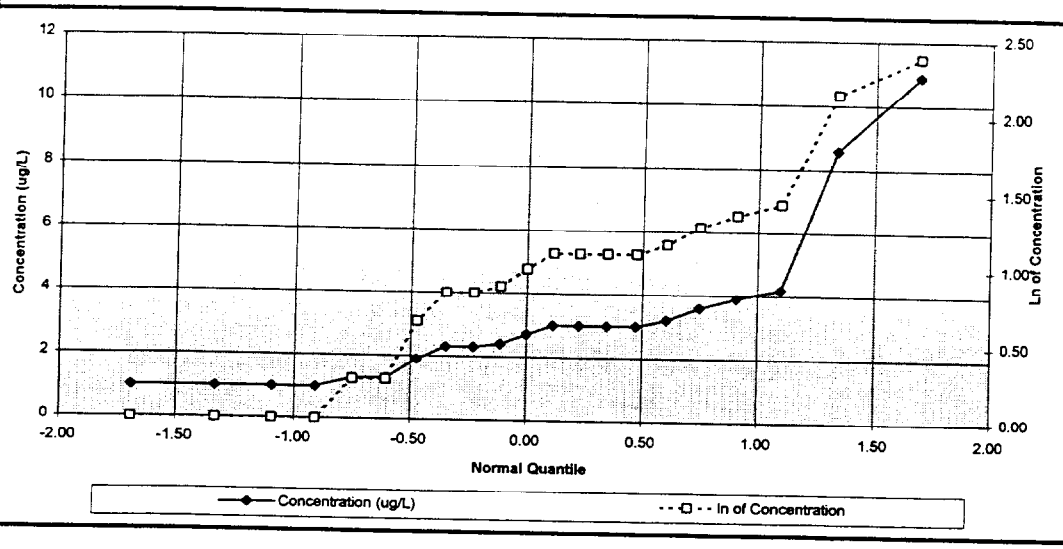
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-2	U	1.0	0.00	1	4.55	-1.69
Apr	KBA-11-3A	U	1.0	0.00	2	9.09	-1.34
Jan	KBA-11-5	U	1.0	0.00	3	13.64	-1.10
Apr	KBA-11-6	U	1.0	0.00	4	18.18	-0.91
Jan	KBA-11-6	U	1.3	0.26	5	22.73	-0.75
Jan	KBA-11-8B	U	1.3	0.26	6	27.27	-0.60
Jan	KBA-11-3A	J	1.9	0.64	7	31.82	-0.47
Apr	KBA-11-2	J	2.3	0.83	8	36.36	-0.35
Jan	KBA-11-3B	J	2.3	0.83	9	40.91	-0.23
Apr	KBA-11-8B	J	2.4	0.88	10	45.45	-0.11
Apr	KBA-11-5	J	2.7	0.99	11	50.00	0.00
Sep	KBA-11-13A	UJ	3.0	1.10	12	54.55	0.11
Sep	KBA-11-3B	U	3.0	1.10	13	59.09	0.23
Sep	KBA-11-6	U	3.0	1.10	14	63.64	0.35
Sep	KBA-11-8B	U	3.0	1.10	15	68.18	0.47
Sep	KBA-11-5	J	3.2	1.16	16	72.73	0.60
Sep	KBA-11-2	J	3.6	1.28	17	77.27	0.75
Jan	KBA-11-13A	J	3.9	1.36	18	81.82	0.91
Sep	KBA-11-3A	J	4.2	1.44	19	86.36	1.10
Apr	KBA-11-13A		8.6	2.15	20	90.91	1.34
Apr	KBA-11-3B		10.9	2.39	21	95.45	1.69

% Non-detects: 48%

Normal Distribution	Log-Normal Distribution
Mean = 3.08	Mean = 0.9
Standard Deviation = 2.46	Standard Deviation = 0.66
Coefficient of Variance = 0.8	Coefficient of Variance = 0.74
Skew = 2.23	Skew = 0.42
Kurtosis = 5.35	Kurtosis = 0.16
R2 = 0.7	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Barium Ground Water Concentrations for Characterization Wells Adjacent to Landfill

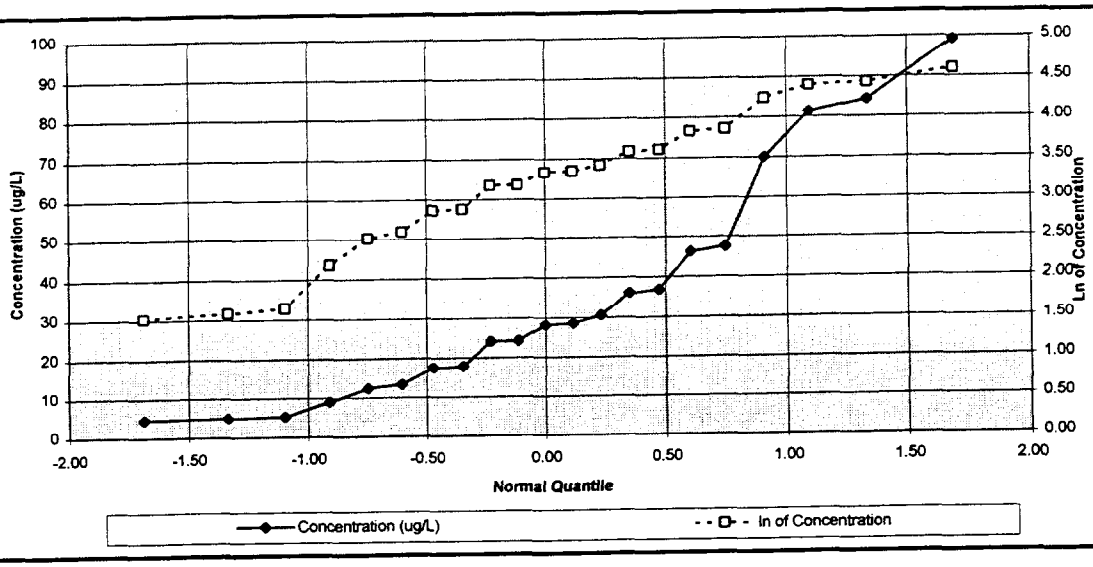
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-2	J	4.6	1.53	1	4.55	-1.69
Jan	KBA-11-3B	J	4.9	1.59	2	9.09	-1.34
Jan	KBA-11-5	J	5.2	1.65	3	13.64	-1.10
Jan	KBA-11-6	J	8.9	2.19	4	18.18	-0.91
Jan	KBA-11-3A	J	12.4	2.52	5	22.73	-0.75
Apr	KBA-11-6	J	13.4	2.60	6	27.27	-0.60
Sep	KBA-11-13A	J	17.5	2.86	7	31.82	-0.47
Sep	KBA-11-3B	J	17.8	2.88	8	36.36	-0.35
Sep	KBA-11-6	J	24.1	3.18	9	40.91	-0.23
Apr	KBA-11-3A	J	24.2	3.19	10	45.45	-0.11
Sep	KBA-11-2	J	28.1	3.34	11	50.00	0.00
Apr	KBA-11-2	J	28.5	3.35	12	54.55	0.11
Jan	KBA-11-13A	J	30.6	3.42	13	59.09	0.23
Sep	KBA-11-3A	J	36.1	3.59	14	63.64	0.35
Jan	KBA-11-8B	J	36.9	3.61	15	68.18	0.47
Sep	KBA-11-8B	J	46.2	3.83	16	72.73	0.60
Apr	KBA-11-8B	J	47.5	3.86	17	77.27	0.75
Apr	KBA-11-13A		70.0	4.25	18	81.82	0.91
Apr	KBA-11-5	J	81.4	4.40	19	86.36	1.10
Sep	KBA-11-5	J	84.4	4.44	20	90.91	1.34
Apr	KBA-11-3B	J	99.1	4.60	21	95.45	1.69

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 34.37	Mean = 3.18
Standard Deviation = 27.86	Standard Deviation = 0.93
Coefficient of Variance = 0.81	Coefficient of Variance = 0.29
Skew = 1.08	Skew = -0.36
Kurtosis = 0.26	Kurtosis = -0.63
R2 = 0.88	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Beryllium Ground Water Concentrations for Characterization Wells Adjacent to Landfill

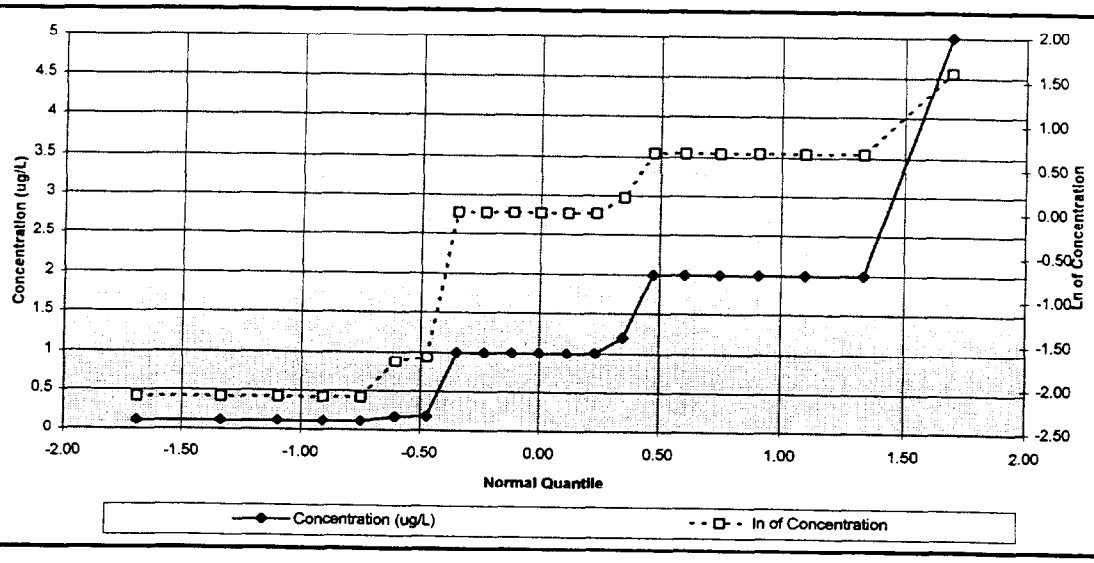
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-13A	UJ	0.12	-2.12	1	4.55	-1.69
Jan	KBA-11-2	UJ	0.12	-2.12	2	9.09	-1.34
Jan	KBA-11-3A	UJ	0.12	-2.12	3	13.64	-1.10
Jan	KBA-11-3B	UJ	0.12	-2.12	4	18.18	-0.91
Jan	KBA-11-5	UJ	0.12	-2.12	5	22.73	-0.75
Jan	KBA-11-8B	J	0.18	-1.71	6	27.27	-0.60
Jan	KBA-11-6	J	0.19	-1.66	7	31.82	-0.47
Sep	KBA-11-13A	U	1.0	0.00	8	36.36	-0.35
Sep	KBA-11-2	U	1.0	0.00	9	40.91	-0.23
Sep	KBA-11-3A	U	1.0	0.00	10	45.45	-0.11
Sep	KBA-11-3B	U	1.0	0.00	11	50.00	0.00
Sep	KBA-11-6	U	1.0	0.00	12	54.55	0.11
Sep	KBA-11-8B	U	1.0	0.00	13	59.09	0.23
Sep	KBA-11-5	J	1.2	0.18	14	63.64	0.35
Apr	KBA-11-2	U	2.0	0.69	15	68.18	0.47
Apr	KBA-11-3A	U	2.0	0.69	16	72.73	0.60
Apr	KBA-11-3B	U	2.0	0.69	17	77.27	0.75
Apr	KBA-11-5	U	2.0	0.69	18	81.82	0.91
Apr	KBA-11-6	U	2.0	0.69	19	86.36	1.10
Apr	KBA-11-8B	U	2.0	0.69	20	90.91	1.34
Apr	KBA-11-13A	U	5.00	1.61	21	95.45	1.69

% Non-detects: 86%

Normal Distribution	Log-Normal Distribution
Mean = 1.2	Mean = -0.38
Standard Deviation = 1.15	Standard Deviation = 1.24
Coefficient of Variance = 0.96	Coefficient of Variance = -3.24
Skew = 1.81	Skew = -0.43
Kurtosis = 5.02	Kurtosis = -1.33
R2 = 0.76	R2 = 0.85

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cadmium Ground Water Concentrations for Characterization Wells Adjacent to Landfill

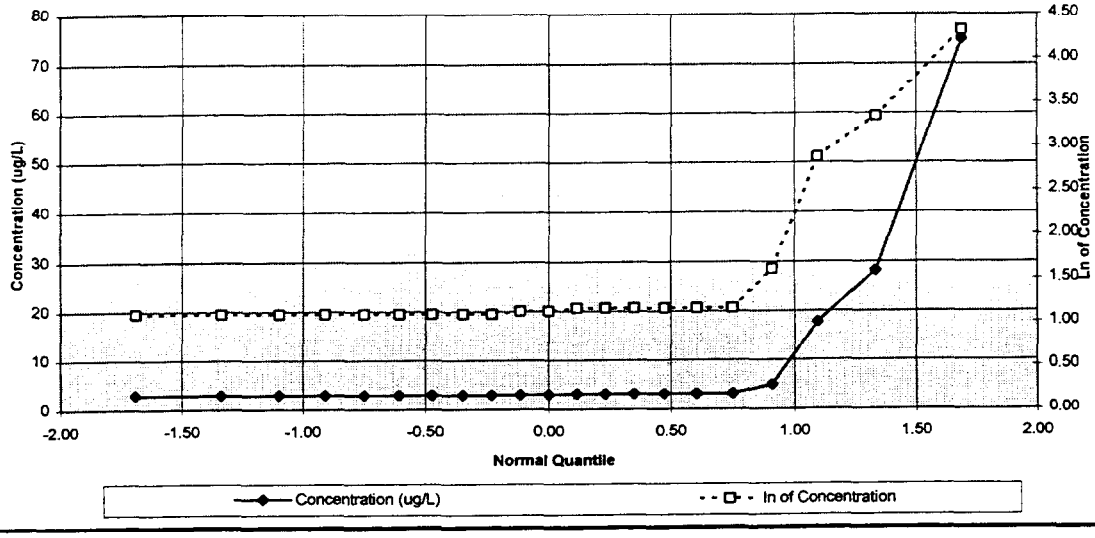
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-5	UJ	3.0	1.10	1	4.55	-1.69
Apr	KBA-11-6	UJ	3.0	1.10	2	9.09	-1.34
Apr	KBA-11-2	U	3.0	1.10	3	13.64	-1.10
Sep	KBA-11-2	U	3.0	1.10	4	18.18	-0.91
Apr	KBA-11-3A	U	3.0	1.10	5	22.73	-0.75
Apr	KBA-11-3B	U	3.0	1.10	6	27.27	-0.60
Sep	KBA-11-6	U	3.0	1.10	7	31.82	-0.47
Apr	KBA-11-8B	U	3.0	1.10	8	36.36	-0.35
Sep	KBA-11-5	J	3.0	1.10	9	40.91	-0.23
Jan	KBA-11-6	U	3.1	1.13	10	45.45	-0.11
Jan	KBA-11-8B	U	3.1	1.13	11	50.00	0.00
Jan	KBA-11-13A	U	3.2	1.16	12	54.55	0.11
Jan	KBA-11-2	U	3.2	1.16	13	59.09	0.23
Jan	KBA-11-3A	U	3.2	1.16	14	63.64	0.35
Jan	KBA-11-3B	U	3.2	1.16	15	68.18	0.47
Jan	KBA-11-5	U	3.2	1.16	16	72.73	0.60
Sep	KBA-11-3A	J	3.2	1.16	17	77.27	0.75
Apr	KBA-11-13A	U	5.0	1.61	18	81.82	0.91
Sep	KBA-11-3B		17.7	2.87	19	86.36	1.10
Sep	KBA-11-13A		28.2	3.34	20	90.91	1.34
Sep	KBA-11-8B		74.9	4.32	21	95.45	1.69

% Non-detects: 76%

Normal Distribution	Log-Normal Distribution
Mean = 8.49	Mean = 1.49
Standard Deviation = 16.42	Standard Deviation = 0.88
Coefficient of Variance = 1.94	Coefficient of Variance = 0.59
Skew = 3.73	Skew = 2.46
Kurtosis = 14.72	Kurtosis = 5.31
R2 = 0.35	R2 = 0.48

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Chromium Ground Water Concentrations for Characterization Wells Adjacent to Landfill

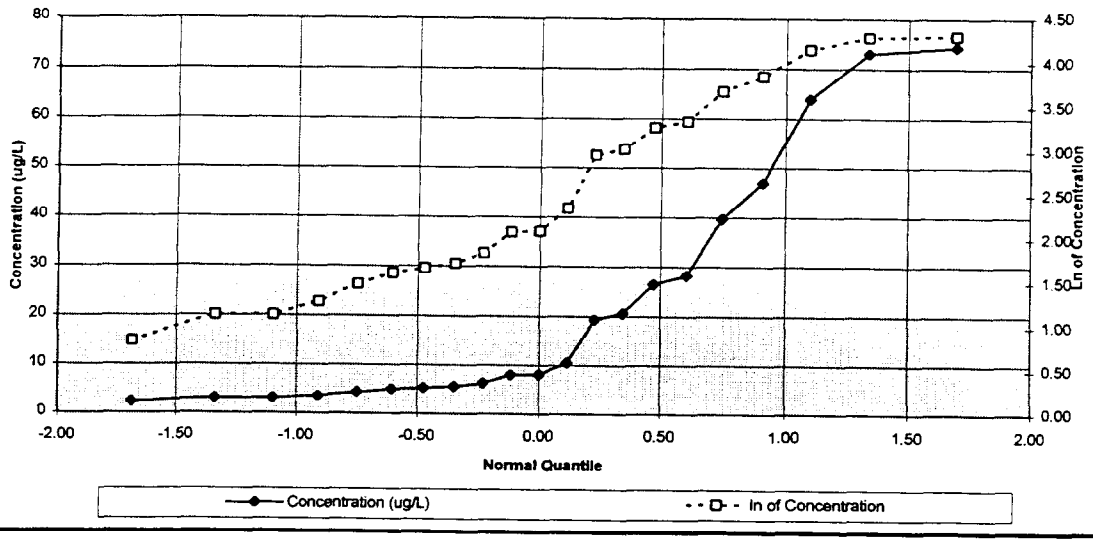
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-6	U	2.3	0.83	1	4.55	-1.69
Jan	KBA-11-2	U	3.1	1.13	2	9.09	-1.34
Jan	KBA-11-5	U	3.1	1.13	3	13.64	-1.10
Jan	KBA-11-3B	J	3.6	1.28	4	18.18	-0.91
Jan	KBA-11-8B	J	4.4	1.48	5	22.73	-0.75
Jan	KBA-11-3A	J	5.0	1.61	6	27.27	-0.60
Sep	KBA-11-3B	J	5.3	1.67	7	31.82	-0.47
Apr	KBA-11-3A	J	5.6	1.72	8	36.36	-0.35
Apr	KBA-11-6	J	6.3	1.84	9	40.91	-0.23
Sep	KBA-11-13A	U	8.0	2.08	10	45.45	-0.11
Jan	KBA-11-13A	J	8.1	2.09	11	50.00	0.00
Apr	KBA-11-8B		10.5	2.35	12	54.55	0.11
Sep	KBA-11-6		19.3	2.96	13	59.09	0.23
Sep	KBA-11-2		20.7	3.03	14	63.64	0.35
Apr	KBA-11-2		26.5	3.28	15	68.18	0.47
Sep	KBA-11-3A		28.3	3.34	16	72.73	0.60
Sep	KBA-11-8B		39.7	3.68	17	77.27	0.75
Apr	KBA-11-13A		47	3.85	18	81.82	0.91
Apr	KBA-11-5		63.9	4.16	19	86.36	1.10
Apr	KBA-11-3B		73.1	4.29	20	90.91	1.34
Sep	KBA-11-5		74.3	4.31	21	95.45	1.69

% Non-detects: 19%

Normal Distribution	Log-Normal Distribution
Mean = 21.81	Mean = 2.48
Standard Deviation = 23.94	Standard Deviation = 1.14
Coefficient of Variance = 1.1	Coefficient of Variance = 0.46
Skew = 1.29	Skew = 0.3
Kurtosis = 0.42	Kurtosis = -1.34
R2 = 0.79	R2 = 0.95

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cobalt Ground Water Concentrations for Characterization Wells Adjacent to Landfill

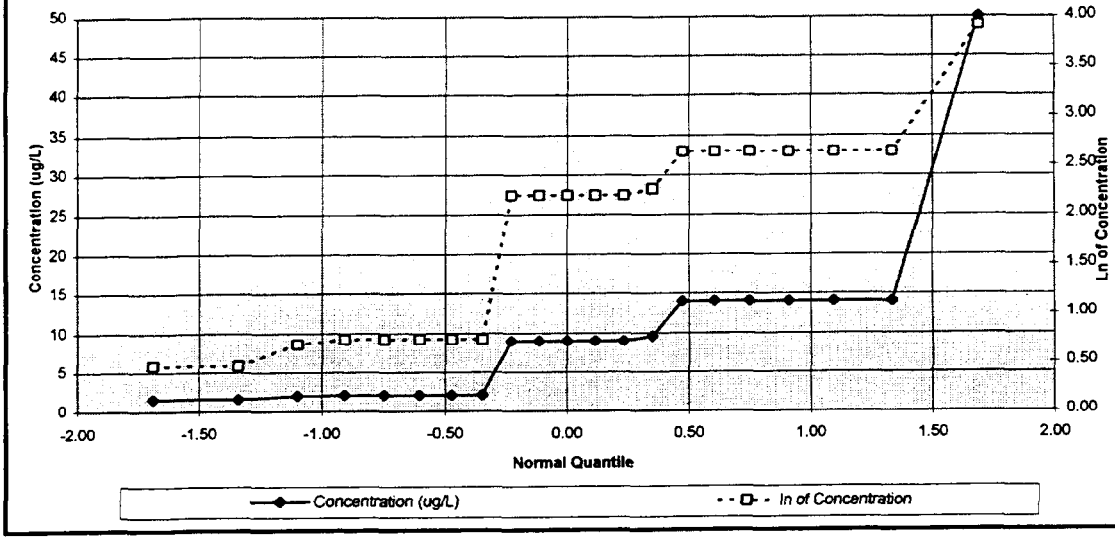
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-6	U	1.6	0.47	1	4.55	-1.69
Jan	KBA-11-8B	U	1.6	0.47	2	9.09	-1.34
Sep	KBA-11-3B	U	2.0	0.69	3	13.64	-1.10
Jan	KBA-11-13A	U	2.1	0.74	4	18.18	-0.91
Jan	KBA-11-2	U	2.1	0.74	5	22.73	-0.75
Jan	KBA-11-3A	U	2.1	0.74	6	27.27	-0.60
Jan	KBA-11-3B	U	2.1	0.74	7	31.82	-0.47
Jan	KBA-11-5	U	2.1	0.74	8	36.36	-0.35
Apr	KBA-11-2	U	9.0	2.20	9	40.91	-0.23
Apr	KBA-11-3A	U	9.0	2.20	10	45.45	-0.11
Apr	KBA-11-5	U	9.0	2.20	11	50.00	0.00
Apr	KBA-11-6	U	9.0	2.20	12	54.55	0.11
Apr	KBA-11-8B	U	9.0	2.20	13	59.09	0.23
Apr	KBA-11-3B	J	9.6	2.26	14	63.64	0.35
Sep	KBA-11-13A	U	14.0	2.64	15	68.18	0.47
Sep	KBA-11-2	U	14.0	2.64	16	72.73	0.60
Sep	KBA-11-3A	U	14.0	2.64	17	77.27	0.75
Sep	KBA-11-5	U	14.0	2.64	18	81.82	0.91
Sep	KBA-11-6	U	14.0	2.64	19	86.36	1.10
Sep	KBA-11-8B	U	14.0	2.64	20	90.91	1.34
Apr	KBA-11-13A	U	50.0	3.91	21	95.45	1.69

% Non-detects: 95%

Normal Distribution	Log-Normal Distribution
Mean = 9.73	Mean = 1.83
Standard Deviation = 10.53	Standard Deviation = 1
Coefficient of Variance = 1.08	Coefficient of Variance = 0.55
Skew = 2.94	Skew = -0.01
Kurtosis = 11.12	Kurtosis = -1.02
R2 = 0.61	R2 = 0.86

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Copper Ground Water Concentrations for Characterization Wells Adjacent to Landfill

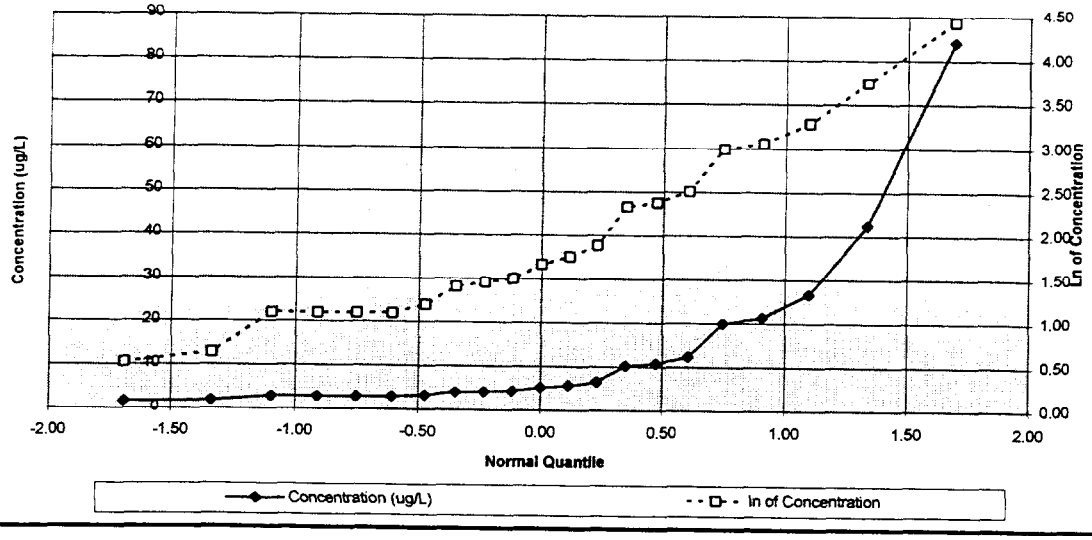
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-8B	U	1.7	0.53	1	4.55	-1.69
Jan	KBA-11-6	J	1.9	0.64	2	9.09	-1.34
Apr	KBA-11-6	UJ	3.0	1.10	3	13.64	-1.10
Apr	KBA-11-3A	U	3.0	1.10	4	18.18	-0.91
Sep	KBA-11-3B	U	3.0	1.10	5	22.73	-0.75
Apr	KBA-11-8B	U	3.0	1.10	6	27.27	-0.60
Jan	KBA-11-3B	U	3.3	1.19	7	31.82	-0.47
Apr	KBA-11-2	J	4.1	1.41	8	36.36	-0.35
Sep	KBA-11-8B	J	4.3	1.46	9	40.91	-0.23
Jan	KBA-11-13A	J	4.5	1.50	10	45.45	-0.11
Sep	KBA-11-13A	J	5.3	1.67	11	50.00	0.00
Jan	KBA-11-2	U	5.8	1.76	12	54.55	0.11
Sep	KBA-11-6	J	6.6	1.89	13	59.09	0.23
Sep	KBA-11-2	J	10.3	2.33	14	63.64	0.35
Sep	KBA-11-3A	J	10.8	2.38	15	68.18	0.47
Jan	KBA-11-3A	J	12.3	2.51	16	72.73	0.60
Apr	KBA-11-13A		20	3.00	17	77.27	0.75
Apr	KBA-11-3B	J	21.3	3.06	18	81.82	0.91
Jan	KBA-11-5		26.7	3.28	19	86.36	1.10
Apr	KBA-11-5		42.4	3.75	20	90.91	1.34
Sep	KBA-11-5		84.0	4.43	21	95.45	1.69

% Non-detects: 33%

Normal Distribution	Log-Normal Distribution
Mean = 13.2	Mean = 1.96
Standard Deviation = 19.17	Standard Deviation = 1.05
Coefficient of Variance = 1.45	Coefficient of Variance = 0.54
Skew = 2.92	Skew = 0.81
Kurtosis = 9.51	Kurtosis = -0.04
R2 = 0.58	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cyanide Ground Water Concentrations for Characterization Wells Adjacent to Landfill

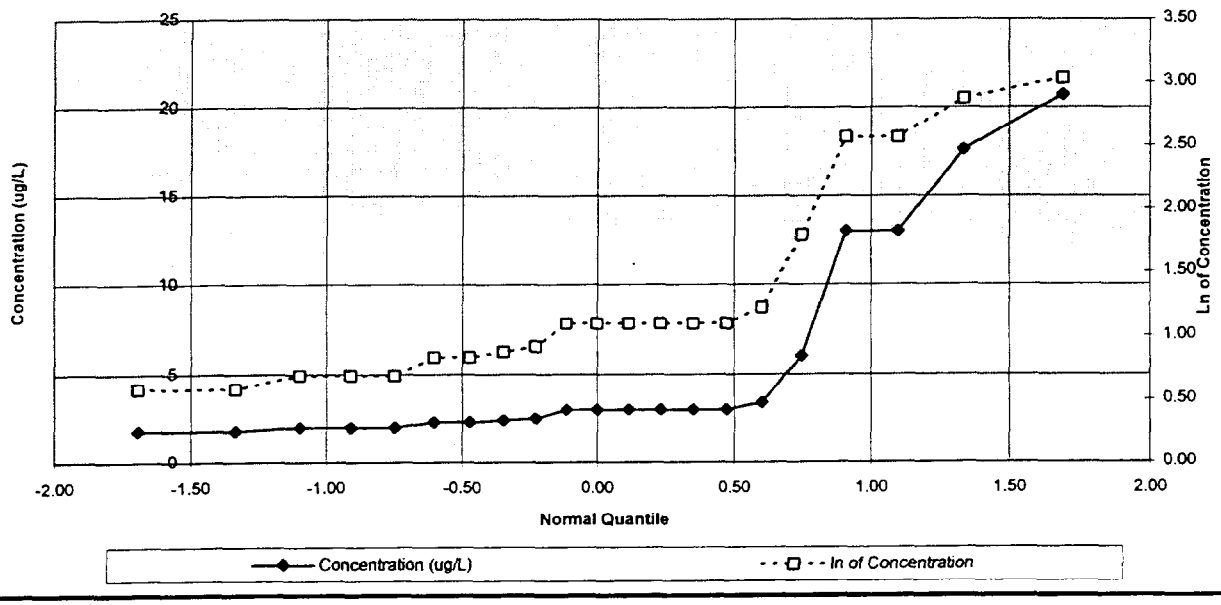
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
ALL NON-DETECT VALUES				#NUM!	1	33.33	-0.43
Selct this row and insert your data. Copy cells to right up into your data. Then Delete this row and the first row. Sort the data and input the order. Then select only your data and put a thick border around it.				#NUM!	2	66.67	0.43

% Non-detects: #DIV/0!

Normal Distribution	Log-Normal Distribution
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Iron Ground Water Concentrations for Characterization Wells Adjacent to Landfill

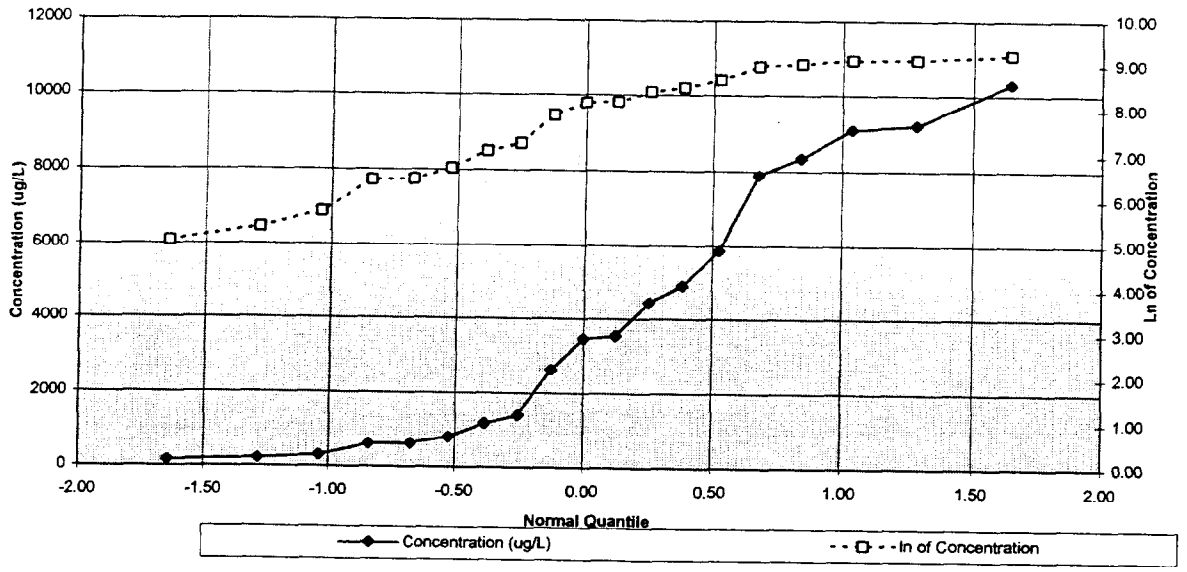
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-3B	J	160	5.08	1	5.00	-1.64
Jan	KBA-11-6		216	5.38	2	10.00	-1.28
Sep	KBA-11-3B		309	5.73	3	15.00	-1.04
Jan	KBA-11-2	J	621	6.43	4	20.00	-0.84
Jan	KBA-11-5	J	632	6.45	5	25.00	-0.67
Apr	KBA-11-6		812	6.70	6	30.00	-0.52
Sep	KBA-11-13A	J	1190	7.08	7	35.00	-0.39
Sep	KBA-11-6		1420	7.26	8	40.00	-0.25
Sep	KBA-11-8B		2650	7.88	9	45.00	-0.13
Jan	KBA-11-3A	J	3480	8.15	10	50.00	0.00
Apr	KBA-11-2		3550	8.17	11	55.00	0.13
Sep	KBA-11-2	J	4450	8.40	12	60.00	0.25
Apr	KBA-11-8B		4910	8.50	13	65.00	0.39
Apr	KBA-11-3A		5870	8.68	14	70.00	0.52
Apr	KBA-11-5		7890	8.97	15	75.00	0.67
Sep	KBA-11-5	J	8340	9.03	16	80.00	0.84
Sep	KBA-11-3A	J	9080	9.11	17	85.00	1.04
Apr	KBA-11-3B		9200	9.13	18	90.00	1.28
Jan	KBA-11-8B		10300	9.24	19	95.00	1.64

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 3951.58	Mean = 7.65
Standard Deviation = 3523.31	Standard Deviation = 1.36
Coefficient of Variance = 0.89	Coefficient of Variance = 0.18
Skew = 0.55	Skew = -0.57
Kurtosis = -1.2	Kurtosis = -0.97
R2 = 0.91	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



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KINGS BAY - SITE 11
Determination of Distribution
Lead Ground Water Concentrations for Characterization Wells Adjacent to Landfill

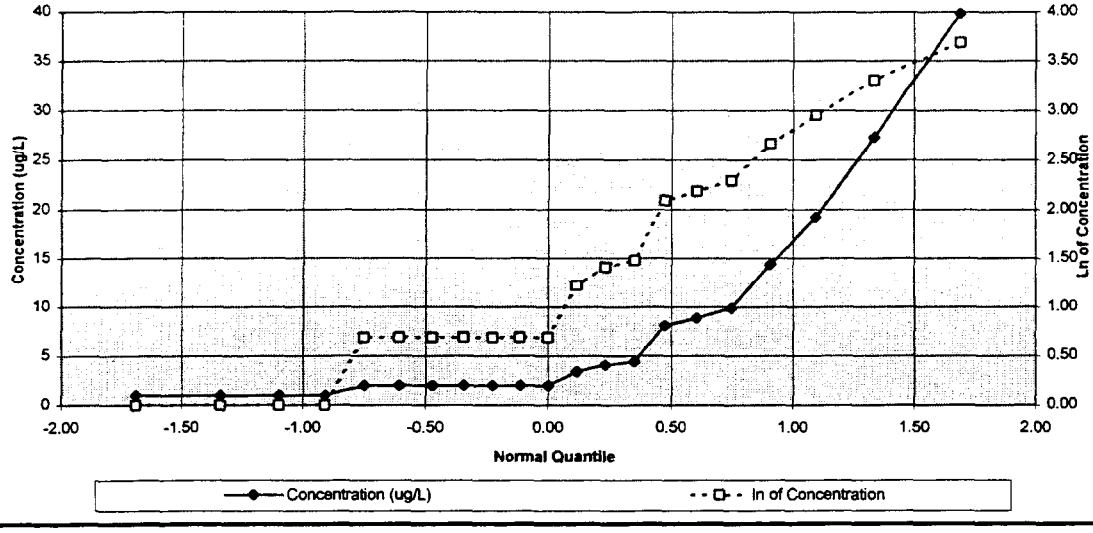
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-13A	UJ	1.0	0.00	1	4.55	-1.69
Sep	KBA-11-3B	UJ	1.0	0.00	2	9.09	-1.34
Apr	KBA-11-8B	U	1.0	0.00	3	13.64	-1.10
Sep	KBA-11-8B	U	1.0	0.00	4	18.18	-0.91
Jan	KBA-11-13A	U	2.0	0.69	5	22.73	-0.75
Jan	KBA-11-2	U	2.0	0.69	6	27.27	-0.60
Jan	KBA-11-3A	U	2.0	0.69	7	31.82	-0.47
Jan	KBA-11-3B	U	2.0	0.69	8	36.36	-0.35
Jan	KBA-11-5	U	2.0	0.69	9	40.91	-0.23
Jan	KBA-11-6	U	2.0	0.69	10	45.45	-0.11
Jan	KBA-11-8B	U	2.0	0.69	11	50.00	0.00
Apr	KBA-11-6	J	3.4	1.22	12	54.55	0.11
Apr	KBA-11-3A		4.1	1.41	13	59.09	0.23
Apr	KBA-11-13A	J	4.4	1.48	14	63.64	0.35
Apr	KBA-11-3B		8.1	2.09	15	68.18	0.47
Sep	KBA-11-6		8.9	2.19	16	72.73	0.60
Sep	KBA-11-3A	J	9.9	2.29	17	77.27	0.75
Sep	KBA-11-2		14.4	2.67	18	81.82	0.91
Apr	KBA-11-2		19.2	2.95	19	86.36	1.10
Apr	KBA-11-5	J	27.3	3.31	20	90.91	1.34
Sep	KBA-11-5		39.8	3.68	21	95.45	1.69

% Non-detects: 52%

Normal Distribution	Log-Normal Distribution
Mean = 7.5	Mean = 1.34
Standard Deviation = 10.12	Standard Deviation = 1.14
Coefficient of Variance = 1.35	Coefficient of Variance = 0.85
Skew = 2.19	Skew = 0.64
Kurtosis = 4.73	Kurtosis = -0.69
R2 = 0.66	R2 = 0.92

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Manganese Ground Water Concentrations for Characterization Wells Adjacent to Landfill

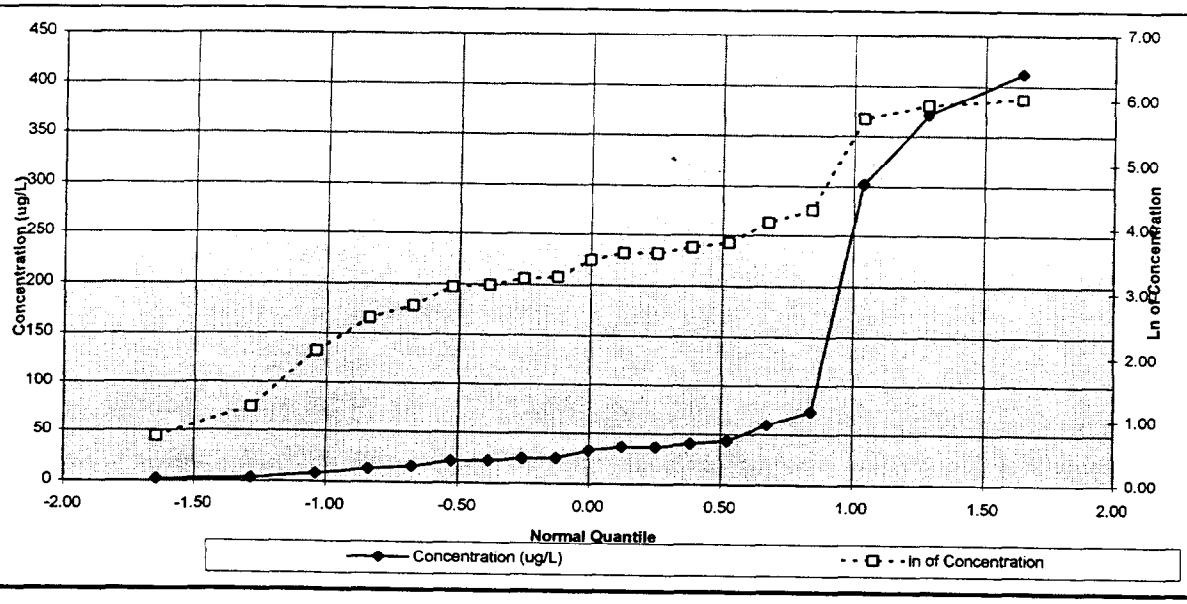
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-13A	U	2.0	0.69	1	5.00	-1.64
Sep	KBA-11-3B	J	3.2	1.16	2	10.00	-1.28
Jan	KBA-11-6	J	7.9	2.07	3	15.00	-1.04
Jan	KBA-11-5	J	13.1	2.57	4	20.00	-0.84
Apr	KBA-11-6		15.9	2.77	5	25.00	-0.67
Sep	KBA-11-6		21.5	3.07	6	30.00	-0.52
Jan	KBA-11-2		22.3	3.10	7	35.00	-0.39
Apr	KBA-11-2		24.6	3.20	8	40.00	-0.25
Jan	KBA-11-3B		25.3	3.23	9	45.00	-0.13
Sep	KBA-11-2		33.0	3.50	10	50.00	0.00
Apr	KBA-11-5		37.0	3.61	11	55.00	0.13
Sep	KBA-11-8B		37.0	3.61	12	60.00	0.25
Sep	KBA-11-5		40.6	3.70	13	65.00	0.39
Apr	KBA-11-8B		43.6	3.78	14	70.00	0.52
Apr	KBA-11-3B		59.9	4.09	15	75.00	0.67
Jan	KBA-11-8B		73.6	4.30	16	80.00	0.84
Jan	KBA-11-3A		302	5.71	17	85.00	1.04
Apr	KBA-11-3A		371	5.92	18	90.00	1.28
Sep	KBA-11-3A		412	6.02	19	95.00	1.64

% Non-detects: 5%

Normal Distribution	Log-Normal Distribution
Mean = 81.34	Mean = 3.48
Standard Deviation = 127.36	Standard Deviation = 1.4
Coefficient of Variance = 1.57	Coefficient of Variance = 0.4
Skew = 2.04	Skew = 0.11
Kurtosis = 2.79	Kurtosis = 0.35
R2 = 0.58	R2 = 0.94

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Mercury Ground Water Concentrations for Characterization Wells Adjacent to Landfill

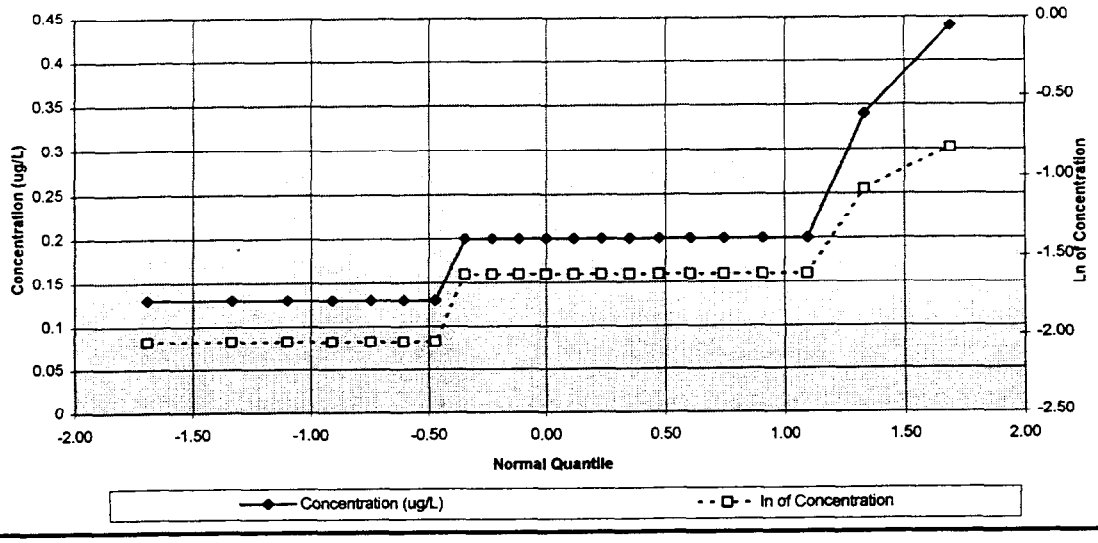
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-13A	U	0.13	-2.04	1	4.55	-1.69
Jan	KBA-11-2	U	0.13	-2.04	2	9.09	-1.34
Jan	KBA-11-3A	U	0.13	-2.04	3	13.64	-1.10
Jan	KBA-11-3B	U	0.13	-2.04	4	18.18	-0.91
Jan	KBA-11-5	U	0.13	-2.04	5	22.73	-0.75
Jan	KBA-11-6	U	0.13	-2.04	6	27.27	-0.60
Jan	KBA-11-8B	U	0.13	-2.04	7	31.82	-0.47
Apr	KBA-11-13A	U	0.20	-1.61	8	36.36	-0.35
Sep	KBA-11-13A	U	0.20	-1.61	9	40.91	-0.23
Apr	KBA-11-2	U	0.20	-1.61	10	45.45	-0.11
Sep	KBA-11-2	U	0.20	-1.61	11	50.00	0.00
Apr	KBA-11-3A	U	0.20	-1.61	12	54.55	0.11
Sep	KBA-11-3A	U	0.20	-1.61	13	59.09	0.23
Apr	KBA-11-3B	U	0.20	-1.61	14	63.64	0.35
Sep	KBA-11-3B	U	0.20	-1.61	15	68.18	0.47
Apr	KBA-11-6	U	0.20	-1.61	16	72.73	0.60
Sep	KBA-11-6	U	0.20	-1.61	17	77.27	0.75
Apr	KBA-11-8B	U	0.20	-1.61	18	81.82	0.91
Sep	KBA-11-8B	U	0.20	-1.61	19	86.36	1.10
Sep	KBA-11-5		0.34	-1.08	20	90.91	1.34
Apr	KBA-11-5		0.44	-0.82	21	95.45	1.69

% Non-detects: 90%

Normal Distribution	Log-Normal Distribution
Mean = 0.19	Mean = -1.69
Standard Deviation = 0.07	Standard Deviation = 0.32
Coefficient of Variance = 0.38	Coefficient of Variance = -0.19
Skew = 2.13	Skew = 0.99
Kurtosis = 5.68	Kurtosis = 1.66
R2 = 0.65	R2 = 0.75

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Nickel Ground Water Concentrations for Characterization Wells Adjacent to Landfill

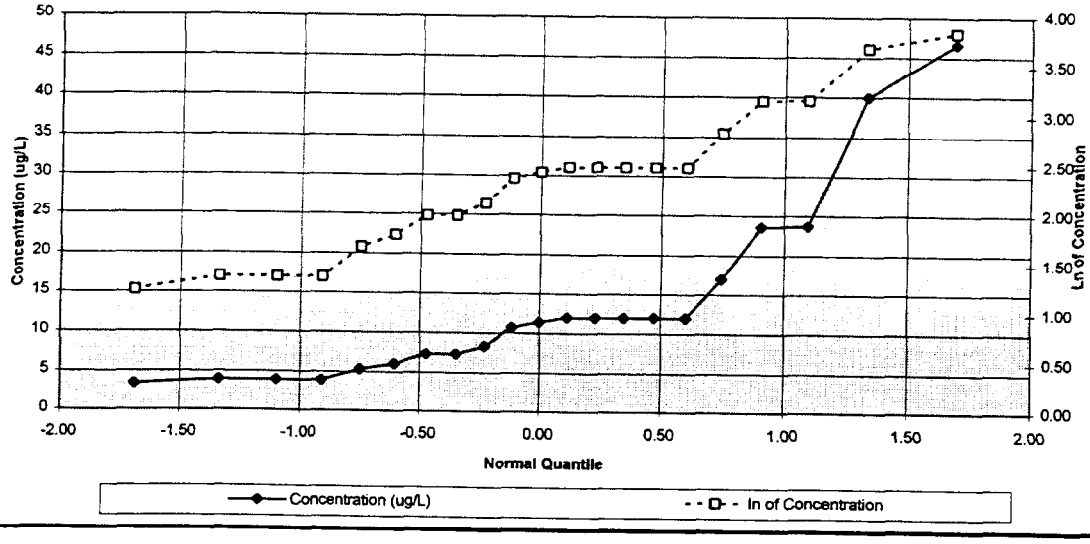
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-3B	U	3.4	1.22	1	4.55	-1.69
Jan	KBA-11-2	U	3.9	1.36	2	9.09	-1.34
Jan	KBA-11-3A	U	3.9	1.36	3	13.64	-1.10
Jan	KBA-11-3B	U	3.9	1.36	4	18.18	-0.91
Jan	KBA-11-5	J	5.3	1.67	5	22.73	-0.75
Sep	KBA-11-6	U	6.0	1.79	6	27.27	-0.60
Jan	KBA-11-6	U	7.3	1.99	7	31.82	-0.47
Jan	KBA-11-8B	U	7.3	1.99	8	36.36	-0.35
Sep	KBA-11-13A	J	8.3	2.12	9	40.91	-0.23
Sep	KBA-11-2	J	10.7	2.37	10	45.45	-0.11
Sep	KBA-11-3A	J	11.4	2.43	11	50.00	0.00
Apr	KBA-11-2	U	12.0	2.48	12	54.55	0.11
Apr	KBA-11-3A	U	12.0	2.48	13	59.09	0.23
Apr	KBA-11-5	U	12.0	2.48	14	63.64	0.35
Apr	KBA-11-6	U	12.0	2.48	15	68.18	0.47
Apr	KBA-11-8B	U	12.0	2.48	16	72.73	0.60
Jan	KBA-11-13A	J	17.0	2.83	17	77.27	0.75
Sep	KBA-11-8B	J	23.6	3.16	18	81.82	0.91
Sep	KBA-11-5	J	23.7	3.17	19	86.36	1.10
Apr	KBA-11-13A	U	40.0	3.69	20	90.91	1.34
Apr	KBA-11-3B		46.6	3.84	21	95.45	1.69

% Non-detects: 62%

Normal Distribution	Log-Normal Distribution
Mean = 13.44	Mean = 2.32
Standard Deviation = 11.5	Standard Deviation = 0.74
Coefficient of Variance = 0.86	Coefficient of Variance = 0.32
Skew = 1.89	Skew = 0.39
Kurtosis = 3.34	Kurtosis = -0.31
R2 = 0.75	R2 = 0.96

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Selenium Ground Water Concentrations for Characterization Wells Adjacent to Landfill

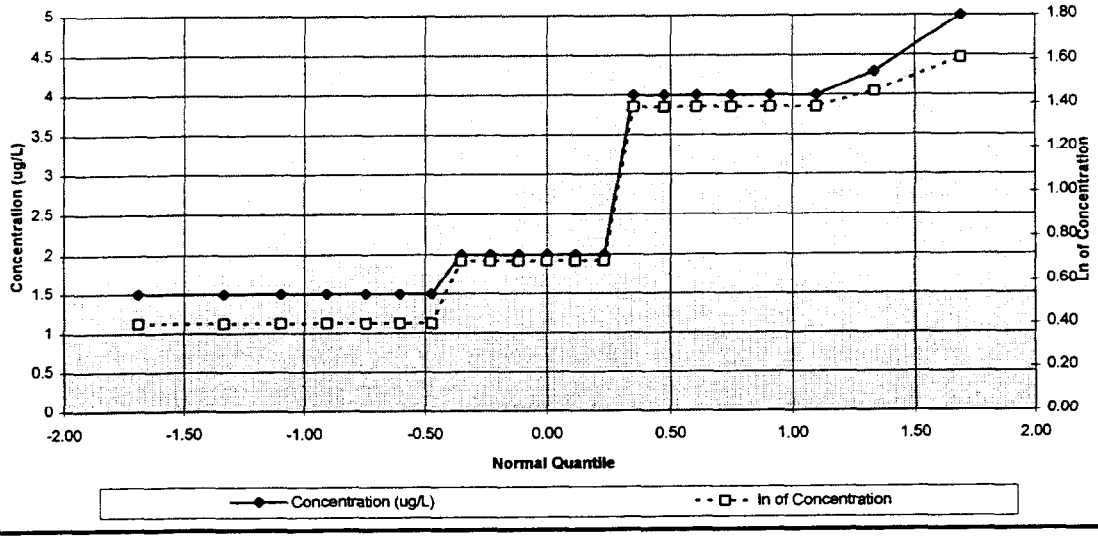
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-13A	U	1.5	0.41	1	4.55	-1.69
Jan	KBA-11-2	U	1.5	0.41	2	9.09	-1.34
Jan	KBA-11-3A	U	1.5	0.41	3	13.64	-1.10
Jan	KBA-11-3B	U	1.5	0.41	4	18.18	-0.91
Jan	KBA-11-5	U	1.5	0.41	5	22.73	-0.75
Jan	KBA-11-6	U	1.5	0.41	6	27.27	-0.60
Jan	KBA-11-8B	U	1.5	0.41	7	31.82	-0.47
Apr	KBA-11-5	UJ	2.0	0.69	8	36.36	-0.35
Apr	KBA-11-2	U	2.0	0.69	9	40.91	-0.23
Apr	KBA-11-3A	U	2.0	0.69	10	45.45	-0.11
Apr	KBA-11-3B	U	2.0	0.69	11	50.00	0.00
Apr	KBA-11-6	U	2.0	0.69	12	54.55	0.11
Apr	KBA-11-8B	U	2.0	0.69	13	59.09	0.23
Sep	KBA-11-13A	U	4.0	1.39	14	63.64	0.35
Sep	KBA-11-2	U	4.0	1.39	15	68.18	0.47
Sep	KBA-11-3B	U	4.0	1.39	16	72.73	0.60
Sep	KBA-11-5	U	4.0	1.39	17	77.27	0.75
Sep	KBA-11-6	U	4.0	1.39	18	81.82	0.91
Sep	KBA-11-8B	U	4.0	1.39	19	86.36	1.10
Sep	KBA-11-3A	J	4.3	1.46	20	90.91	1.34
Apr	KBA-11-13A	UJ	5.0	1.61	21	95.45	1.69

% Non-detects: 95% 11

Normal Distribution	Log-Normal Distribution
Mean = 2.66	Mean = 0.88
Standard Deviation = 1.24	Standard Deviation = 0.46
Coefficient of Variance = 0.47	Coefficient of Variance = 0.52
Skew = 0.55	Skew = 0.36
Kurtosis = -1.52	Kurtosis = -1.72
R2 = 0.8	R2 = 0.83

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Silver Ground Water Concentrations for Characterization Wells Adjacent to Landfill

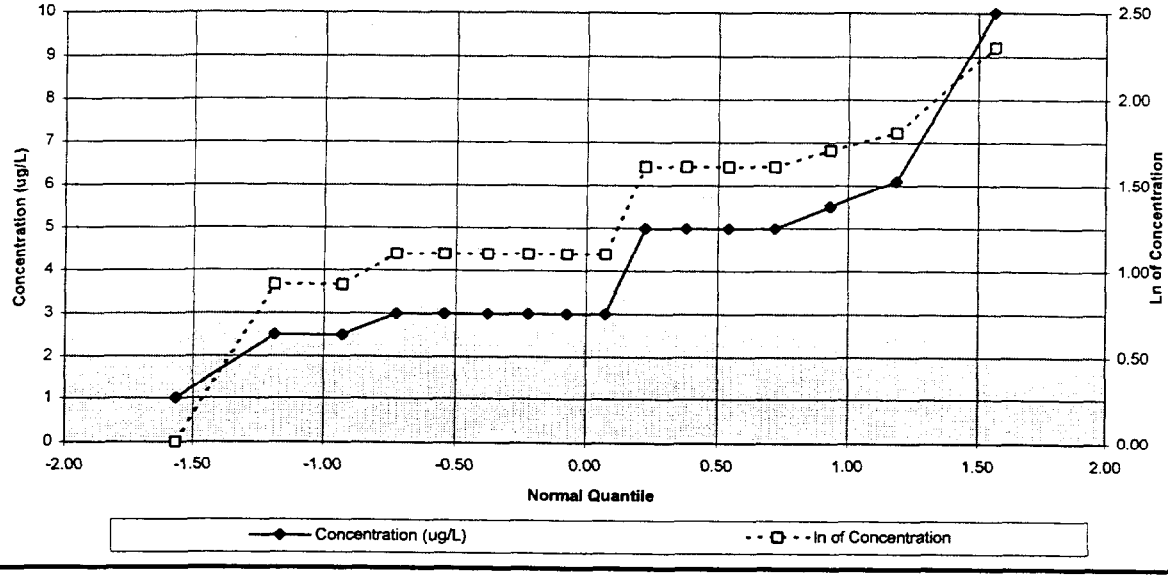
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-3B	U	1.0	0.00	1	5.88	-1.56
Jan	KBA-11-6	UJ	2.5	0.92	2	11.76	-1.19
Jan	KBA-11-8B	UJ	2.5	0.92	3	17.65	-0.93
Apr	KBA-11-5	UJ	3.0	1.10	4	23.53	-0.72
Apr	KBA-11-6	UJ	3.0	1.10	5	29.41	-0.54
Apr	KBA-11-2	U	3.0	1.10	6	35.29	-0.38
Apr	KBA-11-3A	U	3.0	1.10	7	41.18	-0.22
Apr	KBA-11-3B	U	3.0	1.10	8	47.06	-0.07
Apr	KBA-11-8B	U	3.0	1.10	9	52.94	0.07
Sep	KBA-11-2	U	5.0	1.61	10	58.82	0.22
Sep	KBA-11-5	U	5.0	1.61	11	64.71	0.38
Sep	KBA-11-6	U	5.0	1.61	12	70.59	0.54
Sep	KBA-11-8B	U	5.0	1.61	13	76.47	0.72
Sep	KBA-11-13A	J	5.5	1.70	14	82.35	0.93
Sep	KBA-11-3A	J	6.1	1.81	15	88.24	1.19
Apr	KBA-11-13A	U	10	2.30	16	94.12	1.56

% Non-detects: 88%

Normal Distribution	Log-Normal Distribution
Mean = 4.1	Mean = 1.29
Standard Deviation = 2.1	Standard Deviation = 0.52
Coefficient of Variance = 0.51	Coefficient of Variance = 0.4
Skew = 1.43	Skew = -0.51
Kurtosis = 3.23	Kurtosis = 1.82
R2 = 0.82	R2 = 0.87

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Sulfide Ground Water Concentrations for Characterization Wells Adjacent to Landfill

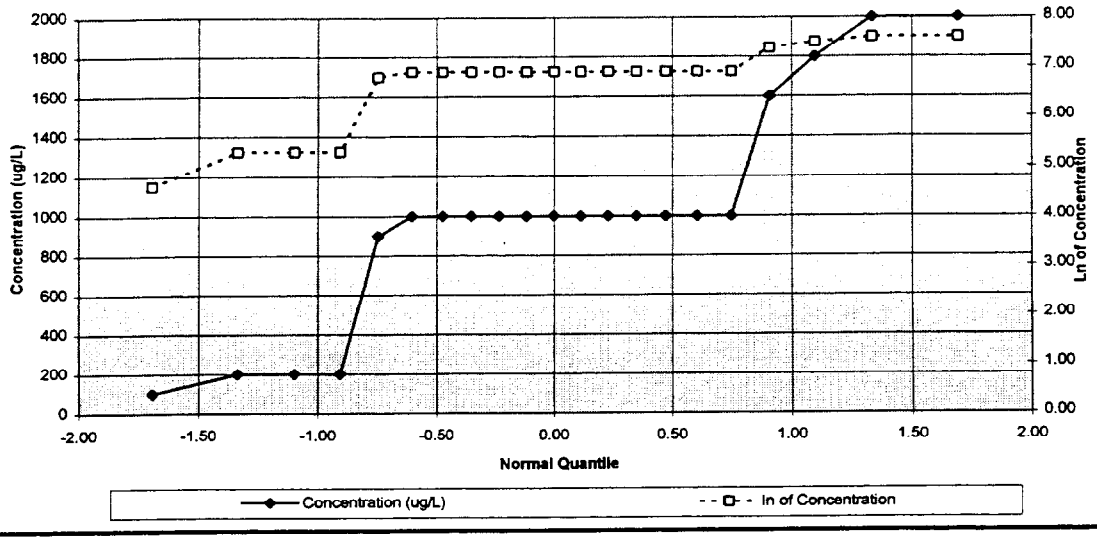
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-2	UJ	100	4.61	1	4.55	-1.69
Jan	KBA-11-3A	J	200	5.30	2	9.09	-1.34
Jan	KBA-11-5	J	200	5.30	3	13.64	-1.10
Jan	KBA-11-6	J	200	5.30	4	18.18	-0.91
Jan	KBA-11-13A	J	900	6.80	5	22.73	-0.75
Apr	KBA-11-13A	U	1000	6.91	6	27.27	-0.60
Apr	KBA-11-2	U	1000	6.91	7	31.82	-0.47
Apr	KBA-11-3A	U	1000	6.91	8	36.36	-0.35
Sep	KBA-11-3A	U	1000	6.91	9	40.91	-0.23
Apr	KBA-11-3B	U	1000	6.91	10	45.45	-0.11
Sep	KBA-11-3B	U	1000	6.91	11	50.00	0.00
Apr	KBA-11-5	U	1000	6.91	12	54.55	0.11
Apr	KBA-11-6	U	1000	6.91	13	59.09	0.23
Sep	KBA-11-6	U	1000	6.91	14	63.64	0.35
Apr	KBA-11-8B	U	1000	6.91	15	68.18	0.47
Sep	KBA-11-8B	U	1000	6.91	16	72.73	0.60
Sep	KBA-11-2	J	1000	6.91	17	77.27	0.75
Jan	KBA-11-8B	J	1600	7.38	18	81.82	0.91
Jan	KBA-11-3B	J	1800	7.50	19	86.36	1.10
Sep	KBA-11-13A	J	2000	7.60	20	90.91	1.34
Sep	KBA-11-5	J	2000	7.60	21	95.45	1.69

% Non-detects: 57%

Normal Distribution	Log-Normal Distribution
Mean = 1000	Mean = 6.68
Standard Deviation = 535.72	Standard Deviation = 0.82
Coefficient of Variance = 0.54	Coefficient of Variance = 0.12
Skew = 0.17	Skew = -1.42
Kurtosis = 0.12	Kurtosis = 1.16
R2 = 0.83	R2 = 0.72

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Thallium Ground Water Concentrations for Characterization Wells Adjacent to Landfill

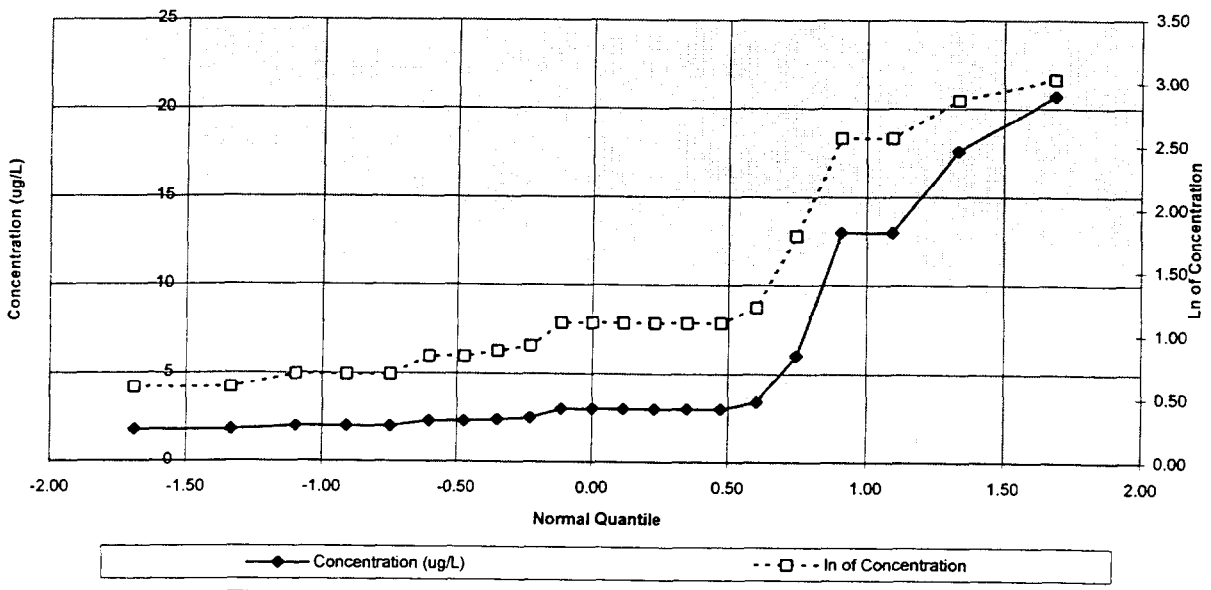
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
ALL NON-DETECTED VALUES				#NUM!	1	33.33	-0.43
Selct this row and insert your data. Copy cells to right up into your data. Then Delete this row and the first row. Sort the data and input the order. Then select only your data and put a thick border around it.				#NUM!	2	66.67	0.43

% Non-detects: #DIV/0!

Normal Distribution	Log-Normal Distribution
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Tin Ground Water Concentrations for Characterization Wells Adjacent to Landfill

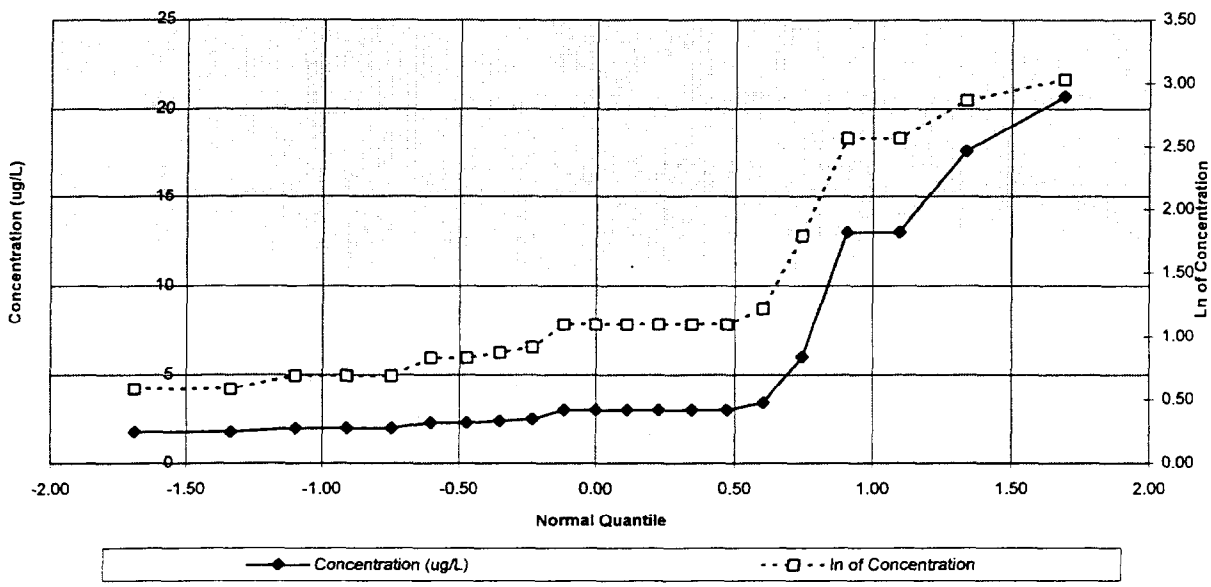
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
ALL NON-DETECTED VALUES				#NUM!	1	33.33	-0.43
Selct this row and insert your data. Copy cells to right up into your data. Then Delete this row and the first row. Sort the data and input the order. Then select only your data and put a thick border around it.				#NUM!	2	66.67	0.43

% Non-detects: #DIV/0!

Normal Distribution	Log-Normal Distribution
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Vanadium Ground Water Concentrations for Characterization Wells Adjacent to Landfill

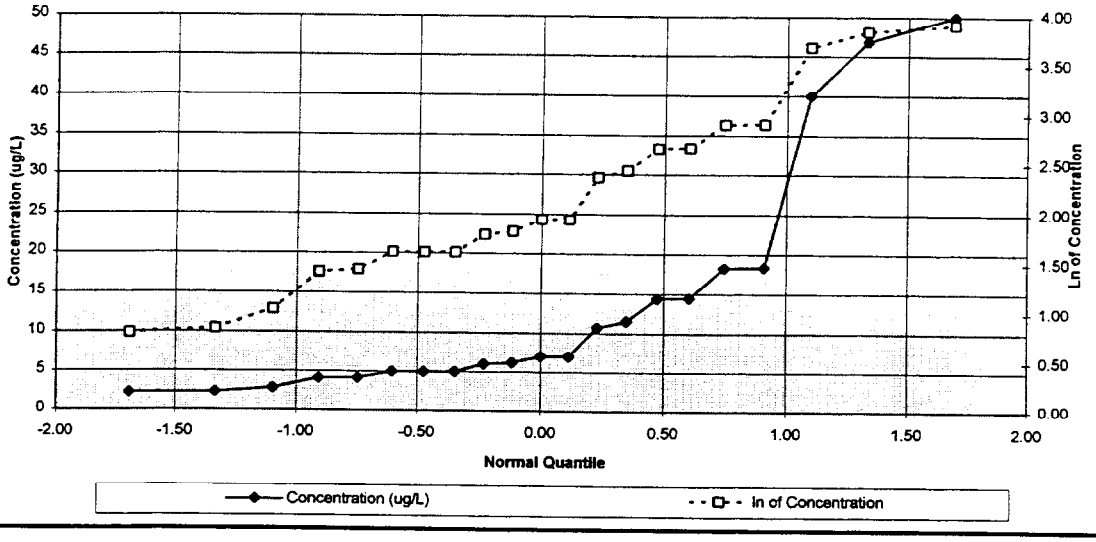
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-3B	J	2.2	0.79	1	4.55	-1.69
Jan	KBA-11-6	U	2.3	0.83	2	9.09	-1.34
Jan	KBA-11-2	J	2.8	1.03	3	13.64	-1.10
Jan	KBA-11-5	J	4.1	1.41	4	18.18	-0.91
Jan	KBA-11-8B	J	4.2	1.44	5	22.73	-0.75
Apr	KBA-11-6	UJ	5.0	1.61	6	27.27	-0.60
Apr	KBA-11-3A	U	5.0	1.61	7	31.82	-0.47
Apr	KBA-11-8B	U	5.0	1.61	8	36.36	-0.35
Apr	KBA-11-2	J	6.0	1.79	9	40.91	-0.23
Jan	KBA-11-3A	J	6.2	1.82	10	45.45	-0.11
Sep	KBA-11-6	U	7.0	1.95	11	50.00	0.00
Sep	KBA-11-8B	U	7.0	1.95	12	54.55	0.11
Sep	KBA-11-3B	J	10.7	2.37	13	59.09	0.23
Sep	KBA-11-2	J	11.5	2.44	14	63.64	0.35
Jan	KBA-11-13A	J	14.4	2.67	15	68.18	0.47
Sep	KBA-11-13A	J	14.5	2.67	16	72.73	0.60
Sep	KBA-11-3A	J	18.3	2.91	17	77.27	0.75
Apr	KBA-11-3B	J	18.4	2.91	18	81.82	0.91
Sep	KBA-11-5	J	40.0	3.69	19	86.36	1.10
Apr	KBA-11-5	J	46.8	3.85	20	90.91	1.34
Apr	KBA-11-13A	U	50	3.91	21	95.45	1.69

% Non-detects: 33%

Normal Distribution	Log-Normal Distribution
Mean = 13.4	Mean = 2.15
Standard Deviation = 14.42	Standard Deviation = 0.93
Coefficient of Variance = 1.08	Coefficient of Variance = 0.43
Skew = 1.78	Skew = 0.51
Kurtosis = 2.16	Kurtosis = -0.52
R2 = 0.72	R2 = 0.96

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Zinc Ground Water Concentrations for Characterization Wells Adjacent to Landfill

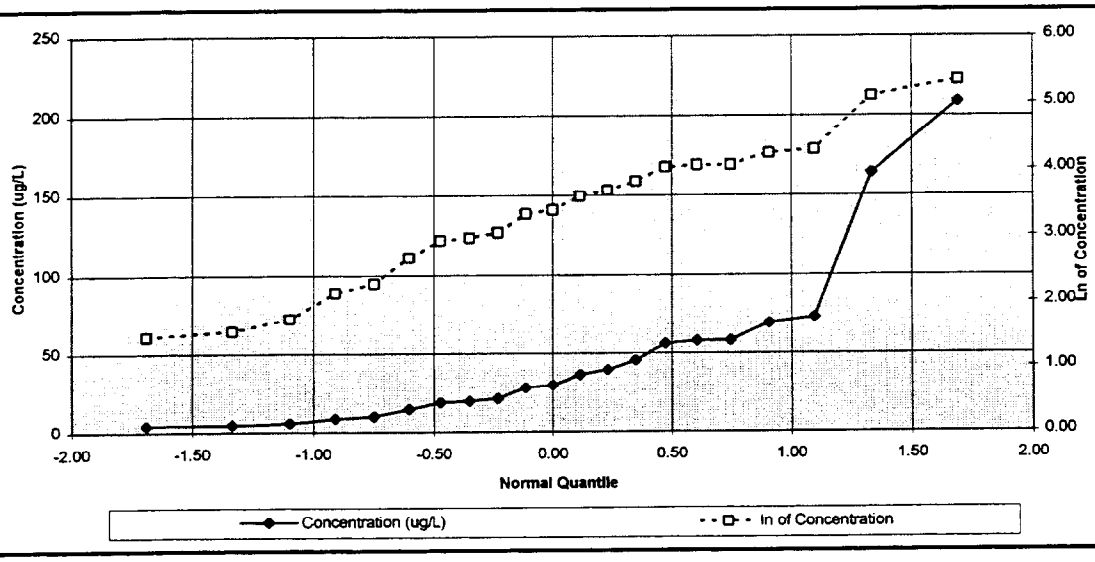
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-3B	U	4.3	1.46	1	4.55	-1.69
Jan	KBA-11-6	J	4.7	1.55	2	9.09	-1.34
Jan	KBA-11-2	U	5.7	1.74	3	13.64	-1.10
Jan	KBA-11-3A	U	8.5	2.14	4	18.18	-0.91
Jan	KBA-11-8B	J	9.8	2.28	5	22.73	-0.75
Apr	KBA-11-2	U	14.5	2.67	6	27.27	-0.60
Apr	KBA-11-6	U	18.8	2.93	7	31.82	-0.47
Sep	KBA-11-3B	J	19.5	2.97	8	36.36	-0.35
Sep	KBA-11-13A		21.1	3.05	9	40.91	-0.23
Sep	KBA-11-2		27.9	3.33	10	45.45	-0.11
Apr	KBA-11-3A	U	29.6	3.39	11	50.00	0.00
Sep	KBA-11-6		36.2	3.59	12	54.55	0.11
Sep	KBA-11-3A		39.5	3.68	13	59.09	0.23
Sep	KBA-11-8B		45.2	3.81	14	63.64	0.35
Jan	KBA-11-13A		56.0	4.03	15	68.18	0.47
Apr	KBA-11-3B		57.8	4.06	16	72.73	0.60
Apr	KBA-11-8B		57.9	4.06	17	77.27	0.75
Jan	KBA-11-5		69.3	4.24	18	81.82	0.91
Apr	KBA-11-13A	J	73	4.29	19	86.36	1.10
Apr	KBA-11-5		164	5.10	20	90.91	1.34
Sep	KBA-11-5		209	5.34	21	95.45	1.69

% Non-detects: 29%

Normal Distribution	Log-Normal Distribution
Mean = 46.3	Mean = 3.32
Standard Deviation = 51.83	Standard Deviation = 1.08
Coefficient of Variance = 1.12	Coefficient of Variance = 0.33
Skew = 2.21	Skew = -0.09
Kurtosis = 5	Kurtosis = -0.52
R2 = 0.71	R2 = 0.98

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



Characaterization Wells in Subdivision

KINGS BAY - SITE 11

Determination of Distribution

Aluminum Ground Water Concentrations for Offsite Characterization Wells

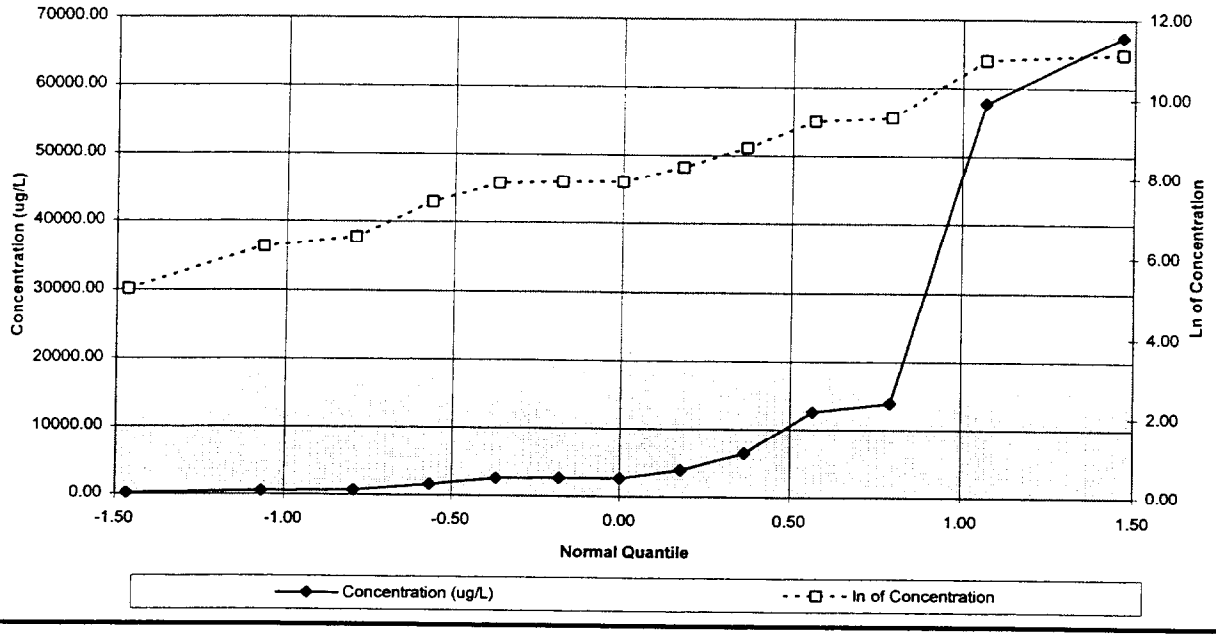
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-18	U	176	5.17	1	7.14	-1.47
Sep	KBA-11-16		504	6.22	2	14.29	-1.07
Sep	KBA-11-17B		644	6.47	3	21.43	-0.79
Jan	KBA-11-17B	J	1580	7.37	4	28.57	-0.57
Jan	KBA-11-16	J	2550	7.84	5	35.71	-0.37
Sep	KBA-11-17A		2660	7.89	6	42.86	-0.18
Apr	KBA-11-18		2670	7.89	7	50.00	0.00
Apr	KBA-11-17B		3920	8.27	8	57.14	0.18
Sep	KBA-11-19A		6430	8.77	9	64.29	0.37
Jan	KBA-11-18	J	12600	9.44	10	71.43	0.57
Apr	KBA-11-19A		13900	9.54	11	78.57	0.79
Jan	KBA-11-17A	J	57800	10.96	12	85.71	1.07
Apr	KBA-11-17A		67400	11.12	13	92.86	1.47

% Non-detects: 8%

Normal Distribution	Log-Normal Distribution
Mean = 13295	Mean = 8.23
Standard Deviation = 22395	Standard Deviation = 1.75
Coefficient of Variance = 1.68	Coefficient of Variance = 0.21
Skew = 2.05	Skew = 0.11
Kurtosis = 3	Kurtosis = -0.36
R2 = 0.6	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Antimony Ground Water Concentrations for Offsite Characterization Wells

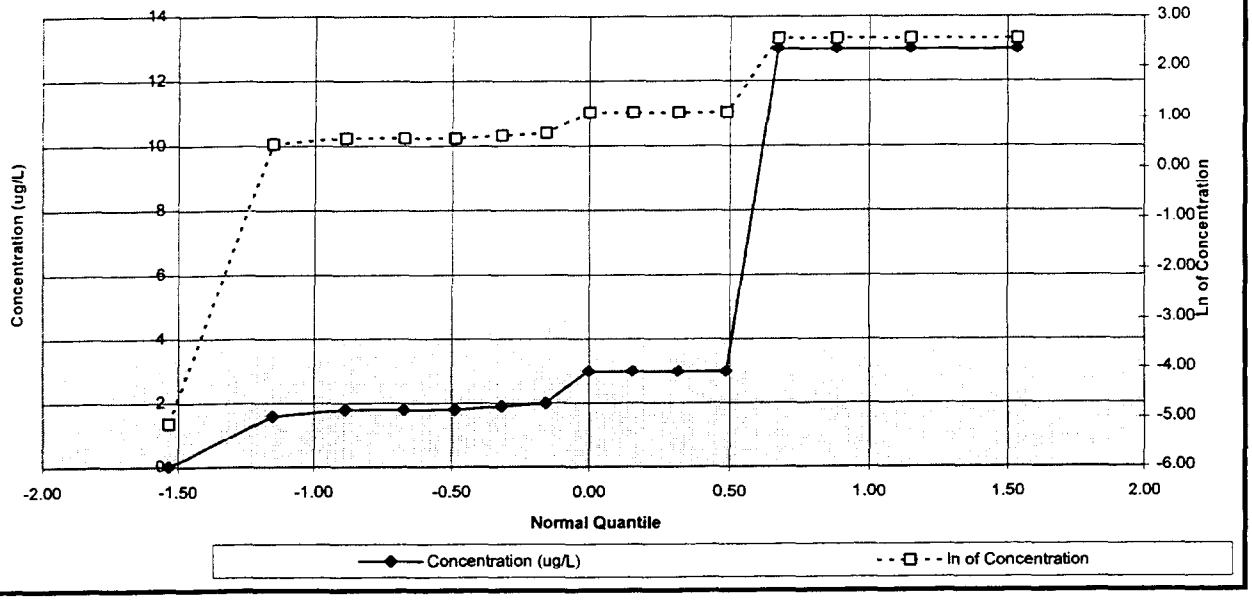
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-16	U	0.006	-5.12	1	6.25	-1.53
Jan	KBA-11-18	U	1.6	0.47	2	12.50	-1.15
Jan	KBA-11-16	U	1.8	0.59	3	18.75	-0.89
Jan	KBA-11-17B	U	1.8	0.59	4	25.00	-0.67
Jan	KBA-11-19A	U	1.8	0.59	5	31.25	-0.49
Jan	KBA-11-17A	J	1.9	0.64	6	37.50	-0.32
Sep	KBA-11-18	U	2.0	0.69	7	43.75	-0.16
Apr	KBA-11-17A	U	3.0	1.10	8	50.00	0.00
Apr	KBA-11-17B	U	3.0	1.10	9	56.25	0.16
Apr	KBA-11-18	U	3.0	1.10	10	62.50	0.32
Apr	KBA-11-19A	U	3.0	1.10	11	68.75	0.49
Sep	KBA-11-16	U	13.0	2.56	12	75.00	0.67
Sep	KBA-11-17A	U	13.0	2.56	13	81.25	0.89
Sep	KBA-11-17B	U	13.0	2.56	14	87.50	1.15
Sep	KBA-11-19A	U	13.0	2.56	15	93.75	1.53

% Non-detects: 93%

Normal Distribution	Log-Normal Distribution
Mean = 4.99	Mean = 0.87
Standard Deviation = 5.06	Standard Deviation = 1.85
Coefficient of Variance = 1.01	Coefficient of Variance = 2.12
Skew = 1.09	Skew = -2.54
Kurtosis = -0.79	Kurtosis = 8.56
R2 = 0.7	R2 = 0.62

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Arsenic Ground Water Concentrations for Offsite Characterization Wells

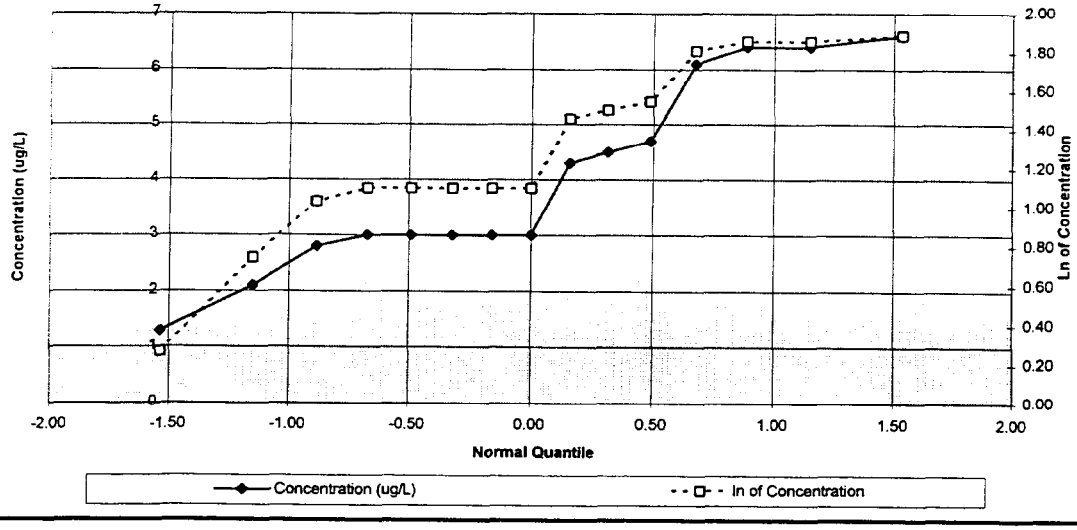
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-19A	J	1.3	0.26	1	6.25	-1.53
Jan	KBA-11-17A	J	2.1	0.74	2	12.50	-1.15
Apr	KBA-11-18	J	2.8	1.03	3	18.75	-0.89
Sep	KBA-11-18	U	3.0	1.10	4	25.00	-0.67
Sep	KBA-11-16	UJ	3.0	1.10	5	31.25	-0.49
Sep	KBA-11-17A	UJ	3.0	1.10	6	37.50	-0.32
Sep	KBA-11-17B	UJ	3.0	1.10	7	43.75	-0.16
Sep	KBA-11-19A	UJ	3.0	1.10	8	50.00	0.00
Jan	KBA-11-16	J	4.3	1.46	9	56.25	0.16
Jan	KBA-11-18	J	4.5	1.50	10	62.50	0.32
Apr	KBA-11-19A	J	4.7	1.55	11	68.75	0.49
Apr	KBA-11-16		6.1	1.81	12	75.00	0.67
Jan	KBA-11-17B	J	6.4	1.86	13	81.25	0.89
Apr	KBA-11-17A	J	6.4	1.86	14	87.50	1.15
Apr	KBA-11-17B	J	6.6	1.89	15	93.75	1.53

% Non-detects: 33%

Normal Distribution	Log-Normal Distribution
Mean = 4.01	Mean = 1.3
Standard Deviation = 1.71	Standard Deviation = 0.46
Coefficient of Variance = 0.43	Coefficient of Variance = 0.36
Skew = 0.33	Skew = -0.51
Kurtosis = -1.14	Kurtosis = 0.13
R2 = 0.91	R2 = 0.91

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Barium Ground Water Concentrations for Offsite Characterization Wells

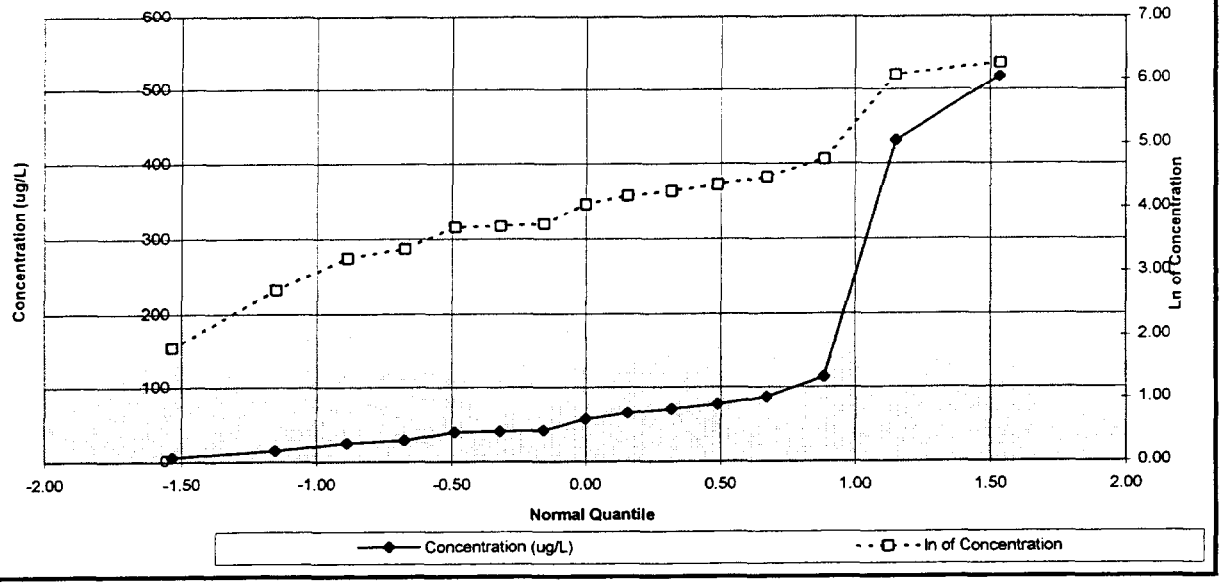
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-16		6.1	1.81	1	6.25	-1.53
Sep	KBA-11-18	J	15.0	2.71	2	12.50	-1.15
Sep	KBA-11-17B	J	24.7	3.21	3	18.75	-0.89
Sep	KBA-11-19A	J	28.5	3.35	4	25.00	-0.67
Jan	KBA-11-17B	J	40.0	3.69	5	31.25	-0.49
Sep	KBA-11-16	J	40.7	3.71	6	37.50	-0.32
Apr	KBA-11-18	J	42.1	3.74	7	43.75	-0.16
Apr	KBA-11-19A	J	57.4	4.05	8	50.00	0.00
Apr	KBA-11-17B	J	65.5	4.18	9	56.25	0.16
Jan	KBA-11-16	J	70.4	4.25	10	62.50	0.32
Sep	KBA-11-17A	J	77.2	4.35	11	68.75	0.49
Jan	KBA-11-18	J	86.3	4.46	12	75.00	0.67
Jan	KBA-11-19A	J	114	4.74	13	81.25	0.89
Jan	KBA-11-17A	J	432	6.07	14	87.50	1.15
Apr	KBA-11-17A		518	6.25	15	93.75	1.53

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 107.86	Mean = 4.04
Standard Deviation = 152.62	Standard Deviation = 1.14
Coefficient of Variance = 1.41	Coefficient of Variance = 0.28
Skew = 2.29	Skew = 0.3
Kurtosis = 4.27	Kurtosis = 0.84
R2 = 0.58	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Beryllium Ground Water Concentrations for Offsite Characterization Wells

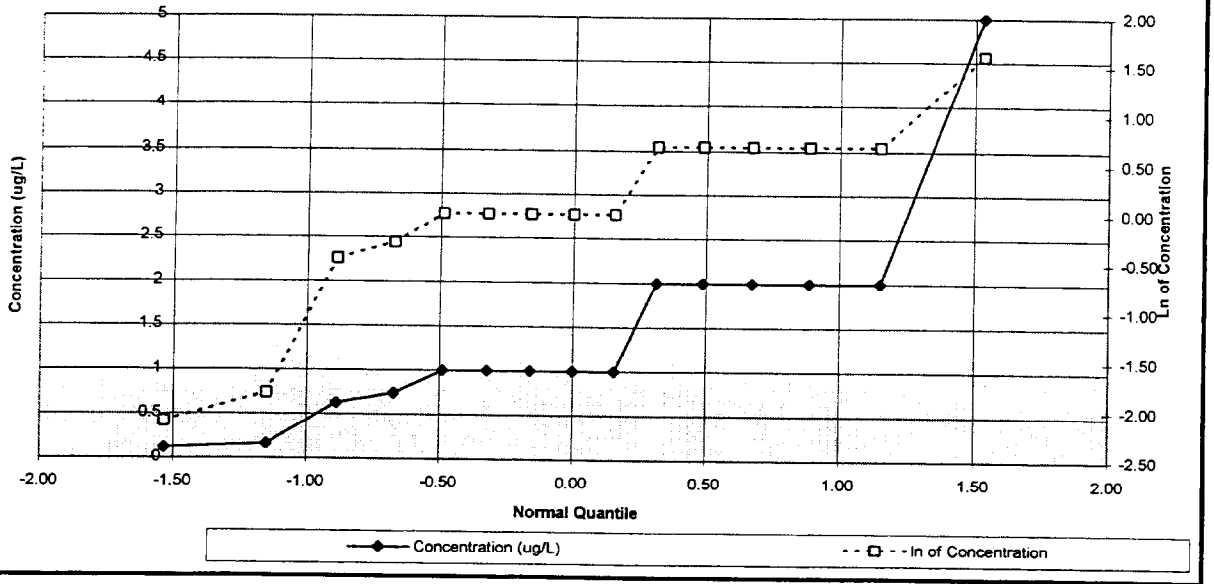
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-16	UJ	0.12	-2.12	1	6.25	-1.53
Jan	KBA-11-17B	UJ	0.16	-1.83	2	12.50	-1.15
Jan	KBA-11-19A	J	0.63	-0.46	3	18.75	-0.89
Jan	KBA-11-17A	J	0.74	-0.30	4	25.00	-0.67
Sep	KBA-11-16	U	1.0	0.00	5	31.25	-0.49
Sep	KBA-11-17A	U	1.0	0.00	6	37.50	-0.32
Sep	KBA-11-17B	U	1.0	0.00	7	43.75	-0.16
Sep	KBA-11-18	U	1.0	0.00	8	50.00	0.00
Sep	KBA-11-19A	U	1.0	0.00	9	56.25	0.16
Jan	KBA-11-18	J	2.0	0.69	10	62.50	0.32
Apr	KBA-11-17A	U	2.0	0.69	11	68.75	0.49
Apr	KBA-11-17B	U	2.0	0.69	12	75.00	0.67
Apr	KBA-11-18	U	2.0	0.69	13	81.25	0.89
Apr	KBA-11-19A	U	2.0	0.69	14	87.50	1.15
Apr	KBA-11-16	U	5.0	1.61	15	93.75	1.53

% Non-detects: 80%

Normal Distribution	Log-Normal Distribution
Mean = 1.44	Mean = 0.02
Standard Deviation = 1.19	Standard Deviation = 0.97
Coefficient of Variance = 0.82	Coefficient of Variance = 40.46
Skew = 1.97	Skew = -0.99
Kurtosis = 5.47	Kurtosis = 1.27
R2 = 0.75	R2 = 0.85

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cadmium Ground Water Concentrations for Offsite Characterization Wells

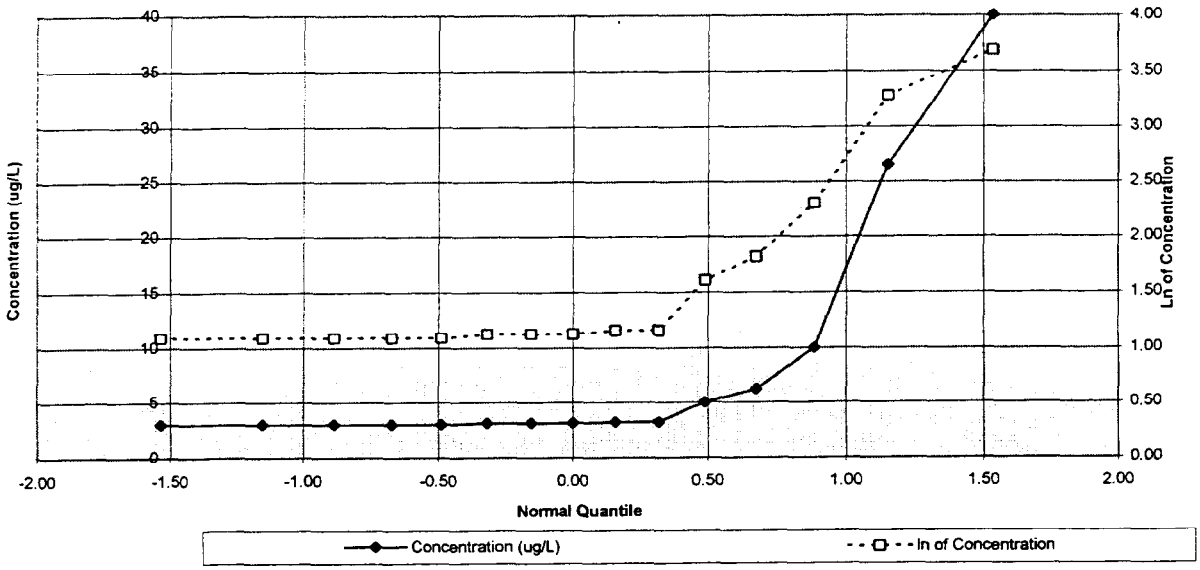
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-17A	UJ	3.0	1.10	1	6.25	-1.53
Apr	KBA-11-17B	UJ	3.0	1.10	2	12.50	-1.15
Apr	KBA-11-18	UJ	3.0	1.10	3	18.75	-0.89
Apr	KBA-11-19A	UJ	3.0	1.10	4	25.00	-0.67
Sep	KBA-11-19A	U	3.0	1.10	5	31.25	-0.49
Jan	KBA-11-17A	U	3.1	1.13	6	37.50	-0.32
Jan	KBA-11-18	U	3.1	1.13	7	43.75	-0.16
Jan	KBA-11-19A	U	3.1	1.13	8	50.00	0.00
Jan	KBA-11-16	U	3.2	1.16	9	56.25	0.16
Jan	KBA-11-17B	U	3.2	1.16	10	62.50	0.32
Apr	KBA-11-16	U	5.0	1.61	11	68.75	0.49
Sep	KBA-11-17B		6.2	1.82	12	75.00	0.67
Sep	KBA-11-18		10.0	2.30	13	81.25	0.89
Sep	KBA-11-17A		26.5	3.28	14	87.50	1.15
Sep	KBA-11-16		40.0	3.69	15	93.75	1.53

% Non-detects: 73%

Normal Distribution	Log-Normal Distribution
Mean = 7.89	Mean = 1.59
Standard Deviation = 10.78	Standard Deviation = 0.85
Coefficient of Variance = 1.37	Coefficient of Variance = 0.53
Skew = 2.53	Skew = 1.8
Kurtosis = 5.92	Kurtosis = 2.25
R2 = 0.51	R2 = 0.65

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Chromium Ground Water Concentrations for Offsite Characterization Wells

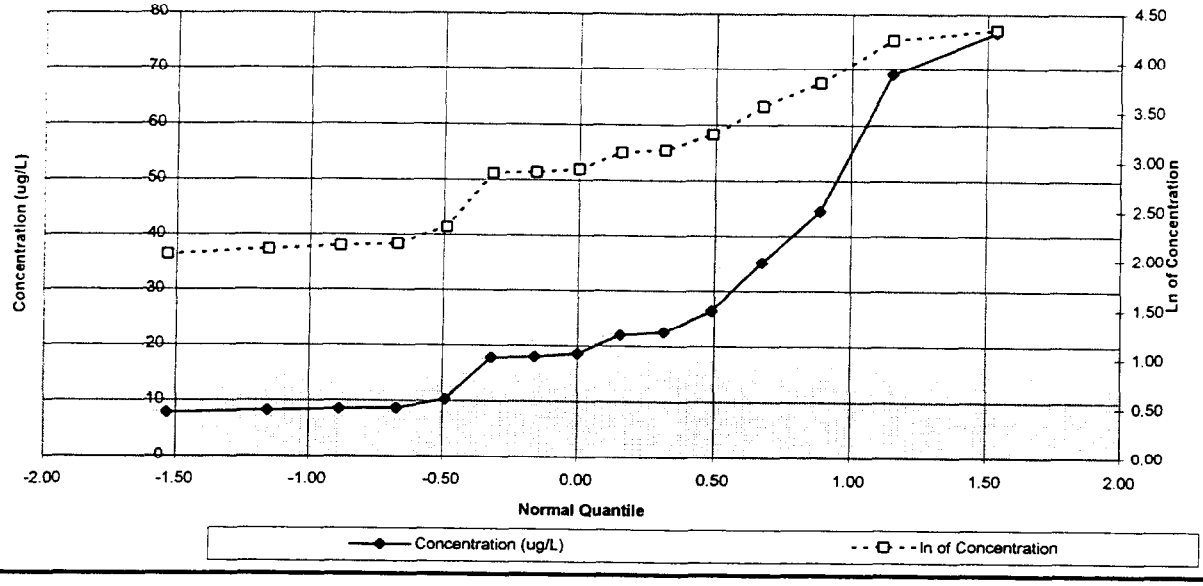
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-17B	J	7.8	2.05	1	6.25	-1.53
Sep	KBA-11-17A	J	8.2	2.10	2	12.50	-1.15
Apr	KBA-11-18	J	8.5	2.14	3	18.75	-0.89
Jan	KBA-11-16	J	8.7	2.16	4	25.00	-0.67
Sep	KBA-11-17B		10.3	2.33	5	31.25	-0.49
Sep	KBA-11-16		17.8	2.88	6	37.50	-0.32
Sep	KBA-11-18		18.0	2.89	7	43.75	-0.16
Jan	KBA-11-17A		18.6	2.92	8	50.00	0.00
Apr	KBA-11-16		22.0	3.09	9	56.25	0.16
Sep	KBA-11-19A		22.6	3.12	10	62.50	0.32
Apr	KBA-11-17B		26.5	3.28	11	68.75	0.49
Apr	KBA-11-19A		35.2	3.56	12	75.00	0.67
Jan	KBA-11-18		44.5	3.80	13	81.25	0.89
Jan	KBA-11-19A		69.0	4.23	14	87.50	1.15
Apr	KBA-11-17A		76.6	4.34	15	93.75	1.53

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 26.29	Mean = 2.99
Standard Deviation = 21.63	Standard Deviation = 0.75
Coefficient of Variance = 0.82	Coefficient of Variance = 0.25
Skew = 1.49	Skew = 0.39
Kurtosis = 1.43	Kurtosis = -0.8
R2 = 0.8	R2 = 0.95

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cobalt Ground Water Concentrations for Offsite Characterization Wells

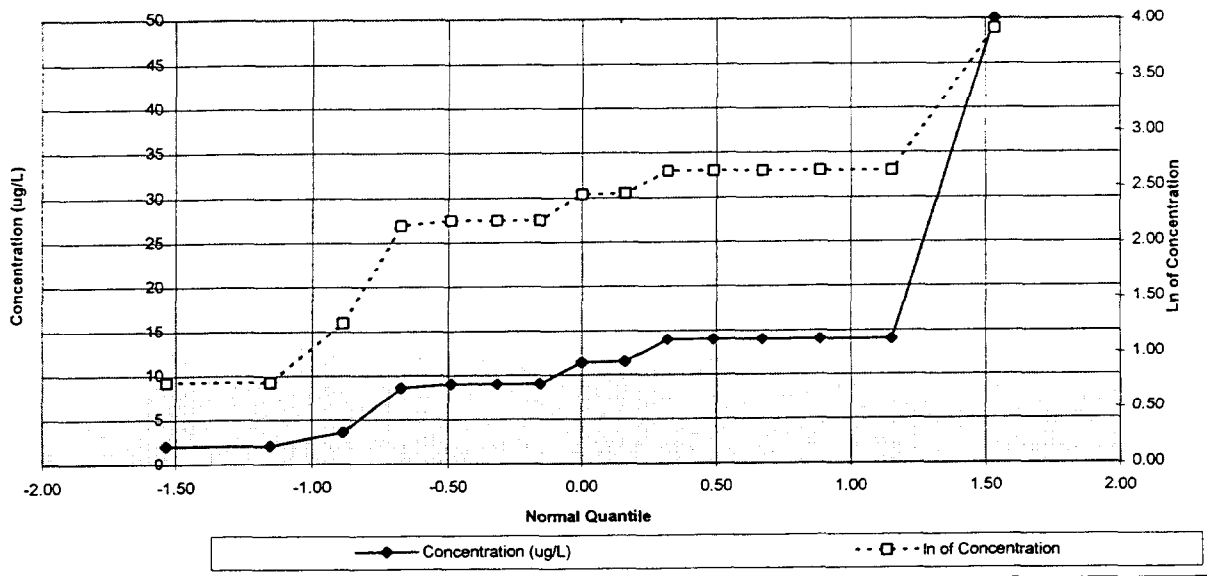
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-16	U	2.1	0.74	1	6.25	-1.53
Jan	KBA-11-17B	U	2.1	0.74	2	12.50	-1.15
Jan	KBA-11-17A	J	3.6	1.28	3	18.75	-0.89
Jan	KBA-11-18	J	8.6	2.15	4	25.00	-0.67
Apr	KBA-11-18	U	9.0	2.20	5	31.25	-0.49
Apr	KBA-11-17B	U	9.0	2.20	6	37.50	-0.32
Apr	KBA-11-19A	U	9.0	2.20	7	43.75	-0.16
Apr	KBA-11-17A	J	11.4	2.43	8	50.00	0.00
Jan	KBA-11-19A	J	11.5	2.44	9	56.25	0.16
Sep	KBA-11-17A	U	14.0	2.64	10	62.50	0.32
Sep	KBA-11-18	U	14.0	2.64	11	68.75	0.49
Sep	KBA-11-19A	U	14.0	2.64	12	75.00	0.67
Sep	KBA-11-16	U	14.0	2.64	13	81.25	0.89
Sep	KBA-11-17B	U	14.0	2.64	14	87.50	1.15
Apr	KBA-11-16	U	50.0	3.91	15	93.75	1.53

% Non-detects: 73%

Normal Distribution	Log-Normal Distribution
Mean = 12.42	Mean = 2.23
Standard Deviation = 11.23	Standard Deviation = 0.81
Coefficient of Variance = 0.9	Coefficient of Variance = 0.36
Skew = 2.91	Skew = -0.38
Kurtosis = 10.19	Kurtosis = 1.13
R2 = 0.58	R2 = 0.84

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Copper Ground Water Concentrations for Offsite Characterization Wells

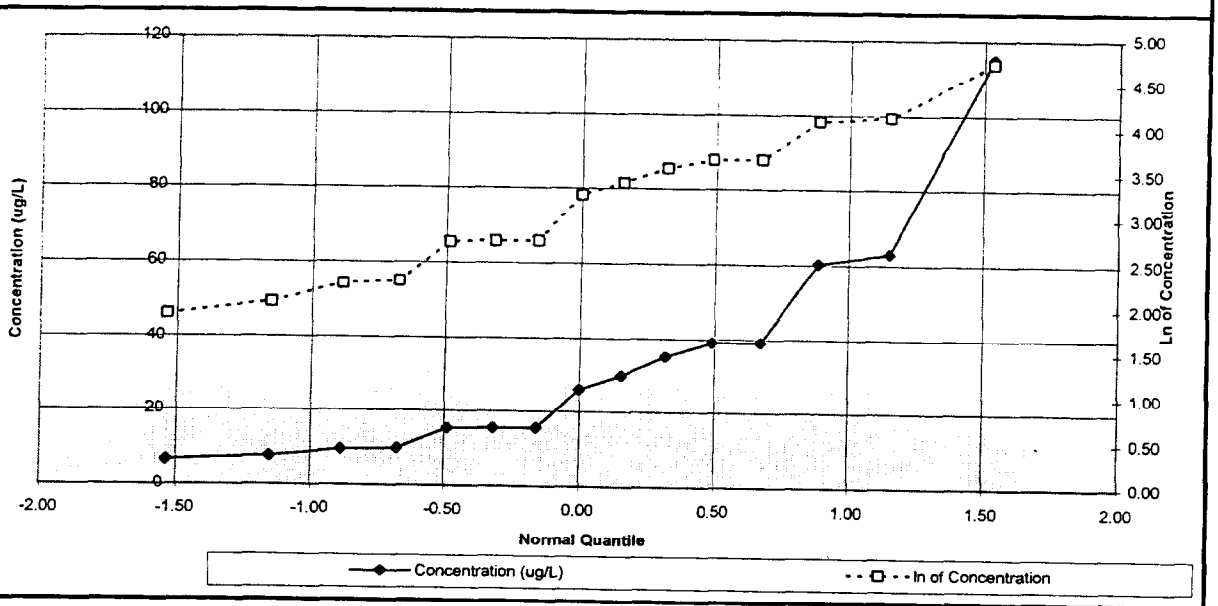
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-16	U	6.8	1.92	1	6.25	-1.53
Apr	KBA-11-18	UJ	7.8	2.05	2	12.50	-1.15
Jan	KBA-11-17A	J	9.6	2.26	3	18.75	-0.89
Sep	KBA-11-19A	J	9.9	2.29	4	25.00	-0.67
Sep	KBA-11-17B	J	15.3	2.73	5	31.25	-0.49
Sep	KBA-11-17A	J	15.5	2.74	6	37.50	-0.32
Jan	KBA-11-17B	J	15.6	2.75	7	43.75	-0.16
Jan	KBA-11-18		26.0	3.26	8	50.00	0.00
Apr	KBA-11-19A	J	29.9	3.40	9	56.25	0.16
Apr	KBA-11-17A	J	35.2	3.56	10	62.50	0.32
Apr	KBA-11-16		39.0	3.66	11	68.75	0.49
Apr	KBA-11-17B		39.1	3.67	12	75.00	0.67
Sep	KBA-11-16		60.3	4.10	13	81.25	0.89
Sep	KBA-11-18		63.0	4.14	14	87.50	1.15
Jan	KBA-11-19A		115	4.74	15	93.75	1.53

% Non-detects: 13%

Normal Distribution	Log-Normal Distribution
Mean = 32.53	Mean = 3.15
Standard Deviation = 29.07	Standard Deviation = 0.84
Coefficient of Variance = 0.89	Coefficient of Variance = 0.27
Skew = 1.81	Skew = 0.2
Kurtosis = 3.82	Kurtosis = -0.85
R2 = 0.79	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cyanide Ground Water Concentrations for Offsite Characterization Wells

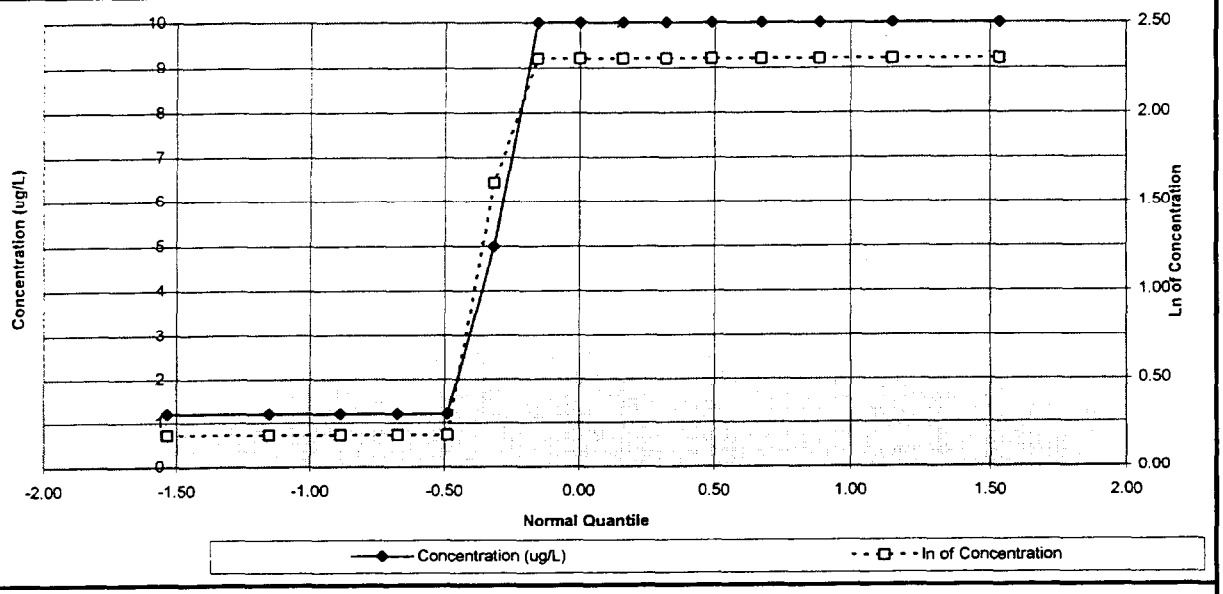
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-16	U	1.2	0.18	1	6.25	-1.53
Jan	KBA-11-17A	U	1.2	0.18	2	12.50	-1.15
Jan	KBA-11-17B	U	1.2	0.18	3	18.75	-0.89
Jan	KBA-11-18	U	1.2	0.18	4	25.00	-0.67
Jan	KBA-11-19A	U	1.2	0.18	5	31.25	-0.49
Apr	KBA-11-16	U	5.0	1.61	6	37.50	-0.32
Sep	KBA-11-16	U	10.0	2.30	7	43.75	-0.16
Apr	KBA-11-17A	U	10.0	2.30	8	50.00	0.00
Sep	KBA-11-17A	U	10.0	2.30	9	56.25	0.16
Apr	KBA-11-17B	U	10.0	2.30	10	62.50	0.32
Sep	KBA-11-17B	U	10.0	2.30	11	68.75	0.49
Apr	KBA-11-18	U	10.0	2.30	12	75.00	0.67
Sep	KBA-11-18	U	10.0	2.30	13	81.25	0.89
Apr	KBA-11-19A	U	10.0	2.30	14	87.50	1.15
Sep	KBA-11-19A	U	10.0	2.30	15	93.75	1.53

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 6.73	Mean = 1.55
Standard Deviation = 4.24	Standard Deviation = 1.02
Coefficient of Variance = 0.63	Coefficient of Variance = 0.66
Skew = -0.58	Skew = -0.7
Kurtosis = -1.83	Kurtosis = -1.67
R2 = 0.7	R2 = 0.69

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Lead Ground Water Concentrations for Offsite Characterization Wells

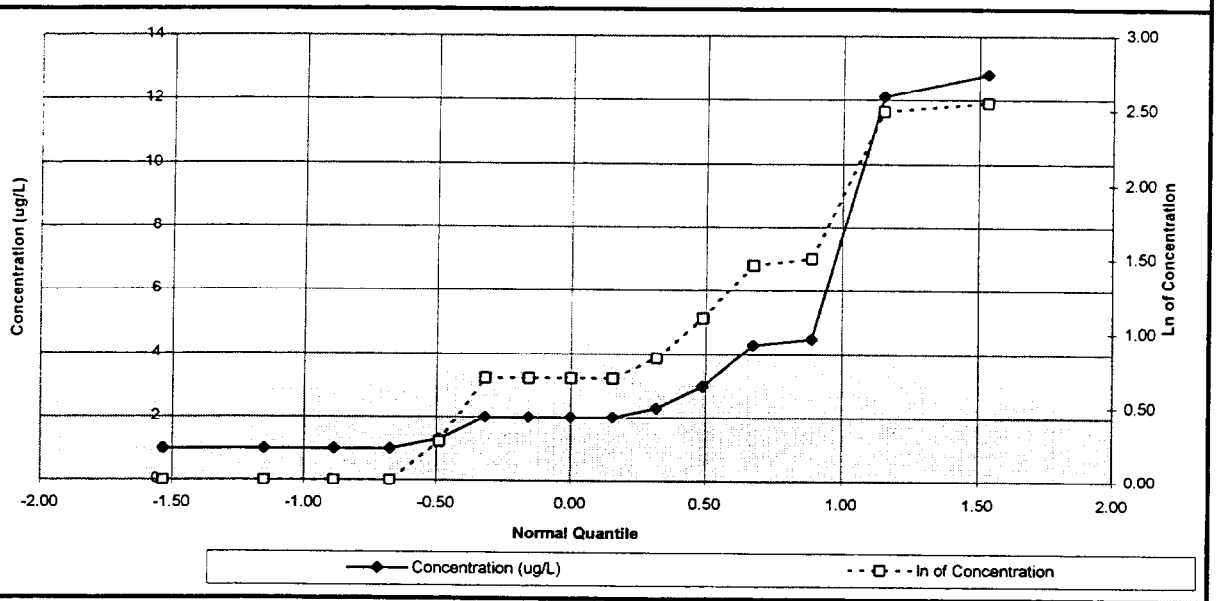
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-16	UJ	1.0	0.00	1	6.25	-1.53
Sep	KBA-11-17A	UJ	1.0	0.00	2	12.50	-1.15
Sep	KBA-11-17B	UJ	1.0	0.00	3	18.75	-0.89
Sep	KBA-11-19A	J	1.0	0.00	4	25.00	-0.67
Apr	KBA-11-18	J	1.3	0.26	5	31.25	-0.49
Jan	KBA-11-16	U	2.0	0.69	6	37.50	-0.32
Jan	KBA-11-17A	U	2.0	0.69	7	43.75	-0.16
Jan	KBA-11-17B	U	2.0	0.69	8	50.00	0.00
Jan	KBA-11-19A	U	2.0	0.69	9	56.25	0.16
Apr	KBA-11-17B	J	2.3	0.83	10	62.50	0.32
Apr	KBA-11-16	UJ	3.0	1.10	11	68.75	0.49
Apr	KBA-11-19A	J	4.3	1.46	12	75.00	0.67
Sep	KBA-11-18		4.5	1.50	13	81.25	0.89
Jan	KBA-11-18		12.1	2.49	14	87.50	1.15
Apr	KBA-11-17A	J	12.8	2.55	15	93.75	1.53

% Non-detects: 53%

Normal Distribution	Log-Normal Distribution
Mean = 3.49	Mean = 0.86
Standard Deviation = 3.8	Standard Deviation = 0.84
Coefficient of Variance = 1.09	Coefficient of Variance = 0.97
Skew = 2.04	Skew = 0.95
Kurtosis = 3.17	Kurtosis = 0.23
R2 = 0.64	R2 = 0.88

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Iron Ground Water Concentrations for Offsite Characterization Wells

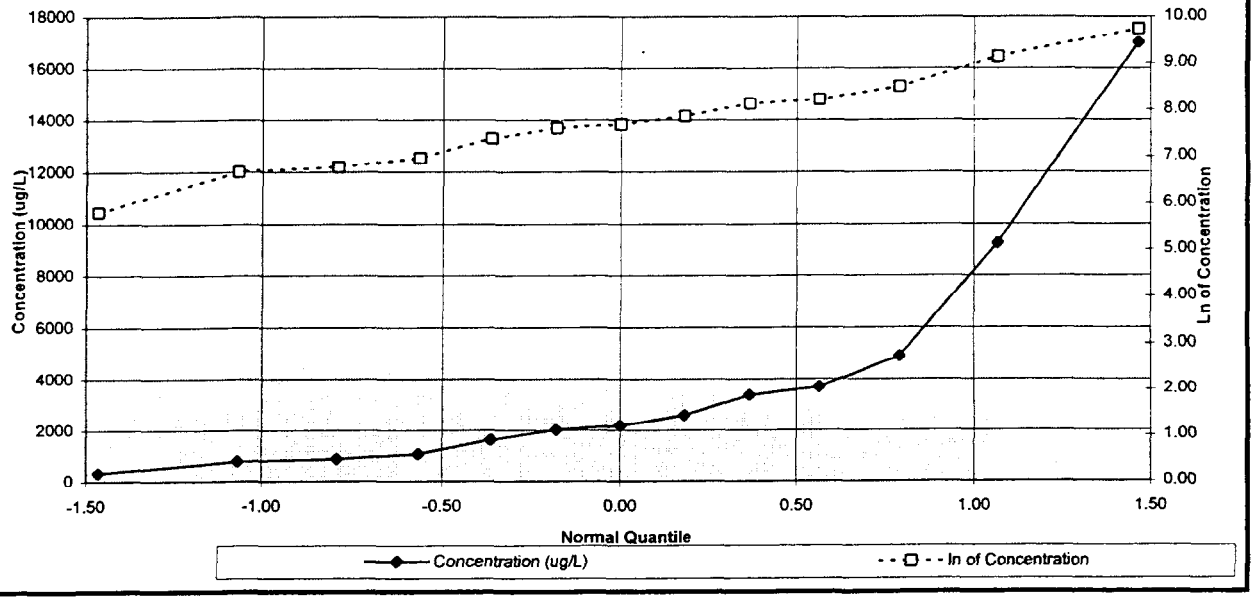
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-18		336.00	5.82	1	7.14	-1.47
Sep	KBA-11-17B		796.00	6.68	2	14.29	-1.07
Sep	KBA-11-16	J	878.00	6.78	3	21.43	-0.79
Sep	KBA-11-17A	J	1070.00	6.98	4	28.57	-0.57
Jan	KBA-11-17B	J	1630.00	7.40	5	35.71	-0.37
Jan	KBA-11-16	J	2020.00	7.61	6	42.86	-0.18
Apr	KBA-11-18		2180.00	7.69	7	50.00	0.00
Sep	KBA-11-19A	J	2590.00	7.86	8	57.14	0.18
Apr	KBA-11-17B		3380.00	8.13	9	64.29	0.37
Jan	KBA-11-17A		3690.00	8.21	10	71.43	0.57
Apr	KBA-11-19A		4900.00	8.50	11	78.57	0.79
Jan	KBA-11-18		9250.00	9.13	12	85.71	1.07
Apr	KBA-11-17A		17000.00	9.74	13	92.86	1.47

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 3824.62	Mean = 7.73
Standard Deviation = 4603.56	Standard Deviation = 1.06
Coefficient of Variance = 1.2	Coefficient of Variance = 0.14
Skew = 2.33	Skew = 0.16
Kurtosis = 5.72	Kurtosis = 0.11
R2 = 0.67	R2 = 0.98

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Manganese Ground Water Concentrations for Offsite Characterization Wells

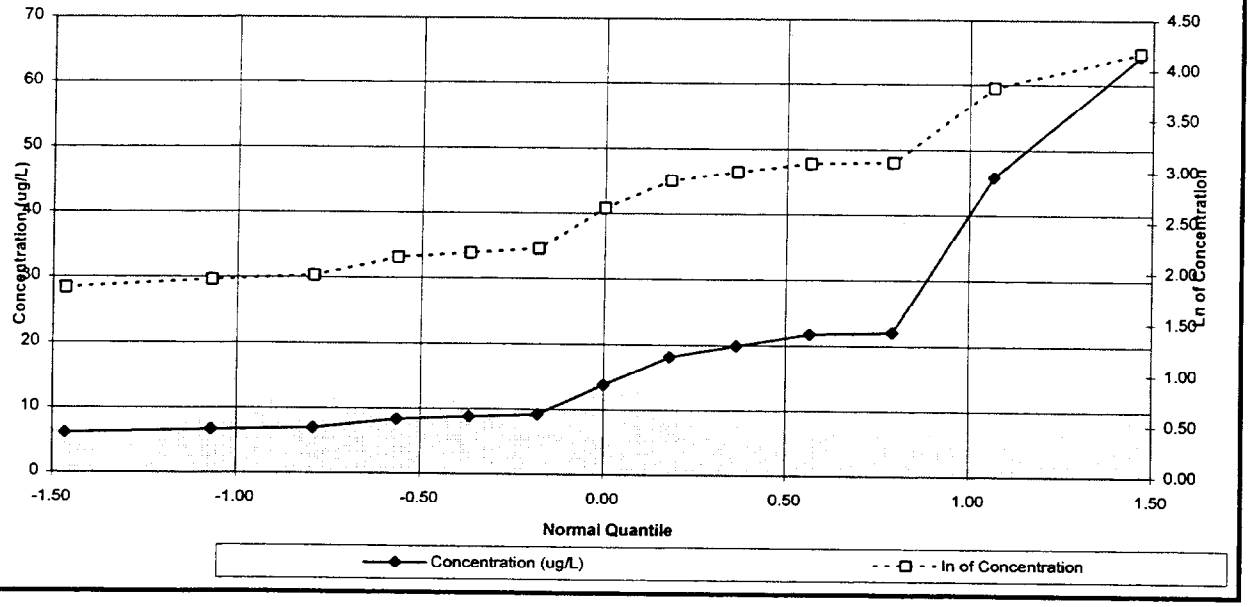
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-17A	J	6.20	1.82	1	7.14	-1.47
Sep	KBA-11-17B	J	6.70	1.90	2	14.29	-1.07
Sep	KBA-11-18	J	7.00	1.95	3	21.43	-0.79
Sep	KBA-11-16	J	8.40	2.13	4	28.57	-0.57
Jan	KBA-11-17B	J	8.80	2.17	5	35.71	-0.37
Sep	KBA-11-19A	J	9.20	2.22	6	42.86	-0.18
Apr	KBA-11-18	J	13.80	2.62	7	50.00	0.00
Jan	KBA-11-16		18.20	2.90	8	57.14	0.18
Jan	KBA-11-17A		19.90	2.99	9	64.29	0.37
Apr	KBA-11-17B		21.70	3.08	10	71.43	0.57
Apr	KBA-11-19A		22.00	3.09	11	78.57	0.79
Jan	KBA-11-18		45.90	3.83	12	85.71	1.07
Apr	KBA-11-17A		64.30	4.16	13	92.86	1.47

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 19.39	Mean = 2.68
Standard Deviation = 17.3	Standard Deviation = 0.74
Coefficient of Variance = 0.89	Coefficient of Variance = 0.28
Skew = 1.89	Skew = 0.72
Kurtosis = 3.28	Kurtosis = -0.32
R2 = 0.73	R2 = 0.92

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Mercury Ground Water Concentrations for Offsite Characterization Wells

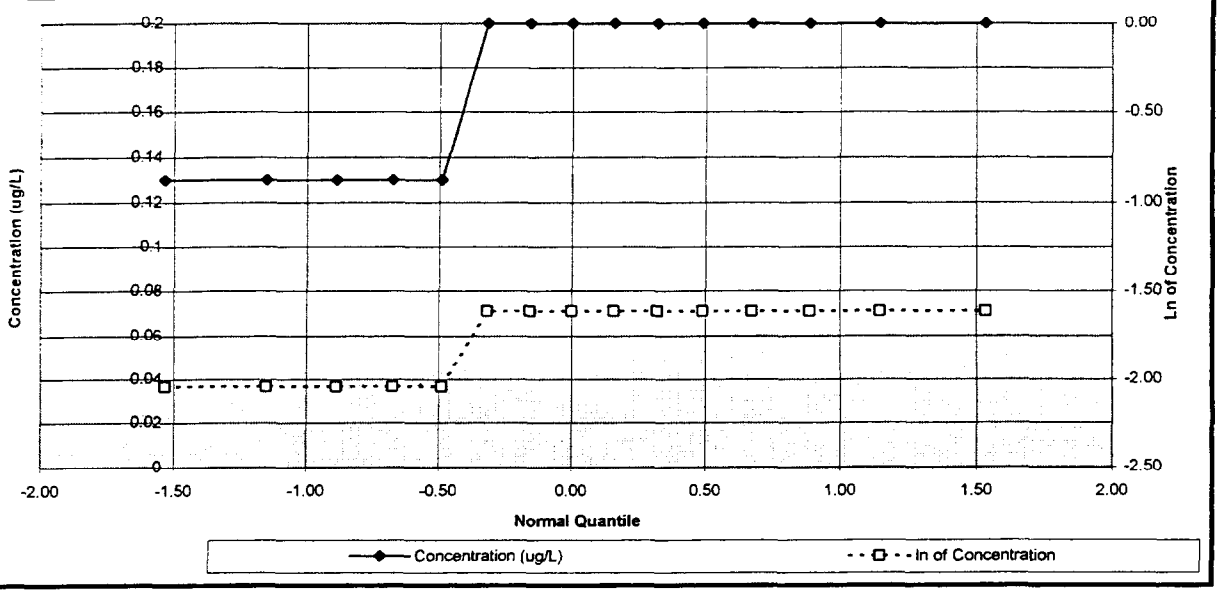
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-16	U	0.13	-2.04	1	6.25	-1.53
Jan	KBA-11-17A	U	0.13	-2.04	2	12.50	-1.15
Jan	KBA-11-17B	U	0.13	-2.04	3	18.75	-0.89
Jan	KBA-11-18	U	0.13	-2.04	4	25.00	-0.67
Jan	KBA-11-19A	U	0.13	-2.04	5	31.25	-0.49
Apr	KBA-11-16	U	0.20	-1.61	6	37.50	-0.32
Sep	KBA-11-16	U	0.20	-1.61	7	43.75	-0.16
Apr	KBA-11-17A	U	0.20	-1.61	8	50.00	0.00
Sep	KBA-11-17A	U	0.20	-1.61	9	56.25	0.16
Apr	KBA-11-17B	U	0.20	-1.61	10	62.50	0.32
Sep	KBA-11-17B	U	0.20	-1.61	11	68.75	0.49
Apr	KBA-11-18	U	0.20	-1.61	12	75.00	0.67
Sep	KBA-11-18	U	0.20	-1.61	13	81.25	0.89
Apr	KBA-11-19A	U	0.20	-1.61	14	87.50	1.15
Sep	KBA-11-19A	U	0.20	-1.61	15	93.75	1.53

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 0.18	Mean = -1.75
Standard Deviation = 0.03	Standard Deviation = 0.21
Coefficient of Variance = 0.19	Coefficient of Variance = -0.12
Skew = -0.79	Skew = -0.79
Kurtosis = -1.62	Kurtosis = -1.62
R2 = 0.64	R2 = 0.64

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Nickel Ground Water Concentrations for Offsite Characterization Wells

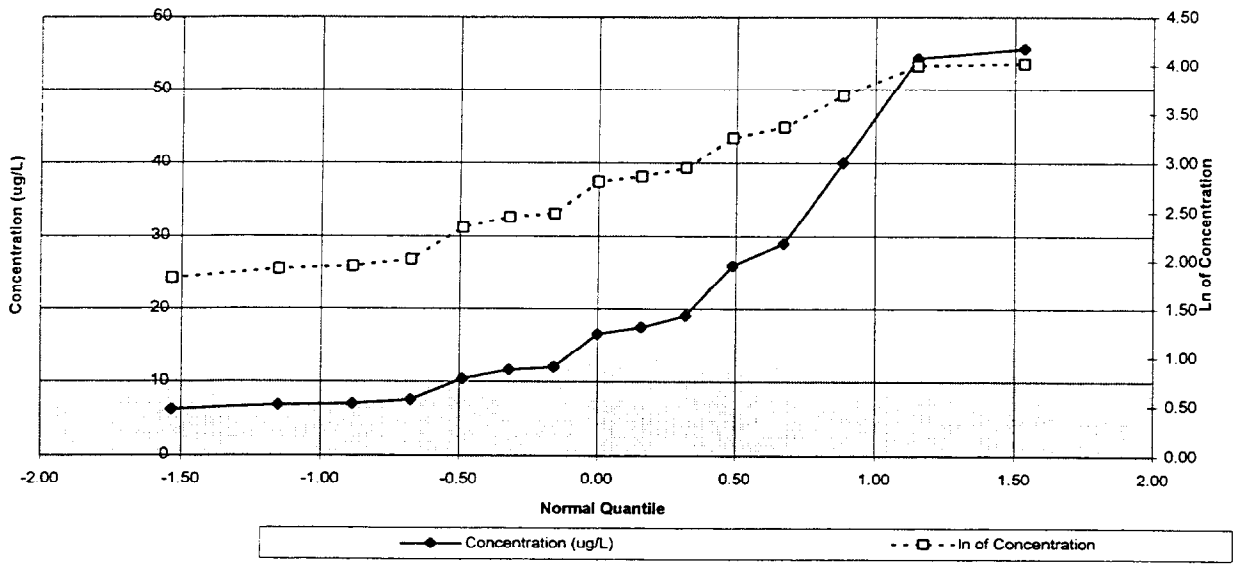
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-17B	U	6.2	1.82	1	6.25	-1.53
Jan	KBA-11-17B	J	6.8	1.92	2	12.50	-1.15
Sep	KBA-11-18	J	7.0	1.95	3	18.75	-0.89
Jan	KBA-11-16	J	7.5	2.01	4	25.00	-0.67
Sep	KBA-11-17A	J	10.4	2.34	5	31.25	-0.49
Sep	KBA-11-19A	J	11.6	2.45	6	37.50	-0.32
Apr	KBA-11-18	U	12.0	2.48	7	43.75	-0.16
Jan	KBA-11-17A	J	16.6	2.81	8	50.00	0.00
Apr	KBA-11-17A	J	17.5	2.86	9	56.25	0.16
Sep	KBA-11-16	J	19.1	2.95	10	62.50	0.32
Apr	KBA-11-19A	J	26.0	3.26	11	68.75	0.49
Apr	KBA-11-17B	J	29.0	3.37	12	75.00	0.67
Apr	KBA-11-16	U	40.0	3.69	13	81.25	0.89
Jan	KBA-11-18		54.3	3.99	14	87.50	1.15
Jan	KBA-11-19A		55.6	4.02	15	93.75	1.53

% Non-detects: 20%

Normal Distribution	Log-Normal Distribution
Mean = 21.31	Mean = 2.8
Standard Deviation = 16.63	Standard Deviation = 0.74
Coefficient of Variance = 0.78	Coefficient of Variance = 0.27
Skew = 1.22	Skew = 0.34
Kurtosis = 0.4	Kurtosis = -1.08
R2 = 0.84	R2 = 0.96

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Selenium Ground Water Concentrations for Offsite Characterization Wells

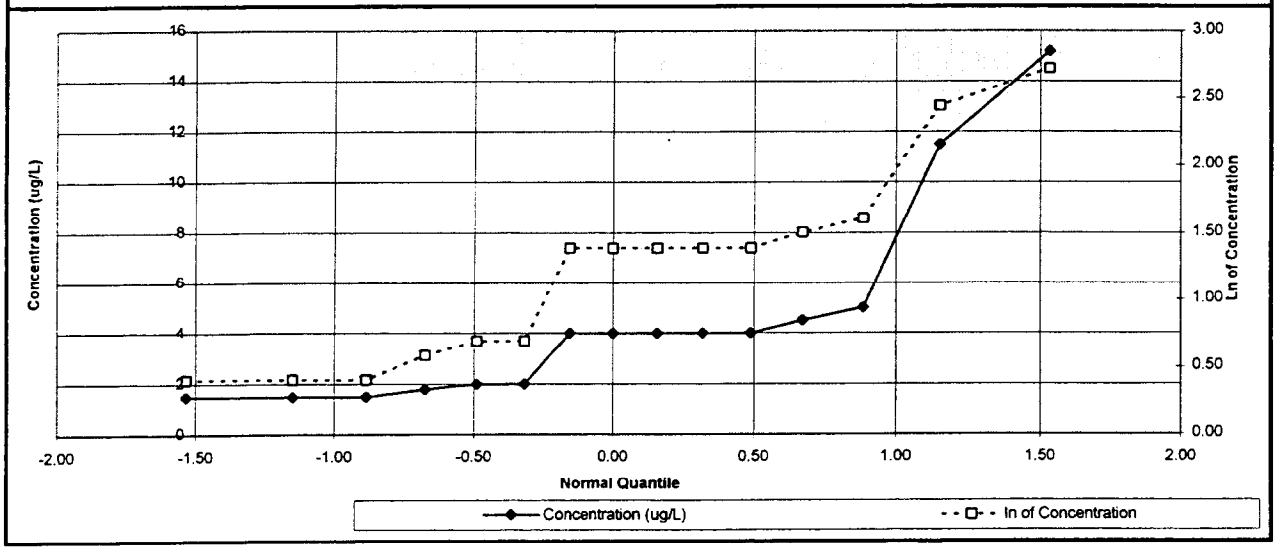
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-16	UJ	1.5	0.41	1	6.25	-1.53
Jan	KBA-11-17B	U	1.5	0.41	2	12.50	-1.15
Jan	KBA-11-19A	U	1.5	0.41	3	18.75	-0.89
Jan	KBA-11-18	J	1.8	0.59	4	25.00	-0.67
Apr	KBA-11-17B	U	2.0	0.69	5	31.25	-0.49
Apr	KBA-11-18	U	2.0	0.69	6	37.50	-0.32
Sep	KBA-11-16	U	4.0	1.39	7	43.75	-0.16
Sep	KBA-11-17A	U	4.0	1.39	8	50.00	0.00
Sep	KBA-11-17B	U	4.0	1.39	9	56.25	0.16
Sep	KBA-11-18	U	4.0	1.39	10	62.50	0.32
Sep	KBA-11-19A	U	4.0	1.39	11	68.75	0.49
Apr	KBA-11-19A	J	4.5	1.50	12	75.00	0.67
Apr	KBA-11-16	UJ	5.0	1.61	13	81.25	0.89
Apr	KBA-11-17A	J	11.5	2.44	14	87.50	1.15
Jan	KBA-11-17A	U	15.2	2.72	15	93.75	1.53

% Non-detects: 80%

Normal Distribution	Log-Normal Distribution
Mean = 4.43	Mean = 1.23
Standard Deviation = 3.89	Standard Deviation = 0.71
Coefficient of Variance = 0.88	Coefficient of Variance = 0.58
Skew = 2.07	Skew = 0.69
Kurtosis = 4.05	Kurtosis = 0.07
R2 = 0.68	R2 = 0.89

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Silver Ground Water Concentrations for Offsite Characterization Wells

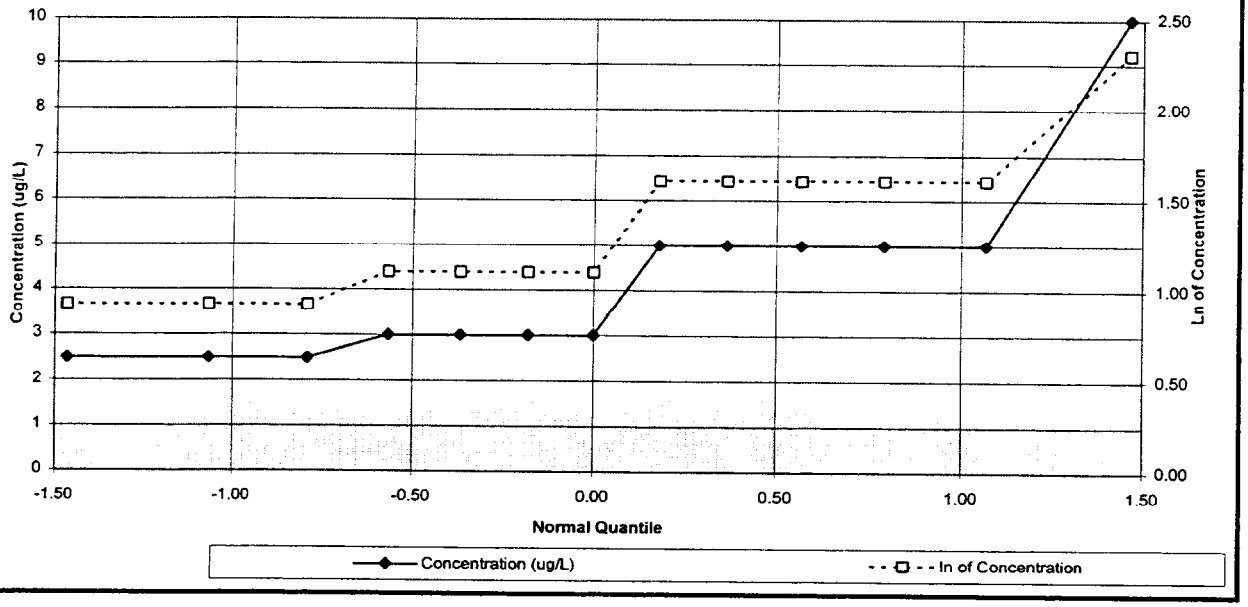
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-17A	UJ	2.5	0.92	1	7.14	-1.47
Jan	KBA-11-18	UJ	2.5	0.92	2	14.29	-1.07
Jan	KBA-11-19A	UJ	2.5	0.92	3	21.43	-0.79
Apr	KBA-11-17A	UJ	3.0	1.10	4	28.57	-0.57
Apr	KBA-11-17B	UJ	3.0	1.10	5	35.71	-0.37
Apr	KBA-11-18	UJ	3.0	1.10	6	42.86	-0.18
Apr	KBA-11-19A	UJ	3.0	1.10	7	50.00	0.00
Sep	KBA-11-16	U	5.0	1.61	8	57.14	0.18
Sep	KBA-11-17B	U	5.0	1.61	9	64.29	0.37
Sep	KBA-11-18	U	5.0	1.61	10	71.43	0.57
Sep	KBA-11-19A	U	5.0	1.61	11	78.57	0.79
Sep	KBA-11-17A	J	5.0	1.61	12	85.71	1.07
Apr	KBA-11-16	U	10.0	2.30	13	92.86	1.47

% Non-detects: 92%

Normal Distribution	Log-Normal Distribution
Mean = 4.19	Mean = 1.35
Standard Deviation = 2.07	Standard Deviation = 0.41
Coefficient of Variance = 0.49	Coefficient of Variance = 0.31
Skew = 1.98	Skew = 0.93
Kurtosis = 4.93	Kurtosis = 0.65
R2 = 0.71	R2 = 0.83

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Sulfide Ground Water Concentrations for Offsite Characterization Wells

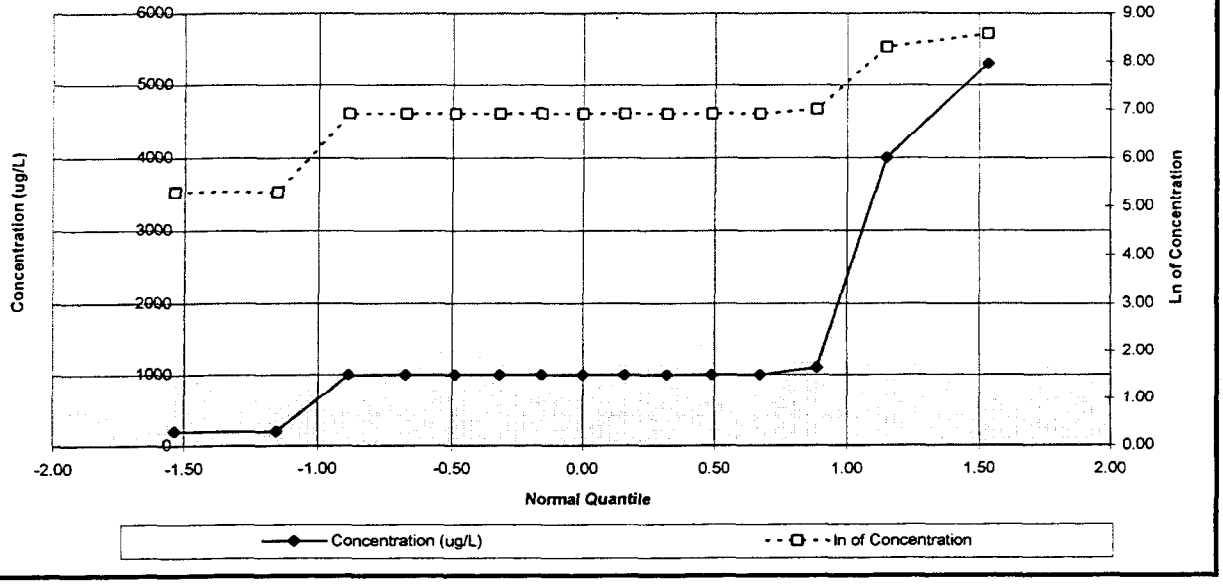
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-17A	J	200	5.30	1	6.25	-1.53
Jan	KBA-11-17B	J	200	5.30	2	12.50	-1.15
Jan	KBA-11-18	UJ	1000	6.91	3	18.75	-0.89
Sep	KBA-11-16	U	1000	6.91	4	25.00	-0.67
Apr	KBA-11-17A	U	1000	6.91	5	31.25	-0.49
Sep	KBA-11-17A	U	1000	6.91	6	37.50	-0.32
Apr	KBA-11-17B	U	1000	6.91	7	43.75	-0.16
Sep	KBA-11-17B	U	1000	6.91	8	50.00	0.00
Apr	KBA-11-18	U	1000	6.91	9	56.25	0.16
Sep	KBA-11-18	U	1000	6.91	10	62.50	0.32
Apr	KBA-11-19A	U	1000	6.91	11	68.75	0.49
Sep	KBA-11-19A	U	1000	6.91	12	75.00	0.67
Jan	KBA-11-19A	J	1100	7.00	13	81.25	0.89
Apr	KBA-11-16		4000	8.29	14	87.50	1.15
Jan	KBA-11-16	J	5300	8.58	15	93.75	1.53

% Non-detects: 67%

Normal Distribution	Log-Normal Distribution
Mean = 1386.67	Mean = 6.9
Standard Deviation = 1376.78	Standard Deviation = 0.84
Coefficient of Variance = 0.99	Coefficient of Variance = 0.12
Skew = 2.33	Skew = -0.12
Kurtosis = 4.96	Kurtosis = 1.7
R2 = 0.54	R2 = 0.7

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Thallium Ground Water Concentrations for Offsite Characterization Wells

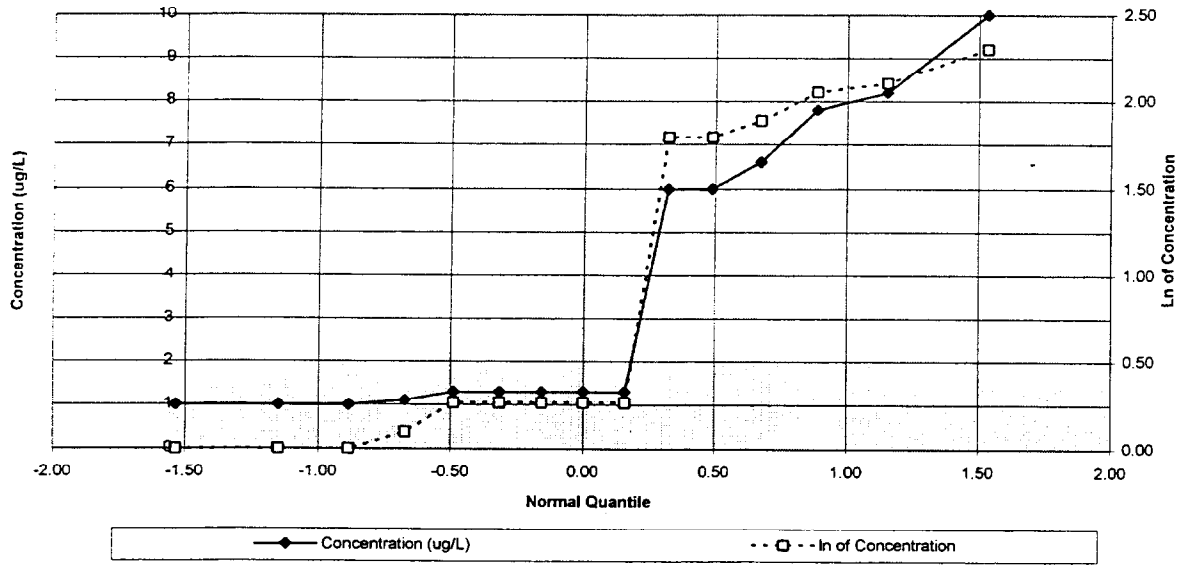
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-17B	UJ	1.0	0.00	1	6.25	-1.53
Apr	KBA-11-18	UJ	1.0	0.00	2	12.50	-1.15
Apr	KBA-11-19A	UJ	1.0	0.00	3	18.75	-0.89
Apr	KBA-11-17A	J	1.1	0.10	4	25.00	-0.67
Jan	KBA-11-16	UJ	1.3	0.26	5	31.25	-0.49
Jan	KBA-11-17A	UJ	1.3	0.26	6	37.50	-0.32
Jan	KBA-11-18	UJ	1.3	0.26	7	43.75	-0.16
Jan	KBA-11-17B	U	1.3	0.26	8	50.00	0.00
Jan	KBA-11-19A	U	1.3	0.26	9	56.25	0.16
Sep	KBA-11-17A	U	6.0	1.79	10	62.50	0.32
Sep	KBA-11-18	U	6.0	1.79	11	68.75	0.49
Sep	KBA-11-16	U	6.6	1.89	12	75.00	0.67
Sep	KBA-11-17B	U	7.8	2.05	13	81.25	0.89
Sep	KBA-11-19A	U	8.2	2.10	14	87.50	1.15
Apr	KBA-11-16	U	10.0	2.30	15	93.75	1.53

% Non-detects: 93%

Normal Distribution	Log-Normal Distribution
Mean = 3.68	Mean = 0.89
Standard Deviation = 3.31	Standard Deviation = 0.94
Coefficient of Variance = 0.9	Coefficient of Variance = 1.06
Skew = 0.73	Skew = 0.48
Kurtosis = -1.21	Kurtosis = -1.9
R2 = 0.78	R2 = 0.8

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Tin Ground Water Concentrations for Offsite Characterization Wells

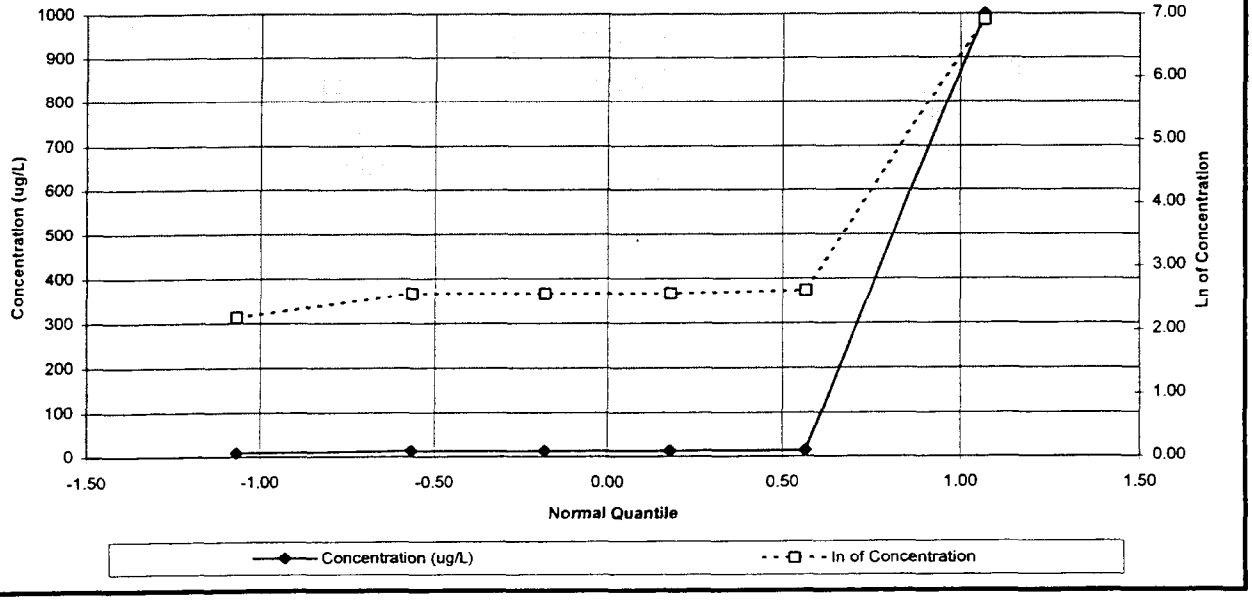
Sample Event	Well I.D.	Qualifier	Concentration (ug/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-19A	J	9.0	2.20	1	14.29	-1.07
Apr	KBA-11-17B	U	13.0	2.56	2	28.57	-0.57
Apr	KBA-11-18	U	13.0	2.56	3	42.86	-0.18
Apr	KBA-11-19A	U	13.0	2.56	4	57.14	0.18
Apr	KBA-11-17A	J	13.6	2.61	5	71.43	0.57
Apr	KBA-11-16	U	1000	6.91	6	85.71	1.07

% Non-detects: 67%

Normal Distribution	Log-Normal Distribution
Mean = 176.93	Mean = 3.23
Standard Deviation = 403.22	Standard Deviation = 1.81
Coefficient of Variance = 2.28	Coefficient of Variance = 0.56
Skew = 2.45	Skew = 2.41
Kurtosis = 6	Kurtosis = 5.86
R2 = 0.46	R2 = 0.52

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Vanadium Ground Water Concentrations for Offsite Characterization Wells

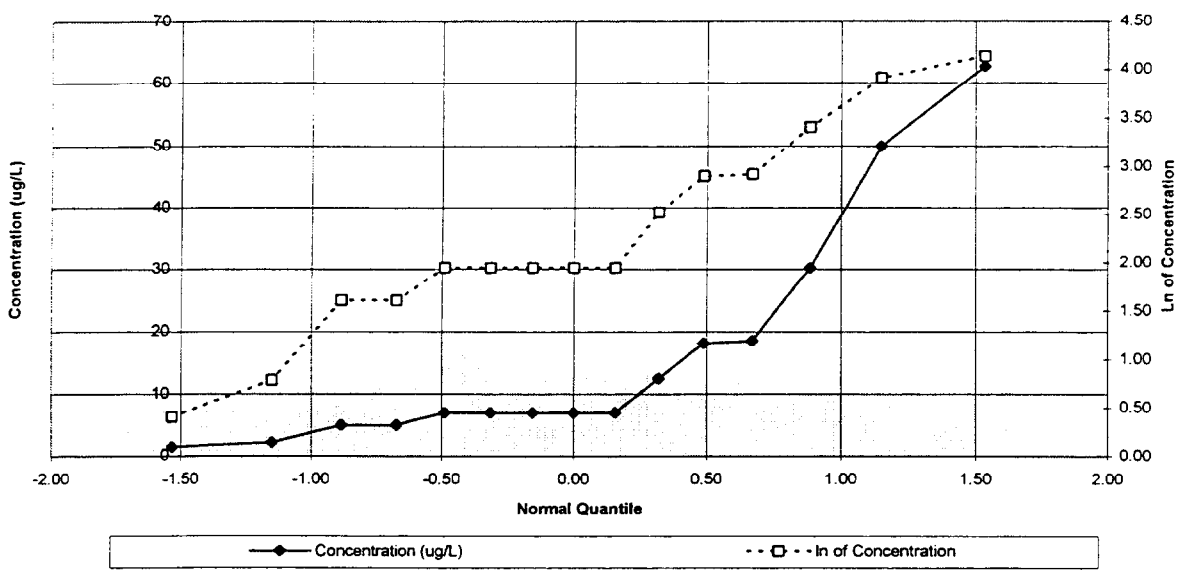
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-17B	U	1.5	0.41	1	6.25	-1.53
Jan	KBA-11-16	J	2.2	0.79	2	12.50	-1.15
Apr	KBA-11-17B	UJ	5.0	1.61	3	18.75	-0.89
Apr	KBA-11-18	UJ	5.0	1.61	4	25.00	-0.67
Sep	KBA-11-16	U	7.0	1.95	5	31.25	-0.49
Sep	KBA-11-17A	U	7.0	1.95	6	37.50	-0.32
Sep	KBA-11-17B	U	7.0	1.95	7	43.75	-0.16
Sep	KBA-11-18	U	7.0	1.95	8	50.00	0.00
Sep	KBA-11-19A	U	7.0	1.95	9	56.25	0.16
Apr	KBA-11-19A	J	12.5	2.53	10	62.50	0.32
Jan	KBA-11-17A	J	18.2	2.90	11	68.75	0.49
Jan	KBA-11-18	J	18.6	2.92	12	75.00	0.67
Jan	KBA-11-19A	J	30.2	3.41	13	81.25	0.89
Apr	KBA-11-16	U	50.0	3.91	14	87.50	1.15
Apr	KBA-11-17A	J	62.7	4.14	15	93.75	1.53

% Non-detects: 60%

Normal Distribution	Log-Normal Distribution
Mean = 16.06	Mean = 2.26
Standard Deviation = 18.15	Standard Deviation = 1.05
Coefficient of Variance = 1.13	Coefficient of Variance = 0.46
Skew = 1.81	Skew = 0.2
Kurtosis = 2.56	Kurtosis = -0.26
R2 = 0.72	R2 = 0.95

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Zinc Ground Water Concentrations for Offsite Characterization Wells

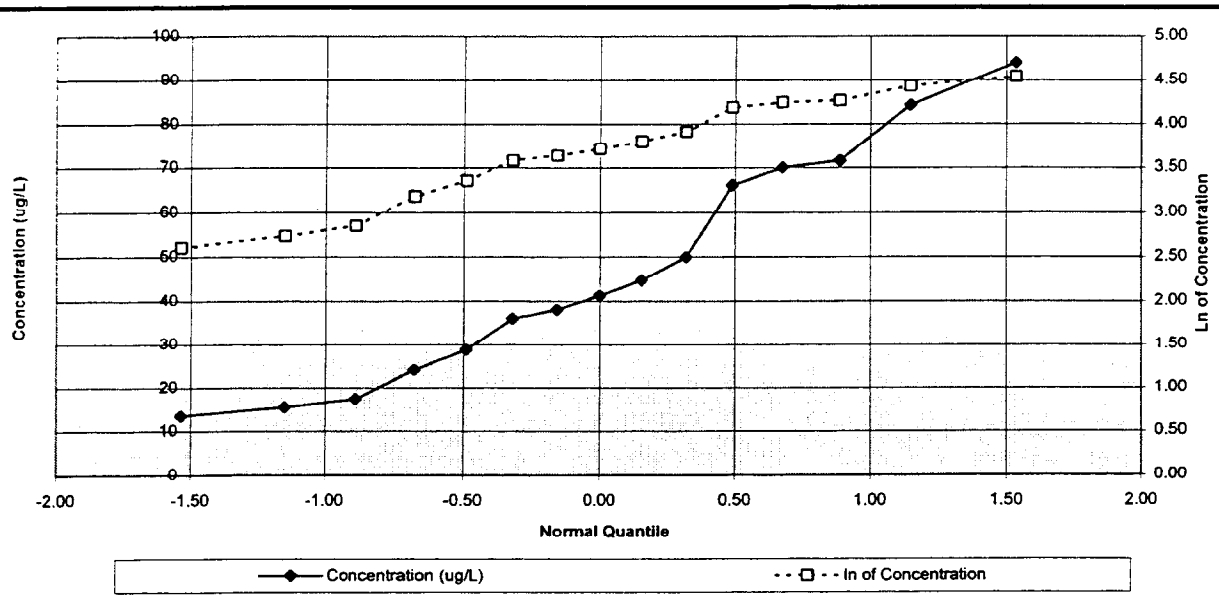
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-17B	U	13.6	2.61	1	6.25	-1.53
Jan	KBA-11-16	U	15.5	2.74	2	12.50	-1.15
Apr	KBA-11-18	U	17.4	2.86	3	18.75	-0.89
Apr	KBA-11-17B	U	24.2	3.19	4	25.00	-0.67
Jan	KBA-11-17A		28.8	3.36	5	31.25	-0.49
Sep	KBA-11-17B		36.1	3.59	6	37.50	-0.32
Sep	KBA-11-19A		38.1	3.64	7	43.75	-0.16
Sep	KBA-11-17A		41.3	3.72	8	50.00	0.00
Apr	KBA-11-19A	U	44.7	3.80	9	56.25	0.16
Apr	KBA-11-16	UJ	50.0	3.91	10	62.50	0.32
Sep	KBA-11-16		66.1	4.19	11	68.75	0.49
Jan	KBA-11-18		70.1	4.25	12	75.00	0.67
Apr	KBA-11-17A	U	71.6	4.27	13	81.25	0.89
Jan	KBA-11-19A		84.3	4.43	14	87.50	1.15
Sep	KBA-11-18		94.0	4.54	15	93.75	1.53

% Non-detects: 47%

Normal Distribution	Log-Normal Distribution
Mean = 46.39	Mean = 3.67
Standard Deviation = 25.6	Standard Deviation = 0.62
Coefficient of Variance = 0.55	Coefficient of Variance = 0.17
Skew = 0.45	Skew = -0.36
Kurtosis = -0.9	Kurtosis = -0.97
R2 = 0.96	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



Delineation Wells

KINGS BAY - SITE 11

Determination of Distribution

Aluminum Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-19B	U	74.3	4.31	1	2.70	-1.93
Sep	KBA-11-10C	U	88.0	4.48	2	5.41	-1.61
Jan	KBA-11-17C	J	94.8	4.55	3	8.11	-1.40
Jan	KBA-11-19B	J	104	4.64	4	10.81	-1.24
Sep	KBA-11-11C	U	105	4.65	5	13.51	-1.10
Sep	KBA-11-15	U	116	4.75	6	16.22	-0.99
Sep	KBA-11-13B	U	120	4.79	7	18.92	-0.88
Sep	KBA-11-3C	U	125	4.83	8	21.62	-0.79
Jan	KBA-11-3C	J	130	4.87	9	24.32	-0.70
Sep	KBA-11-17C	U	138	4.93	10	27.03	-0.61
Apr	KBA-11-3C	J	162	5.09	11	29.73	-0.53
Apr	KBA-11-10C	J	191	5.25	12	32.43	-0.46
Jan	KBA-11-10C	J	191	5.25	13	35.14	-0.38
Apr	KBA-11-17C	J	195	5.27	14	37.84	-0.31
Apr	KBA-11-11C	J	269	5.59	15	40.54	-0.24
Sep	KBA-11-21		277	5.62	16	43.24	-0.17
Apr	KBA-11-19B		440	6.09	17	45.95	-0.10
Jan	KBA-11-11C	J	578	6.36	18	48.65	-0.03
Jan	KBA-11-15	J	731	6.59	19	51.35	0.03
Sep	KBA-11-14		1300	7.17	20	54.05	0.10
Jan	KBA-11-13B	J	1390	7.24	21	56.76	0.17
Jan	KBA-11-8A	J	1810	7.50	22	59.46	0.24
Apr	KBA-11-13B		1830	7.51	23	62.16	0.31
Jan	KBA-11-8C	J	1910	7.55	24	64.86	0.38
Sep	KBA-11-8C		2410	7.79	25	67.57	0.46
Jan	KBA-11-21	J	5530	8.62	26	70.27	0.53
Apr	KBA-11-8C	J	5630	8.64	27	72.97	0.61
Jan	KBA-11-14	J	6900	8.84	28	75.68	0.70
Apr	KBA-11-21		7590	8.93	29	78.38	0.79
Apr	KBA-11-14		14200	9.56	30	81.08	0.88
Sep	KBA-11-8A		20800	9.94	31	83.78	0.99
Apr	KBA-11-15		21800	9.99	32	86.49	1.10
Jan	KBA-11-9	J	28900	10.27	33	89.19	1.24
Apr	KBA-11-8A	J	35700	10.48	34	91.89	1.40
Apr	KBA-11-9	J	48500	10.79	35	94.59	1.61
Sep	KBA-11-9		246000	12.41	36	97.30	1.93

% Non-detects: 19%

Normal Distribution	Log-Normal Distribution
Mean = 12676	Mean = 6.98
Standard Deviation = 41573	Standard Deviation = 2.25
Coefficient of Variance = 3.28	Coefficient of Variance = 0.32
Skew = 5.36	Skew = 0.63
Kurtosis = 30.41	Kurtosis = -0.7
R2 = 0.28	R2 = 0.92

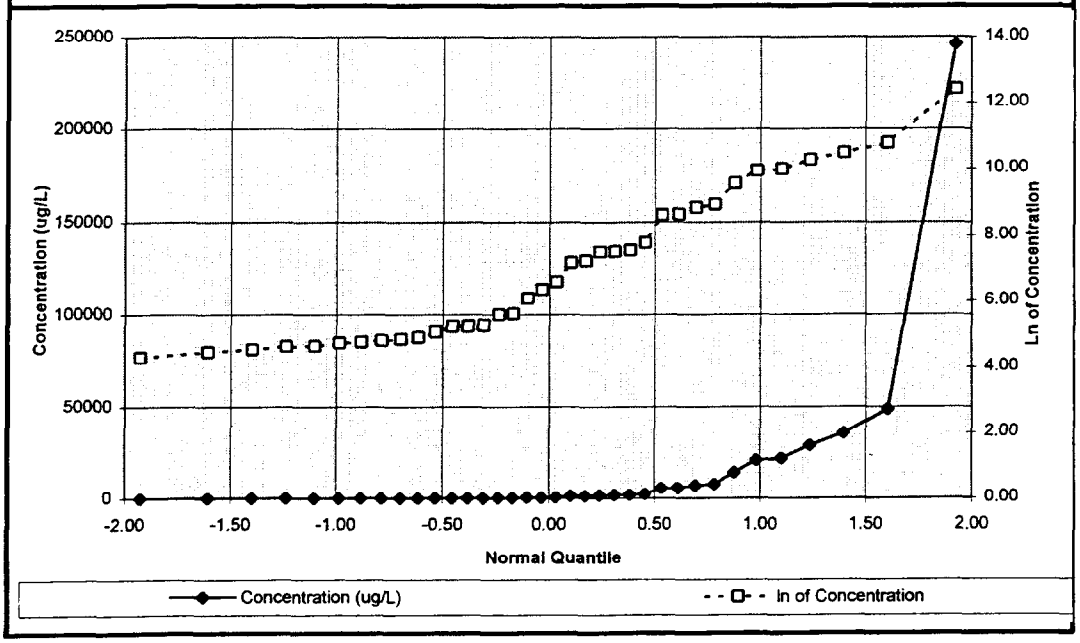
KINGS BAY - SITE 11

Determination of Distribution

Aluminum Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probab
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Antimony Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-9	U	1.8	0.59	1	2.70	-1.93
Jan	KBA-11-15	U	1.9	0.64	2	5.41	-1.61
Sep	KBA-11-10C	U	2.0	0.69	3	8.11	-1.40
Sep	KBA-11-11C	U	2.0	0.69	4	10.81	-1.24
Sep	KBA-11-14	U	2.0	0.69	5	13.51	-1.10
Sep	KBA-11-15	U	2.0	0.69	6	16.22	-0.99
Sep	KBA-11-8A	U	2.0	0.69	7	18.92	-0.88
Sep	KBA-11-8C	U	2.0	0.69	8	21.62	-0.79
Jan	KBA-11-14	U	2.1	0.74	9	24.32	-0.70
Jan	KBA-11-3C	J	2.1	0.74	10	27.03	-0.61
Sep	KBA-11-9	J	2.1	0.74	11	29.73	-0.53
Jan	KBA-11-19B	J	2.2	0.79	12	32.43	-0.46
Jan	KBA-11-10C	U	2.6	0.96	13	35.14	-0.38
Jan	KBA-11-8A	J	2.8	1.03	14	37.84	-0.31
Apr	KBA-11-10C	U	3.0	1.10	15	40.54	-0.24
Apr	KBA-11-11C	U	3.0	1.10	16	43.24	-0.17
Apr	KBA-11-13B	U	3.0	1.10	17	45.95	-0.10
Apr	KBA-11-14	U	3.0	1.10	18	48.65	-0.03
Apr	KBA-11-15	U	3.0	1.10	19	51.35	0.03
Apr	KBA-11-17C	U	3.0	1.10	20	54.05	0.10
Apr	KBA-11-19B	U	3.0	1.10	21	56.76	0.17
Apr	KBA-11-21	U	3.0	1.10	22	59.46	0.24
Apr	KBA-11-3C	U	3.0	1.10	23	62.16	0.31
Apr	KBA-11-8A	U	3.0	1.10	24	64.86	0.38
Apr	KBA-11-8C	U	3.0	1.10	25	67.57	0.46
Apr	KBA-11-9	U	3.0	1.10	26	70.27	0.53
Jan	KBA-11-21	J	3.2	1.16	27	72.97	0.61
Jan	KBA-11-13B	J	3.3	1.19	28	75.68	0.70
Jan	KBA-11-17C		6.1	1.81	29	78.38	0.79
Jan	KBA-11-8C	UJ	11.0	2.40	30	81.08	0.88
Sep	KBA-11-19B	U	13.0	2.56	31	83.78	0.99
Sep	KBA-11-21	U	13.0	2.56	32	86.49	1.10
Sep	KBA-11-3C	U	13.0	2.56	33	89.19	1.24
Sep	KBA-11-17C	J	14.3	2.66	34	91.89	1.40
Sep	KBA-11-13B	J	15.2	2.72	35	94.59	1.61
Jan	KBA-11-11C	J	23.0	3.14	36	97.30	1.93

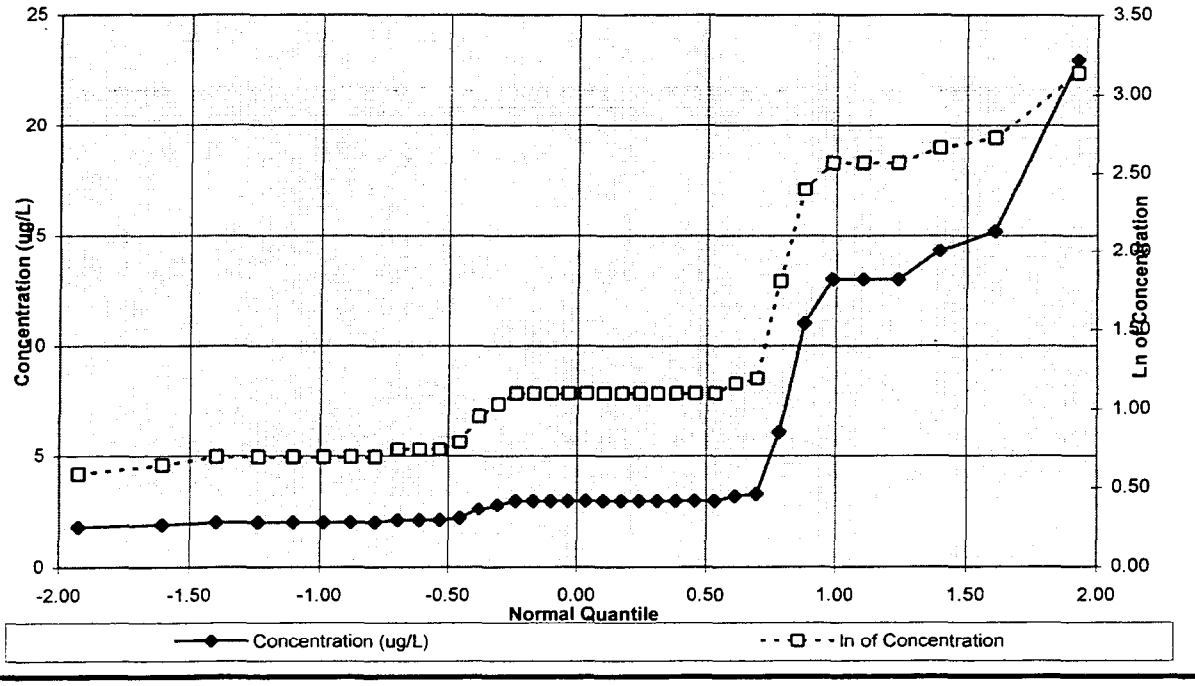
% Non-detects: 72%

Normal Distribution	Log-Normal Distribution
Mean = 5.02	Mean = 1.29
Standard Deviation = 5.11	Standard Deviation = 0.73
Coefficient of Variance = 1.02	Coefficient of Variance = 0.57
Skew = 2.02	Skew = 1.33
Kurtosis = 3.54	Kurtosis = 0.41
R2 = 0.61	R2 = 0.76

KINGS BAY - SITE 11
Determination of Distribution
Antimony Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Arsenic Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-11C	UJ	1.0	0.00	1	2.70	-1.93
Jan	KBA-11-8C	UJ	1.0	0.00	2	5.41	-1.61
Apr	KBA-11-13B	U	1.0	0.00	3	8.11	-1.40
Apr	KBA-11-17C	U	1.0	0.00	4	10.81	-1.24
Apr	KBA-11-19B	U	1.0	0.00	5	13.51	-1.10
Apr	KBA-11-3C	U	1.0	0.00	6	16.22	-0.99
Apr	KBA-11-10C	J	1.0	0.00	7	18.92	-0.88
Jan	KBA-11-14	U	1.3	0.26	8	21.62	-0.79
Jan	KBA-11-15	U	1.3	0.26	9	24.32	-0.70
Jan	KBA-11-19B	U	1.3	0.26	10	27.03	-0.61
Jan	KBA-11-9	U	1.3	0.26	11	29.73	-0.53
Jan	KBA-11-10C	J	1.3	0.26	12	32.43	-0.46
Apr	KBA-11-9	J	1.3	0.26	13	35.14	-0.38
Apr	KBA-11-11C	J	1.6	0.47	14	37.84	-0.31
Jan	KBA-11-13B	J	1.6	0.47	15	40.54	-0.24
Apr	KBA-11-8C	J	2.0	0.69	16	43.24	-0.17
Jan	KBA-11-21	J	2.3	0.83	17	45.95	-0.10
Jan	KBA-11-8A	J	2.4	0.88	18	48.65	-0.03
Sep	KBA-11-13B	UJ	3.0	1.10	19	51.35	0.03
Sep	KBA-11-17C	UJ	3.0	1.10	20	54.05	0.10
Sep	KBA-11-19B	UJ	3.0	1.10	21	56.76	0.17
Sep	KBA-11-21	UJ	3.0	1.10	22	59.46	0.24
Sep	KBA-11-3C	UJ	3.0	1.10	23	62.16	0.31
Sep	KBA-11-10C	U	3.0	1.10	24	64.86	0.38
Sep	KBA-11-11C	U	3.0	1.10	25	67.57	0.46
Sep	KBA-11-14	U	3.0	1.10	26	70.27	0.53
Sep	KBA-11-15	U	3.0	1.10	27	72.97	0.61
Sep	KBA-11-8A	U	3.0	1.10	28	75.68	0.70
Sep	KBA-11-8C	U	3.0	1.10	29	78.38	0.79
Apr	KBA-11-8A	J	3.1	1.13	30	81.08	0.88
Jan	KBA-11-17C	J	5.2	1.65	31	83.78	0.99
Jan	KBA-11-3C	J	5.8	1.76	32	86.49	1.10
Sep	KBA-11-9	J	6.7	1.90	33	89.19	1.24
Apr	KBA-11-21	J	7.1	1.96	34	91.89	1.40
Apr	KBA-11-14		12.3	2.51	35	94.59	1.61
Apr	KBA-11-15		19.5	2.97	36	97.30	1.93

% Non-detects: 58%

Normal Distribution	Log-Normal Distribution
Mean = 3.26	Mean = 0.86
Standard Deviation = 3.59	Standard Deviation = 0.74
Coefficient of Variance = 1.1	Coefficient of Variance = 0.86
Skew = 3.28	Skew = 0.89
Kurtosis = 12.47	Kurtosis = 0.73
R2 = 0.57	R2 = 0.89

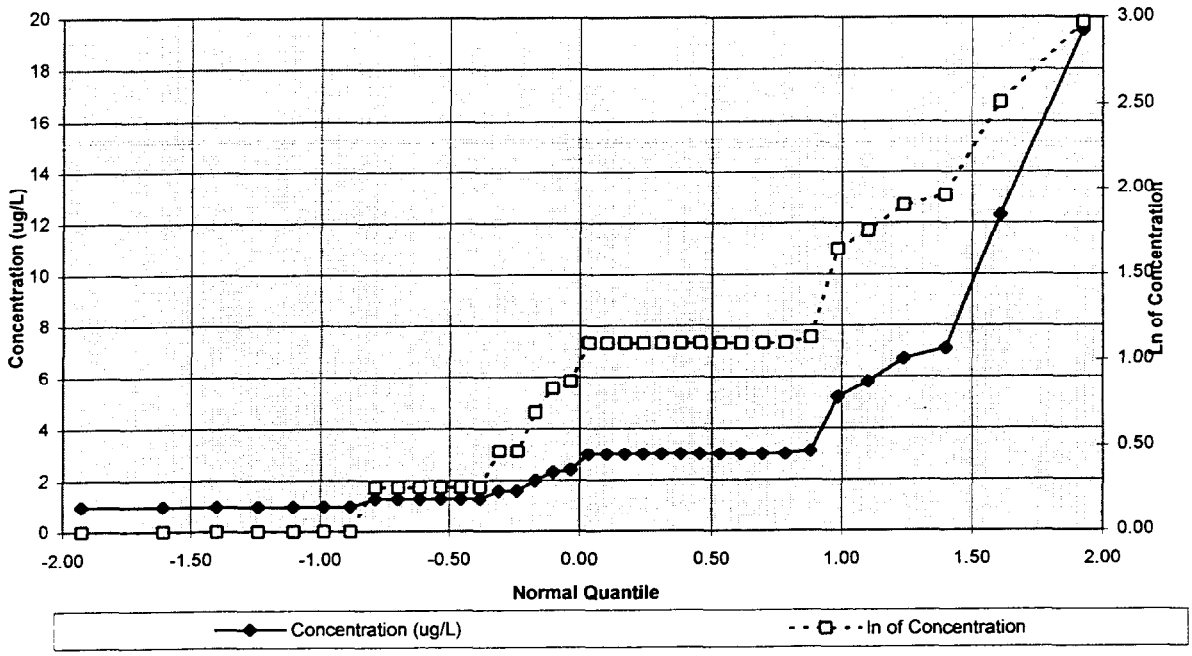
KINGS BAY - SITE 11

Determination of Distribution

Arsenic Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Barium Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-8A	J	8.5	2.14	1	2.70	-1.93
Jan	KBA-11-19B	J	10.0	2.30	2	5.41	-1.61
Jan	KBA-11-9	J	10.8	2.38	3	8.11	-1.40
Sep	KBA-11-13B	J	11.3	2.42	4	10.81	-1.24
Apr	KBA-11-3C	J	11.4	2.43	5	13.51	-1.10
Sep	KBA-11-19B	J	14.2	2.65	6	16.22	-0.99
Apr	KBA-11-19B	J	14.4	2.67	7	18.92	-0.88
Sep	KBA-11-3C	J	14.8	2.69	8	21.62	-0.79
Sep	KBA-11-14	J	17.3	2.85	9	24.32	-0.70
Sep	KBA-11-10C	J	18.2	2.90	10	27.03	-0.61
Jan	KBA-11-3C	J	19.8	2.99	11	29.73	-0.53
Apr	KBA-11-10C	J	20.6	3.03	12	32.43	-0.46
Jan	KBA-11-11C	J	20.8	3.03	13	35.14	-0.38
Apr	KBA-11-11C	J	21.0	3.04	14	37.84	-0.31
Sep	KBA-11-11C	J	21.0	3.04	15	40.54	-0.24
Sep	KBA-11-15	J	21.1	3.05	16	43.24	-0.17
Jan	KBA-11-17C	J	21.2	3.05	17	45.95	-0.10
Sep	KBA-11-17C	J	22.0	3.09	18	48.65	-0.03
Jan	KBA-11-13B	J	22.6	3.12	19	51.35	0.03
Apr	KBA-11-17C	J	22.9	3.13	20	54.05	0.10
Apr	KBA-11-13B	J	23.5	3.16	21	56.76	0.17
Sep	KBA-11-8A	J	26.0	3.26	22	59.46	0.24
Jan	KBA-11-8C	J	36.1	3.59	23	62.16	0.31
Sep	KBA-11-8C	J	36.9	3.61	24	64.86	0.38
Apr	KBA-11-8A	J	40.2	3.69	25	67.57	0.46
Apr	KBA-11-8C	J	45.8	3.82	26	70.27	0.53
Apr	KBA-11-9	J	51.0	3.93	27	72.97	0.61
Jan	KBA-11-14	J	51.7	3.95	28	75.68	0.70
Jan	KBA-11-10C	J	52.5	3.96	29	78.38	0.79
Jan	KBA-11-15	J	68.1	4.22	30	81.08	0.88
Apr	KBA-11-14	J	70.1	4.25	31	83.78	0.99
Sep	KBA-11-21	J	78.9	4.37	32	86.49	1.10
Apr	KBA-11-15	J	163	5.09	33	89.19	1.24
Apr	KBA-11-21	J	198	5.29	34	91.89	1.40
Jan	KBA-11-21	J	211	5.35	35	94.59	1.61
Sep	KBA-11-9		222	5.40	36	97.30	1.93

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 47.74	Mean = 3.42
Standard Deviation = 57.39	Standard Deviation = 0.88
Coefficient of Variance = 1.2	Coefficient of Variance = 0.26
Skew = 2.24	Skew = 0.91
Kurtosis = 4.04	Kurtosis = 0.18
R2 = 0.62	R2 = 0.91

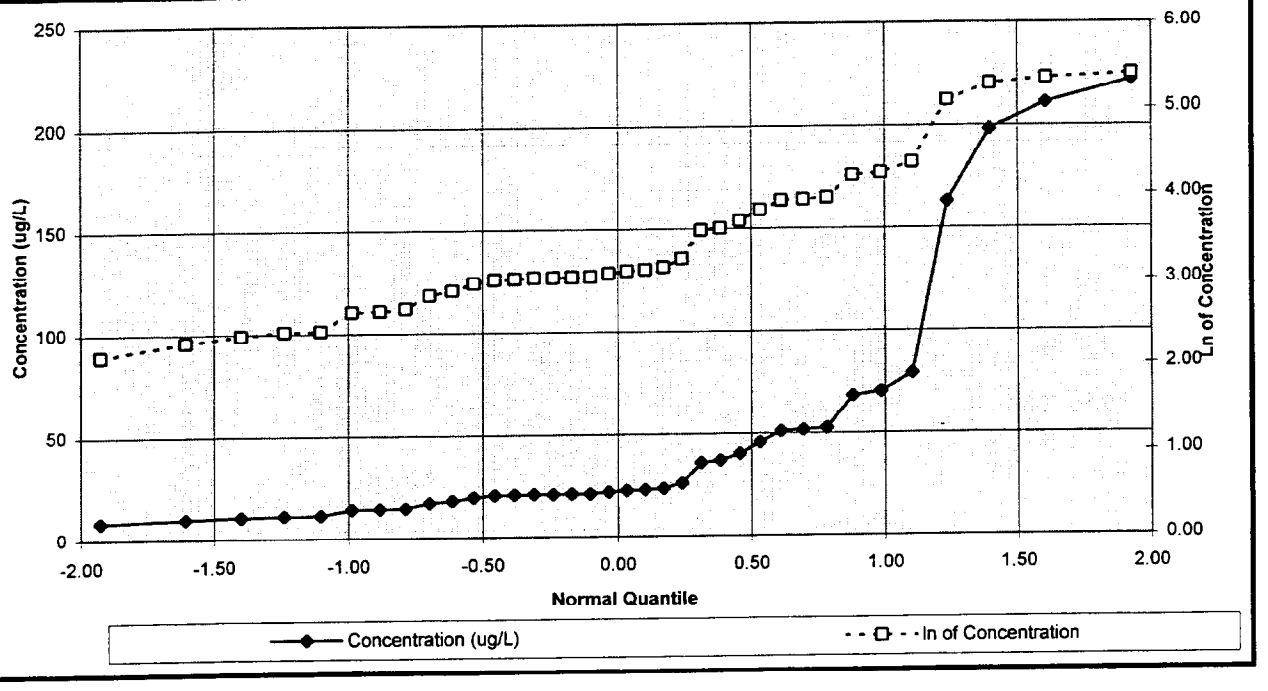
KINGS BAY - SITE 11

Determination of Distribution

Barium Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Beryllium Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10C	UJ	0.12	-2.12	1	2.70	-1.93
Jan	KBA-11-13B	UJ	0.12	-2.12	2	5.41	-1.61
Jan	KBA-11-11C	U	0.12	-2.12	3	8.11	-1.40
Jan	KBA-11-15	U	0.14	-1.97	4	10.81	-1.24
Jan	KBA-11-17C	U	0.14	-1.97	5	13.51	-1.10
Jan	KBA-11-19B	U	0.14	-1.97	6	16.22	-0.99
Jan	KBA-11-3C	U	0.14	-1.97	7	18.92	-0.88
Jan	KBA-11-8A	U	0.14	-1.97	8	21.62	-0.79
Jan	KBA-11-8C	J	0.25	-1.39	9	24.32	-0.70
Jan	KBA-11-14	J	0.45	-0.80	10	27.03	-0.61
Jan	KBA-11-9	J	0.94	-0.06	11	29.73	-0.53
Sep	KBA-11-10C	U	1.0	0.00	12	32.43	-0.46
Sep	KBA-11-11C	U	1.0	0.00	13	35.14	-0.38
Sep	KBA-11-13B	U	1.0	0.00	14	37.84	-0.31
Sep	KBA-11-14	U	1.0	0.00	15	40.54	-0.24
Sep	KBA-11-15	U	1.0	0.00	16	43.24	-0.17
Sep	KBA-11-17C	U	1.0	0.00	17	45.95	-0.10
Sep	KBA-11-19B	U	1.0	0.00	18	48.65	-0.03
Sep	KBA-11-21	U	1.0	0.00	19	51.35	0.03
Sep	KBA-11-3C	U	1.0	0.00	20	54.05	0.10
Sep	KBA-11-8A	U	1.0	0.00	21	56.76	0.17
Sep	KBA-11-8C	U	1.0	0.00	22	59.46	0.24
Jan	KBA-11-21	J	1.3	0.26	23	62.16	0.31
Apr	KBA-11-10C	U	2.0	0.69	24	64.86	0.38
Apr	KBA-11-11C	U	2.0	0.69	25	67.57	0.46
Apr	KBA-11-13B	U	2.0	0.69	26	70.27	0.53
Apr	KBA-11-14	U	2.0	0.69	27	72.97	0.61
Apr	KBA-11-15	U	2.0	0.69	28	75.68	0.70
Apr	KBA-11-17C	U	2.0	0.69	29	78.38	0.79
Apr	KBA-11-19B	U	2.0	0.69	30	81.08	0.88
Apr	KBA-11-21	U	2.0	0.69	31	83.78	0.99
Apr	KBA-11-3C	U	2.0	0.69	32	86.49	1.10
Apr	KBA-11-8A	U	2.0	0.69	33	89.19	1.24
Apr	KBA-11-8C	U	2.0	0.69	34	91.89	1.40
Apr	KBA-11-9	U	2.0	0.69	35	94.59	1.61
Sep	KBA-11-9		6.1	1.81	36	97.30	1.93

% Non-detects: 86%

Normal Distribution	Log-Normal Distribution
Mean = 1.25	Mean = -0.22
Standard Deviation = 1.1	Standard Deviation = 1.1
Coefficient of Variance = 0.88	Coefficient of Variance = -4.94
Skew = 2.38	Skew = -0.69
Kurtosis = 9.72	Kurtosis = -0.71
R2 = 0.71	R2 = 0.83

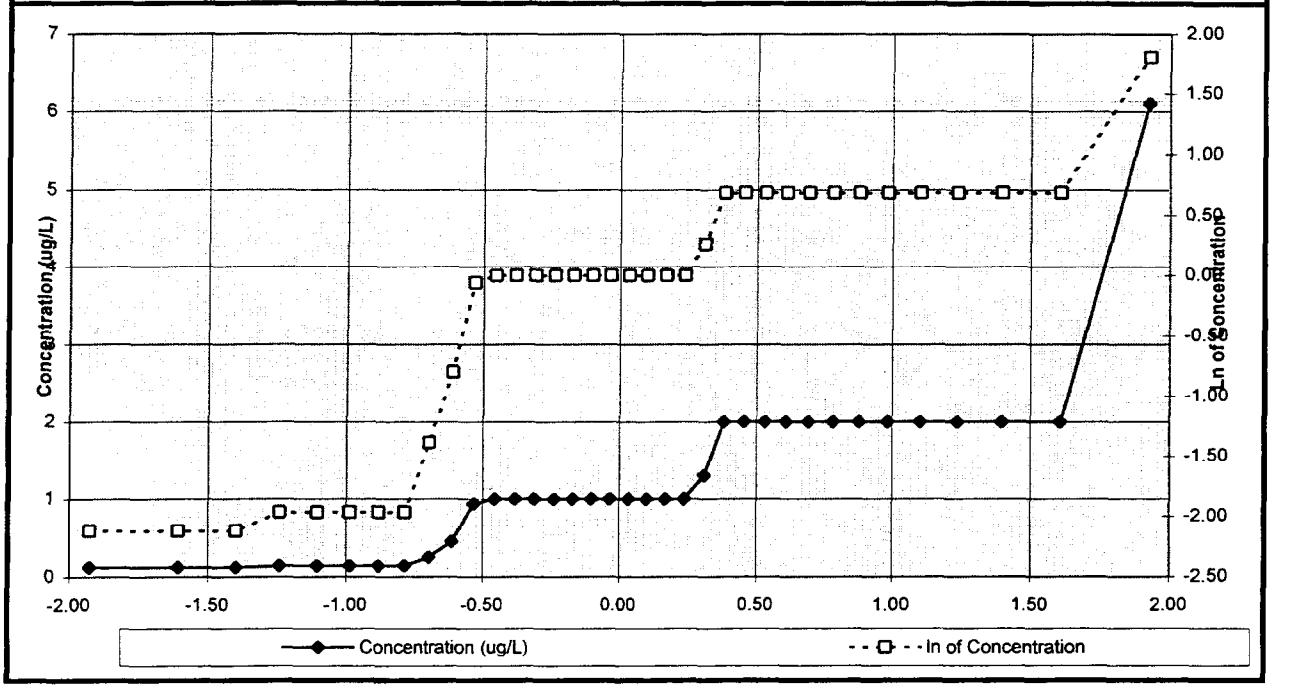
KINGS BAY - SITE 11

Determination of Distribution

Beryllium Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cadmium Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-10C	UJ	3.0	1.10	1	2.70	-1.93
Apr	KBA-11-15	UJ	3.0	1.10	2	5.41	-1.61
Apr	KBA-11-17C	UJ	3.0	1.10	3	8.11	-1.40
Apr	KBA-11-19B	UJ	3.0	1.10	4	10.81	-1.24
Apr	KBA-11-21	UJ	3.0	1.10	5	13.51	-1.10
Apr	KBA-11-11C	U	3.0	1.10	6	16.22	-0.99
Apr	KBA-11-13B	U	3.0	1.10	7	18.92	-0.88
Apr	KBA-11-14	U	3.0	1.10	8	21.62	-0.79
Sep	KBA-11-14	U	3.0	1.10	9	24.32	-0.70
Sep	KBA-11-3C	U	3.0	1.10	10	27.03	-0.61
Sep	KBA-11-8A	U	3.0	1.10	11	29.73	-0.53
Sep	KBA-11-8C	U	3.0	1.10	12	32.43	-0.46
Apr	KBA-11-9	U	3.0	1.10	13	35.14	-0.38
Jan	KBA-11-14	U	3.1	1.13	14	37.84	-0.31
Jan	KBA-11-15	U	3.1	1.13	15	40.54	-0.24
Jan	KBA-11-17C	U	3.1	1.13	16	43.24	-0.17
Jan	KBA-11-19B	U	3.1	1.13	17	45.95	-0.10
Jan	KBA-11-21	U	3.1	1.13	18	48.65	-0.03
Jan	KBA-11-3C	U	3.1	1.13	19	51.35	0.03
Jan	KBA-11-8A	U	3.1	1.13	20	54.05	0.10
Jan	KBA-11-9	U	3.1	1.13	21	56.76	0.17
Jan	KBA-11-10C	U	3.2	1.16	22	59.46	0.24
Jan	KBA-11-11C	U	3.2	1.16	23	62.16	0.31
Jan	KBA-11-13B	U	3.2	1.16	24	64.86	0.38
Jan	KBA-11-8C	U	3.2	1.16	25	67.57	0.46
Apr	KBA-11-3C	U	3.3	1.19	26	70.27	0.53
Sep	KBA-11-13B	J	3.3	1.19	27	72.97	0.61
Apr	KBA-11-8A	J	3.7	1.31	28	75.68	0.70
Apr	KBA-11-8C	J	4.8	1.57	29	78.38	0.79
Sep	KBA-11-19B		6.0	1.79	30	81.08	0.88
Sep	KBA-11-9		7.4	2.00	31	83.78	0.99
Sep	KBA-11-10C		8.3	2.12	32	86.49	1.10
Sep	KBA-11-11C		9.4	2.24	33	89.19	1.24
Sep	KBA-11-17C		13.6	2.61	34	91.89	1.40
Sep	KBA-11-15		20.6	3.03	35	94.59	1.61
Sep	KBA-11-21		25.8	3.25	36	97.30	1.93

% Non-detects: 72%

Normal Distribution	Log-Normal Distribution
Mean = 5.08	Mean = 1.4
Standard Deviation = 5.04	Standard Deviation = 0.57
Coefficient of Variance = 0.99	Coefficient of Variance = 0.41
Skew = 3.12	Skew = 2.15
Kurtosis = 9.82	Kurtosis = 3.83
R2 = 0.45	R2 = 0.58

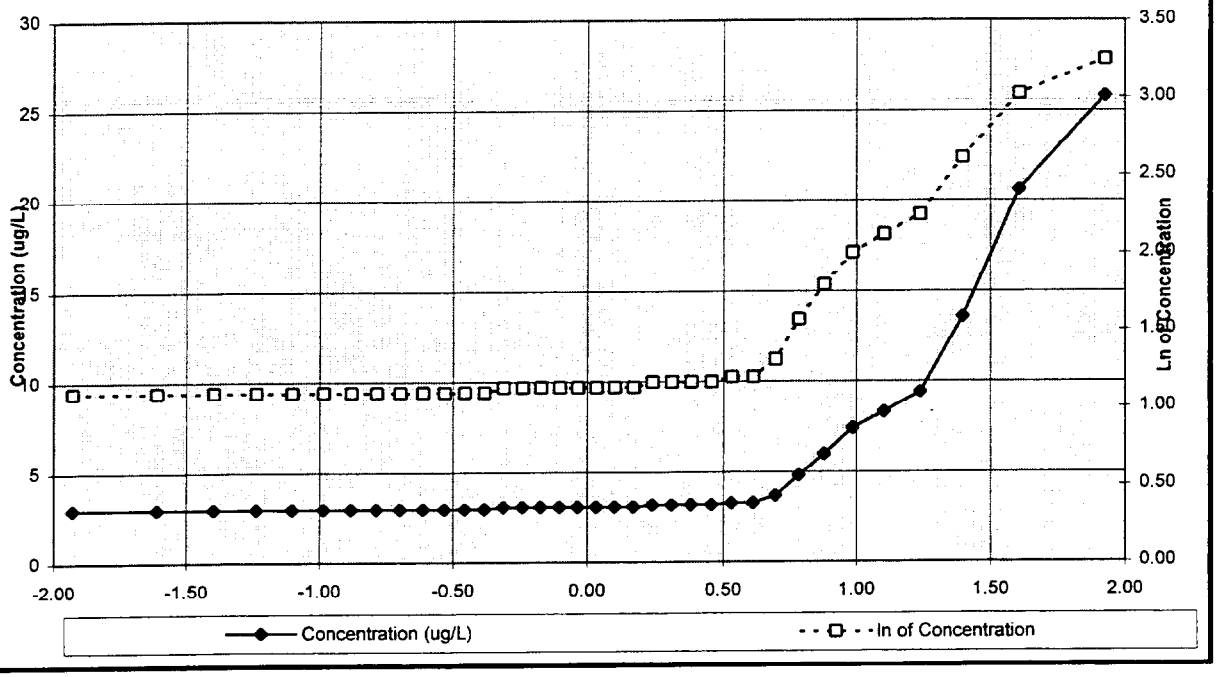
KINGS BAY - SITE 11

Determination of Distribution

Cadmium Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Chromium Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (ug/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-17C	U	2.3	0.83	1	2.70	-1.93
Jan	KBA-11-19B	U	2.3	0.83	2	5.41	-1.61
Jan	KBA-11-8A	U	2.3	0.83	3	8.11	-1.40
Jan	KBA-11-3C	U	2.6	0.96	4	10.81	-1.24
Jan	KBA-11-13B	U	3.2	1.16	5	13.51	-1.10
Apr	KBA-11-17C	U	5.0	1.61	6	16.22	-0.99
Apr	KBA-11-19B	U	5.0	1.61	7	18.92	-0.88
Jan	KBA-11-10C	J	5.0	1.61	8	21.62	-0.79
Sep	KBA-11-13B	U	8.0	2.08	9	24.32	-0.70
Sep	KBA-11-14	U	8.0	2.08	10	27.03	-0.61
Sep	KBA-11-21	U	8.0	2.08	11	29.73	-0.53
Sep	KBA-11-19B	J	8.2	2.10	12	32.43	-0.46
Apr	KBA-11-3C	J	8.7	2.16	13	35.14	-0.38
Sep	KBA-11-11C	J	9.0	2.20	14	37.84	-0.31
Sep	KBA-11-3C		10.6	2.36	15	40.54	-0.24
Sep	KBA-11-8C		10.8	2.38	16	43.24	-0.17
Jan	KBA-11-8C		10.9	2.39	17	45.95	-0.10
Sep	KBA-11-17C		11.2	2.42	18	48.65	-0.03
Apr	KBA-11-13B		12.0	2.48	19	51.35	0.03
Jan	KBA-11-9		12.5	2.53	20	54.05	0.10
Jan	KBA-11-11C		15.0	2.71	21	56.76	0.17
Jan	KBA-11-21		15.4	2.73	22	59.46	0.24
Sep	KBA-11-10C		16.4	2.80	23	62.16	0.31
Apr	KBA-11-21		16.5	2.80	24	64.86	0.38
Apr	KBA-11-8C		17.8	2.88	25	67.57	0.46
Apr	KBA-11-11C		18.2	2.90	26	70.27	0.53
Jan	KBA-11-14		25.2	3.23	27	72.97	0.61
Sep	KBA-11-8A		27.2	3.30	28	75.68	0.70
Jan	KBA-11-15		30.7	3.42	29	78.38	0.79
Apr	KBA-11-15		40.3	3.70	30	81.08	0.88
Apr	KBA-11-8A		44.7	3.80	31	83.78	0.99
Apr	KBA-11-14		47.4	3.86	32	86.49	1.10
Apr	KBA-11-10C		48.2	3.88	33	89.19	1.24
Sep	KBA-11-15		51.6	3.94	34	91.89	1.40
Apr	KBA-11-9		53.9	3.99	35	94.59	1.61
Sep	KBA-11-9		252	5.53	36	97.30	1.93

% Non-detects: 28%

Normal Distribution	Log-Normal Distribution
Mean = 24.06	Mean = 2.56
Standard Deviation = 41.98	Standard Deviation = 1.05
Coefficient of Variance = 1.75	Coefficient of Variance = 0.41
Skew = 4.83	Skew = 0.41
Kurtosis = 26.24	Kurtosis = 0.52
R2 = 0.41	R2 = 0.96

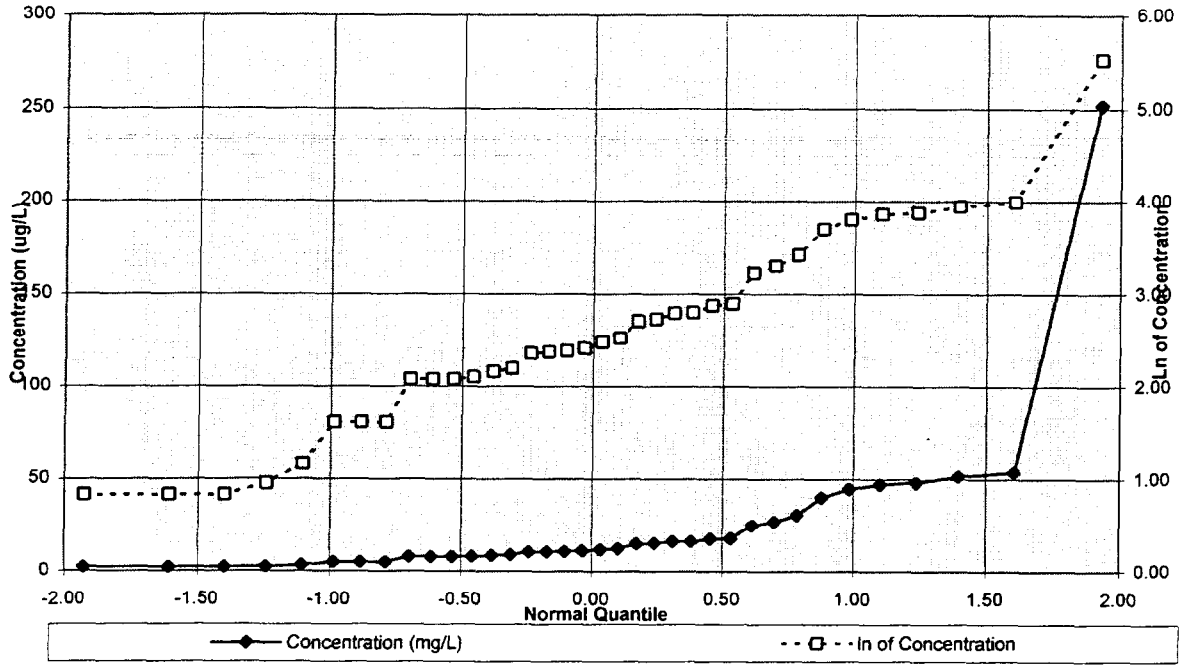
KINGS BAY - SITE 11

Determination of Distribution

Chromium Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cobalt Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-15	U	1.6	0.47	1	2.70	-1.93
Jan	KBA-11-17C	U	1.6	0.47	2	5.41	-1.61
Jan	KBA-11-19B	U	1.6	0.47	3	8.11	-1.40
Jan	KBA-11-3C	U	1.6	0.47	4	10.81	-1.24
Jan	KBA-11-8A	U	1.6	0.47	5	13.51	-1.10
Jan	KBA-11-21	J	1.7	0.53	6	16.22	-0.99
Sep	KBA-11-10C	U	2.0	0.69	7	18.92	-0.88
Jan	KBA-11-10C	U	2.1	0.74	8	21.62	-0.79
Jan	KBA-11-11C	U	2.1	0.74	9	24.32	-0.70
Jan	KBA-11-13B	U	2.1	0.74	10	27.03	-0.61
Jan	KBA-11-8C	U	2.1	0.74	11	29.73	-0.53
Jan	KBA-11-9	J	2.2	0.79	12	32.43	-0.46
Jan	KBA-11-14	J	7.0	1.95	13	35.14	-0.38
Apr	KBA-11-13B	UJ	9.0	2.20	14	37.84	-0.31
Apr	KBA-11-10C	U	9.0	2.20	15	40.54	-0.24
Apr	KBA-11-11C	U	9.0	2.20	16	43.24	-0.17
Apr	KBA-11-14	U	9.0	2.20	17	45.95	-0.10
Apr	KBA-11-15	U	9.0	2.20	18	48.65	-0.03
Apr	KBA-11-17C	U	9.0	2.20	19	51.35	0.03
Apr	KBA-11-19B	U	9.0	2.20	20	54.05	0.10
Apr	KBA-11-21	U	9.0	2.20	21	56.76	0.17
Apr	KBA-11-8A	U	9.0	2.20	22	59.46	0.24
Apr	KBA-11-8C	U	9.0	2.20	23	62.16	0.31
Apr	KBA-11-9	U	9.0	2.20	24	64.86	0.38
Apr	KBA-11-3C	J	10.3	2.33	25	67.57	0.46
Sep	KBA-11-11C	U	14.0	2.64	26	70.27	0.53
Sep	KBA-11-13B	U	14.0	2.64	27	72.97	0.61
Sep	KBA-11-14	U	14.0	2.64	28	75.68	0.70
Sep	KBA-11-15	U	14.0	2.64	29	78.38	0.79
Sep	KBA-11-17C	U	14.0	2.64	30	81.08	0.88
Sep	KBA-11-19B	U	14.0	2.64	31	83.78	0.99
Sep	KBA-11-21	U	14.0	2.64	32	86.49	1.10
Sep	KBA-11-3C	U	14.0	2.64	33	89.19	1.24
Sep	KBA-11-8A	U	14.0	2.64	34	91.89	1.40
Sep	KBA-11-8C	U	14.0	2.64	35	94.59	1.61
Sep	KBA-11-9	U	14.0	2.64	36	97.30	1.93

% Non-detects: 89%

Normal Distribution	Log-Normal Distribution
Mean = 8.13	Mean = 1.8
Standard Deviation = 4.97	Standard Deviation = 0.88
Coefficient of Variance = 0.61	Coefficient of Variance = 0.49
Skew = -0.18	Skew = -0.61
Kurtosis = -1.51	Kurtosis = -1.47
R2 = 0.85	R2 = 0.79

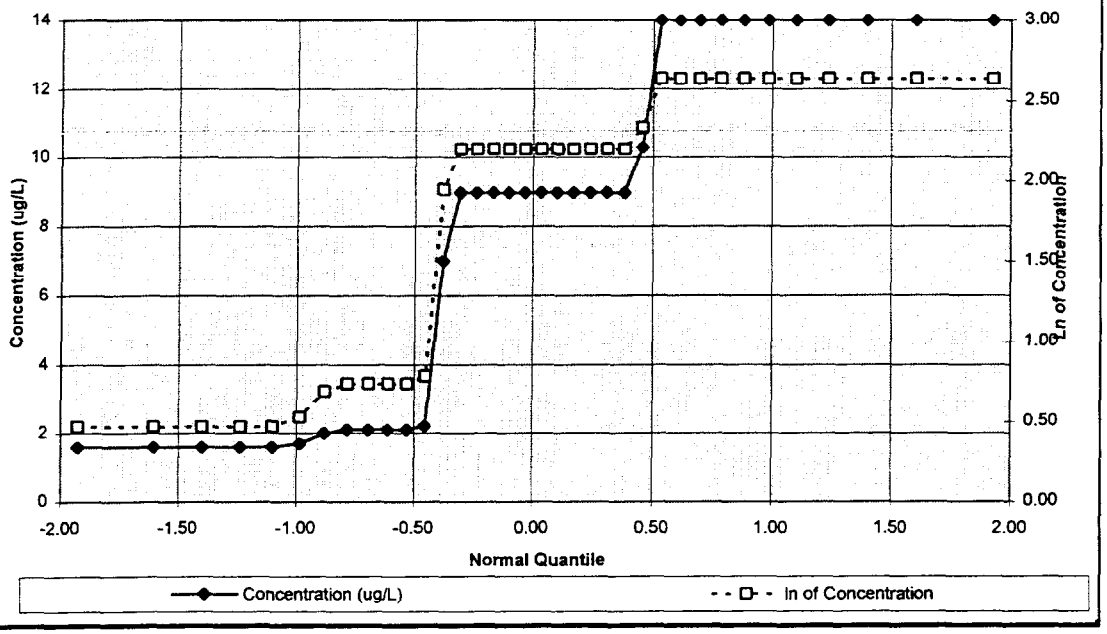
KINGS BAY - SITE 11

Determination of Distribution

Cobalt Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Copper Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-8A	U	1.7	0.53	1	2.70	-1.93
Jan	KBA-11-19B	J	3.1	1.13	2	5.41	-1.61
Apr	KBA-11-3C	J	3.2	1.16	3	8.11	-1.40
Sep	KBA-11-10C	U	3.4	1.22	4	10.81	-1.24
Jan	KBA-11-8C	U	3.8	1.34	5	13.51	-1.10
Jan	KBA-11-21	J	4.4	1.48	6	16.22	-0.99
Jan	KBA-11-3C	J	4.6	1.53	7	18.92	-0.88
Jan	KBA-11-9	J	4.6	1.53	8	21.62	-0.79
Sep	KBA-11-13B	U	4.7	1.55	9	24.32	-0.70
Jan	KBA-11-17C	J	5.2	1.65	10	27.03	-0.61
Apr	KBA-11-21	UJ	5.7	1.74	11	29.73	-0.53
Sep	KBA-11-11C	J	6.6	1.89	12	32.43	-0.46
Jan	KBA-11-15	J	7.1	1.96	13	35.14	-0.38
Sep	KBA-11-14	J	8.1	2.09	14	37.84	-0.31
Sep	KBA-11-8C	J	11.4	2.43	15	40.54	-0.24
Apr	KBA-11-8C	J	11.8	2.47	16	43.24	-0.17
Sep	KBA-11-8A	J	13.0	2.56	17	45.95	-0.10
Apr	KBA-11-15	J	13.6	2.61	18	48.65	-0.03
Apr	KBA-11-9	J	14.3	2.66	19	51.35	0.03
Apr	KBA-11-10C	J	15.4	2.73	20	54.05	0.10
Sep	KBA-11-21	J	15.5	2.74	21	56.76	0.17
Apr	KBA-11-8A	J	15.9	2.77	22	59.46	0.24
Jan	KBA-11-10C	J	16.5	2.80	23	62.16	0.31
Sep	KBA-11-3C	J	16.6	2.81	24	64.86	0.38
Apr	KBA-11-19B	J	18.1	2.90	25	67.57	0.46
Jan	KBA-11-14	J	20.6	3.03	26	70.27	0.53
Sep	KBA-11-17C	J	21.1	3.05	27	72.97	0.61
Jan	KBA-11-11C	J	24.6	3.20	28	75.68	0.70
Apr	KBA-11-13B		26.2	3.27	29	78.38	0.79
Apr	KBA-11-11C		27.2	3.30	30	81.08	0.88
Apr	KBA-11-14		29.0	3.37	31	83.78	0.99
Apr	KBA-11-17C	J	34.7	3.55	32	86.49	1.10
Sep	KBA-11-19B		41.0	3.71	33	89.19	1.24
Jan	KBA-11-13B		45.4	3.82	34	91.89	1.40
Sep	KBA-11-9		50.5	3.92	35	94.59	1.61
Sep	KBA-11-15		61.5	4.12	36	97.30	1.93

% Non-detects: 14%

Normal Distribution	Log-Normal Distribution
Mean = 16.95	Mean = 2.46
Standard Deviation = 14.61	Standard Deviation = 0.91
Coefficient of Variance = 0.86	Coefficient of Variance = 0.37
Skew = 1.41	Skew = -0.14
Kurtosis = 1.71	Kurtosis = -0.84
R2 = 0.85	R2 = 0.98

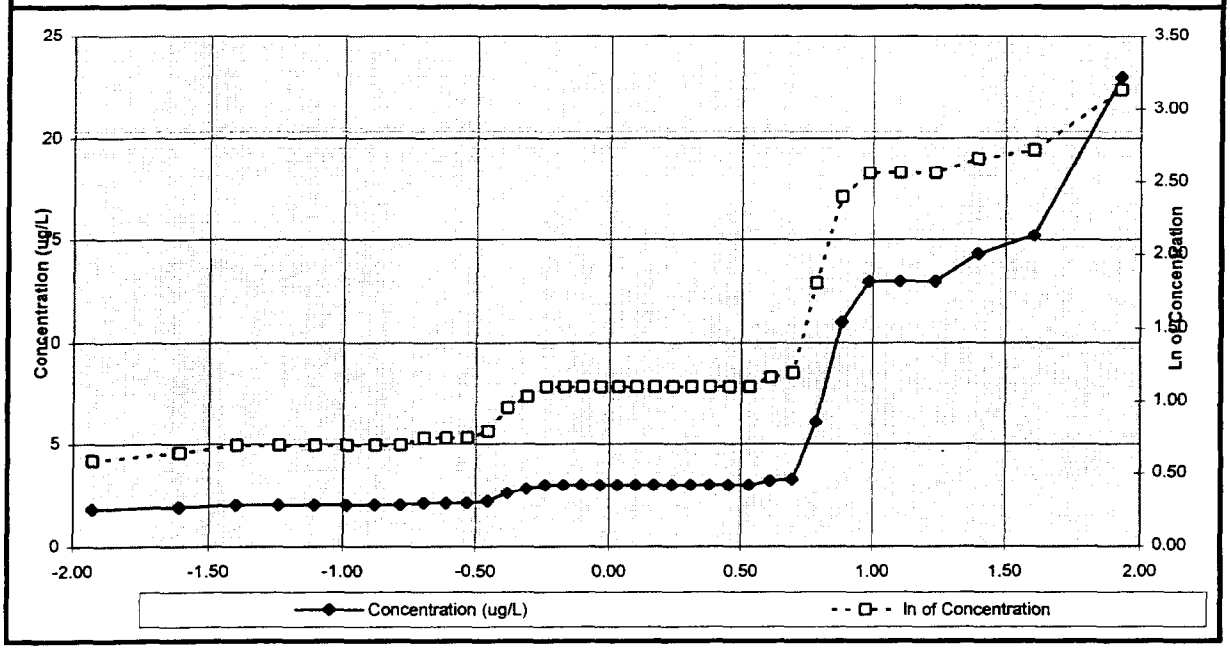
KINGS BAY - SITE 11

Determination of Distribution

Copper Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cyanide Ground Water Concentrations for Delineation Wells

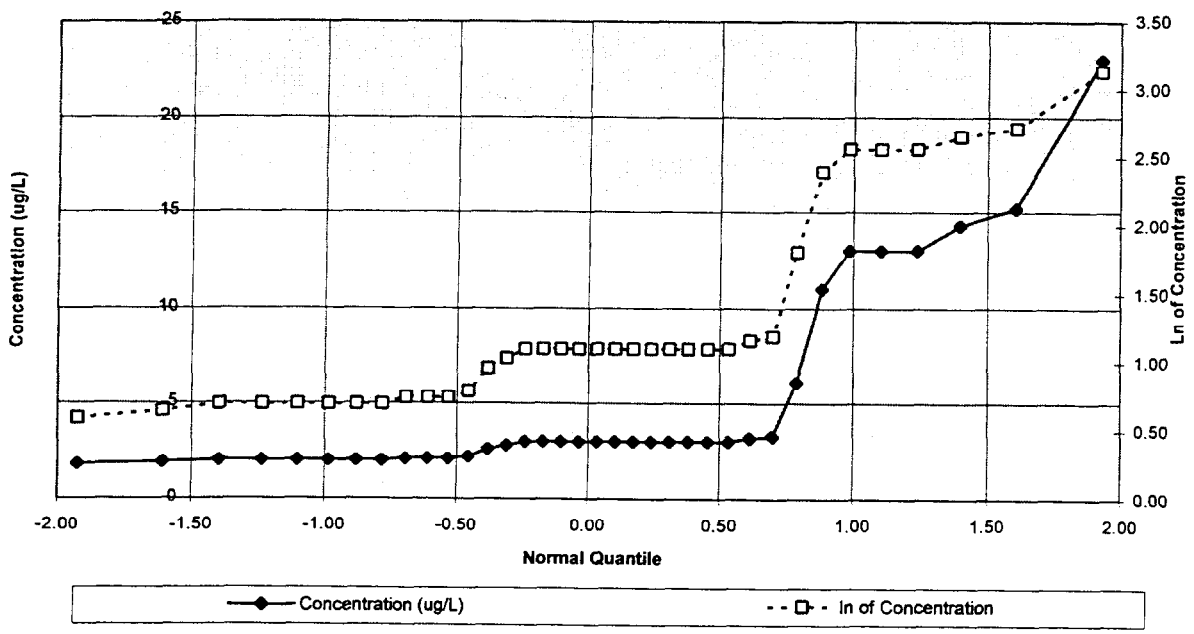
Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
ALL NON-DETECTED VALUES				#NUM!	1	33.33	-0.43
Selct this row and insert your data. Copy cells to right up into your data. Then Delete this row and the first row. Sort the data and input the order. Then select only your data and put a thick border around it.				#NUM!	2	66.67	0.43

% Non-detects: #DIV/0!

Normal Distribution	Log-Normal Distribution
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!
#DIV/0!	#NUM!

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Iron Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-3C		193	5.26	1	2.70	-1.93
Apr	KBA-11-3C	U	194	5.27	2	5.41	-1.61
Sep	KBA-11-3C	J	234	5.46	3	8.11	-1.40
Sep	KBA-11-13B	J	246	5.51	4	10.81	-1.24
Sep	KBA-11-11C		356	5.87	5	13.51	-1.10
Jan	KBA-11-9		563	6.33	6	16.22	-0.99
Sep	KBA-11-15		568	6.34	7	18.92	-0.88
Sep	KBA-11-17C	J	587	6.38	8	21.62	-0.79
Sep	KBA-11-19B	J	740	6.61	9	24.32	-0.70
Jan	KBA-11-13B	J	944	6.85	10	27.03	-0.61
Apr	KBA-11-17C		970	6.88	11	29.73	-0.53
Jan	KBA-11-19B		1060	6.97	12	32.43	-0.46
Apr	KBA-11-10C		1080	6.98	13	35.14	-0.38
Jan	KBA-11-11C		1130	7.03	14	37.84	-0.31
Sep	KBA-11-10C		1170	7.06	15	40.54	-0.24
Apr	KBA-11-19B		1170	7.06	16	43.24	-0.17
Apr	KBA-11-11C		1200	7.09	17	45.95	-0.10
Jan	KBA-11-17C		1250	7.13	18	48.65	-0.03
Sep	KBA-11-21	J	1300	7.17	19	51.35	0.03
Jan	KBA-11-15		1570	7.36	20	54.05	0.10
Sep	KBA-11-14		1710	7.44	21	56.76	0.17
Apr	KBA-11-13B		1900	7.55	22	59.46	0.24
Jan	KBA-11-8C		2050	7.63	23	62.16	0.31
Sep	KBA-11-8C		2060	7.63	24	64.86	0.38
Jan	KBA-11-10C	J	2370	7.77	25	67.57	0.46
Apr	KBA-11-9		2470	7.81	26	70.27	0.53
Jan	KBA-11-8A		2700	7.90	27	72.97	0.61
Apr	KBA-11-8C		3810	8.25	28	75.68	0.70
Jan	KBA-11-21		7230	8.89	29	78.38	0.79
Jan	KBA-11-14		7390	8.91	30	81.08	0.88
Sep	KBA-11-9		7990	8.99	31	83.78	0.99
Apr	KBA-11-21		9610	9.17	32	86.49	1.10
Apr	KBA-11-15		10000	9.21	33	89.19	1.24
Apr	KBA-11-14		11500	9.35	34	91.89	1.40
Sep	KBA-11-8A		15400	9.64	35	94.59	1.61
Apr	KBA-11-8A		18700	9.84	36	97.30	1.93

% Non-detects: 3%

Normal Distribution	Log-Normal Distribution
Mean = 3428.19	Mean = 7.4
Standard Deviation = 4550.46	Standard Deviation = 1.24
Coefficient of Variance = 1.33	Coefficient of Variance = 0.17
Skew = 1.97	Skew = 0.22
Kurtosis = 3.41	Kurtosis = -0.54
R2 = 0.68	R2 = 0.97

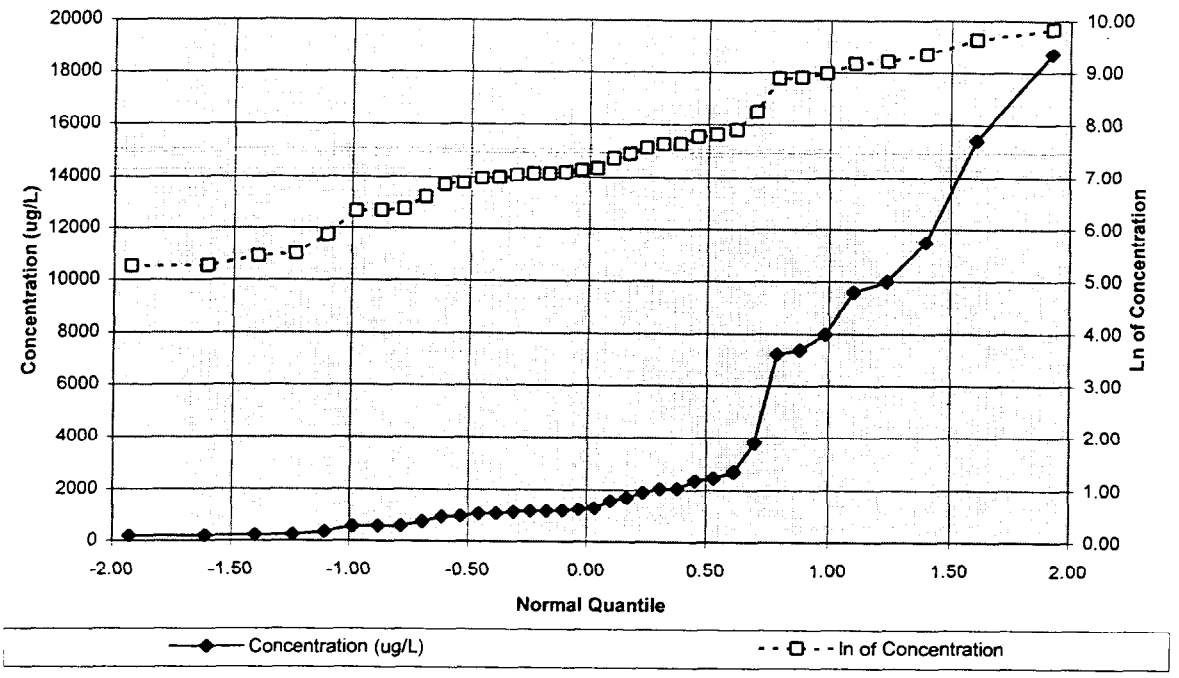
KINGS BAY - SITE 11

Determination of Distribution

Iron Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Lead Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10C	UJ	1.0	0.00	1	2.70	-1.93
Sep	KBA-11-13B	UJ	1.0	0.00	2	5.41	-1.61
Apr	KBA-11-19B	UJ	1.0	0.00	3	8.11	-1.40
Sep	KBA-11-21	UJ	1.0	0.00	4	10.81	-1.24
Sep	KBA-11-3C	UJ	1.0	0.00	5	13.51	-1.10
Sep	KBA-11-11C	U	1.0	0.00	6	16.22	-0.99
Sep	KBA-11-14	U	1.0	0.00	7	18.92	-0.88
Sep	KBA-11-15	U	1.0	0.00	8	21.62	-0.79
Apr	KBA-11-3C	U	1.0	0.00	9	24.32	-0.70
Apr	KBA-11-13B	J	1.0	0.00	10	27.03	-0.61
Sep	KBA-11-19B	J	1.4	0.34	11	29.73	-0.53
Sep	KBA-11-8C	J	1.5	0.41	12	32.43	-0.46
Apr	KBA-11-17C	J	1.6	0.47	13	35.14	-0.38
Sep	KBA-11-17C	J	1.6	0.47	14	37.84	-0.31
Jan	KBA-11-14	U	2.0	0.69	15	40.54	-0.24
Jan	KBA-11-17C	U	2.0	0.69	16	43.24	-0.17
Jan	KBA-11-19B	U	2.0	0.69	17	45.95	-0.10
Jan	KBA-11-21	U	2.0	0.69	18	48.65	-0.03
Jan	KBA-11-9	U	2.0	0.69	19	51.35	0.03
Jan	KBA-11-8A	J	2.5	0.92	20	54.05	0.10
Apr	KBA-11-10C	J	2.6	0.96	21	56.76	0.17
Apr	KBA-11-21	J	3.4	1.22	22	59.46	0.24
Jan	KBA-11-3C		3.4	1.22	23	62.16	0.31
Apr	KBA-11-8C	J	3.6	1.28	24	64.86	0.38
Jan	KBA-11-8C	J	4.3	1.46	25	67.57	0.46
Jan	KBA-11-13B		4.4	1.48	26	70.27	0.53
Apr	KBA-11-11C	J	4.7	1.55	27	72.97	0.61
Jan	KBA-11-11C	J	5.1	1.63	28	75.68	0.70
Jan	KBA-11-15	J	5.4	1.69	29	78.38	0.79
Apr	KBA-11-14	J	5.9	1.77	30	81.08	0.88
Jan	KBA-11-10C		6.8	1.92	31	83.78	0.99
Apr	KBA-11-15	J	7.3	1.99	32	86.49	1.10
Apr	KBA-11-8A		9.6	2.26	33	89.19	1.24
Apr	KBA-11-9		13.7	2.62	34	91.89	1.40
Sep	KBA-11-8A		14.4	2.67	35	94.59	1.61
Sep	KBA-11-9		77.0	4.34	36	97.30	1.93

% Non-detects 39%

Normal Distribution	Log-Normal Distribution
Mean = 5.56	Mean = 1
Standard Deviation = 12.7	Standard Deviation = 0.99
Coefficient of Variance = 2.28	Coefficient of Variance = 0.99
Skew = 5.39	Skew = 1.26
Kurtosis = 30.76	Kurtosis = 2.22
R2 = 0.3	R2 = 0.87

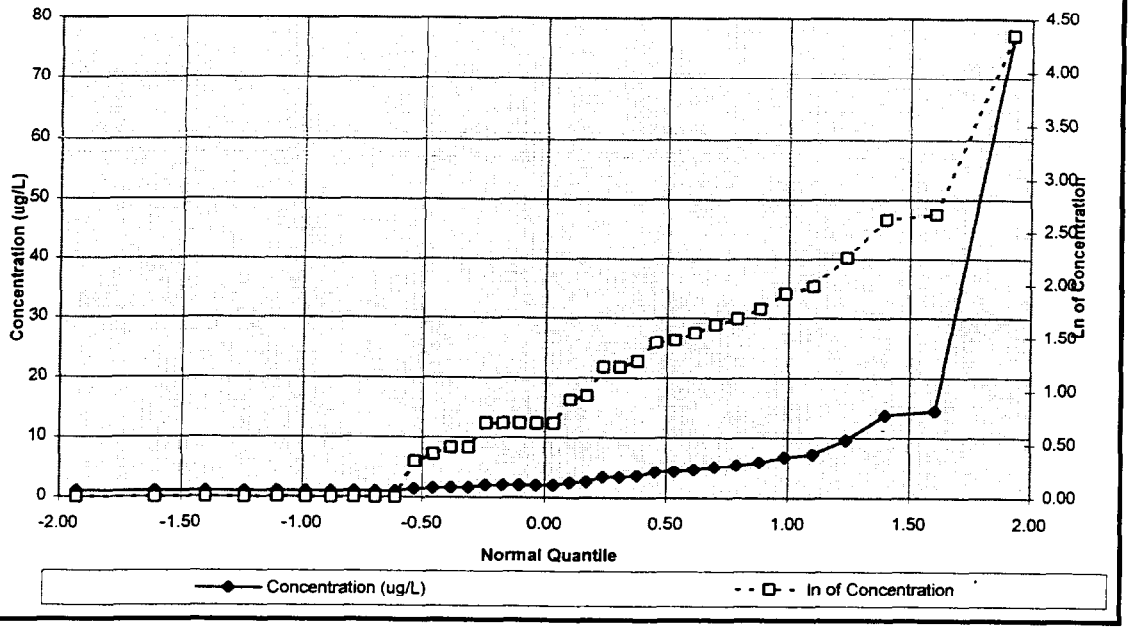
KINGS BAY - SITE 11

Determination of Distribution

Lead Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Manganese Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-9	J	1.5	0.41	1	2.70	-1.93
Sep	KBA-11-3C	J	2.2	0.79	2	5.41	-1.61
Apr	KBA-11-3C	J	7.2	1.97	3	8.11	-1.40
Apr	KBA-11-9	J	9.9	2.29	4	10.81	-1.24
Sep	KBA-11-14	J	11.0	2.40	5	13.51	-1.10
Sep	KBA-11-13B	J	11.5	2.44	6	16.22	-0.99
Jan	KBA-11-15	J	12.7	2.54	7	18.92	-0.88
Jan	KBA-11-3C	J	12.8	2.55	8	21.62	-0.79
Sep	KBA-11-21	J	13.1	2.57	9	24.32	-0.70
Sep	KBA-11-19B	J	13.6	2.61	10	27.03	-0.61
Sep	KBA-11-8C	J	14.5	2.67	11	29.73	-0.53
Jan	KBA-11-19B		16.9	2.83	12	32.43	-0.46
Jan	KBA-11-8C		17.9	2.88	13	35.14	-0.38
Apr	KBA-11-19B		18.0	2.89	14	37.84	-0.31
Sep	KBA-11-17C		20.2	3.01	15	40.54	-0.24
Apr	KBA-11-8C		20.6	3.03	16	43.24	-0.17
Apr	KBA-11-17C		20.7	3.03	17	45.95	-0.10
Apr	KBA-11-10C		24.6	3.20	18	48.65	-0.03
Jan	KBA-11-13B		25.4	3.23	19	51.35	0.03
Apr	KBA-11-14		28.1	3.34	20	54.05	0.10
Sep	KBA-11-15		28.3	3.34	21	56.76	0.17
Sep	KBA-11-11C		29.5	3.38	22	59.46	0.24
Jan	KBA-11-21		29.5	3.38	23	62.16	0.31
Sep	KBA-11-9		29.6	3.39	24	64.86	0.38
Sep	KBA-11-10C		35.1	3.56	25	67.57	0.46
Jan	KBA-11-17C		35.2	3.56	26	70.27	0.53
Jan	KBA-11-14		38.3	3.65	27	72.97	0.61
Apr	KBA-11-11C		49.0	3.89	28	75.68	0.70
Apr	KBA-11-13B		51.2	3.94	29	78.38	0.79
Jan	KBA-11-10C		58.6	4.07	30	81.08	0.88
Apr	KBA-11-15		63.6	4.15	31	83.78	0.99
Apr	KBA-11-21		69.3	4.24	32	86.49	1.10
Jan	KBA-11-11C		108	4.68	33	89.19	1.24
Jan	KBA-11-8A		170	5.14	34	91.89	1.40
Apr	KBA-11-8A		196	5.28	35	94.59	1.61
Sep	KBA-11-8A		213	5.36	36	97.30	1.93

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 41.85	Mean = 3.21
Standard Deviation = 51.13	Standard Deviation = 1.05
Coefficient of Variance = 1.22	Coefficient of Variance = 0.33
Skew = 2.41	Skew = -0.24
Kurtosis = 5.3	Kurtosis = 1.21
R2 = 0.64	R2 = 0.94

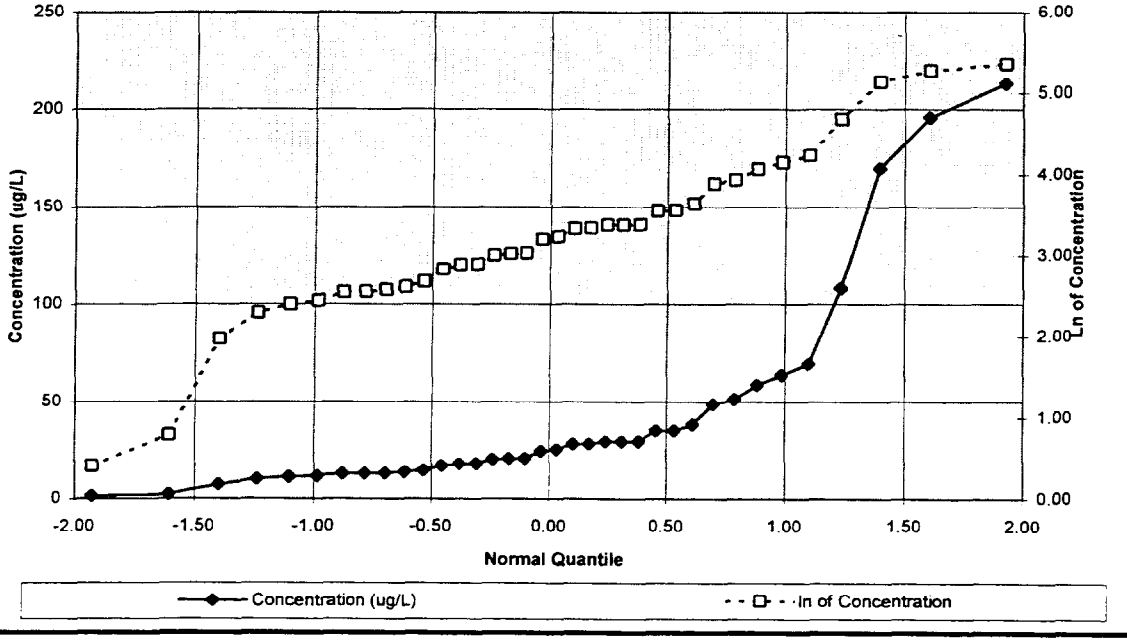
KINGS BAY - SITE 11

Determination of Distribution

Manganese Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Mercury Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10C	U	0.13	-2.04	1	2.70	-1.93
Jan	KBA-11-11C	U	0.13	-2.04	2	5.41	-1.61
Jan	KBA-11-13B	U	0.13	-2.04	3	8.11	-1.40
Jan	KBA-11-14	U	0.13	-2.04	4	10.81	-1.24
Jan	KBA-11-15	U	0.13	-2.04	5	13.51	-1.10
Jan	KBA-11-17C	U	0.13	-2.04	6	16.22	-0.99
Jan	KBA-11-19B	U	0.13	-2.04	7	18.92	-0.88
Jan	KBA-11-21	U	0.13	-2.04	8	21.62	-0.79
Jan	KBA-11-8A	U	0.13	-2.04	9	24.32	-0.70
Jan	KBA-11-8C	U	0.13	-2.04	10	27.03	-0.61
Jan	KBA-11-9	U	0.13	-2.04	11	29.73	-0.53
Apr	KBA-11-10C	U	0.20	-1.61	12	32.43	-0.46
Sep	KBA-11-10C	U	0.20	-1.61	13	35.14	-0.38
Apr	KBA-11-11C	U	0.20	-1.61	14	37.84	-0.31
Sep	KBA-11-11C	U	0.20	-1.61	15	40.54	-0.24
Apr	KBA-11-13B	U	0.20	-1.61	16	43.24	-0.17
Sep	KBA-11-13B	U	0.20	-1.61	17	45.95	-0.10
Apr	KBA-11-14	U	0.20	-1.61	18	48.65	-0.03
Sep	KBA-11-14	U	0.20	-1.61	19	51.35	0.03
Apr	KBA-11-15	U	0.20	-1.61	20	54.05	0.10
Sep	KBA-11-15	U	0.20	-1.61	21	56.76	0.17
Apr	KBA-11-17C	U	0.20	-1.61	22	59.46	0.24
Sep	KBA-11-17C	U	0.20	-1.61	23	62.16	0.31
Apr	KBA-11-19B	U	0.20	-1.61	24	64.86	0.38
Sep	KBA-11-19B	U	0.20	-1.61	25	67.57	0.46
Apr	KBA-11-21	U	0.20	-1.61	26	70.27	0.53
Sep	KBA-11-21	U	0.20	-1.61	27	72.97	0.61
Apr	KBA-11-3C	U	0.20	-1.61	28	75.68	0.70
Sep	KBA-11-3C	U	0.20	-1.61	29	78.38	0.79
Sep	KBA-11-8A	U	0.20	-1.61	30	81.08	0.88
Apr	KBA-11-8C	U	0.20	-1.61	31	83.78	0.99
Sep	KBA-11-8C	U	0.20	-1.61	32	86.49	1.10
Apr	KBA-11-8A		0.26	-1.35	33	89.19	1.24
Apr	KBA-11-9		0.28	-1.27	34	91.89	1.40
Jan	KBA-11-3C		0.35	-1.05	35	94.59	1.61
Sep	KBA-11-9		1.6	0.47	36	97.30	1.93

% Non-detects: 89%

Normal Distribution	Log-Normal Distribution
Mean = 0.23	Mean = -1.65
Standard Deviation = 0.24	Standard Deviation = 0.44
Coefficient of Variance = 1.07	Coefficient of Variance = -0.27
Skew = 5.64	Skew = 3.25
Kurtosis = 32.97	Kurtosis = 15.3
R2 = 0.26	R2 = 0.57

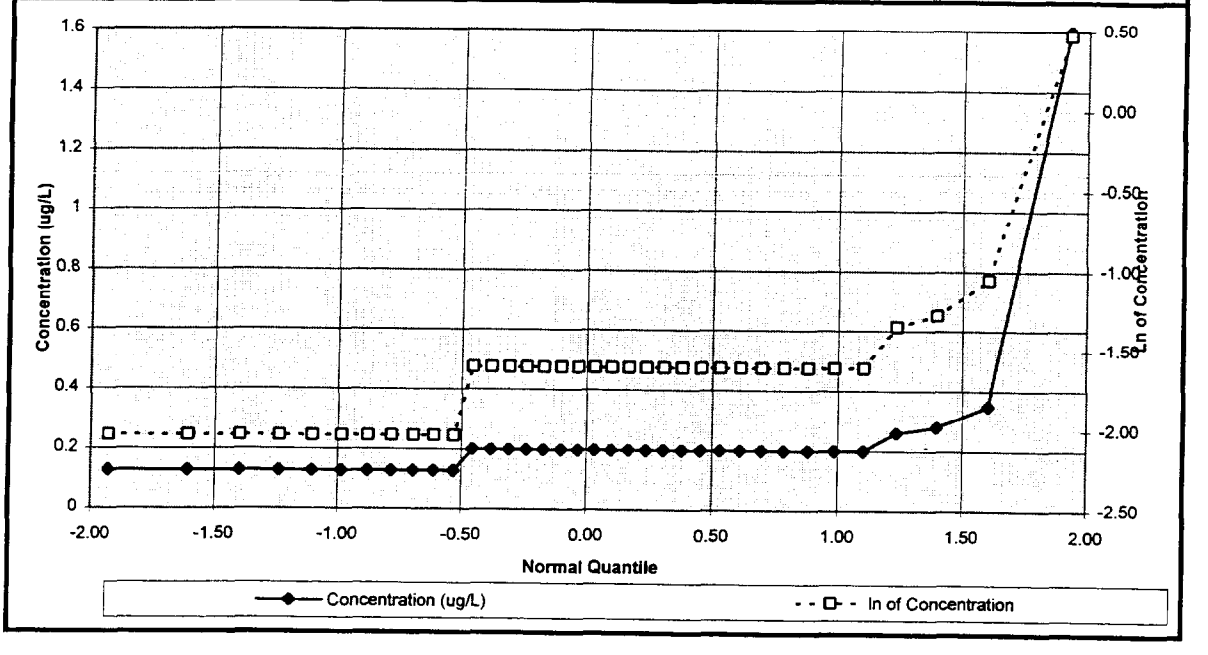
KINGS BAY - SITE 11

Determination of Distribution

Mercury Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Nickel Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-13B	U	3.9	1.36	1	2.70	-1.93
Jan	KBA-11-8C	U	3.9	1.36	2	5.41	-1.61
Sep	KBA-11-19B	U	6.0	1.79	3	8.11	-1.40
Sep	KBA-11-21	U	6.0	1.79	4	10.81	-1.24
Sep	KBA-11-8A	U	6.0	1.79	5	13.51	-1.10
Sep	KBA-11-8C	J	6.9	1.93	6	16.22	-0.99
Jan	KBA-11-17C	U	7.3	1.99	7	18.92	-0.88
Jan	KBA-11-19B	U	7.3	1.99	8	21.62	-0.79
Jan	KBA-11-21	U	7.3	1.99	9	24.32	-0.70
Jan	KBA-11-3C	U	7.3	1.99	10	27.03	-0.61
Jan	KBA-11-8A	U	7.3	1.99	11	29.73	-0.53
Sep	KBA-11-11C	J	7.3	1.99	12	32.43	-0.46
Sep	KBA-11-14	J	9.7	2.27	13	35.14	-0.38
Sep	KBA-11-3C	J	10.5	2.35	14	37.84	-0.31
Sep	KBA-11-17C	J	10.6	2.36	15	40.54	-0.24
Sep	KBA-11-13B	J	10.8	2.38	16	43.24	-0.17
Sep	KBA-11-10C	J	11.9	2.48	17	45.95	-0.10
Apr	KBA-11-13B	U	12.0	2.48	18	48.65	-0.03
Apr	KBA-11-15	U	12.0	2.48	19	51.35	0.03
Apr	KBA-11-17C	U	12.0	2.48	20	54.05	0.10
Apr	KBA-11-19B	U	12.0	2.48	21	56.76	0.17
Apr	KBA-11-21	U	12.0	2.48	22	59.46	0.24
Apr	KBA-11-3C	U	12.0	2.48	23	62.16	0.31
Apr	KBA-11-8C	U	12.0	2.48	24	64.86	0.38
Apr	KBA-11-9	U	12.0	2.48	25	67.57	0.46
Jan	KBA-11-11C	J	13.0	2.56	26	70.27	0.53
Jan	KBA-11-15	J	14.2	2.65	27	72.97	0.61
Apr	KBA-11-11C	U	15.5	2.74	28	75.68	0.70
Jan	KBA-11-9	J	16.8	2.82	29	78.38	0.79
Apr	KBA-11-8A	U	17.2	2.84	30	81.08	0.88
Jan	KBA-11-10C	J	20.3	3.01	31	83.78	0.99
Apr	KBA-11-10C	J	25.0	3.22	32	86.49	1.10
Sep	KBA-11-9	J	28.1	3.34	33	89.19	1.24
Jan	KBA-11-14		48.4	3.88	34	91.89	1.40
Apr	KBA-11-14	U	50.4	3.92	35	94.59	1.61
Sep	KBA-11-15		53.2	3.97	36	97.30	1.93

% Non-detects: 58%

Normal Distribution	Log-Normal Distribution
Mean = 14.67	Mean = 2.46
Standard Deviation = 12.21	Standard Deviation = 0.63
Coefficient of Variance = 0.83	Coefficient of Variance = 0.26
Skew = 2.28	Skew = 0.77
Kurtosis = 4.73	Kurtosis = 0.74
R2 = 0.67	R2 = 0.92

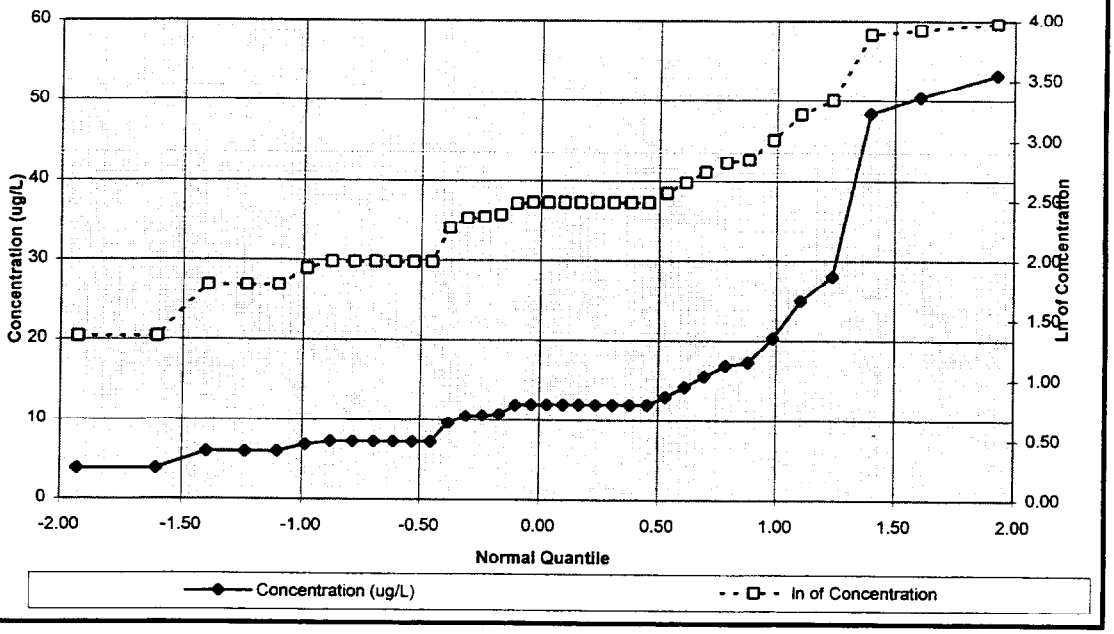
KINGS BAY - SITE 11

Determination of Distribution

Nickel Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Selenium Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10C	UJ	1.5	0.41	1	2.70	-1.93
Jan	KBA-11-11C	UJ	1.5	0.41	2	5.41	-1.61
Jan	KBA-11-13B	UJ	1.5	0.41	3	8.11	-1.40
Jan	KBA-11-19B	UJ	1.5	0.41	4	10.81	-1.24
Jan	KBA-11-3C	UJ	1.5	0.41	5	13.51	-1.10
Jan	KBA-11-14	U	1.5	0.41	6	16.22	-0.99
Jan	KBA-11-15	U	1.5	0.41	7	18.92	-0.88
Jan	KBA-11-17C	U	1.5	0.41	8	21.62	-0.79
Jan	KBA-11-8A	U	1.5	0.41	9	24.32	-0.70
Jan	KBA-11-8C	U	1.5	0.41	10	27.03	-0.61
Jan	KBA-11-9	U	1.5	0.41	11	29.73	-0.53
Apr	KBA-11-17C	UJ	2.0	0.69	12	32.43	-0.46
Apr	KBA-11-19B	UJ	2.0	0.69	13	35.14	-0.38
Apr	KBA-11-3C	UJ	2.0	0.69	14	37.84	-0.31
Apr	KBA-11-10C	U	2.0	0.69	15	40.54	-0.24
Apr	KBA-11-11C	U	2.0	0.69	16	43.24	-0.17
Apr	KBA-11-13B	U	2.0	0.69	17	45.95	-0.10
Apr	KBA-11-14	U	2.0	0.69	18	48.65	-0.03
Apr	KBA-11-21	U	2.0	0.69	19	51.35	0.03
Apr	KBA-11-8C	U	2.0	0.69	20	54.05	0.10
Apr	KBA-11-8A	J	2.0	0.69	21	56.76	0.17
Apr	KBA-11-9	J	2.1	0.74	22	59.46	0.24
Sep	KBA-11-10C	U	4.0	1.39	23	62.16	0.31
Sep	KBA-11-11C	U	4.0	1.39	24	64.86	0.38
Sep	KBA-11-13B	U	4.0	1.39	25	67.57	0.46
Sep	KBA-11-14	U	4.0	1.39	26	70.27	0.53
Sep	KBA-11-15	U	4.0	1.39	27	72.97	0.61
Sep	KBA-11-17C	U	4.0	1.39	28	75.68	0.70
Sep	KBA-11-19B	U	4.0	1.39	29	78.38	0.79
Sep	KBA-11-21	U	4.0	1.39	30	81.08	0.88
Sep	KBA-11-3C	U	4.0	1.39	31	83.78	0.99
Sep	KBA-11-8A	U	4.0	1.39	32	86.49	1.10
Sep	KBA-11-8C	U	4.0	1.39	33	89.19	1.24
Apr	KBA-11-15	J	11.9	2.48	34	91.89	1.40
Jan	KBA-11-21	U	15.2	2.72	35	94.59	1.61
Sep	KBA-11-9		23.4	3.15	36	97.30	1.93

% Non-detects: 89%

Normal Distribution	Log-Normal Distribution
Mean = 3.7	Mean = 0.99
Standard Deviation = 4.39	Standard Deviation = 0.68
Coefficient of Variance = 1.19	Coefficient of Variance = 0.69
Skew = 3.43	Skew = 1.59
Kurtosis = 12.59	Kurtosis = 2.53
R2 = 0.48	R2 = 0.77

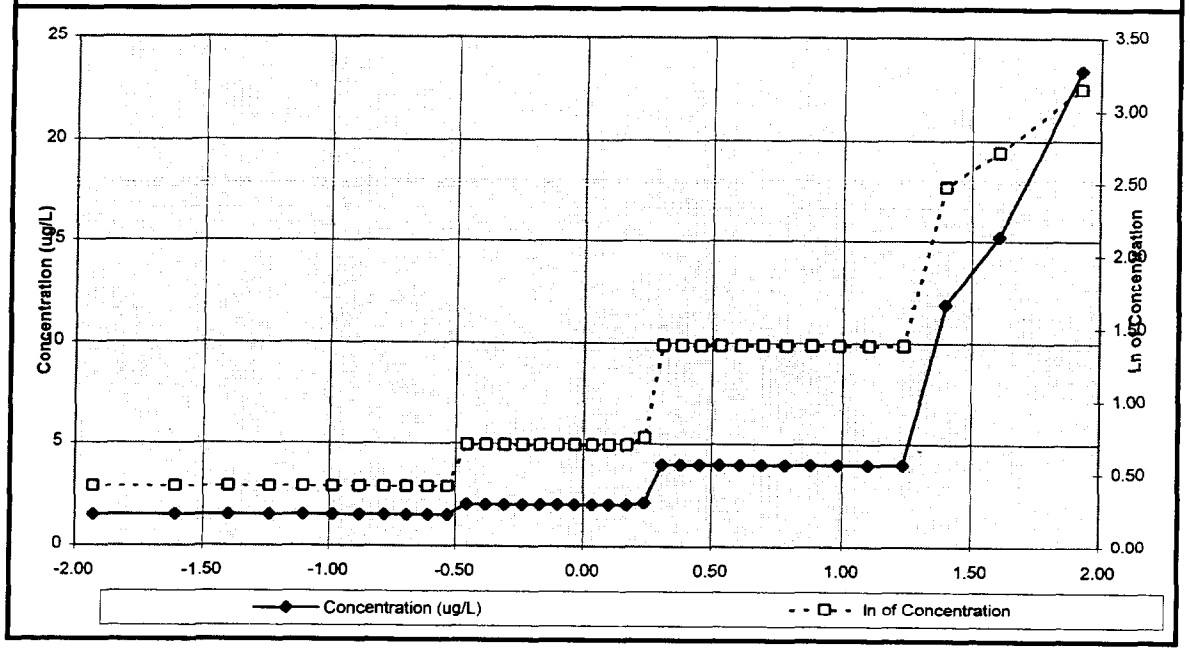
KINGS BAY - SITE 11

Determination of Distribution

Selenium Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Silver Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10C	U	1.0	0.00	1	2.86	-1.90
Jan	KBA-11-11C	U	2.2	0.79	2	5.71	-1.58
Jan	KBA-11-8C	U	2.2	0.79	3	8.57	-1.37
Jan	KBA-11-14	UJ	2.5	0.92	4	11.43	-1.20
Jan	KBA-11-15	UJ	2.5	0.92	5	14.29	-1.07
Jan	KBA-11-17C	UJ	2.5	0.92	6	17.14	-0.95
Jan	KBA-11-19B	UJ	2.5	0.92	7	20.00	-0.84
Jan	KBA-11-21	UJ	2.5	0.92	8	22.86	-0.74
Jan	KBA-11-3C	UJ	2.5	0.92	9	25.71	-0.65
Jan	KBA-11-8A	UJ	2.5	0.92	10	28.57	-0.57
Jan	KBA-11-9	J	2.6	0.96	11	31.43	-0.48
Apr	KBA-11-10C	UJ	3.0	1.10	12	34.29	-0.40
Apr	KBA-11-15	UJ	3.0	1.10	13	37.14	-0.33
Apr	KBA-11-17C	UJ	3.0	1.10	14	40.00	-0.25
Apr	KBA-11-19B	UJ	3.0	1.10	15	42.86	-0.18
Apr	KBA-11-21	UJ	3.0	1.10	16	45.71	-0.11
Apr	KBA-11-11C	U	3.0	1.10	17	48.57	-0.04
Apr	KBA-11-13B	U	3.0	1.10	18	51.43	0.04
Apr	KBA-11-14	U	3.0	1.10	19	54.29	0.11
Apr	KBA-11-3C	U	3.0	1.10	20	57.14	0.18
Apr	KBA-11-8A	U	3.0	1.10	21	60.00	0.25
Apr	KBA-11-8C	U	3.0	1.10	22	62.86	0.33
Sep	KBA-11-11C	U	5.0	1.61	23	65.71	0.40
Sep	KBA-11-14	U	5.0	1.61	24	68.57	0.48
Sep	KBA-11-15	U	5.0	1.61	25	71.43	0.57
Sep	KBA-11-19B	U	5.0	1.61	26	74.29	0.65
Sep	KBA-11-21	U	5.0	1.61	27	77.14	0.74
Sep	KBA-11-3C	U	5.0	1.61	28	80.00	0.84
Sep	KBA-11-8A	U	5.0	1.61	29	82.86	0.95
Sep	KBA-11-8C	U	5.0	1.61	30	85.71	1.07
Sep	KBA-11-9	U	5.0	1.61	31	88.57	1.20
Sep	KBA-11-17C	J	5.6	1.72	32	91.43	1.37
Sep	KBA-11-13B	J	6.3	1.84	33	94.29	1.58
Apr	KBA-11-9	J	6.4	1.86	34	97.14	1.90

% Non-detects 88%

Normal Distribution	Log-Normal Distribution
Mean = 3.58	Mean = 1.2
Standard Deviation = 1.36	Standard Deviation = 0.39
Coefficient of Variance = 0.38	Coefficient of Variance = 0.33
Skew = 0.54	Skew = -0.42
Kurtosis = -0.79	Kurtosis = 1.02
R2 = 0.86	R2 = 0.86

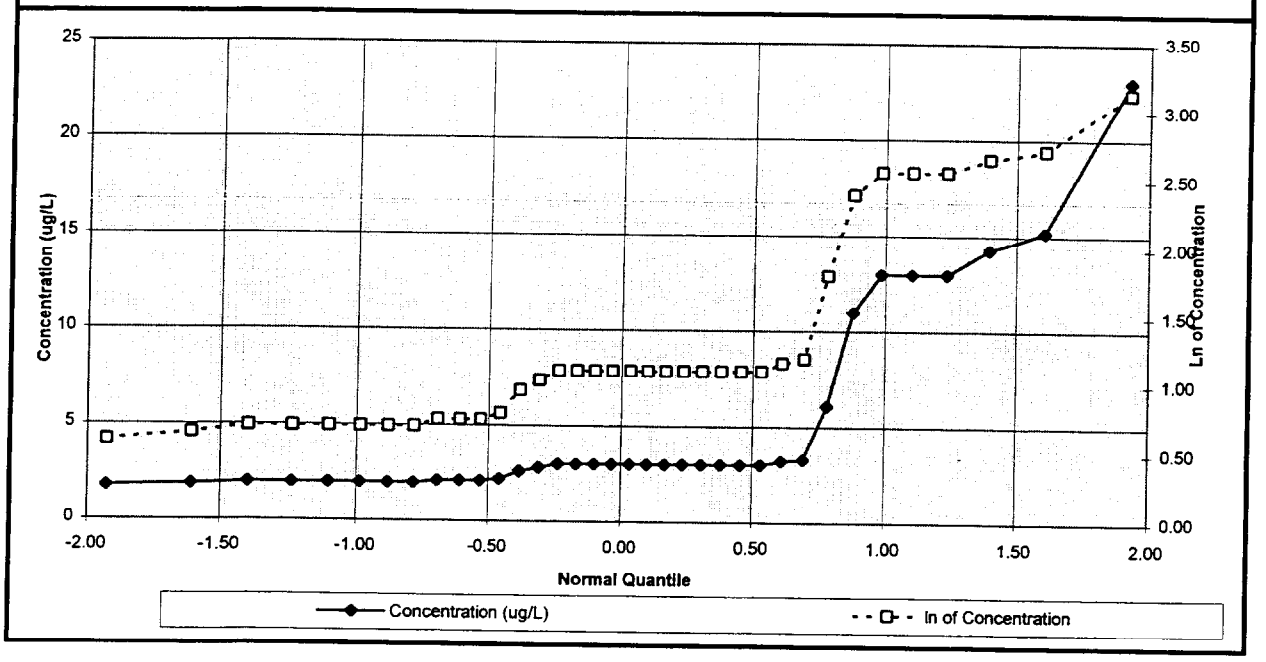
KINGS BAY - SITE 11

Determination of Distribution

Silver Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Sulfide Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-10C	UJ	100	4.61	1	2.70	-1.93
Jan	KBA-11-13B	UJ	100	4.61	2	5.41	-1.61
Jan	KBA-11-17C	UJ	100	4.61	3	8.11	-1.40
Jan	KBA-11-9	UJ	100	4.61	4	10.81	-1.24
Apr	KBA-11-13B	U	100	4.61	5	13.51	-1.10
Jan	KBA-11-11C	J	200	5.30	6	16.22	-0.99
Jan	KBA-11-19B	J	200	5.30	7	18.92	-0.88
Jan	KBA-11-3C	J	200	5.30	8	21.62	-0.79
Jan	KBA-11-8A	J	200	5.30	9	24.32	-0.70
Jan	KBA-11-14	J	300	5.70	10	27.03	-0.61
Jan	KBA-11-21	J	400	5.99	11	29.73	-0.53
Sep	KBA-11-13B	U	1000	6.91	12	32.43	-0.46
Apr	KBA-11-10C	U	1000	6.91	13	35.14	-0.38
Sep	KBA-11-10C	U	1000	6.91	14	37.84	-0.31
Apr	KBA-11-11C	U	1000	6.91	15	40.54	-0.24
Sep	KBA-11-11C	U	1000	6.91	16	43.24	-0.17
Apr	KBA-11-14	U	1000	6.91	17	45.95	-0.10
Sep	KBA-11-14	U	1000	6.91	18	48.65	-0.03
Sep	KBA-11-15	U	1000	6.91	19	51.35	0.03
Apr	KBA-11-17C	U	1000	6.91	20	54.05	0.10
Sep	KBA-11-17C	U	1000	6.91	21	56.76	0.17
Apr	KBA-11-19B	U	1000	6.91	22	59.46	0.24
Sep	KBA-11-19B	U	1000	6.91	23	62.16	0.31
Sep	KBA-11-21	U	1000	6.91	24	64.86	0.38
Apr	KBA-11-3C	U	1000	6.91	25	67.57	0.46
Sep	KBA-11-3C	U	1000	6.91	26	70.27	0.53
Apr	KBA-11-8A	U	1000	6.91	27	72.97	0.61
Sep	KBA-11-8A	U	1000	6.91	28	75.68	0.70
Apr	KBA-11-8C	U	1000	6.91	29	78.38	0.79
Sep	KBA-11-8C	U	1000	6.91	30	81.08	0.88
Apr	KBA-11-9	U	1000	6.91	31	83.78	0.99
Sep	KBA-11-9	U	1000	6.91	32	86.49	1.10
Jan	KBA-11-8C	J	1000	6.91	33	89.19	1.24
Jan	KBA-11-15	J	1200	7.09	34	91.89	1.40
Apr	KBA-11-15		2000	7.60	35	94.59	1.61
Apr	KBA-11-21		3000	8.01	36	97.30	1.93

% Non-detects: 72%

Normal Distribution	Log-Normal Distribution
Mean = 838.89	Mean = 6.41
Standard Deviation = 574.84	Standard Deviation = 0.95
Coefficient of Variance = 0.69	Coefficient of Variance = 0.15
Skew = 1.35	Skew = -0.91
Kurtosis = 4.78	Kurtosis = -0.44
R2 = 0.71	R2 = 0.75

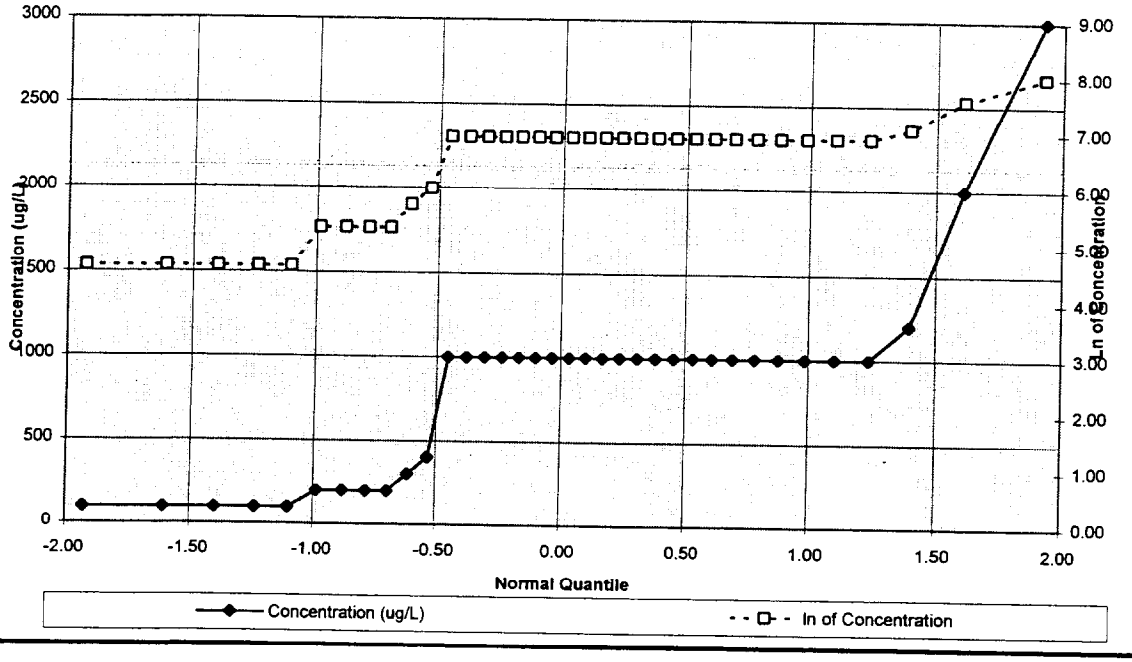
KINGS BAY - SITE 11

Determination of Distribution

Sulfide Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Thallium Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-10C	UJ	1.0	0.00	1	2.70	-1.93
Apr	KBA-11-17C	UJ	1.0	0.00	2	5.41	-1.61
Apr	KBA-11-19B	UJ	1.0	0.00	3	8.11	-1.40
Apr	KBA-11-21	UJ	1.0	0.00	4	10.81	-1.24
Apr	KBA-11-11C	U	1.0	0.00	5	13.51	-1.10
Apr	KBA-11-13B	U	1.0	0.00	6	16.22	-0.99
Apr	KBA-11-14	U	1.0	0.00	7	18.92	-0.88
Apr	KBA-11-3C	U	1.0	0.00	8	21.62	-0.79
Apr	KBA-11-8A	U	1.0	0.00	9	24.32	-0.70
Apr	KBA-11-8C	U	1.0	0.00	10	27.03	-0.61
Apr	KBA-11-9	U	1.0	0.00	11	29.73	-0.53
Jan	KBA-11-10C	UJ	1.3	0.26	12	32.43	-0.46
Jan	KBA-11-13B	UJ	1.3	0.26	13	35.14	-0.38
Jan	KBA-11-14	UJ	1.3	0.26	14	37.84	-0.31
Jan	KBA-11-15	UJ	1.3	0.26	15	40.54	-0.24
Jan	KBA-11-17C	UJ	1.3	0.26	16	43.24	-0.17
Jan	KBA-11-19B	UJ	1.3	0.26	17	45.95	-0.10
Jan	KBA-11-21	UJ	1.3	0.26	18	48.65	-0.03
Jan	KBA-11-3C	UJ	1.3	0.26	19	51.35	0.03
Jan	KBA-11-8A	UJ	1.3	0.26	20	54.05	0.10
Jan	KBA-11-9	UJ	1.3	0.26	21	56.76	0.17
Jan	KBA-11-11C	U	1.4	0.34	22	59.46	0.24
Jan	KBA-11-8C	U	1.4	0.34	23	62.16	0.31
Apr	KBA-11-15	J	1.8	0.59	24	64.86	0.38
Sep	KBA-11-10C	U	6.0	1.79	25	67.57	0.46
Sep	KBA-11-11C	U	6.0	1.79	26	70.27	0.53
Sep	KBA-11-14	U	6.0	1.79	27	72.97	0.61
Sep	KBA-11-15	U	6.0	1.79	28	75.68	0.70
Sep	KBA-11-21	U	6.0	1.79	29	78.38	0.79
Sep	KBA-11-8A	U	6.0	1.79	30	81.08	0.88
Sep	KBA-11-8C	U	6.0	1.79	31	83.78	0.99
Sep	KBA-11-9	U	6.0	1.79	32	86.49	1.10
Sep	KBA-11-17C	U	7.0	1.95	33	89.19	1.24
Sep	KBA-11-19B	U	8.5	2.14	34	91.89	1.40
Sep	KBA-11-13B	U	9.4	2.24	35	94.59	1.61
Sep	KBA-11-3C	U	9.8	2.28	36	97.30	1.93

% Non-detects 97%

Normal Distribution	Log-Normal Distribution
Mean = 3.09	Mean = 0.75
Standard Deviation = 2.85	Standard Deviation = 0.85
Coefficient of Variance = 0.92	Coefficient of Variance = 1.15
Skew = 1.04	Skew = 0.72
Kurtosis = -0.4	Kurtosis = -1.36
R2 = 0.72	R2 = 0.77

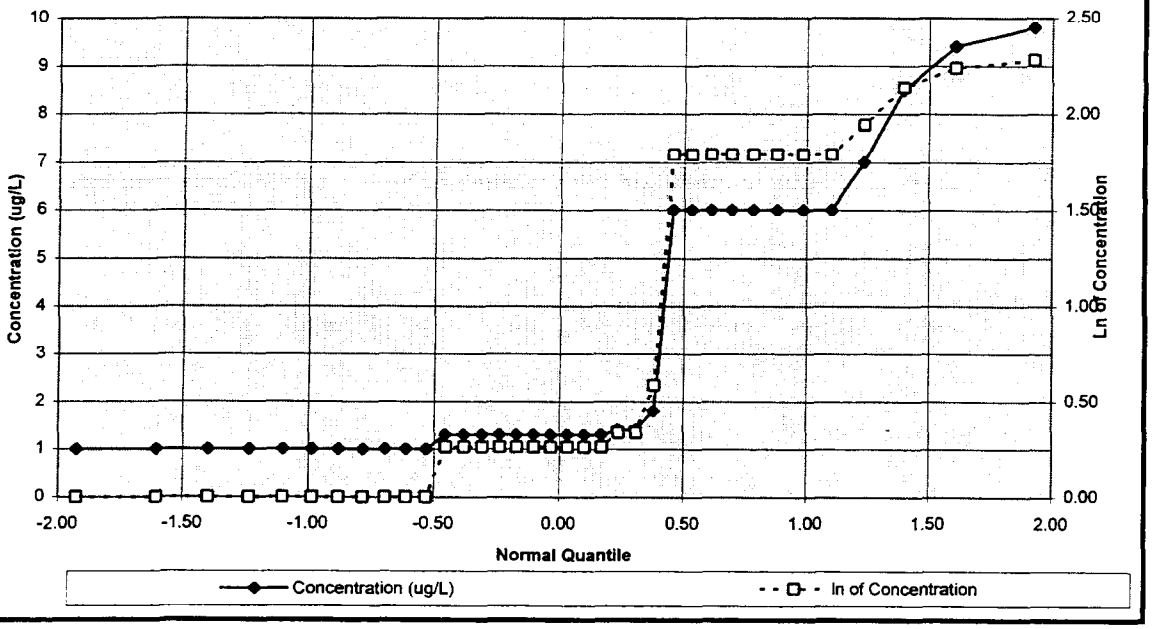
KINGS BAY - SITE 11

Determination of Distribution

Thallium Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Tin Ground Water Concentrations for Delineation Wells

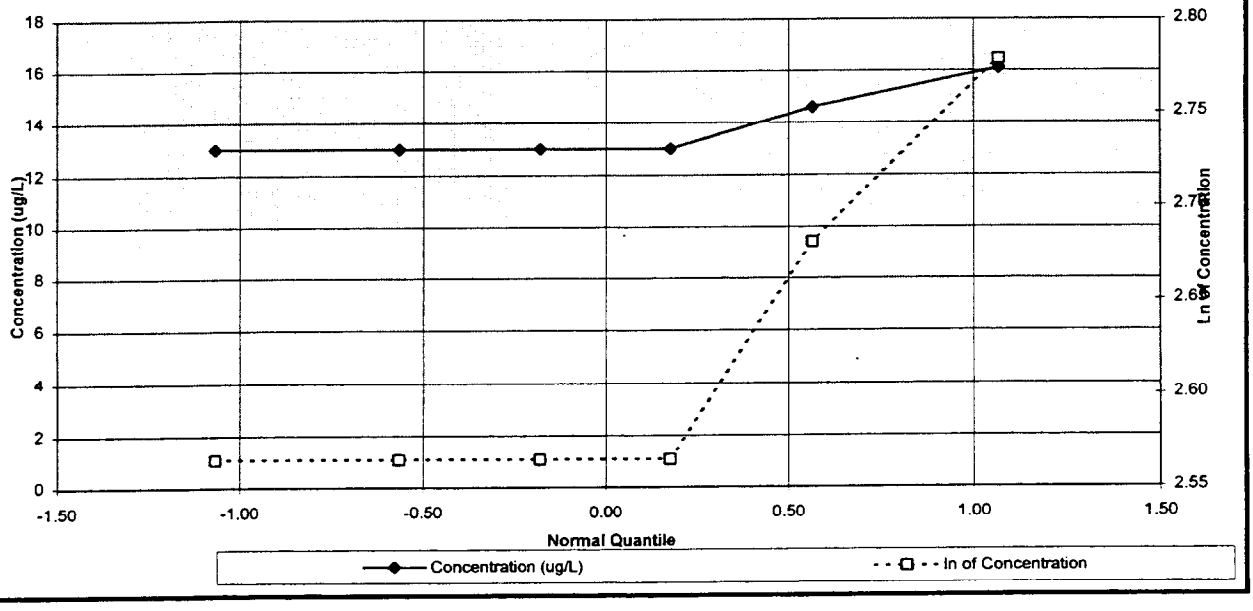
Sample Event	Well I.D.	Qualifier	Concentration (ug/L)	ln of Concentration	Order	Probability	Normal Quantile
Apr	KBA-11-10C	U	13.0	2.56	1	14.29	-1.07
Apr	KBA-11-15	U	13.0	2.56	2	28.57	-0.57
Apr	KBA-11-19B	U	13.0	2.56	3	42.86	-0.18
Apr	KBA-11-21	U	13.0	2.56	4	57.14	0.18
Apr	KBA-11-17C	J	14.6	2.68	5	71.43	0.57
Apr	KBA-11-13B	J	16.1	2.78	6	85.71	1.07

% Non-detects: 67%

Normal Distribution	Log-Normal Distribution
Mean = 13.78	Mean = 2.62
Standard Deviation = 1.3	Standard Deviation = 0.09
Coefficient of Variance = 0.09	Coefficient of Variance = 0.03
Skew = 1.5	Skew = 1.44
Kurtosis = 1.22	Kurtosis = 0.88
R2 = 0.7	R2 = 0.71

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Vanadium Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Sep	KBA-11-10C	U	1.0	0.00	1	2.70	-1.93
Jan	KBA-11-10C	U	1.5	0.41	2	5.41	-1.61
Jan	KBA-11-11C	J	1.6	0.47	3	8.11	-1.40
Jan	KBA-11-8C	J	2.1	0.74	4	10.81	-1.24
Jan	KBA-11-15	U	2.3	0.83	5	13.51	-1.10
Jan	KBA-11-17C	U	2.3	0.83	6	16.22	-0.99
Jan	KBA-11-19B	U	2.3	0.83	7	18.92	-0.88
Jan	KBA-11-3C	U	2.3	0.83	8	21.62	-0.79
Jan	KBA-11-8A	U	2.3	0.83	9	24.32	-0.70
Jan	KBA-11-13B	J	2.8	1.03	10	27.03	-0.61
Apr	KBA-11-10C	UJ	5.0	1.61	11	29.73	-0.53
Apr	KBA-11-17C	UJ	5.0	1.61	12	32.43	-0.46
Apr	KBA-11-19B	UJ	5.0	1.61	13	35.14	-0.38
Apr	KBA-11-21	UJ	5.0	1.61	14	37.84	-0.31
Apr	KBA-11-11C	U	5.0	1.61	15	40.54	-0.24
Apr	KBA-11-13B	U	5.0	1.61	16	43.24	-0.17
Apr	KBA-11-3C	U	5.0	1.61	17	45.95	-0.10
Apr	KBA-11-8C	J	6.6	1.89	18	48.65	-0.03
Sep	KBA-11-11C	U	7.0	1.95	19	51.35	0.03
Sep	KBA-11-13B	U	7.0	1.95	20	54.05	0.10
Sep	KBA-11-14	U	7.0	1.95	21	56.76	0.17
Sep	KBA-11-15	U	7.0	1.95	22	59.46	0.24
Sep	KBA-11-17C	U	7.0	1.95	23	62.16	0.31
Sep	KBA-11-19B	U	7.0	1.95	24	64.86	0.38
Sep	KBA-11-21	U	7.0	1.95	25	67.57	0.46
Sep	KBA-11-3C	U	7.0	1.95	26	70.27	0.53
Sep	KBA-11-8C	U	7.0	1.95	27	72.97	0.61
Jan	KBA-11-21	J	7.4	2.00	28	75.68	0.70
Jan	KBA-11-14	J	9.8	2.28	29	78.38	0.79
Sep	KBA-11-8A	J	16.1	2.78	30	81.08	0.88
Apr	KBA-11-14	J	16.8	2.82	31	83.78	0.99
Jan	KBA-11-9	J	17.4	2.86	32	86.49	1.10
Apr	KBA-11-8A	J	19.1	2.95	33	89.19	1.24
Apr	KBA-11-15	J	19.6	2.98	34	91.89	1.40
Apr	KBA-11-9	J	25.3	3.23	35	94.59	1.61
Sep	KBA-11-9		135	4.91	36	97.30	1.93

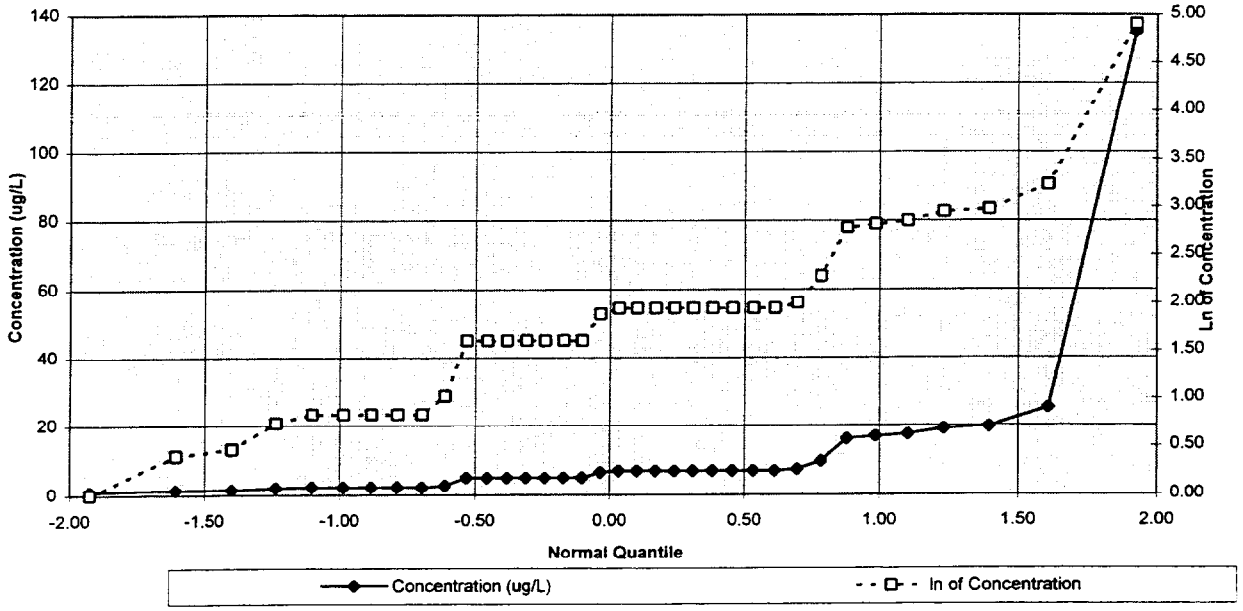
% Non-detects: 64%

Normal Distribution	Log-Normal Distribution
Mean = 10.88	Mean = 1.79
Standard Deviation = 22.07	Standard Deviation = 0.95
Coefficient of Variance = 2.03	Coefficient of Variance = 0.53
Skew = 5.37	Skew = 0.83
Kurtosis = 30.66	Kurtosis = 2.1
R2 = 0.32	R2 = 0.91

KINGS BAY - SITE 11
Determination of Distribution
Vanadium Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Zinc Ground Water Concentrations for Delineation Wells

Sample Event	Well I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Order	Probability	Normal Quantile
Jan	KBA-11-8A	J	5.9	1.77	1	2.70	-1.93
Jan	KBA-11-19B	J	7.0	1.95	2	5.41	-1.61
Sep	KBA-11-13B	J	9.1	2.21	3	8.11	-1.40
Jan	KBA-11-15	J	9.4	2.24	4	10.81	-1.24
Jan	KBA-11-8C	UJ	11.0	2.40	5	13.51	-1.10
Apr	KBA-11-3C	U	11.4	2.43	6	16.22	-0.99
Jan	KBA-11-9	J	16.0	2.77	7	18.92	-0.88
Jan	KBA-11-11C	UJ	16.4	2.80	8	21.62	-0.79
Jan	KBA-11-3C	J	18.0	2.89	9	24.32	-0.70
Apr	KBA-11-9	U	18.3	2.91	10	27.03	-0.61
Jan	KBA-11-13B		23.9	3.17	11	29.73	-0.53
Sep	KBA-11-8A		28.8	3.36	12	32.43	-0.46
Jan	KBA-11-17C		29.6	3.39	13	35.14	-0.38
Apr	KBA-11-8A	U	30.5	3.42	14	37.84	-0.31
Sep	KBA-11-14		31.2	3.44	15	40.54	-0.24
Jan	KBA-11-21		31.7	3.46	16	43.24	-0.17
Sep	KBA-11-3C		33.5	3.51	17	45.95	-0.10
Apr	KBA-11-11C	U	33.6	3.51	18	48.65	-0.03
Apr	KBA-11-15	U	36.8	3.61	19	51.35	0.03
Sep	KBA-11-11C		41.4	3.72	20	54.05	0.10
Apr	KBA-11-19B	U	42.3	3.74	21	56.76	0.17
Apr	KBA-11-10C	U	42.5	3.75	22	59.46	0.24
Sep	KBA-11-10C		43.1	3.76	23	62.16	0.31
Apr	KBA-11-21	U	43.8	3.78	24	64.86	0.38
Jan	KBA-11-10C		44.8	3.80	25	67.57	0.46
Apr	KBA-11-17C	U	50.5	3.92	26	70.27	0.53
Sep	KBA-11-8C		53.3	3.98	27	72.97	0.61
Sep	KBA-11-9		55.4	4.01	28	75.68	0.70
Apr	KBA-11-14		56.8	4.04	29	78.38	0.79
Apr	KBA-11-8C		68.1	4.22	30	81.08	0.88
Jan	KBA-11-14		75.0	4.32	31	83.78	0.99
Sep	KBA-11-21		77.4	4.35	32	86.49	1.10
Sep	KBA-11-17C		79.2	4.37	33	89.19	1.24
Sep	KBA-11-15		79.6	4.38	34	91.89	1.40
Apr	KBA-11-13B	J	83.7	4.43	35	94.59	1.61
Sep	KBA-11-19B		94.9	4.55	36	97.30	1.93

% Non-detects: 31%

Normal Distribution	Log-Normal Distribution
Mean = 39.83	Mean = 3.45
Standard Deviation = 24.51	Standard Deviation = 0.75
Coefficient of Variance = 0.62	Coefficient of Variance = 0.22
Skew = 0.56	Skew = -0.63
Kurtosis = -0.56	Kurtosis = -0.43
R2 = 0.95	R2 = 0.95

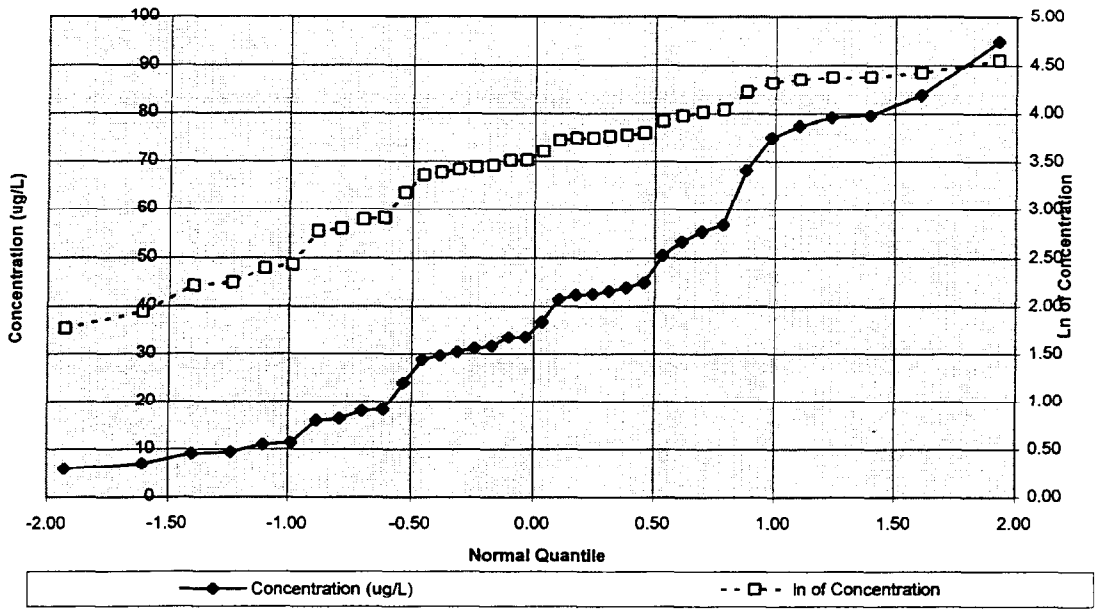
KINGS BAY - SITE 11

Determination of Distribution

Zinc Ground Water Concentrations for Delineation Wells

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



Subsurface Soil

KINGS BAY - SITE 11

Determination of Distribution

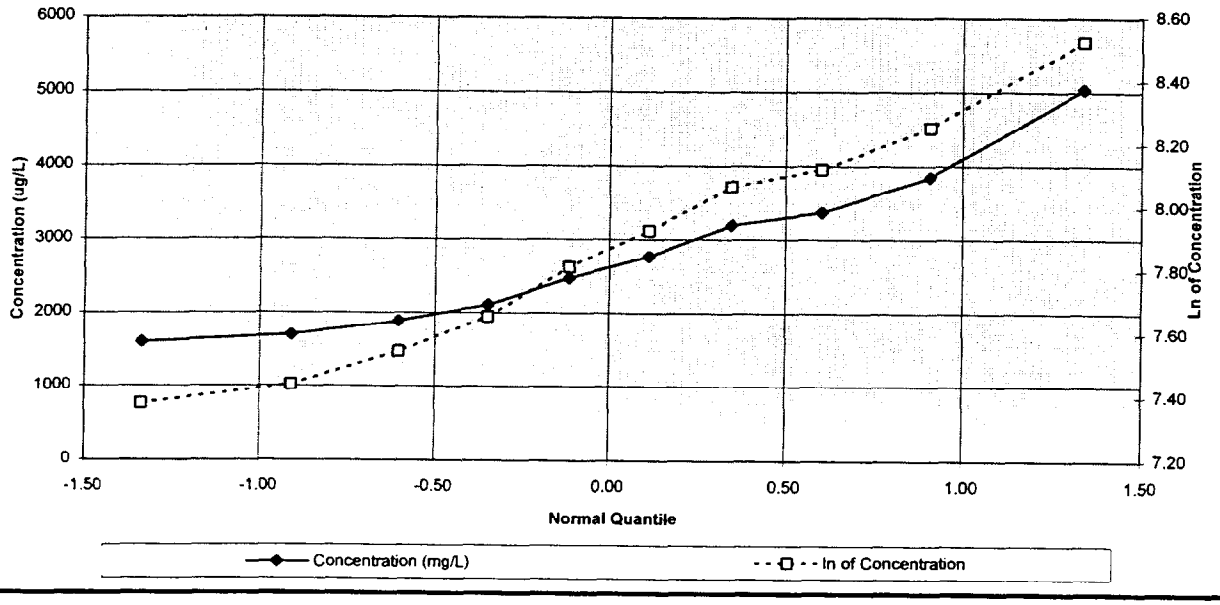
Aluminum Concentrations for Background Subsurface Soil

Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
Sep	11SB20603		1600	7.38	1	9.09	-1.34
Sep	11SB20503		1700	7.44	2	18.18	-0.91
Sep	11SB20203		1890	7.54	3	27.27	-0.60
Sep	11SB20703		2110	7.65	4	36.36	-0.35
Sep	11SB20103		2470	7.81	5	45.45	-0.11
Sep	11SB20903		2770	7.93	6	54.55	0.11
Sep	11SB20403		3190	8.07	7	63.64	0.35
Sep	11SB20303		3370	8.12	8	72.73	0.60
Sep	11SB21003		3850	8.26	9	81.82	0.91
Sep	11SB20803		5040	8.53	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 2799	Mean = 7.87
Standard Deviation = 1088.38	Standard Deviation = 0.38
Coefficient of Variance = 0.39	Coefficient of Variance = 0.05
Skew = 0.92	Skew = 0.29
Kurtosis = 0.49	Kurtosis = -0.85
R2 = 0.93	R2 = 0.98

Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Antimony Concentrations for Background Subsurface Soil

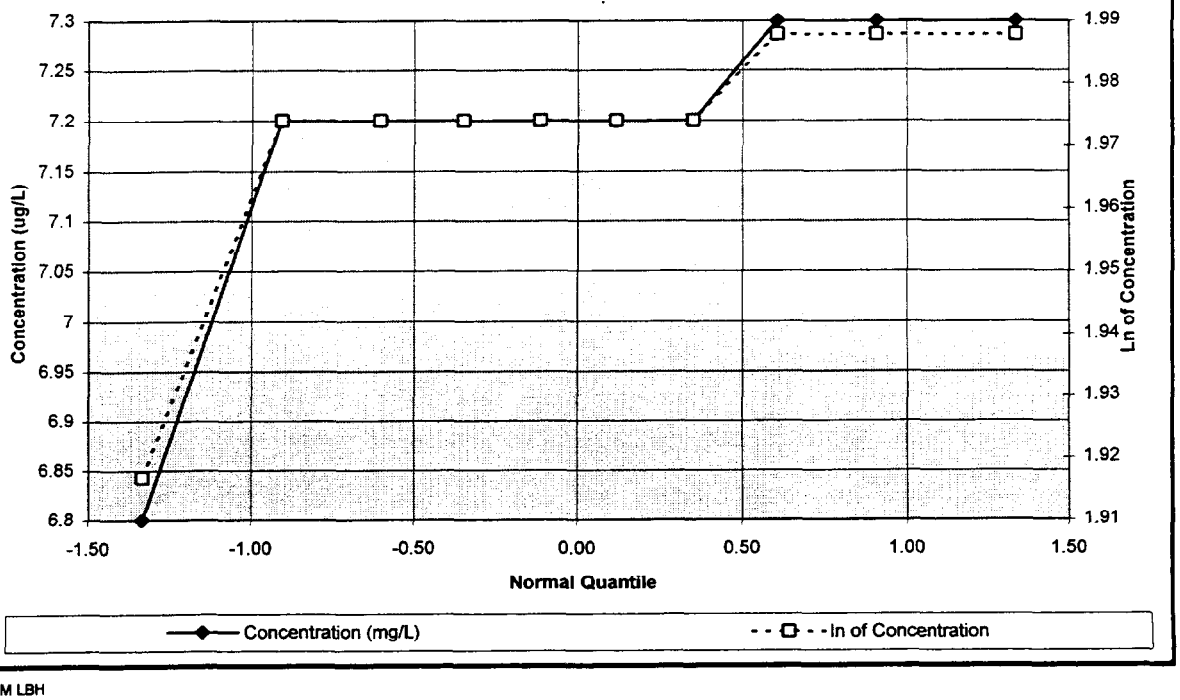
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-9	11SB20403	U	6.8	1.92	1	9.09	-1.34
12-Sep-9	11SB20203	U	7.2	1.97	2	18.18	-0.91
12-Sep-9	11SB20503	U	7.2	1.97	3	27.27	-0.60
12-Sep-9	11SB20603	U	7.2	1.97	4	36.36	-0.35
12-Sep-9	11SB20703	U	7.2	1.97	5	45.45	-0.11
12-Sep-9	11SB20803	U	7.2	1.97	6	54.55	0.11
12-Sep-9	11SB21003	U	7.2	1.97	7	63.64	0.35
12-Sep-9	11SB20103	U	7.3	1.99	8	72.73	0.60
12-Sep-9	11SB20303	U	7.3	1.99	9	81.82	0.91
12-Sep-9	11SB20903	U	7.3	1.99	10	90.91	1.34

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 7.19	Mean = 1.97
Standard Deviation = 0.14	Standard Deviation = 0.02
Coefficient of Variance = 0.02	Coefficient of Variance = 0.01
Skew = -2.52	Skew = -2.56
Kurtosis = 7.33	Kurtosis = 7.47
R2 = 0.57	R2 = 0.56

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective proba
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Arsenic Concentrations for Background Subsurface Soil

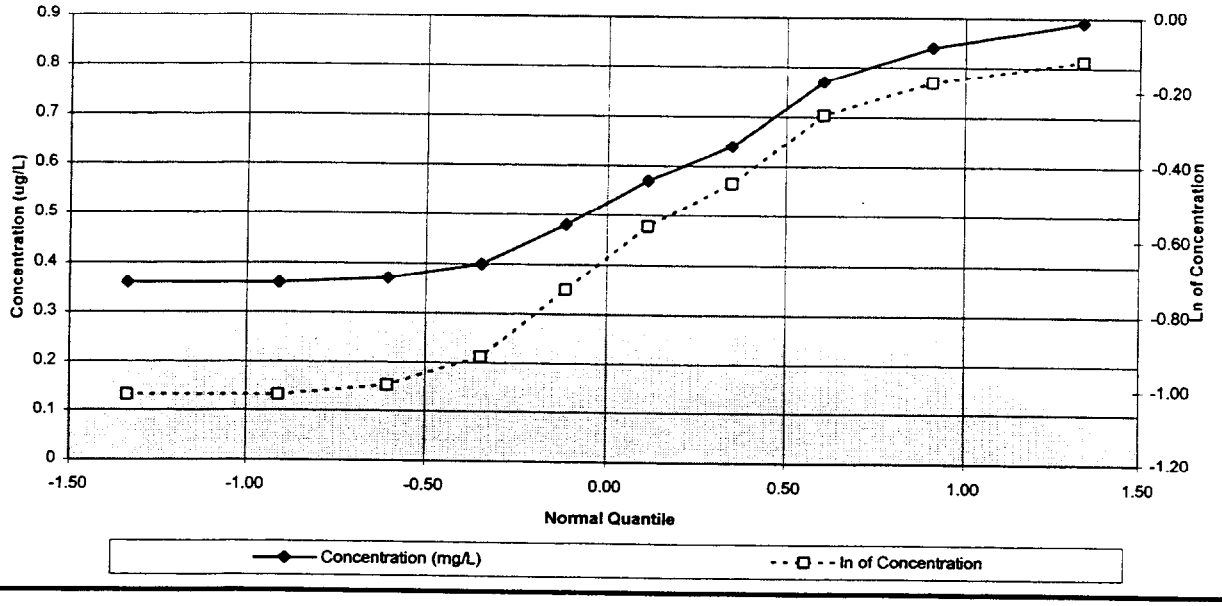
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	J	0.36	-1.02	1	9.09	-1.34
12-Sep-95	11SB20603	U	0.36	-1.02	2	18.18	-0.91
12-Sep-95	11SB20503	U	0.37	-0.99	3	27.27	-0.60
12-Sep-95	11SB20903	J	0.4	-0.92	4	36.36	-0.35
12-Sep-95	11SB20103	J	0.48	-0.73	5	45.45	-0.11
12-Sep-95	11SB20203	J	0.57	-0.56	6	54.55	0.11
12-Sep-95	11SB20803	J	0.64	-0.45	7	63.64	0.35
12-Sep-95	11SB20703	J	0.77	-0.26	8	72.73	0.60
12-Sep-95	11SB21003	J	0.84	-0.17	9	81.82	0.91
12-Sep-95	11SB20303	J	0.89	-0.12	10	90.91	1.34

% Non-detects: 20%

Normal Distribution	Log-Normal Distribution
Mean = 0.57	Mean = -0.62
Standard Deviation = 0.21	Standard Deviation = 0.36
Coefficient of Variance = 0.36	Coefficient of Variance = -0.58
Skew = 0.49	Skew = 0.22
Kurtosis = -1.48	Kurtosis = -1.76
R2 = 0.91	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Barium Concentrations for Background Subsurface Soil

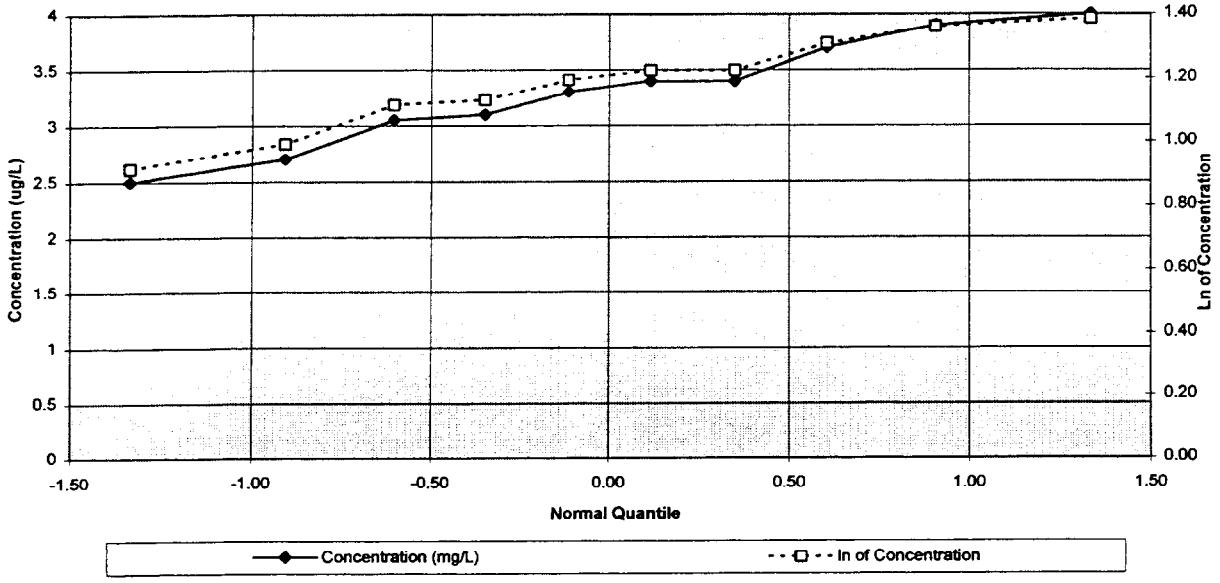
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20303	J	2.5	0.92	1	9.09	-1.34
12-Sep-95	11SB20403	J	2.7	0.99	2	18.18	-0.91
12-Sep-95	11SB20103	J	3.05	1.12	3	27.27	-0.60
12-Sep-95	11SB20503	J	3.1	1.13	4	36.36	-0.35
12-Sep-95	11SB20703	J	3.3	1.19	5	45.45	-0.11
12-Sep-95	11SB20203	J	3.4	1.22	6	54.55	0.11
12-Sep-95	11SB20603	J	3.4	1.22	7	63.64	0.35
12-Sep-95	11SB20903	J	3.7	1.31	8	72.73	0.60
12-Sep-95	11SB20803	J	3.9	1.36	9	81.82	0.91
12-Sep-95	11SB21003	J	4	1.39	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 3.31	Mean = 1.19
Standard Deviation = 0.49	Standard Deviation = 0.15
Coefficient of Variance = 0.15	Coefficient of Variance = 0.13
Skew = -0.19	Skew = -0.46
Kurtosis = -0.67	Kurtosis = -0.42
R2 = 0.98	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Beryllium Concentrations for Background Subsurface Soil

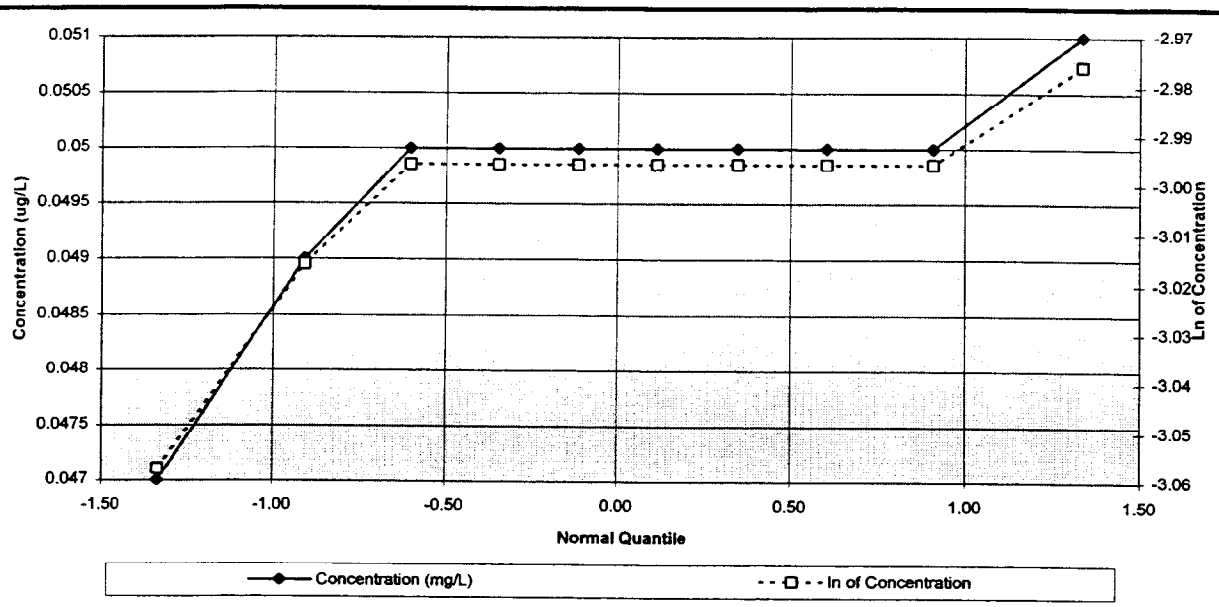
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	U	0.047	-3.06	1	9.09	-1.34
12-Sep-95	11SB20603	U	0.049	-3.02	2	18.18	-0.91
12-Sep-95	11SB20703	U	0.05	-3.00	3	27.27	-0.60
12-Sep-95	11SB20103	U	0.05	-3.00	4	36.36	-0.35
12-Sep-95	11SB20203	U	0.05	-3.00	5	45.45	-0.11
12-Sep-95	11SB20303	U	0.05	-3.00	6	54.55	0.11
12-Sep-95	11SB20503	U	0.05	-3.00	7	63.64	0.35
12-Sep-95	11SB20803	U	0.05	-3.00	8	72.73	0.60
12-Sep-95	11SB21003	U	0.05	-3.00	9	81.82	0.91
12-Sep-95	11SB20903	U	0.051	-2.98	10	90.91	1.34

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 0.05	Mean = -3
Standard Deviation = 0	Standard Deviation = 0.02
Coefficient of Variance = 0.02	Coefficient of Variance = -0.01
Skew = -2.06	Skew = -2.11
Kurtosis = 5.42	Kurtosis = 5.59
R2 = 0.62	R2 = 0.62

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Cadmium Concentrations for Background Subsurface Soil

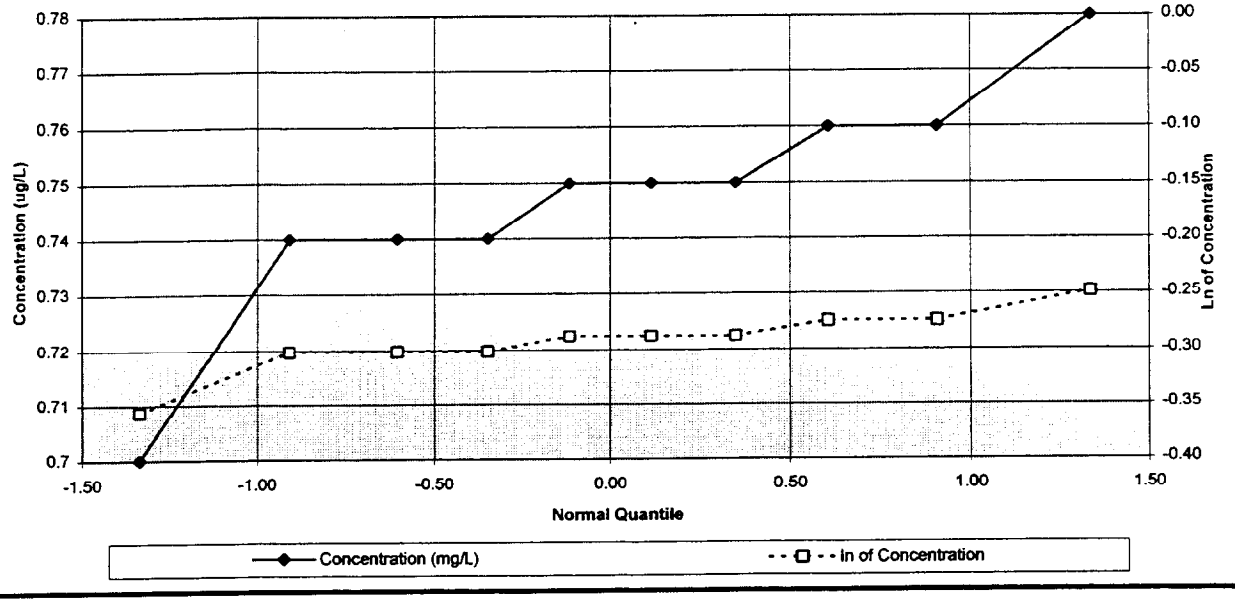
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	U	0.7	-0.36	1	9.09	-1.34
12-Sep-95	11SB20203	U	0.74	-0.30	2	18.18	-0.91
12-Sep-95	11SB20603	U	0.74	-0.30	3	27.27	-0.60
12-Sep-95	11SB20703	U	0.74	-0.30	4	36.36	-0.35
12-Sep-95	11SB20503	J	0.75	-0.29	5	45.45	-0.11
12-Sep-95	11SB20103	U	0.75	-0.29	6	54.55	0.11
12-Sep-95	11SB20803	U	0.75	-0.29	7	63.64	0.35
12-Sep-95	11SB20303	U	0.76	-0.27	8	72.73	0.60
12-Sep-95	11SB20903	U	0.76	-0.27	9	81.82	0.91
12-Sep-95	11SB21003	J	0.78	-0.25	10	90.91	1.34

% Non-detects: 80%

Normal Distribution	Log-Normal Distribution
Mean = 0.75	Mean = -0.29
Standard Deviation = 0.02	Standard Deviation = 0.03
Coefficient of Variance = 0.03	Coefficient of Variance = -0.1
Skew = -1.03	Skew = -1.14
Kurtosis = 3.13	Kurtosis = 3.34
R2 = 0.83	R2 = 0.83

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Chromium Concentrations for Background Subsurface Soil

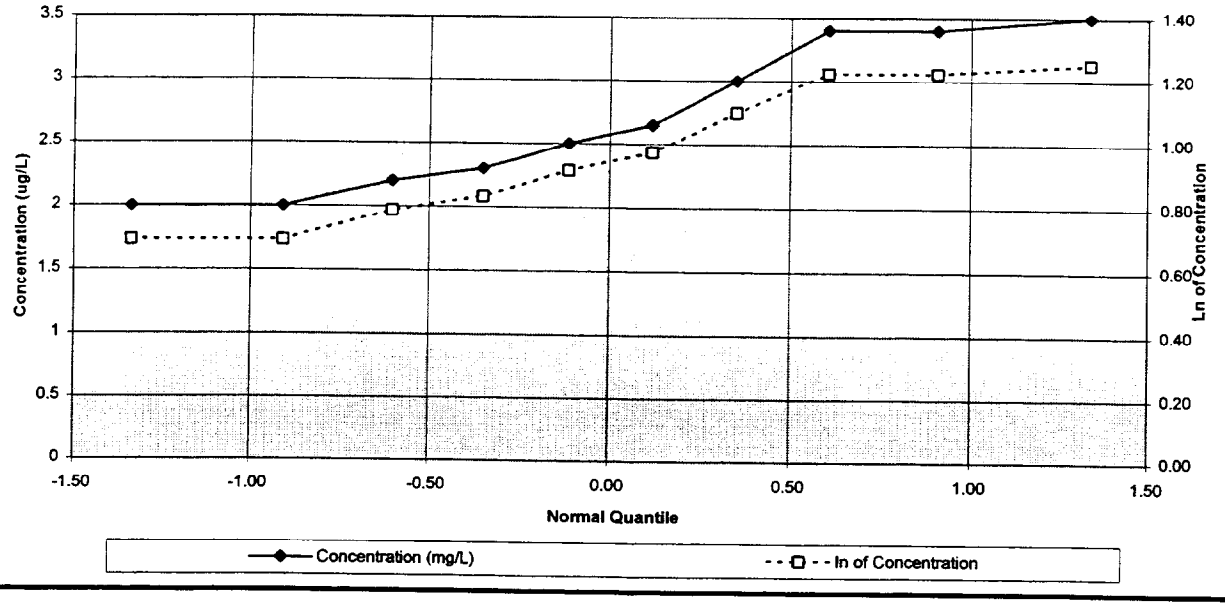
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20203	J	2	0.69	1	9.09	-1.34
12-Sep-95	11SB20603		2	0.69	2	18.18	-0.91
12-Sep-95	11SB20503	J	2.2	0.79	3	27.27	-0.60
12-Sep-95	11SB20403	J	2.3	0.83	4	36.36	-0.35
12-Sep-95	11SB20703		2.5	0.92	5	45.45	-0.11
12-Sep-95	11SB20103	J	2.65	0.97	6	54.55	0.11
12-Sep-95	11SB20303		3	1.10	7	63.64	0.35
12-Sep-95	11SB20903		3.4	1.22	8	72.73	0.60
12-Sep-95	11SB21003		3.4	1.22	9	81.82	0.91
12-Sep-95	11SB20803		3.5	1.25	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 2.7	Mean = 0.97
Standard Deviation = 0.59	Standard Deviation = 0.22
Coefficient of Variance = 0.22	Coefficient of Variance = 0.23
Skew = 0.26	Skew = 0.09
Kurtosis = -1.7	Kurtosis = -1.69
R2 = 0.93	R2 = 0.94

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cobalt Concentrations for Background Subsurface Soil

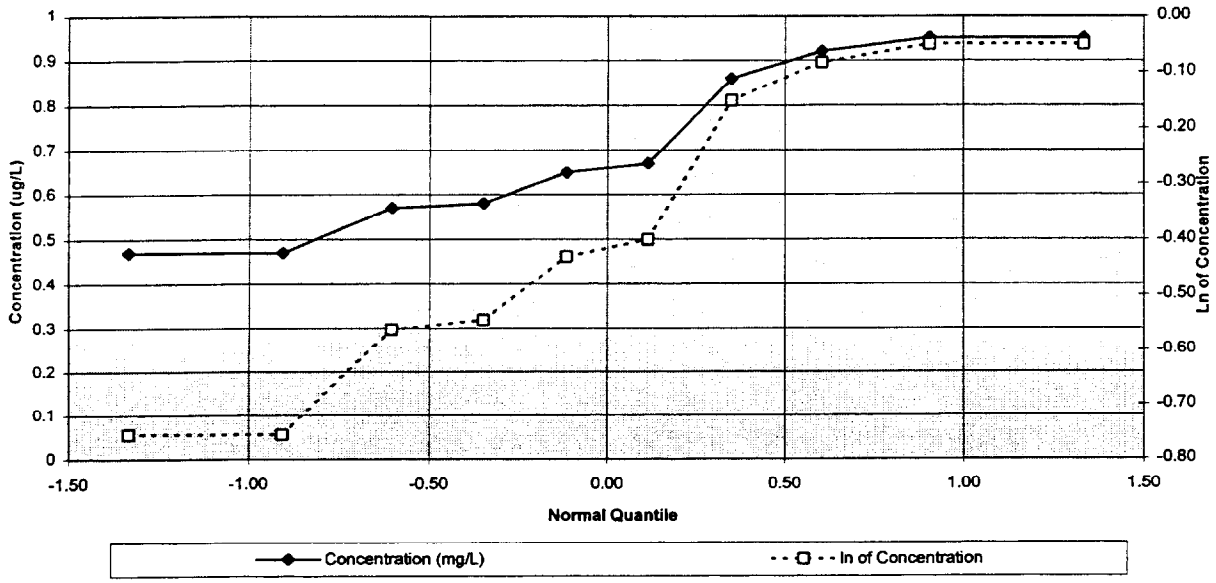
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20803	U	0.47	-0.76	1	9.09	-1.34
12-Sep-95	11SB20403	J	0.47	-0.76	2	18.18	-0.91
12-Sep-95	11SB20303	J	0.57	-0.56	3	27.27	-0.60
12-Sep-95	11SB20903	J	0.58	-0.54	4	36.36	-0.35
12-Sep-95	11SB20103	J	0.65	-0.43	5	45.45	-0.11
12-Sep-95	11SB20603	J	0.67	-0.40	6	54.55	0.11
12-Sep-95	11SB21003	J	0.86	-0.15	7	63.64	0.35
12-Sep-95	11SB20703	J	0.92	-0.08	8	72.73	0.60
12-Sep-95	11SB20203	J	0.95	-0.05	9	81.82	0.91
12-Sep-95	11SB20503	J	0.95	-0.05	10	90.91	1.34

% Non-detects: 10%

Normal Distribution	Log-Normal Distribution
Mean = 0.71	Mean = -0.38
Standard Deviation = 0.19	Standard Deviation = 0.28
Coefficient of Variance = 0.27	Coefficient of Variance = -0.74
Skew = 0.16	Skew = -0.06
Kurtosis = -1.81	Kurtosis = -1.63
R2 = 0.92	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Copper Concentrations for Background Subsurface Soil

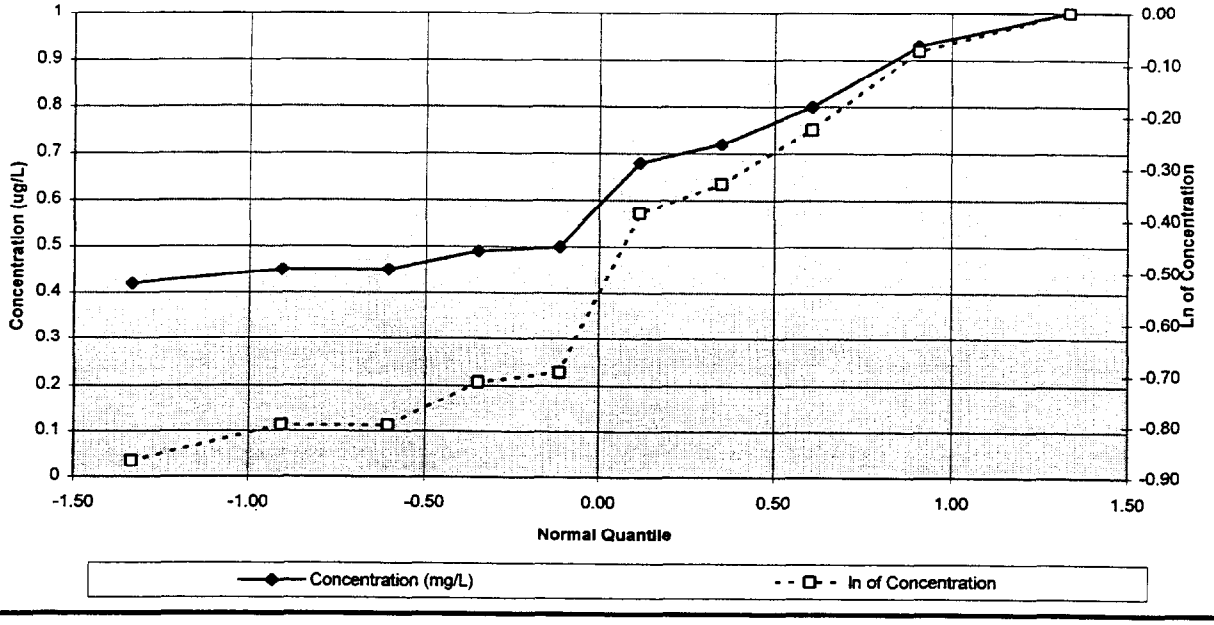
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	U	0.42	-0.87	1	9.09	-1.34
12-Sep-95	11SB20803	U	0.45	-0.80	2	18.18	-0.91
12-Sep-95	11SB21003	U	0.45	-0.80	3	27.27	-0.60
12-Sep-95	11SB20303	J	0.49	-0.71	4	36.36	-0.35
12-Sep-95	11SB20103	J	0.5	-0.69	5	45.45	-0.11
12-Sep-95	11SB20203	J	0.68	-0.39	6	54.55	0.11
12-Sep-95	11SB20703	J	0.72	-0.33	7	63.64	0.35
12-Sep-95	11SB20503	J	0.8	-0.22	8	72.73	0.60
12-Sep-95	11SB20903	J	0.93	-0.07	9	81.82	0.91
12-Sep-95	11SB20603	J	1	0.00	10	90.91	1.34

% Non-detects: 30%

Normal Distribution	Log-Normal Distribution
Mean = 0.64	Mean = -0.49
Standard Deviation = 0.21	Standard Deviation = 0.32
Coefficient of Variance = 0.33	Coefficient of Variance = -0.66
Skew = 0.58	Skew = 0.31
Kurtosis = -1.21	Kurtosis = -1.66
R2 = 0.91	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cyanide Concentrations for Background Subsurface Soil

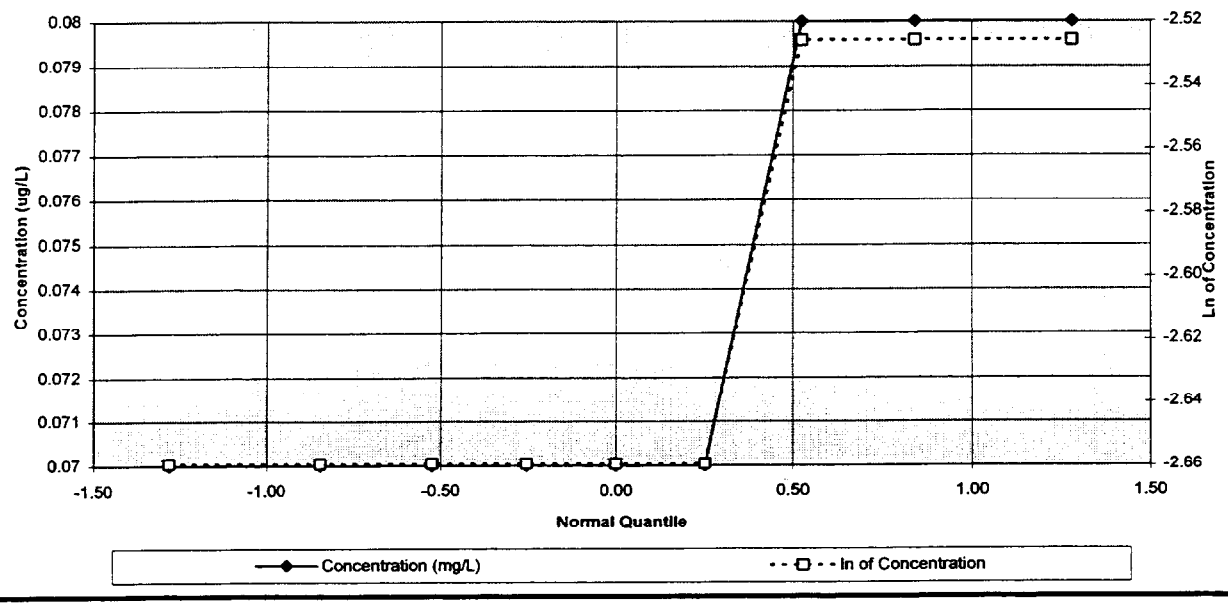
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20203	U	0.07	-2.66	1	10.00	-1.28
12-Sep-95	11SB20403	U	0.07	-2.66	2	20.00	-0.84
12-Sep-95	11SB20503	U	0.07	-2.66	3	30.00	-0.52
12-Sep-95	11SB20603	U	0.07	-2.66	4	40.00	-0.25
12-Sep-95	11SB20703	U	0.07	-2.66	5	50.00	0.00
12-Sep-95	11SB20803	U	0.07	-2.66	6	60.00	0.25
12-Sep-95	11SB20103	U	0.08	-2.53	7	70.00	0.52
12-Sep-95	11SB20303	U	0.08	-2.53	8	80.00	0.84
12-Sep-95	11SB20903	U	0.08	-2.53	9	90.00	1.28

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 0.07	Mean = -2.61
Standard Deviation = 0.01	Standard Deviation = 0.07
Coefficient of Variance = 0.07	Coefficient of Variance = -0.03
Skew = 0.86	Skew = 0.86
Kurtosis = -1.71	Kurtosis = -1.71
R2 = 0.65	R2 = 0.65

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Iron Concentrations for Background Subsurface Soil

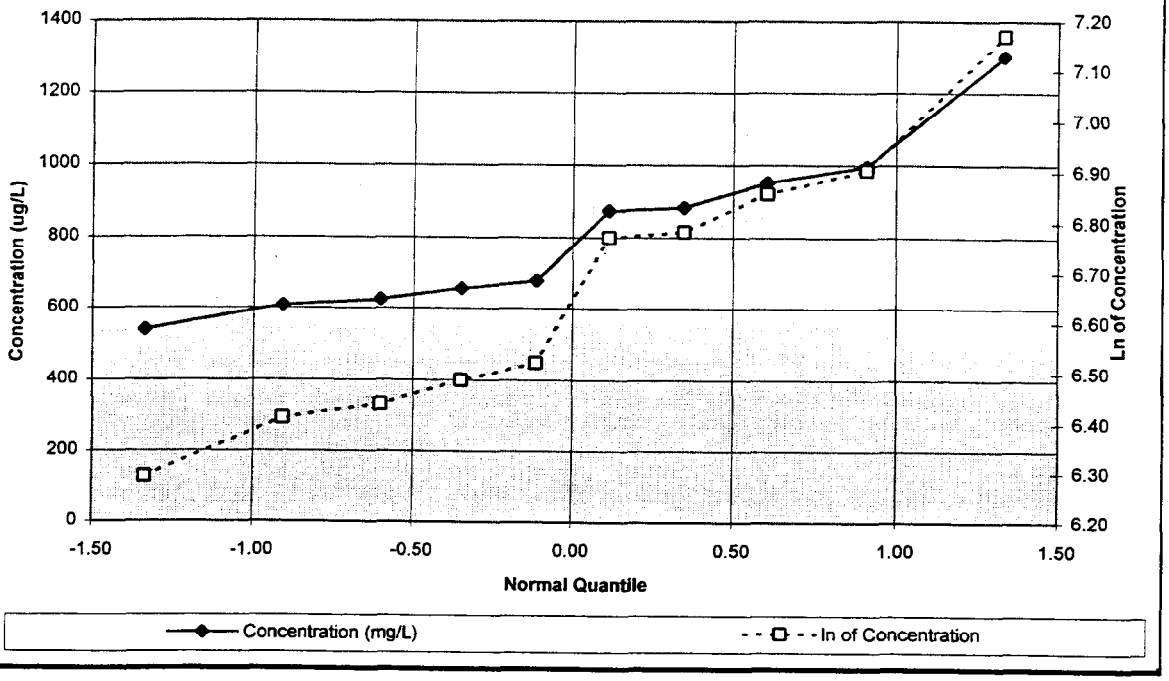
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20703		540	6.29	1	9.09	-1.34
12-Sep-95	11SB20303		608	6.41	2	18.18	-0.91
12-Sep-95	11SB20203		625	6.44	3	27.27	-0.60
12-Sep-95	11SB20603		656	6.49	4	36.36	-0.35
12-Sep-95	11SB20503		679	6.52	5	45.45	-0.11
12-Sep-95	11SB20903		873	6.77	6	54.55	0.11
12-Sep-95	11SB20103		882.5	6.78	7	63.64	0.35
12-Sep-95	11SB20403		951	6.86	8	72.73	0.60
12-Sep-95	11SB21003		996	6.90	9	81.82	0.91
12-Sep-95	11SB20803		1300	7.17	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 811.05	Mean = 6.66
Standard Deviation = 233.95	Standard Deviation = 0.28
Coefficient of Variance = 0.29	Coefficient of Variance = 0.04
Skew = 0.93	Skew = 0.44
Kurtosis = 0.61	Kurtosis = -0.62
R2 = 0.91	R2 = 0.95

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective prob
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Lead Concentrations for Background Subsurface Soil

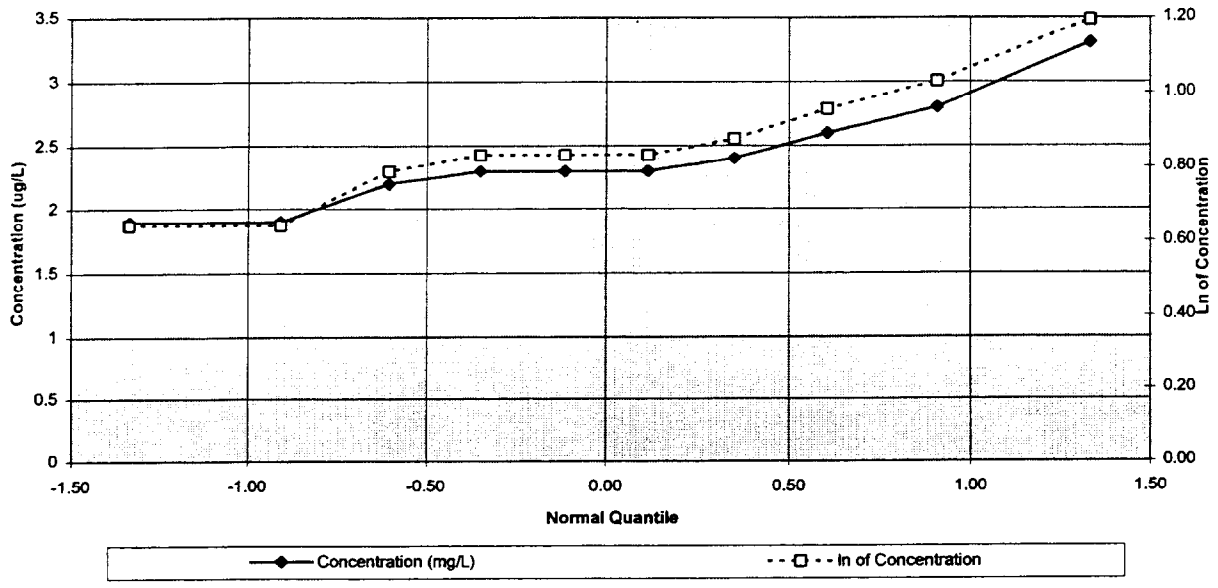
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20503		1.9	0.64	1	9.09	-1.34
12-Sep-95	11SB20603		1.9	0.64	2	18.18	-0.91
12-Sep-95	11SB21003		2.2	0.79	3	27.27	-0.60
12-Sep-95	11SB20103		2.3	0.83	4	36.36	-0.35
12-Sep-95	11SB20703		2.3	0.83	5	45.45	-0.11
12-Sep-95	11SB20803		2.3	0.83	6	54.55	0.11
12-Sep-95	11SB20203		2.4	0.88	7	63.64	0.35
12-Sep-95	11SB20903		2.6	0.96	8	72.73	0.60
12-Sep-95	11SB20303		2.8	1.03	9	81.82	0.91
12-Sep-95	11SB20403		3.3	1.19	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 2.4	Mean = 0.86
Standard Deviation = 0.42	Standard Deviation = 0.17
Coefficient of Variance = 0.17	Coefficient of Variance = 0.19
Skew = 1.02	Skew = 0.59
Kurtosis = 1.4	Kurtosis = 0.58
R2 = 0.89	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Manganese Concentrations for Background Subsurface Soil

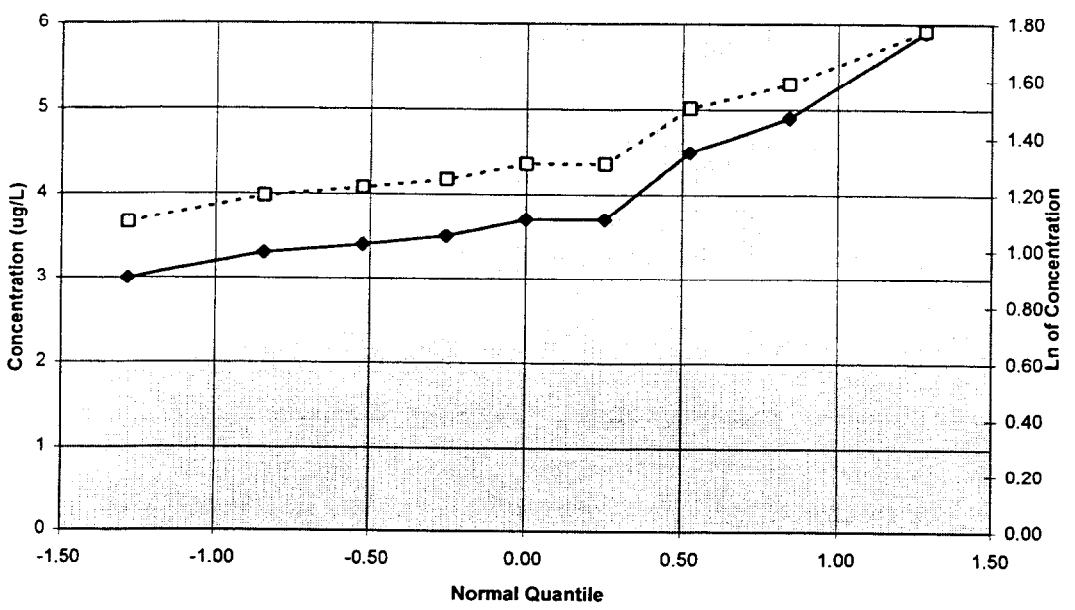
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	J	3	1.10	1	10.00	-1.28
12-Sep-95	11SB20203	J	3.3	1.19	2	20.00	-0.84
12-Sep-95	11SB20703	J	3.4	1.22	3	30.00	-0.52
12-Sep-95	11SB20603	J	3.5	1.25	4	40.00	-0.25
12-Sep-95	11SB20303	J	3.7	1.31	5	50.00	0.00
12-Sep-95	11SB20503	J	3.7	1.31	6	60.00	0.25
12-Sep-95	11SB20103	J	4.5	1.50	7	70.00	0.52
12-Sep-95	11SB20903		4.9	1.59	8	80.00	0.84
12-Sep-95	11SB20803		5.9	1.77	9	90.00	1.28

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 3.99	Mean = 1.36
Standard Deviation = 0.93	Standard Deviation = 0.22
Coefficient of Variance = 0.23	Coefficient of Variance = 0.16
Skew = 1.23	Skew = 0.92
Kurtosis = 0.92	Kurtosis = 0.06
R2 = 0.87	R2 = 0.91

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respectiv
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Mercury Concentrations for Background Subsurface Soil

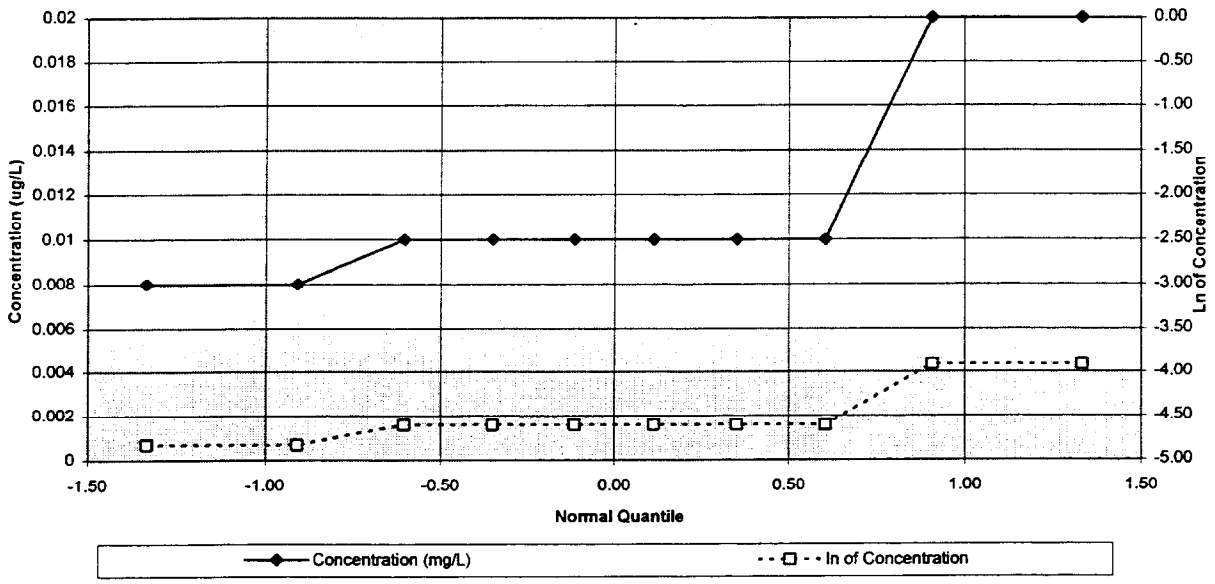
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20603	U	0.008	-4.83	1	9.09	-1.34
12-Sep-95	11SB20903	U	0.008	-4.83	2	18.18	-0.91
12-Sep-95	11SB20203	U	0.01	-4.61	3	27.27	-0.60
12-Sep-95	11SB20503	U	0.01	-4.61	4	36.36	-0.35
12-Sep-95	11SB20703	U	0.01	-4.61	5	45.45	-0.11
12-Sep-95	11SB20103	J	0.01	-4.61	6	54.55	0.11
12-Sep-95	11SB20403	J	0.01	-4.61	7	63.64	0.35
12-Sep-95	11SB20803	J	0.01	-4.61	8	72.73	0.60
12-Sep-95	11SB20303	J	0.02	-3.91	9	81.82	0.91
12-Sep-95	11SB21003	J	0.02	-3.91	10	90.91	1.34

% Non-detects: 50%

Normal Distribution	Log-Normal Distribution
Mean = 0.01	Mean = -4.51
Standard Deviation = 0	Standard Deviation = 0.33
Coefficient of Variance = 0.39	Coefficient of Variance = -0.07
Skew = 1.63	Skew = 1.41
Kurtosis = 1.15	Kurtosis = 0.87
R2 = 0.64	R2 = 0.7

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Nickel Concentrations for Background Subsurface Soil

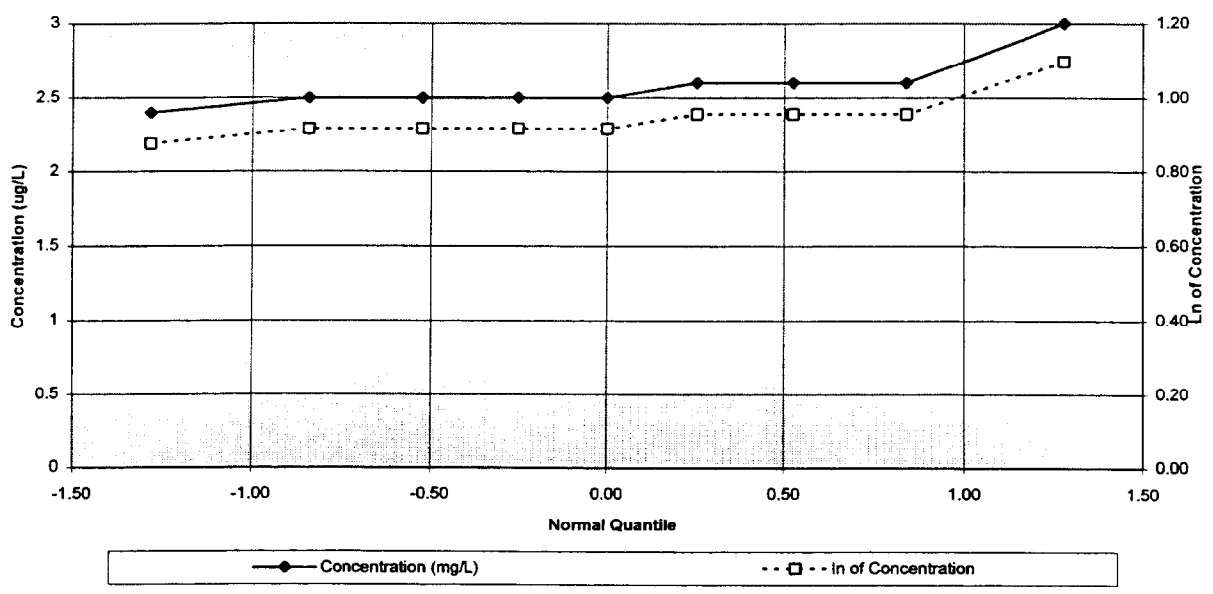
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	U	2.4	0.88	1	10.00	-1.28
12-Sep-95	11SB20503	U	2.5	0.92	2	20.00	-0.84
12-Sep-95	11SB20603	U	2.5	0.92	3	30.00	-0.52
12-Sep-95	11SB20703	U	2.5	0.92	4	40.00	-0.25
12-Sep-95	11SB20803	U	2.5	0.92	5	50.00	0.00
12-Sep-95	11SB20103	U	2.6	0.96	6	60.00	0.25
12-Sep-95	11SB20303	U	2.6	0.96	7	70.00	0.52
12-Sep-95	11SB20903	U	2.6	0.96	8	80.00	0.84
12-Sep-95	11SB20203	J	3	1.10	9	90.00	1.28

% Non-detects: 89%

Normal Distribution	Log-Normal Distribution
Mean = 2.58	Mean = 0.95
Standard Deviation = 0.17	Standard Deviation = 0.06
Coefficient of Variance = 0.07	Coefficient of Variance = 0.07
Skew = 2.16	Skew = 2.02
Kurtosis = 5.6	Kurtosis = 5.13
R2 = 0.68	R2 = 0.71

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Selenium Concentrations for Background Subsurface Soil

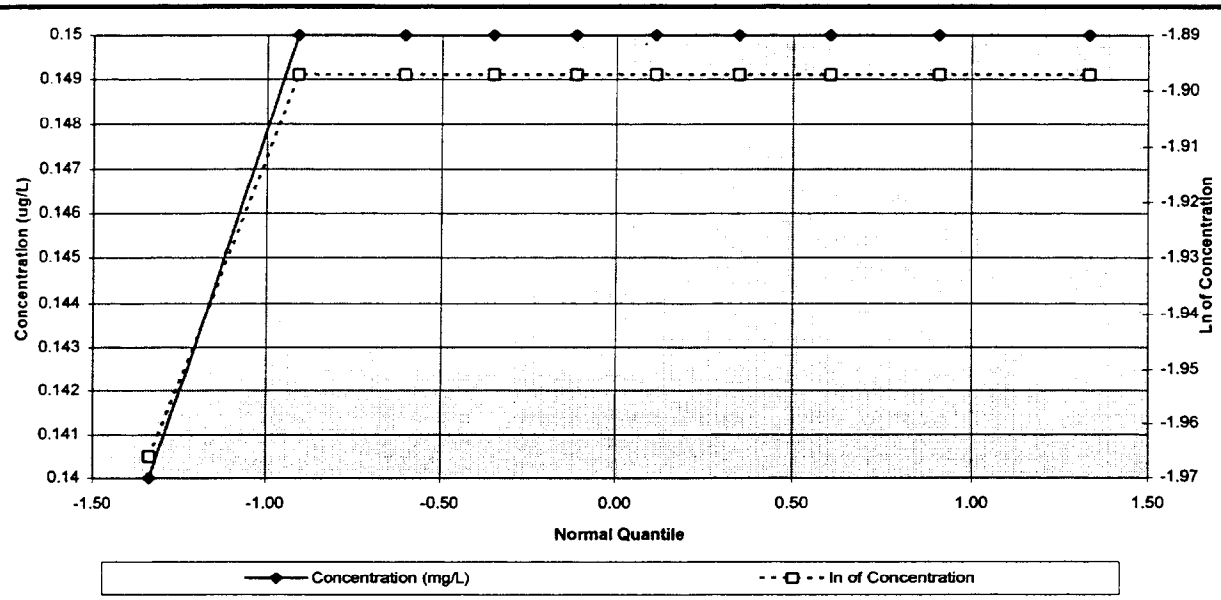
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	U	0.14	-1.97	1	9.09	-1.34
12-Sep-95	11SB20103	U	0.15	-1.90	2	18.18	-0.91
12-Sep-95	11SB20203	U	0.15	-1.90	3	27.27	-0.60
12-Sep-95	11SB20303	U	0.15	-1.90	4	36.36	-0.35
12-Sep-95	11SB20503	U	0.15	-1.90	5	45.45	-0.11
12-Sep-95	11SB20603	U	0.15	-1.90	6	54.55	0.11
12-Sep-95	11SB20703	U	0.15	-1.90	7	63.64	0.35
12-Sep-95	11SB20803	U	0.15	-1.90	8	72.73	0.60
12-Sep-95	11SB20903	U	0.15	-1.90	9	81.82	0.91
12-Sep-95	11SB21003	U	0.15	-1.90	10	90.91	1.34

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 0.15	Mean = -1.9
Standard Deviation = 0	Standard Deviation = 0.02
Coefficient of Variance = 0.02	Coefficient of Variance = -0.01
Skew = -3.16	Skew = -3.16
Kurtosis = 10	Kurtosis = 10
R2 = 0.32	R2 = 0.32

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Silver Concentrations for Background Subsurface Soil

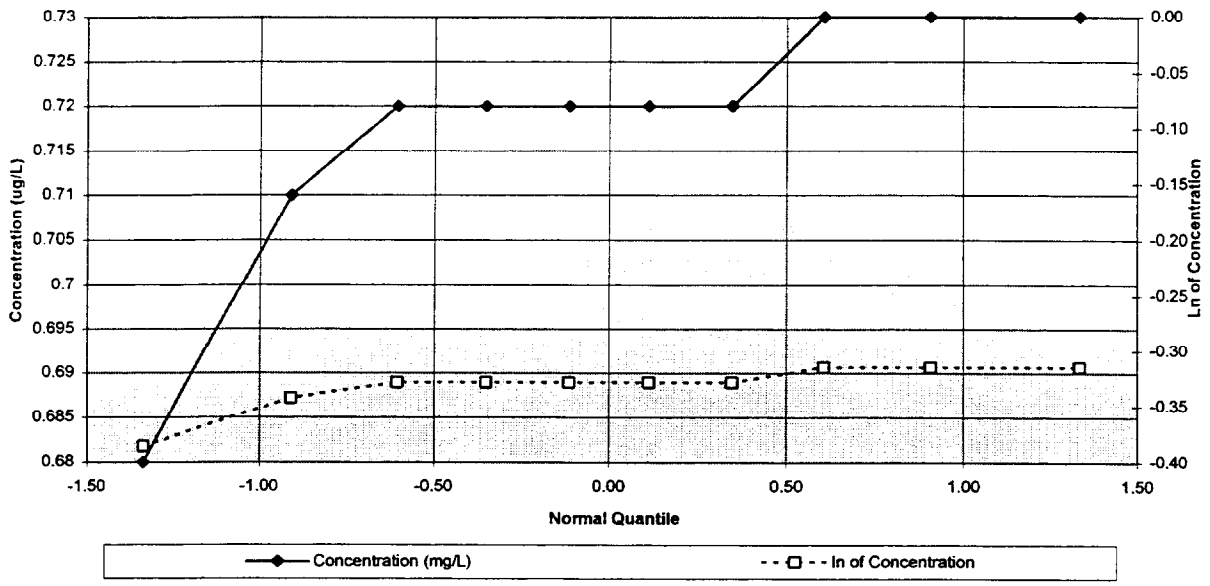
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	U	0.68	-0.39	1	9.09	-1.34
12-Sep-95	11SB20603	U	0.71	-0.34	2	18.18	-0.91
12-Sep-95	11SB20203	U	0.72	-0.33	3	27.27	-0.60
12-Sep-95	11SB20503	U	0.72	-0.33	4	36.36	-0.35
12-Sep-95	11SB20703	U	0.72	-0.33	5	45.45	-0.11
12-Sep-95	11SB20803	U	0.72	-0.33	6	54.55	0.11
12-Sep-95	11SB21003	U	0.72	-0.33	7	63.64	0.35
12-Sep-95	11SB20103	U	0.73	-0.31	8	72.73	0.60
12-Sep-95	11SB20303	U	0.73	-0.31	9	81.82	0.91
12-Sep-95	11SB20903	U	0.73	-0.31	10	90.91	1.34

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 0.72	Mean = -0.33
Standard Deviation = 0.01	Standard Deviation = 0.02
Coefficient of Variance = 0.02	Coefficient of Variance = -0.06
Skew = -2.17	Skew = -2.21
Kurtosis = 5.56	Kurtosis = 5.74
R2 = 0.68	R2 = 0.67

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Sulfide Concentrations for Background Subsurface Soil

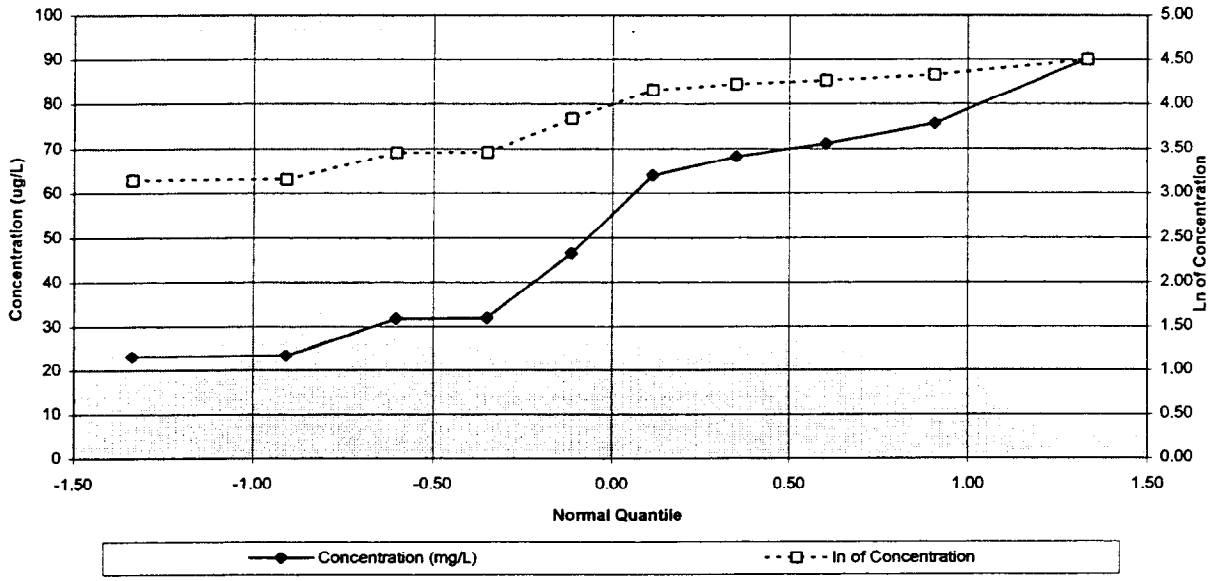
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20603	J	23.2	3.14	1	9.09	-1.34
12-Sep-95	11SB20403	J	23.5	3.16	2	18.18	-0.91
12-Sep-95	11SB20503	J	31.8	3.46	3	27.27	-0.60
12-Sep-95	11SB21003	J	31.9	3.46	4	36.36	-0.35
12-Sep-95	11SB20103	J	46.5	3.84	5	45.45	-0.11
12-Sep-95	11SB20303	J	64	4.16	6	54.55	0.11
12-Sep-95	11SB20903	J	68.2	4.22	7	63.64	0.35
12-Sep-95	11SB20703	J	71.2	4.27	8	72.73	0.60
12-Sep-95	11SB20803	J	75.7	4.33	9	81.82	0.91
12-Sep-95	11SB20203	J	90.2	4.50	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 52.62	Mean = 3.85
Standard Deviation = 24.21	Standard Deviation = 0.51
Coefficient of Variance = 0.46	Coefficient of Variance = 0.13
Skew = 0.09	Skew = -0.3
Kurtosis = -1.6	Kurtosis = -1.69
R2 = 0.94	R2 = 0.92

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Thallium Concentrations for Background Subsurface Soil

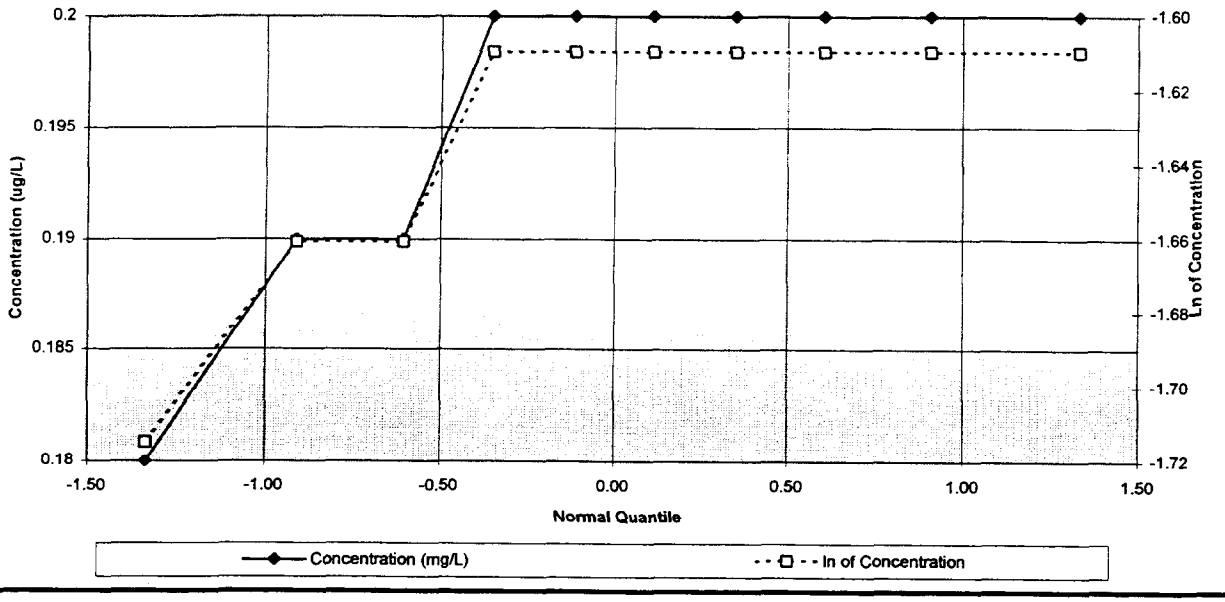
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	U	0.18	-1.71	1	9.09	-1.34
12-Sep-95	11SB20603	U	0.19	-1.66	2	18.18	-0.91
12-Sep-95	11SB20703	U	0.19	-1.66	3	27.27	-0.60
12-Sep-95	11SB20103	U	0.2	-1.61	4	36.36	-0.35
12-Sep-95	11SB20203	U	0.2	-1.61	5	45.45	-0.11
12-Sep-95	11SB20303	U	0.2	-1.61	6	54.55	0.11
12-Sep-95	11SB20503	U	0.2	-1.61	7	63.64	0.35
12-Sep-95	11SB20803	U	0.2	-1.61	8	72.73	0.60
12-Sep-95	11SB20903	U	0.2	-1.61	9	81.82	0.91
12-Sep-95	11SB21003	U	0.2	-1.61	10	90.91	1.34

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 0.2	Mean = -1.63
Standard Deviation = 0.01	Standard Deviation = 0.04
Coefficient of Variance = 0.04	Coefficient of Variance = -0.02
Skew = -1.66	Skew = -1.7
Kurtosis = 2.05	Kurtosis = 2.27
R2 = 0.64	R2 = 0.64

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Vanadium Concentrations for Background Subsurface Soil

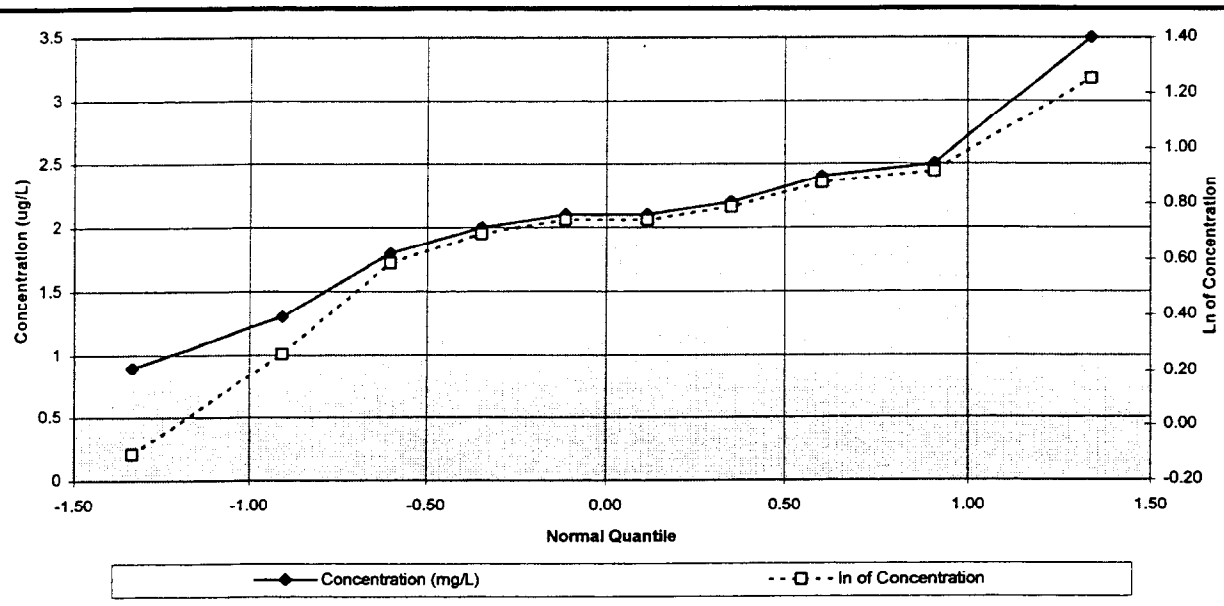
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20603	J	0.9	-0.11	1	9.09	-1.34
12-Sep-95	11SB20203	J	1.3	0.26	2	18.18	-0.91
12-Sep-95	11SB20503	J	1.8	0.59	3	27.27	-0.60
12-Sep-95	11SB20103	J	2	0.69	4	36.36	-0.35
12-Sep-95	11SB20303	J	2.1	0.74	5	45.45	-0.11
12-Sep-95	11SB20703	J	2.1	0.74	6	54.55	0.11
12-Sep-95	11SB20903	J	2.2	0.79	7	63.64	0.35
12-Sep-95	11SB21003	J	2.4	0.88	8	72.73	0.60
12-Sep-95	11SB20403	J	2.5	0.92	9	81.82	0.91
12-Sep-95	11SB20803	J	3.5	1.25	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 2.08	Mean = 0.68
Standard Deviation = 0.7	Standard Deviation = 0.37
Coefficient of Variance = 0.34	Coefficient of Variance = 0.55
Skew = 0.34	Skew = -0.9
Kurtosis = 1.54	Kurtosis = 1.6
R2 = 0.91	R2 = 0.89

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Zinc Concentrations for Background Subsurface Soil

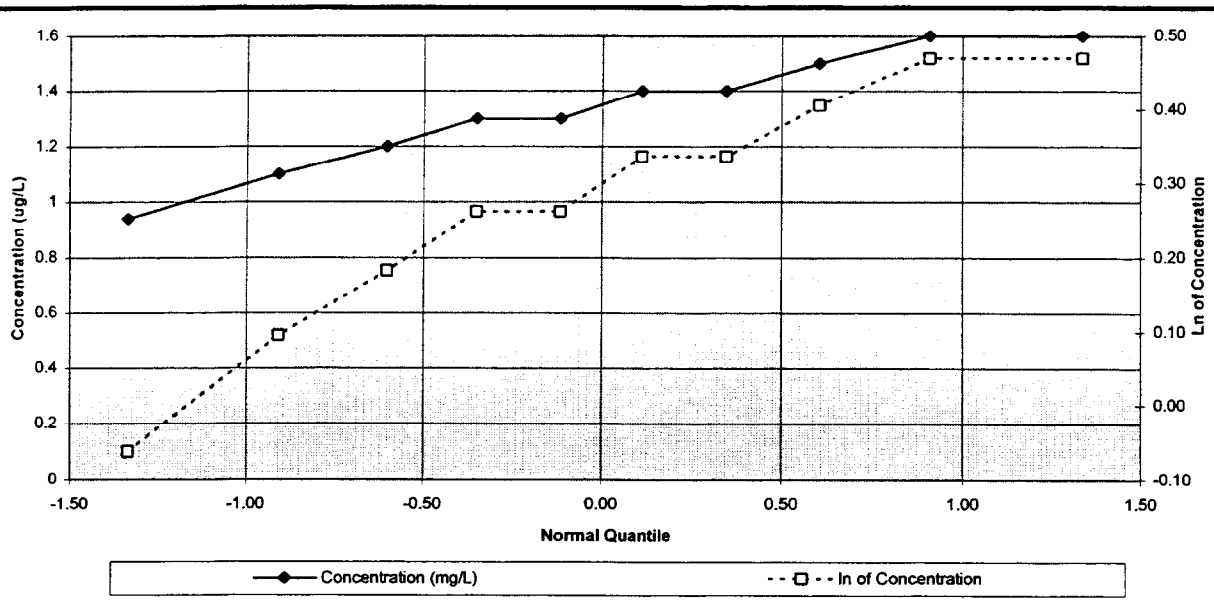
Sample Event	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
12-Sep-95	11SB20403	J	0.94	-0.06	1	9.09	-1.34
12-Sep-95	11SB20903	J	1.1	0.10	2	18.18	-0.91
12-Sep-95	11SB20503	J	1.2	0.18	3	27.27	-0.60
12-Sep-95	11SB20303	J	1.3	0.26	4	36.36	-0.35
12-Sep-95	11SB20703	J	1.3	0.26	5	45.45	-0.11
12-Sep-95	11SB20203	J	1.4	0.34	6	54.55	0.11
12-Sep-95	11SB20603	J	1.4	0.34	7	63.64	0.35
12-Sep-95	11SB20803	J	1.5	0.41	8	72.73	0.60
12-Sep-95	11SB20103	J	1.6	0.47	9	81.82	0.91
12-Sep-95	11SB21003	J	1.6	0.47	10	90.91	1.34

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 1.33	Mean = 0.28
Standard Deviation = 0.21	Standard Deviation = 0.17
Coefficient of Variance = 0.16	Coefficient of Variance = 0.61
Skew = -0.48	Skew = -0.81
Kurtosis = -0.28	Kurtosis = 0.35
R2 = 0.96	R2 = 0.94

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Aluminum Concentrations for Characterization Subsurface Soil

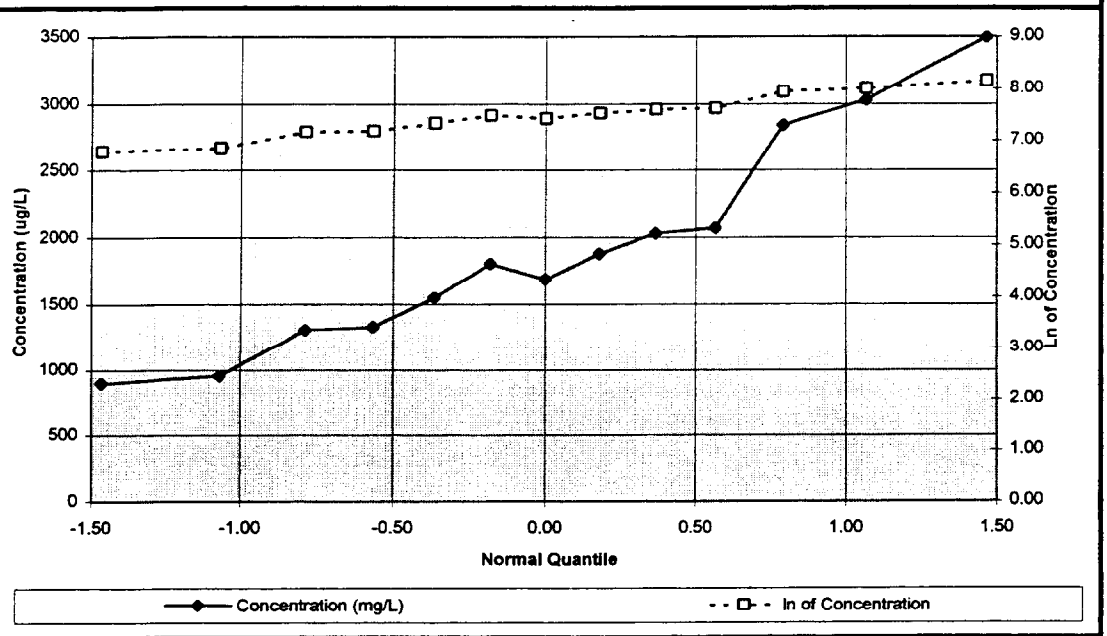
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
23-Oct-93	SB10175		896	6.80	1	7.14	-1.47
18-Nov-93	SB10840		953	6.86	2	14.29	-1.07
03-Nov-93	SBPS925		1310	7.18	3	21.43	-0.79
20-Nov-93	SB10440		1330	7.19	4	28.57	-0.57
18-Nov-93	SB11220		1550	7.35	5	35.71	-0.37
20-Nov-93	SB10425		1805	7.50	6	42.86	-0.18
03-Nov-93	SBPS915		1690	7.43	7	50.00	0.00
19-Nov-93	SBPS1015		1880	7.54	8	57.14	0.18
23-Oct-93	SB10145		2030	7.62	9	64.29	0.37
17-Nov-93	SB11512	J	2070	7.64	10	71.43	0.57
19-Nov-93	SBPS1025		2840	7.95	11	78.57	0.79
06-Nov-93	SB11412		3030	8.02	12	85.71	1.07
23-Oct-93	SB10125		3495	8.16	13	92.86	1.47

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 1913.77	Mean = 7.48
Standard Deviation = 790.66	Standard Deviation = 0.41
Coefficient of Variance = 0.41	Coefficient of Variance = 0.06
Skew = 0.74	Skew = -0.03
Kurtosis = -0.14	Kurtosis = -0.54
R2 = 0.93	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probabilit
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Antimony Concentrations for Characterization Subsurface Soil

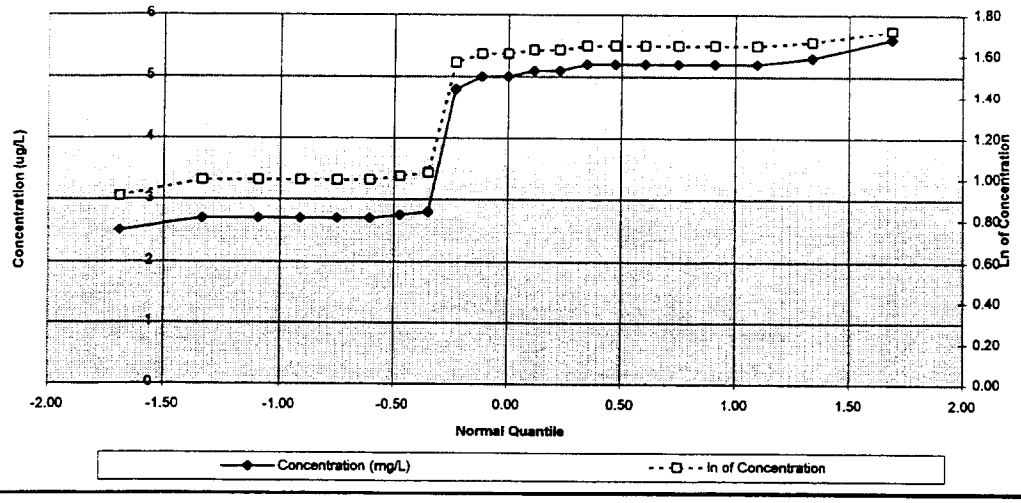
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-08	U	2.5	0.92	1	4.55	-1.69
09-Feb-92	11-SB-01	U	2.7	0.99	2	9.09	-1.34
10-Feb-92	11-SB-02	U	2.7	0.99	3	13.64	-1.10
10-Feb-92	11-SB-05	U	2.7	0.99	4	18.18	-0.91
10-Feb-92	11-SB-06	U	2.7	0.99	5	22.73	-0.75
10-Feb-92	11-SB-07	U	2.7	0.99	6	27.27	-0.60
10-Feb-92	11-SB-03	U	2.75	1.01	7	31.82	-0.47
09-Feb-92	11-SB-09	U	2.8	1.03	8	36.36	-0.35
23-Oct-93	SB10175	U	4.8	1.57	9	40.91	-0.23
20-Nov-93	SB10425	U	5	1.61	10	45.45	-0.11
20-Nov-93	SB10440	U	5	1.61	11	50.00	0.00
23-Oct-93	SB10125	U	5.1	1.63	12	54.55	0.11
19-Nov-93	SBPS1015	U	5.1	1.63	13	59.09	0.23
18-Nov-93	SB10840	U	5.2	1.65	14	63.64	0.35
18-Nov-93	SB11220	U	5.2	1.65	15	68.18	0.47
06-Nov-93	SB11412	U	5.2	1.65	16	72.73	0.60
17-Nov-93	SB11512	U	5.2	1.65	17	77.27	0.75
19-Nov-93	SBPS1025	U	5.2	1.65	18	81.82	0.91
03-Nov-93	SBPS925	U	5.2	1.65	19	86.36	1.10
03-Nov-93	SBPS915	U	5.3	1.67	20	90.91	1.34
23-Oct-93	SB10145	U	5.6	1.72	21	95.45	1.69

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 4.22	Mean = 1.39
Standard Deviation = 1.24	Standard Deviation = 0.33
Coefficient of Variance = 0.29	Coefficient of Variance = 0.23
Skew = -0.49	Skew = -0.52
Kurtosis = -1.87	Kurtosis = -1.86
R2 = 0.75	R2 = 0.74

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Arsenic Concentrations for Characterization Subsurface Soil

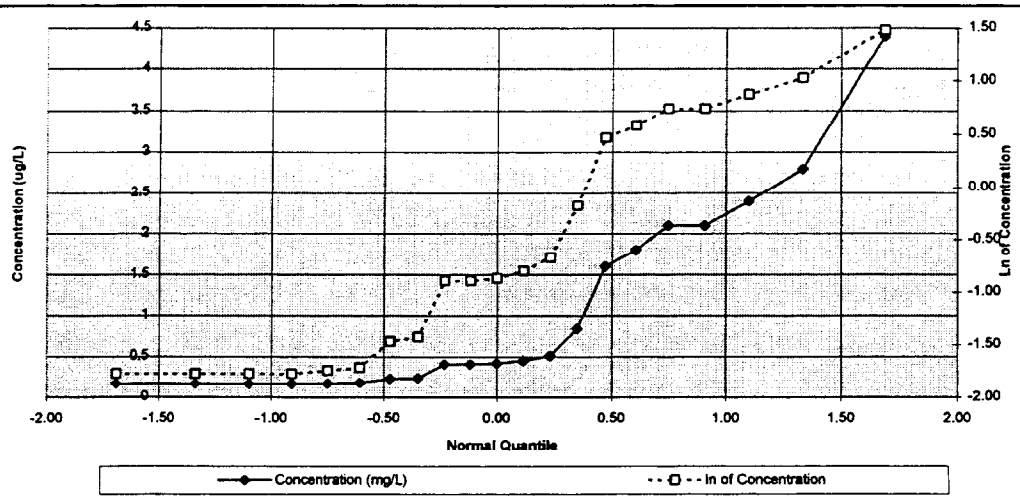
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
10-Feb-92	11-SB-02	U	0.17	-1.77	1	4.55	-1.69
10-Feb-92	11-SB-05	U	0.17	-1.77	2	9.09	-1.34
10-Feb-92	11-SB-06	U	0.17	-1.77	3	13.64	-1.10
10-Feb-92	11-SB-07	U	0.17	-1.77	4	18.18	-0.91
10-Feb-92	11-SB-03	U	0.175	-1.74	5	22.73	-0.75
09-Feb-92	11-SB-09	U	0.18	-1.71	6	27.27	-0.60
09-Feb-92	11-SB-08	J	0.23	-1.47	7	31.82	-0.47
09-Feb-92	11-SB-01	J	0.24	-1.43	8	36.36	-0.35
06-Nov-93	SB11412	U	0.41	-0.89	9	40.91	-0.23
19-Nov-93	SBPS1015	U	0.41	-0.89	10	45.45	-0.11
03-Nov-93	SBPS925	U	0.42	-0.87	11	50.00	0.00
19-Nov-93	SBPS1025	J	0.45	-0.80	12	54.55	0.11
17-Nov-93	SB11512	J	0.51	-0.67	13	59.09	0.23
23-Oct-93	SB10175	J	0.84	-0.17	14	63.64	0.35
18-Nov-93	SB10840	J	1.6	0.47	15	68.18	0.47
20-Nov-93	SB10440	J	1.8	0.59	16	72.73	0.60
23-Oct-93	SB10145	J	2.1	0.74	17	77.27	0.75
03-Nov-93	SBPS915	U	2.1	0.74	18	81.82	0.91
23-Oct-93	SB10125	J	2.4	0.88	19	86.36	1.10
18-Nov-93	SB11220		2.8	1.03	20	90.91	1.34
20-Nov-93	SB10425		4.4	1.48	21	95.45	1.69

% Non-detects: 48%

Normal Distribution	Log-Normal Distribution
Mean = 1.04	Mean = -0.56
Standard Deviation = 1.16	Standard Deviation = 1.12
Coefficient of Variance = 1.12	Coefficient of Variance = -2
Skew = 1.52	Skew = 0.43
Kurtosis = 2	Kurtosis = -1.37
R2 = 0.76	R2 = 0.9

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Barium Concentrations for Characterization Subsurface Soil

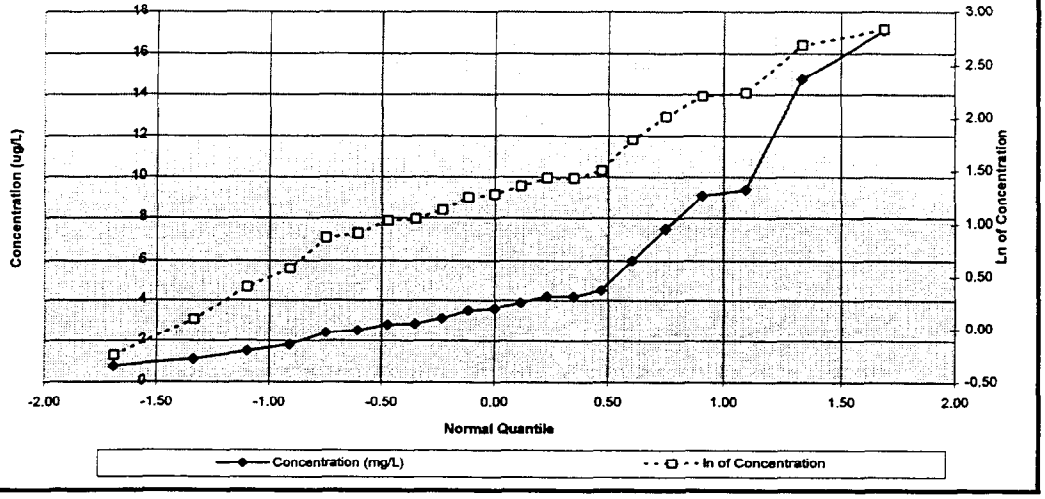
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-09	U	0.78	-0.25	1	4.55	-1.69
09-Feb-92	11-SB-01	J	1.1	0.10	2	9.09	-1.34
10-Feb-92	11-SB-05	J	1.5	0.41	3	13.64	-1.10
10-Feb-92	11-SB-06	J	1.8	0.59	4	18.18	-0.91
10-Feb-92	11-SB-07	J	2.4	0.88	5	22.73	-0.75
17-Nov-93	SB11512	J	2.5	0.92	6	27.27	-0.60
03-Nov-93	SBPS925	J	2.8	1.03	7	31.82	-0.47
10-Feb-92	11-SB-03	J	2.85	1.05	8	36.36	-0.35
09-Feb-92	11-SB-08	J	3.1	1.13	9	40.91	-0.23
23-Oct-93	SB10175	J	3.5	1.25	10	45.45	-0.11
19-Nov-93	SBPS1015	J	3.6	1.28	11	50.00	0.00
06-Nov-93	SB11412	J	3.9	1.36	12	54.55	0.11
18-Nov-93	SB10840	J	4.2	1.44	13	59.09	0.23
03-Nov-93	SBPS915	J	4.2	1.44	14	63.64	0.35
10-Feb-92	11-SB-02	J	4.5	1.50	15	68.18	0.47
20-Nov-93	SB10440	J	6	1.79	16	72.73	0.60
18-Nov-93	SB11220	J	7.5	2.01	17	77.27	0.75
23-Oct-93	SB10145	J	9.1	2.21	18	81.82	0.91
20-Nov-93	SB10425	J	9.4	2.24	19	86.36	1.10
23-Oct-93	SB10125	J	14.75	2.69	20	90.91	1.34
19-Nov-93	SBPS1025	J	17.1	2.84	21	95.45	1.69

% Non-detects: 5%

Normal Distribution	Log-Normal Distribution
Mean = 5.08	Mean = 1.33
Standard Deviation = 4.32	Standard Deviation = 0.79
Coefficient of Variance = 0.85	Coefficient of Variance = 0.59
Skew = 1.72	Skew = 0.07
Kurtosis = 2.57	Kurtosis = -0.07
R2 = 0.79	R2 = 0.98

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11
Determination of Distribution
Beryllium Concentrations for Characterization Subsurface Soil

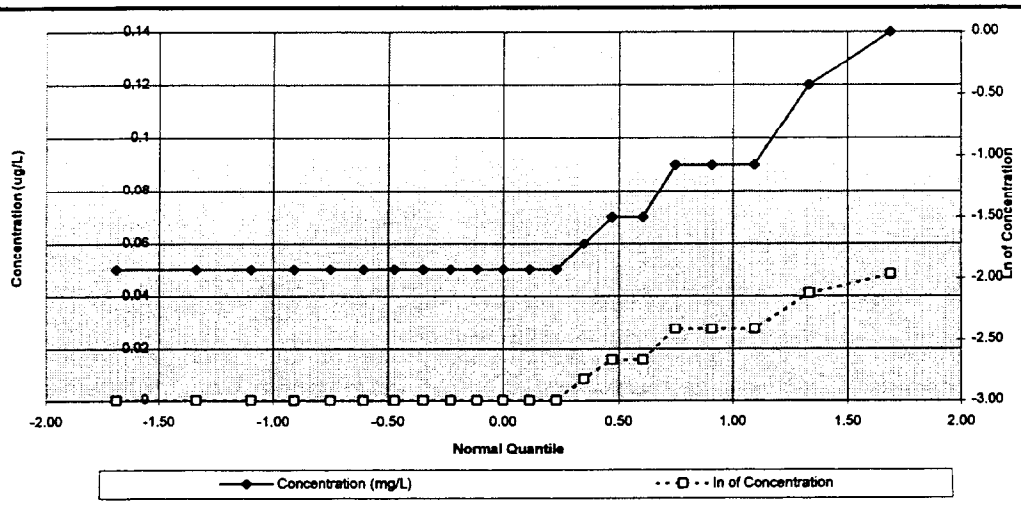
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
10-Feb-92	11-SB-07	J	0.05	-3.00	1	4.55	-1.69
09-Feb-92	11-SB-08	J	0.05	-3.00	2	9.09	-1.34
09-Feb-92	11-SB-01	U	0.05	-3.00	3	13.64	-1.10
10-Feb-92	11-SB-02	U	0.05	-3.00	4	18.18	-0.91
10-Feb-92	11-SB-03	U	0.05	-3.00	5	22.73	-0.75
10-Feb-92	11-SB-05	U	0.05	-3.00	6	27.27	-0.60
10-Feb-92	11-SB-06	U	0.05	-3.00	7	31.82	-0.47
09-Feb-92	11-SB-09	U	0.05	-3.00	8	36.36	-0.35
20-Nov-93	SB10425	U	0.05	-3.00	9	40.91	-0.23
20-Nov-93	SB10440	U	0.05	-3.00	10	45.45	-0.11
18-Nov-93	SB10840	U	0.05	-3.00	11	50.00	0.00
18-Nov-93	SB11220	U	0.05	-3.00	12	54.55	0.11
19-Nov-93	SBPS1015	U	0.05	-3.00	13	59.09	0.23
23-Oct-93	SB10175	J	0.06	-2.81	14	63.64	0.35
17-Nov-93	SB11512	J	0.07	-2.66	15	68.18	0.47
19-Nov-93	SBPS1025	J	0.07	-2.66	16	72.73	0.60
06-Nov-93	SB11412	U	0.09	-2.41	17	77.27	0.75
03-Nov-93	SBPS915	U	0.09	-2.41	18	81.82	0.91
03-Nov-93	SBPS925	U	0.09	-2.41	19	86.36	1.10
23-Oct-93	SB10125	J	0.12	-2.12	20	90.91	1.34
23-Oct-93	SB10145	J	0.14	-1.97	21	95.45	1.69

% Non-detects: 67%

Normal Distribution	Log-Normal Distribution
Mean = 0.07	Mean = -2.78
Standard Deviation = 0.03	Standard Deviation = 0.33
Coefficient of Variance = 0.4	Coefficient of Variance = -0.12
Skew = 1.77	Skew = 1.34
Kurtosis = 2.55	Kurtosis = 0.68
R2 = 0.67	R2 = 0.71

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cadmium Concentrations for Characterization Subsurface Soil

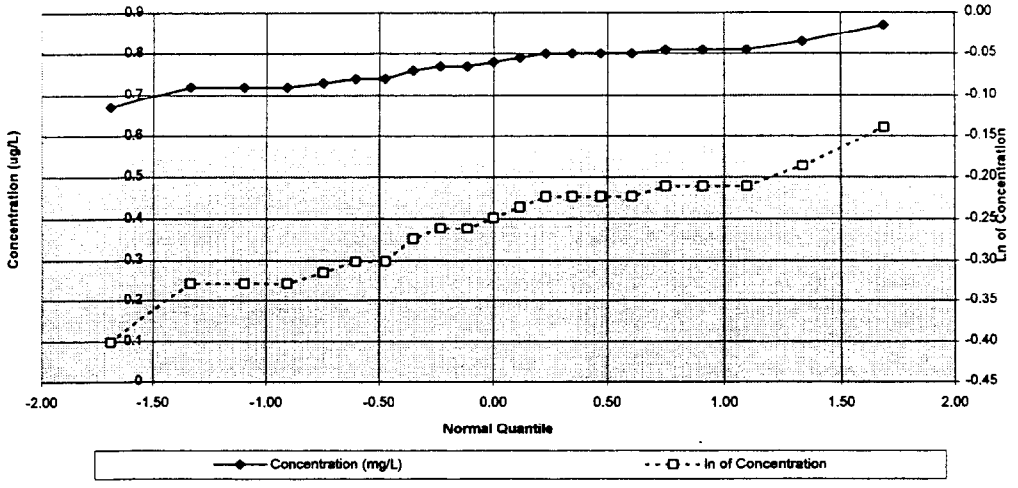
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-08	U	0.67	-0.40	1	4.55	-1.69
10-Feb-92	11-SB-02	U	0.72	-0.33	2	9.09	-1.34
10-Feb-92	11-SB-06	U	0.72	-0.33	3	13.64	-1.10
10-Feb-92	11-SB-07	U	0.72	-0.33	4	18.18	-0.91
10-Feb-92	11-SB-05	U	0.73	-0.31	5	22.73	-0.75
09-Feb-92	11-SB-01	U	0.74	-0.30	6	27.27	-0.60
23-Oct-93	SB10175	U	0.74	-0.30	7	31.82	-0.47
09-Feb-92	11-SB-09	U	0.76	-0.27	8	36.36	-0.35
20-Nov-93	SB10425	U	0.77	-0.26	9	40.91	-0.23
10-Feb-92	11-SB-03	J	0.77	-0.26	10	45.45	-0.11
20-Nov-93	SB10440	U	0.78	-0.25	11	50.00	0.00
23-Oct-93	SB10125	U	0.79	-0.24	12	54.55	0.11
06-Nov-93	SB11412	U	0.8	-0.22	13	59.09	0.23
17-Nov-93	SB11512	U	0.8	-0.22	14	63.64	0.35
19-Nov-93	SBPS1015	U	0.8	-0.22	15	68.18	0.47
19-Nov-93	SBPS1025	U	0.8	-0.22	16	72.73	0.60
18-Nov-93	SB10840	U	0.81	-0.21	17	77.27	0.75
18-Nov-93	SB11220	U	0.81	-0.21	18	81.82	0.91
03-Nov-93	SBPS925	U	0.81	-0.21	19	86.36	1.10
03-Nov-93	SBPS915	U	0.83	-0.19	20	90.91	1.34
23-Oct-93	SB10145	U	0.87	-0.14	21	95.45	1.69

% Non-detects: 95%

Normal Distribution	Log-Normal Distribution
Mean = 0.77	Mean = -0.26
Standard Deviation = 0.05	Standard Deviation = 0.06
Coefficient of Variance = 0.06	Coefficient of Variance = -0.23
Skew = -0.22	Skew = -0.39
Kurtosis = 0.09	Kurtosis = 0.18
R2 = 0.95	R2 = 0.95

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Chromium Concentrations for Characterization Subsurface Soil

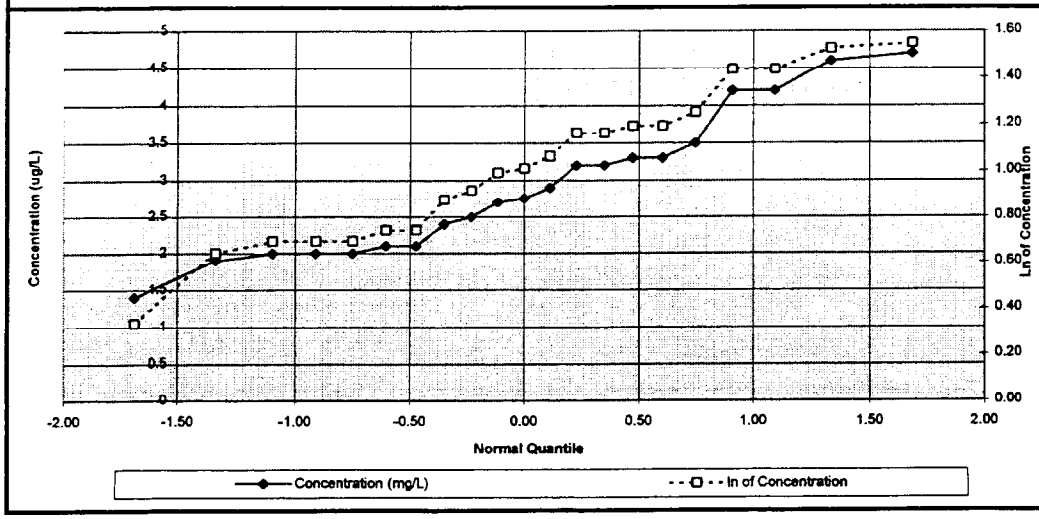
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-01	U	1.4	0.34	1	4.55	-1.69
09-Feb-92	11-SB-09	U	1.9	0.64	2	9.09	-1.34
17-Nov-93	SB11512	J	2	0.69	3	13.64	-1.10
10-Feb-92	11-SB-05	U	2	0.69	4	18.18	-0.91
09-Feb-92	11-SB-08	U	2	0.69	5	22.73	-0.75
18-Nov-93	SB10840	J	2.1	0.74	6	27.27	-0.60
03-Nov-93	SBPS925	J	2.1	0.74	7	31.82	-0.47
20-Nov-93	SB10440		2.4	0.88	8	36.36	-0.35
10-Feb-92	11-SB-06	U	2.5	0.92	9	40.91	-0.23
18-Nov-93	SB11220		2.7	0.99	10	45.45	-0.11
10-Feb-92	11-SB-03	U	2.75	1.01	11	50.00	0.00
20-Nov-93	SB10425		2.9	1.06	12	54.55	0.11
10-Feb-92	11-SB-02		3.2	1.16	13	59.09	0.23
03-Nov-93	SBPS915		3.2	1.16	14	63.64	0.35
23-Oct-93	SB10145		3.3	1.19	15	68.18	0.47
19-Nov-93	SBPS1015		3.3	1.19	16	72.73	0.60
23-Oct-93	SB10175		3.5	1.25	17	77.27	0.75
10-Feb-92	11-SB-07		4.2	1.44	18	81.82	0.91
19-Nov-93	SBPS1025		4.2	1.44	19	86.36	1.10
23-Oct-93	SB10125		4.6	1.53	20	90.91	1.34
06-Nov-93	SB11412		4.7	1.55	21	95.45	1.69

% Non-detects: 29%

Normal Distribution	Log-Normal Distribution
Mean = 2.9	Mean = 1.01
Standard Deviation = 0.94	Standard Deviation = 0.33
Coefficient of Variance = 0.33	Coefficient of Variance = 0.32
Skew = 0.5	Skew = -0.07
Kurtosis = -0.64	Kurtosis = -0.64
R2 = 0.95	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Cobalt Concentrations for Characterization Subsurface Soil

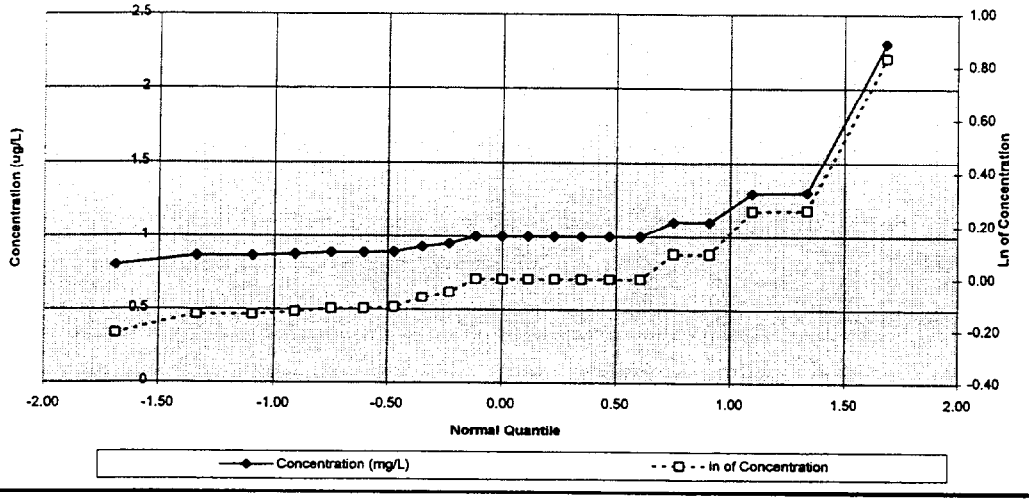
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-08	U	0.81	-0.21	1	4.55	-1.69
10-Feb-92	11-SB-02	U	0.87	-0.14	2	9.09	-1.34
10-Feb-92	11-SB-07	U	0.87	-0.14	3	13.64	-1.10
10-Feb-92	11-SB-06	U	0.88	-0.13	4	18.18	-0.91
09-Feb-92	11-SB-01	U	0.89	-0.12	5	22.73	-0.75
10-Feb-92	11-SB-05	U	0.89	-0.12	6	27.27	-0.60
10-Feb-92	11-SB-03	U	0.895	-0.11	7	31.82	-0.47
09-Feb-92	11-SB-09	U	0.93	-0.07	8	36.36	-0.35
23-Oct-93	SB10175	U	0.95	-0.05	9	40.91	-0.23
20-Nov-93	SB10440	U	1	0.00	10	45.45	-0.11
18-Nov-93	SB10840	U	1	0.00	11	50.00	0.00
06-Nov-93	SB11412	U	1	0.00	12	54.55	0.11
17-Nov-93	SB11512	U	1	0.00	13	59.09	0.23
19-Nov-93	SBPS1015	U	1	0.00	14	63.64	0.35
19-Nov-93	SBPS1025	U	1	0.00	15	68.18	0.47
03-Nov-93	SBPS925	U	1	0.00	16	72.73	0.60
23-Oct-93	SB10145	U	1.1	0.10	17	77.27	0.75
03-Nov-93	SBPS915	U	1.1	0.10	18	81.82	0.91
20-Nov-93	SB10425	J	1.295	0.26	19	86.36	1.10
23-Oct-93	SB10125	J	1.3	0.26	20	90.91	1.34
18-Nov-93	SB11220	J	2.3	0.83	21	95.45	1.69

% Non-detects: 86%

Normal Distribution	Log-Normal Distribution
Mean = 1.05	Mean = 0.02
Standard Deviation = 0.31	Standard Deviation = 0.22
Coefficient of Variance = 0.3	Coefficient of Variance = 10.14
Skew = 3.48	Skew = 2.67
Kurtosis = 13.72	Kurtosis = 8.9
R2 = 0.53	R2 = 0.67

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Copper Concentrations for Characterization Subsurface Soil

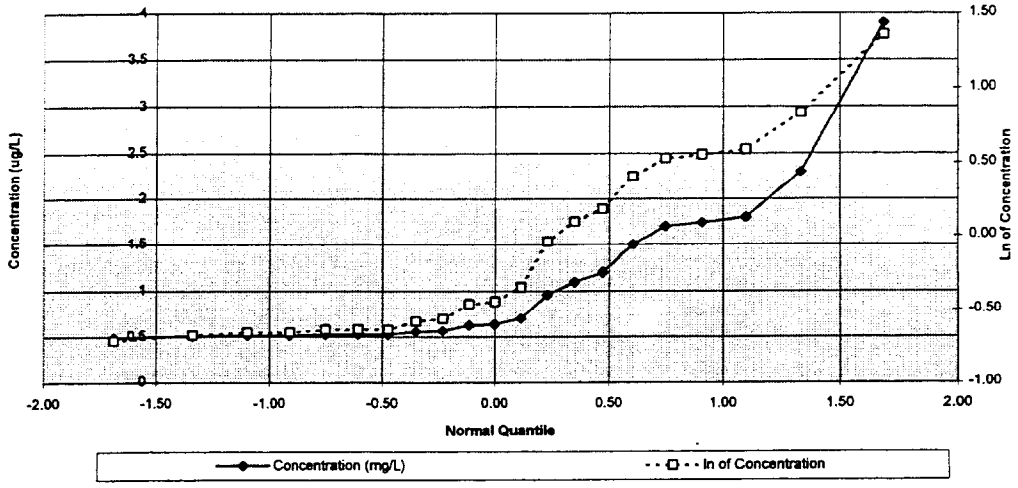
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
23-Oct-93	SB10175	U	0.49	-0.71	1	4.55	-1.69
20-Nov-93	SB10440	U	0.51	-0.67	2	9.09	-1.34
19-Nov-93	SBPS1015	U	0.52	-0.65	3	13.64	-1.10
19-Nov-93	SBPS1025	U	0.52	-0.65	4	18.18	-0.91
18-Nov-93	SB10840	U	0.53	-0.63	5	22.73	-0.75
18-Nov-93	SB11220	U	0.53	-0.63	6	27.27	-0.60
03-Nov-93	SBPS925	U	0.53	-0.63	7	31.82	-0.47
20-Nov-93	SB10425	J	0.56	-0.58	8	36.36	-0.35
23-Oct-93	SB10145	U	0.57	-0.56	9	40.91	-0.23
03-Nov-93	SBPS915	J	0.63	-0.46	10	45.45	-0.11
17-Nov-93	SB11512	J	0.64	-0.45	11	50.00	0.00
23-Oct-93	SB10125	J	0.705	-0.35	12	54.55	0.11
10-Feb-92	11-SB-02	U	0.96	-0.04	13	59.09	0.23
10-Feb-92	11-SB-06	U	1.1	0.10	14	63.64	0.35
06-Nov-93	SB11412	J	1.2	0.18	15	68.18	0.47
09-Feb-92	11-SB-01	U	1.5	0.41	16	72.73	0.60
10-Feb-92	11-SB-05	U	1.7	0.53	17	77.27	0.75
10-Feb-92	11-SB-03	U	1.74	0.55	18	81.82	0.91
10-Feb-92	11-SB-07	U	1.8	0.59	19	86.36	1.10
09-Feb-92	11-SB-09	U	2.3	0.83	20	90.91	1.34
09-Feb-92	11-SB-08	U	3.9	1.36	21	95.45	1.69

% Non-detects: 76%

Normal Distribution	Log-Normal Distribution
Mean = 1.09	Mean = -0.12
Standard Deviation = 0.84	Standard Deviation = 0.62
Coefficient of Variance = 0.77	Coefficient of Variance = -5.2
Skew = 2.11	Skew = 0.9
Kurtosis = 5.25	Kurtosis = -0.22
R2 = 0.71	R2 = 0.86

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



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Determination of Distribution

Cyanide Concentrations for Characterization Subsurface Soil

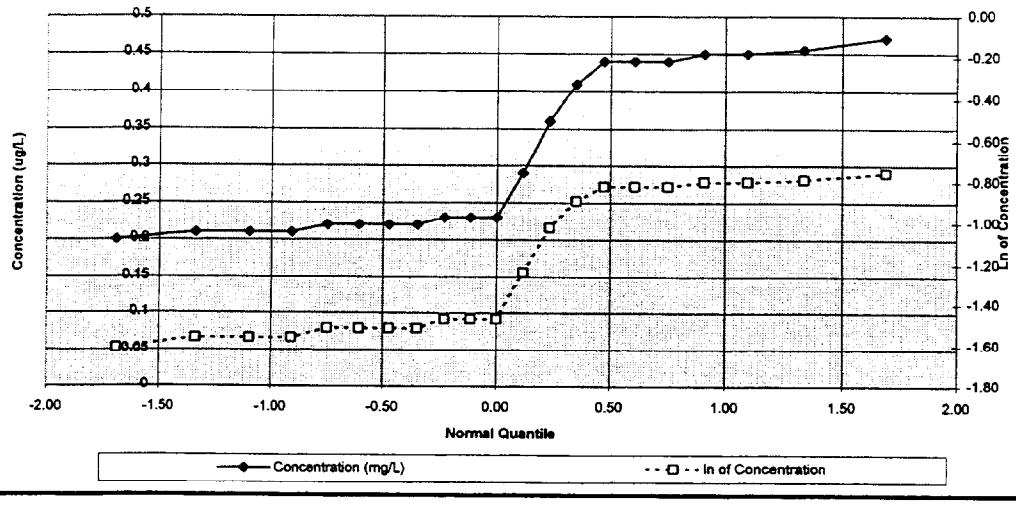
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
23-Oct-93	SB10175	U	0.2	-1.61	1	4.55	-1.69
23-Oct-93	SB10125	U	0.21	-1.56	2	9.09	-1.34
06-Nov-93	SB11412	U	0.21	-1.56	3	13.64	-1.10
19-Nov-93	SBPS1015	U	0.21	-1.56	4	18.18	-0.91
18-Nov-93	SB10840	U	0.22	-1.51	5	22.73	-0.75
18-Nov-93	SB11220	U	0.22	-1.51	6	27.27	-0.60
03-Nov-93	SBPS915	U	0.22	-1.51	7	31.82	-0.47
03-Nov-93	SBPS925	U	0.22	-1.51	8	36.36	-0.35
17-Nov-93	SB11512	J	0.23	-1.47	9	40.91	-0.23
19-Nov-93	SBPS1025	J	0.23	-1.47	10	45.45	-0.11
23-Oct-93	SB10145	U	0.23	-1.47	11	50.00	0.00
20-Nov-93	SB10440	J	0.29	-1.24	12	54.55	0.11
20-Nov-93	SB10425	J	0.36	-1.02	13	59.09	0.23
09-Feb-92	11-SB-08	U	0.41	-0.89	14	63.64	0.35
10-Feb-92	11-SB-02	U	0.44	-0.82	15	68.18	0.47
10-Feb-92	11-SB-06	U	0.44	-0.82	16	72.73	0.60
10-Feb-92	11-SB-07	U	0.44	-0.82	17	77.27	0.75
09-Feb-92	11-SB-01	U	0.45	-0.80	18	81.82	0.91
10-Feb-92	11-SB-05	U	0.45	-0.80	19	86.36	1.10
10-Feb-92	11-SB-03	U	0.455	-0.79	20	90.91	1.34
09-Feb-92	11-SB-09	U	0.47	-0.76	21	95.45	1.69

% Non-detects: 81%

Normal Distribution	Log-Normal Distribution
Mean = 0.31	Mean = -1.21
Standard Deviation = 0.11	Standard Deviation = 0.35
Coefficient of Variance = 0.35	Coefficient of Variance = -0.29
Skew = 0.34	Skew = 0.26
Kurtosis = -1.91	Kurtosis = -1.96
R2 = 0.81	R2 = 0.82

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



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Determination of Distribution

Iron Concentrations for Characterization Subsurface Soil

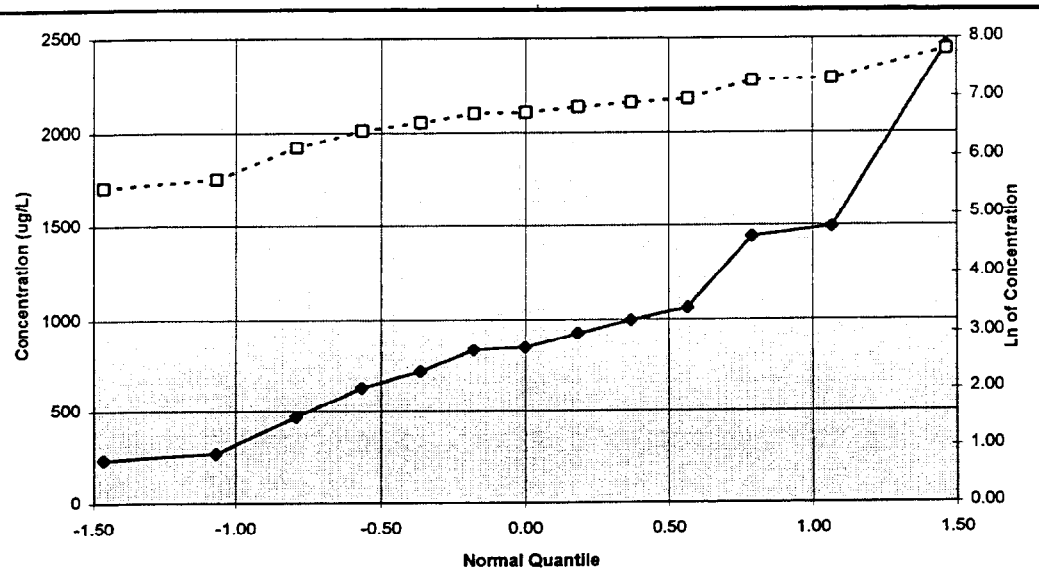
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
17-Nov-93	SB11512	J	236	5.46	1	7.14	-1.47
03-Nov-93	SBPS925	J	273	5.61	2	14.29	-1.07
19-Nov-93	SBPS1015	J	469	6.15	3	21.43	-0.79
18-Nov-93	SB10840	J	629	6.44	4	28.57	-0.57
06-Nov-93	SB11412	J	718	6.58	5	35.71	-0.37
20-Nov-93	SB10440	J	834	6.73	6	42.86	-0.18
19-Nov-93	SBPS1025	J	848	6.74	7	50.00	0.00
23-Oct-93	SB10175	J	927	6.83	8	57.14	0.18
03-Nov-93	SBPS915	J	998	6.91	9	64.29	0.37
20-Nov-93	SB10425	J	1062	6.97	10	71.43	0.57
18-Nov-93	SB11220	J	1440	7.27	11	78.57	0.79
23-Oct-93	SB10145	J	1490	7.31	12	85.71	1.07
23-Oct-93	SB10125	J	2460	7.81	13	92.86	1.47

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 952.62	Mean = 6.68
Standard Deviation = 592.12	Standard Deviation = 0.66
Coefficient of Variance = 0.62	Coefficient of Variance = 0.1
Skew = 1.35	Skew = -0.43
Kurtosis = 2.63	Kurtosis = 0.17
R2 = 0.87	R2 = 0.95

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective prob
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



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Determination of Distribution

Lead Concentrations for Characterization Subsurface Soil

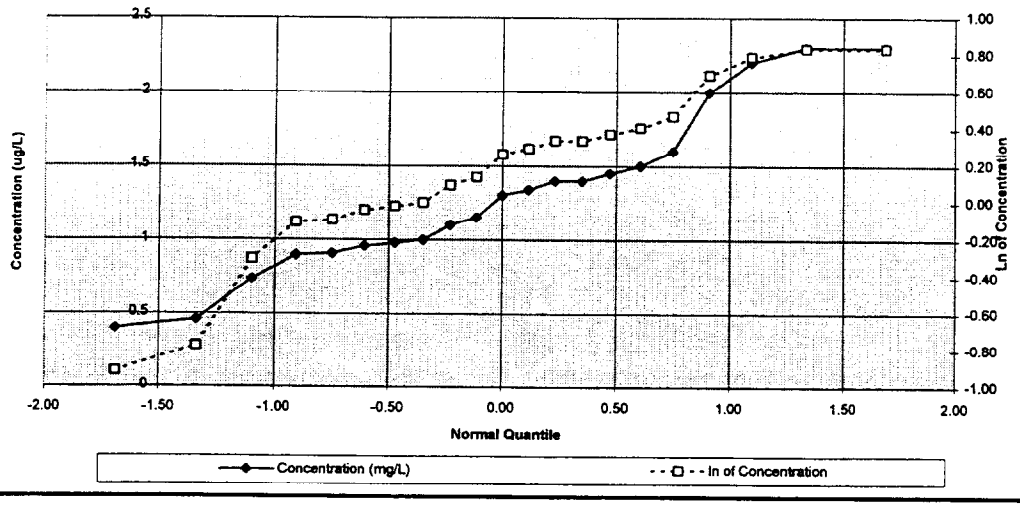
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
23-Oct-93	SB10175	J	0.4	-0.92	1	4.55	-1.69
10-Feb-92	11-SB-06	J	0.46	-0.78	2	9.09	-1.34
20-Nov-93	SB10440		0.74	-0.30	3	13.64	-1.10
19-Nov-93	SBPS1015		0.9	-0.11	4	18.18	-0.91
03-Nov-93	SBPS915	U	0.91	-0.09	5	22.73	-0.75
10-Feb-92	11-SB-07		0.96	-0.04	6	27.27	-0.60
18-Nov-93	SB10840		0.98	-0.02	7	31.82	-0.47
06-Nov-93	SB11412	U	1	0.00	8	36.36	-0.35
10-Feb-92	11-SB-05		1.1	0.10	9	40.91	-0.23
20-Nov-93	SB10425		1.15	0.14	10	45.45	-0.11
17-Nov-93	SB11512		1.3	0.26	11	50.00	0.00
10-Feb-92	11-SB-03		1.34	0.29	12	54.55	0.11
18-Nov-93	SB11220		1.4	0.34	13	59.09	0.23
19-Nov-93	SBPS1025		1.4	0.34	14	63.64	0.35
23-Oct-93	SB10125		1.45	0.37	15	68.18	0.47
03-Nov-93	SBPS925		1.5	0.41	16	72.73	0.60
09-Feb-92	11-SB-01	U	1.6	0.47	17	77.27	0.75
09-Feb-92	11-SB-09		2	0.69	18	81.82	0.91
09-Feb-92	11-SB-08		2.2	0.79	19	86.36	1.10
10-Feb-92	11-SB-02		2.3	0.83	20	90.91	1.34
23-Oct-93	SB10145		2.3	0.83	21	95.45	1.69

% Non-detects: 14%

Normal Distribution	Log-Normal Distribution
Mean = 1.3	Mean = 0.17
Standard Deviation = 0.55	Standard Deviation = 0.47
Coefficient of Variance = 0.42	Coefficient of Variance = 2.72
Skew = 0.44	Skew = -0.7
Kurtosis = -0.33	Kurtosis = 0.6
R2 = 0.95	R2 = 0.94

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



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Determination of Distribution

Manganese Concentrations for Characterization Subsurface Soil

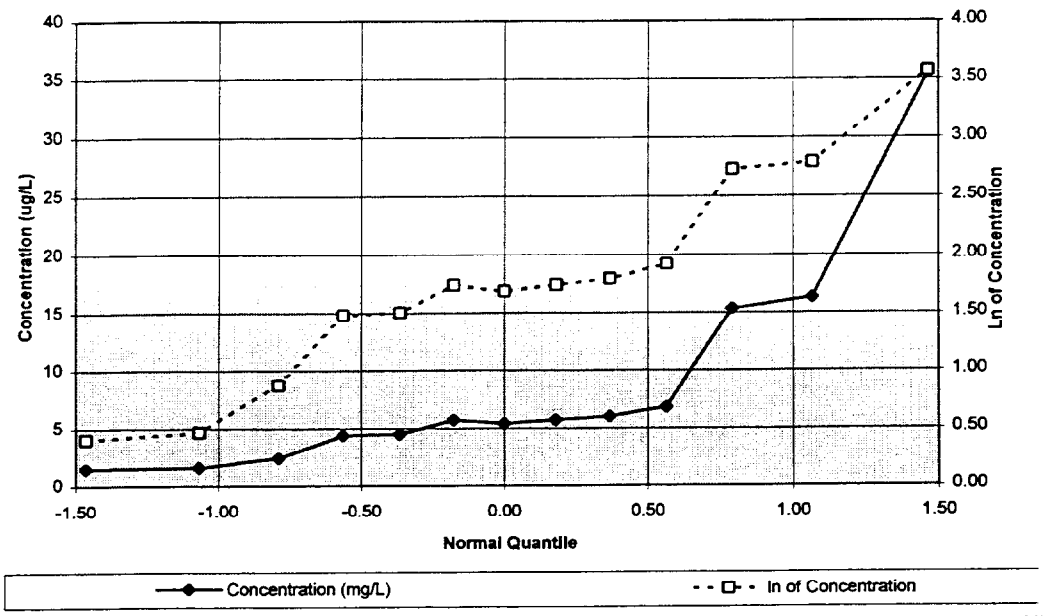
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
17-Nov-93	SB11512	J	1.5	0.41	1	7.14	-1.47
03-Nov-93	SBPS925	J	1.6	0.47	2	14.29	-1.07
19-Nov-93	SBPS101	J	2.4	0.88	3	21.43	-0.79
18-Nov-93	SB10840		4.4	1.48	4	28.57	-0.57
18-Nov-93	SB11220		4.5	1.50	5	35.71	-0.37
20-Nov-93	SB10425		5.7	1.74	6	42.86	-0.18
06-Nov-93	SB11412	J	5.4	1.69	7	50.00	0.00
20-Nov-93	SB10440		5.7	1.74	8	57.14	0.18
03-Nov-93	SBPS915	J	6	1.79	9	64.29	0.37
19-Nov-93	SBPS102		6.8	1.92	10	71.43	0.57
23-Oct-93	SB10125	J	15.35	2.73	11	78.57	0.79
23-Oct-93	SB10145	J	16.3	2.79	12	85.71	1.07
23-Oct-93	SB10175	J	35.5	3.57	13	92.86	1.47

% Non-detects: 0%

Normal Distribution	Log-Normal Distribution
Mean = 8.55	Mean = 1.75
Standard Deviation = 9.3	Standard Deviation = 0.9
Coefficient of Variance = 1.09	Coefficient of Variance = 0.52
Skew = 2.35	Skew = 0.4
Kurtosis = 6.03	Kurtosis = 0.19
R2 = 0.66	R2 = 0.93

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective prob
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



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Determination of Distribution

Mercury Concentrations for Characterization Subsurface Soil

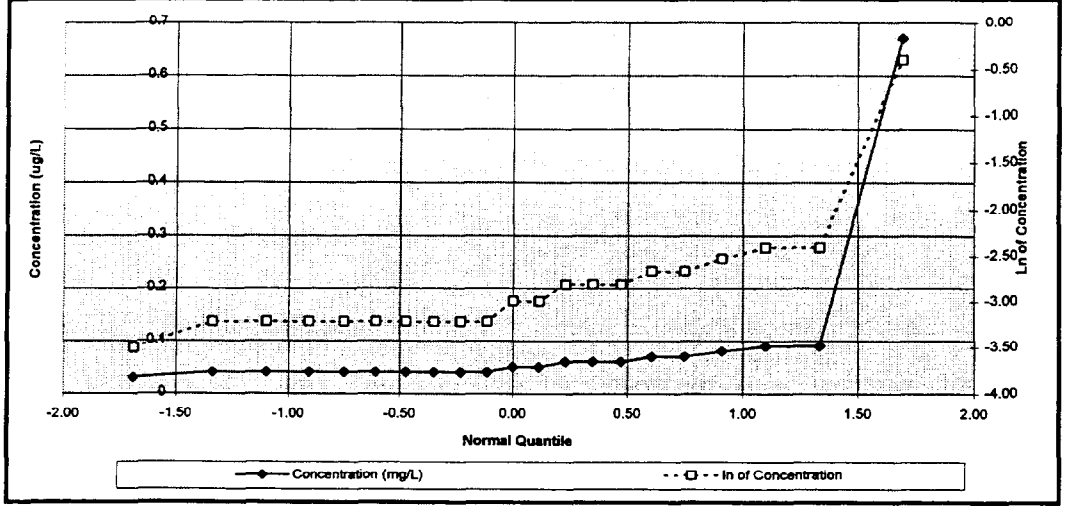
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
23-Oct-93	SB10175	U	0.03	-3.51	1	4.55	-1.69
23-Oct-93	SB10125	U	0.04	-3.22	2	9.09	-1.34
23-Oct-93	SB10145	U	0.04	-3.22	3	13.64	-1.10
20-Nov-93	SB10440	U	0.04	-3.22	4	18.18	-0.91
18-Nov-93	SB10840	U	0.04	-3.22	5	22.73	-0.75
18-Nov-93	SB11220	U	0.04	-3.22	6	27.27	-0.60
17-Nov-93	SB11512	U	0.04	-3.22	7	31.82	-0.47
19-Nov-93	SBPS1015	U	0.04	-3.22	8	36.36	-0.35
19-Nov-93	SBPS1025	U	0.04	-3.22	9	40.91	-0.23
03-Nov-93	SBPS915	U	0.04	-3.22	10	45.45	-0.11
06-Nov-93	SB11412		0.05	-3.00	11	50.00	0.00
09-Feb-92	11-SB-09	U	0.05	-3.00	12	54.55	0.11
09-Feb-92	11-SB-01	U	0.06	-2.81	13	59.09	0.23
09-Feb-92	11-SB-08	U	0.06	-2.81	14	63.64	0.35
03-Nov-93	SBPS925	U	0.06	-2.81	15	68.18	0.47
10-Feb-92	11-SB-02	U	0.07	-2.66	16	72.73	0.60
10-Feb-92	11-SB-05	U	0.07	-2.66	17	77.27	0.75
10-Feb-92	11-SB-06	U	0.08	-2.53	18	81.82	0.91
10-Feb-92	11-SB-03	U	0.09	-2.41	19	86.36	1.10
10-Feb-92	11-SB-07	U	0.09	-2.41	20	90.91	1.34
20-Nov-93	SB10425		0.67	-0.40	21	95.45	1.69

% Non-detects: 90%

Normal Distribution	Log-Normal Distribution
Mean = 0.08	Mean = -2.86
Standard Deviation = 0.14	Standard Deviation = 0.64
Coefficient of Variance = 1.64	Coefficient of Variance = -0.23
Skew = 4.46	Skew = 2.98
Kurtosis = 20.18	Kurtosis = 11.01
R2 = 0.29	R2 = 0.62

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Nickel Concentrations for Characterization Subsurface Soil

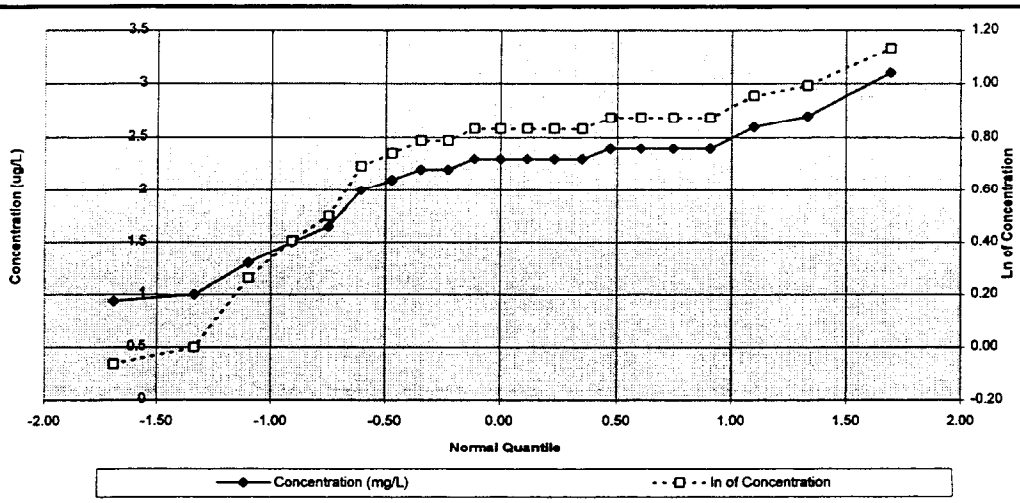
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
10-Feb-92	11-SB-05	U	0.94	-0.06	1	4.55	-1.69
09-Feb-92	11-SB-01	J	1	0.00	2	9.09	-1.34
09-Feb-92	11-SB-09	J	1.3	0.26	3	13.64	-1.10
10-Feb-92	11-SB-07	U	1.5	0.41	4	18.18	-0.91
10-Feb-92	11-SB-03	U	1.65	0.50	5	22.73	-0.75
10-Feb-92	11-SB-02	U	2	0.69	6	27.27	-0.60
23-Oct-93	SB10175	U	2.1	0.74	7	31.82	-0.47
20-Nov-93	SB10440	U	2.2	0.79	8	36.36	-0.35
19-Nov-93	SBPS1015	U	2.2	0.79	9	40.91	-0.23
18-Nov-93	SB10840	U	2.3	0.83	10	45.45	-0.11
06-Nov-93	SB11412	U	2.3	0.83	11	50.00	0.00
17-Nov-93	SB11512	U	2.3	0.83	12	54.55	0.11
03-Nov-93	SBPS915	U	2.3	0.83	13	59.09	0.23
03-Nov-93	SBPS925	U	2.3	0.83	14	63.64	0.35
10-Feb-92	11-SB-06	U	2.4	0.88	15	68.18	0.47
18-Nov-93	SB11220	U	2.4	0.88	16	72.73	0.60
19-Nov-93	SBPS1025	U	2.4	0.88	17	77.27	0.75
20-Nov-93	SB10425	U	2.4	0.88	18	81.82	0.91
23-Oct-93	SB10145	J	2.6	0.96	19	86.36	1.10
09-Feb-92	11-SB-08	J	2.7	0.99	20	90.91	1.34
23-Oct-93	SB10125	J	3.1	1.13	21	95.45	1.69

% Non-detects: 76%

Normal Distribution	Log-Normal Distribution
Mean = 2.11	Mean = 0.71
Standard Deviation = 0.55	Standard Deviation = 0.31
Coefficient of Variance = 0.26	Coefficient of Variance = 0.44
Skew = -0.84	Skew = -1.43
Kurtosis = 0.47	Kurtosis = 1.44
R2 = 0.88	R2 = 0.8

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Selenium Concentrations for Characterization Subsurface Soil

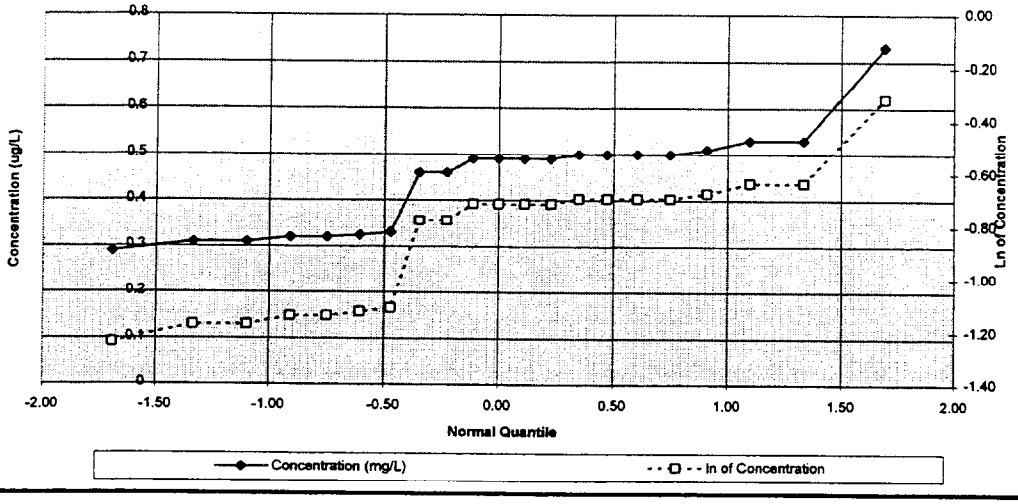
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-08	U	0.29	-1.24	1	4.55	-1.69
10-Feb-92	11-SB-02	U	0.31	-1.17	2	9.09	-1.34
10-Feb-92	11-SB-07	U	0.31	-1.17	3	13.64	-1.10
09-Feb-92	11-SB-01	U	0.32	-1.14	4	18.18	-0.91
10-Feb-92	11-SB-06	U	0.32	-1.14	5	22.73	-0.75
10-Feb-92	11-SB-03	U	0.325	-1.12	6	27.27	-0.60
09-Feb-92	11-SB-09	U	0.33	-1.11	7	31.82	-0.47
10-Feb-92	11-SB-05	J	0.46	-0.78	8	36.36	-0.35
23-Oct-93	SB10175	UJ	0.46	-0.78	9	40.91	-0.23
23-Oct-93	SB10125	U	0.49	-0.71	10	45.45	-0.11
20-Nov-93	SB10440	U	0.49	-0.71	11	50.00	0.00
17-Nov-93	SB11512	U	0.49	-0.71	12	54.55	0.11
19-Nov-93	SBPS1025	U	0.49	-0.71	13	59.09	0.23
19-Nov-93	SBPS1015	J	0.5	-0.69	14	63.64	0.35
18-Nov-93	SB10840	U	0.5	-0.69	15	68.18	0.47
18-Nov-93	SB11220	U	0.5	-0.69	16	72.73	0.60
03-Nov-93	SBPS925	U	0.5	-0.69	17	77.27	0.75
03-Nov-93	SBPS915	U	0.51	-0.67	18	81.82	0.91
23-Oct-93	SB10145	U	0.53	-0.63	19	86.36	1.10
20-Nov-93	SB10425	UJ	0.53	-0.63	20	90.91	1.34
06-Nov-93	SB11412	J	0.73	-0.31	21	95.45	1.69

% Non-detects: 86%

Normal Distribution	Log-Normal Distribution
Mean = 0.45	Mean = -0.83
Standard Deviation = 0.11	Standard Deviation = 0.25
Coefficient of Variance = 0.25	Coefficient of Variance = -0.3
Skew = 0.36	Skew = -0.22
Kurtosis = 0.63	Kurtosis = -0.74
R2 = 0.84	R2 = 0.85

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Silver Concentrations for Characterization Subsurface Soil

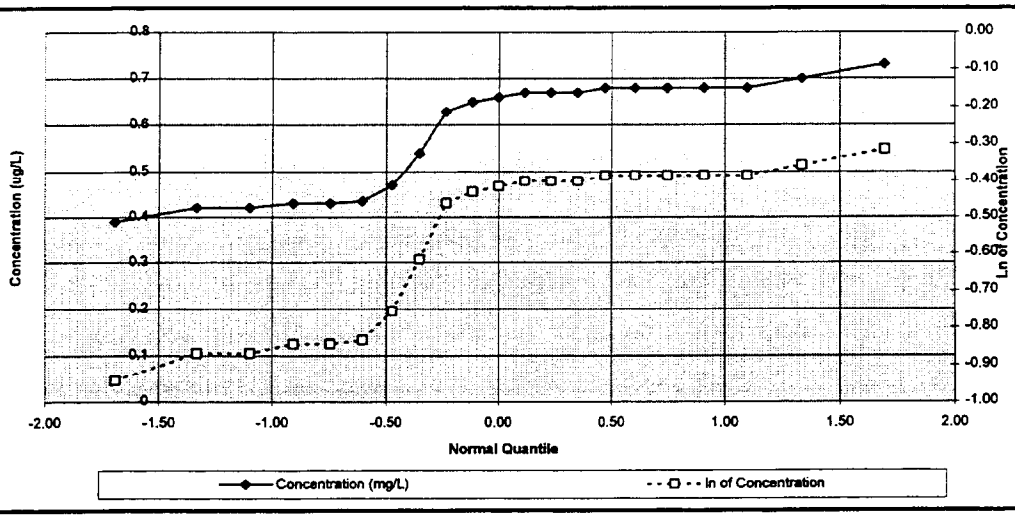
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-08	U	0.39	-0.94	1	4.55	-1.69
10-Feb-92	11-SB-02	U	0.42	-0.87	2	9.09	-1.34
10-Feb-92	11-SB-06	U	0.42	-0.87	3	13.64	-1.10
09-Feb-92	11-SB-01	U	0.43	-0.84	4	18.18	-0.91
10-Feb-92	11-SB-05	U	0.43	-0.84	5	22.73	-0.75
10-Feb-92	11-SB-03	U	0.435	-0.83	6	27.27	-0.60
10-Feb-92	11-SB-07	J	0.47	-0.76	7	31.82	-0.47
09-Feb-92	11-SB-09	U	0.54	-0.62	8	36.36	-0.35
23-Oct-93	SB10175	U	0.63	-0.46	9	40.91	-0.23
20-Nov-93	SB10425	U	0.65	-0.43	10	45.45	-0.11
20-Nov-93	SB10440	U	0.66	-0.42	11	50.00	0.00
23-Oct-93	SB10125	U	0.67	-0.40	12	54.55	0.11
19-Nov-93	SBPS1015	U	0.67	-0.40	13	59.09	0.23
19-Nov-93	SBPS1025	U	0.67	-0.40	14	63.64	0.35
18-Nov-93	SB10840	U	0.68	-0.39	15	68.18	0.47
18-Nov-93	SB11220	U	0.68	-0.39	16	72.73	0.60
06-Nov-93	SB11412	U	0.68	-0.39	17	77.27	0.75
17-Nov-93	SB11512	U	0.68	-0.39	18	81.82	0.91
03-Nov-93	SBPS925	U	0.68	-0.39	19	86.36	1.10
03-Nov-93	SBPS915	U	0.7	-0.36	20	90.91	1.34
23-Oct-93	SB10145	U	0.73	-0.31	21	95.45	1.69

% Non-detects: 95%

Normal Distribution	Log-Normal Distribution
Mean = 0.59	Mean = -0.56
Standard Deviation = 0.12	Standard Deviation = 0.22
Coefficient of Variance = 0.21	Coefficient of Variance = -0.4
Skew = -0.59	Skew = -0.66
Kurtosis = -1.56	Kurtosis = -1.47
R2 = 0.82	R2 = 0.8

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Sulfide Concentrations for Characterization Subsurface Soil

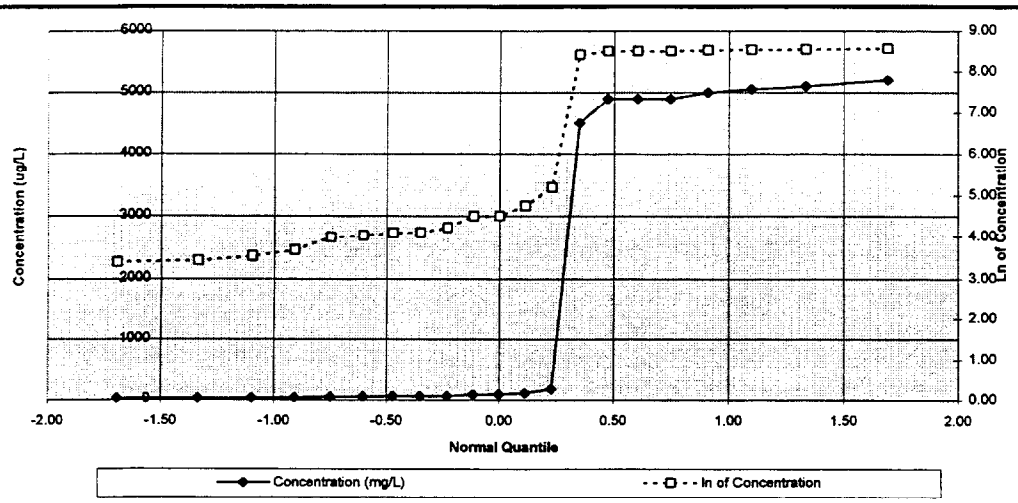
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
18-Nov-93	SB11220		30	3.40	1	4.55	-1.69
19-Nov-93	SBPS1015		31.1	3.44	2	9.09	-1.34
23-Oct-93	SB10145		34.4	3.54	3	13.64	-1.10
23-Oct-93	SB10175		39.9	3.69	4	18.18	-0.91
18-Nov-93	SB10840		54	3.99	5	22.73	-0.75
23-Oct-93	SB10125		56	4.03	6	27.27	-0.60
20-Nov-93	SB10425		59.5	4.09	7	31.82	-0.47
17-Nov-93	SB11512		59.8	4.09	8	36.36	-0.35
20-Nov-93	SB10440		68	4.22	9	40.91	-0.23
03-Nov-93	SBPS925		90	4.50	10	45.45	-0.11
19-Nov-93	SBPS1025		90.3	4.50	11	50.00	0.00
06-Nov-93	SB11412		115	4.74	12	54.55	0.11
03-Nov-93	SBPS915		180	5.19	13	59.09	0.23
09-Feb-92	11-SB-08	U	4500	8.41	14	63.64	0.35
10-Feb-92	11-SB-02	U	4900	8.50	15	68.18	0.47
10-Feb-92	11-SB-05	U	4900	8.50	16	72.73	0.60
10-Feb-92	11-SB-07	U	4900	8.50	17	77.27	0.75
10-Feb-92	11-SB-06	U	5000	8.52	18	81.82	0.91
10-Feb-92	11-SB-03	U	5050	8.53	19	86.36	1.10
09-Feb-92	11-SB-01	U	5100	8.54	20	90.91	1.34
09-Feb-92	11-SB-09	U	5200	8.56	21	95.45	1.69

% Non-detects: 38%

Normal Distribution	Log-Normal Distribution
Mean = 1926.57	Mean = 5.78
Standard Deviation = 2428.7	Standard Deviation = 2.23
Coefficient of Variance = 1.26	Coefficient of Variance = 0.38
Skew = 0.54	Skew = 0.42
Kurtosis = -1.89	Kurtosis = -1.87
R2 = 0.68	R2 = 0.79

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Thallium Concentrations for Characterization Subsurface Soil

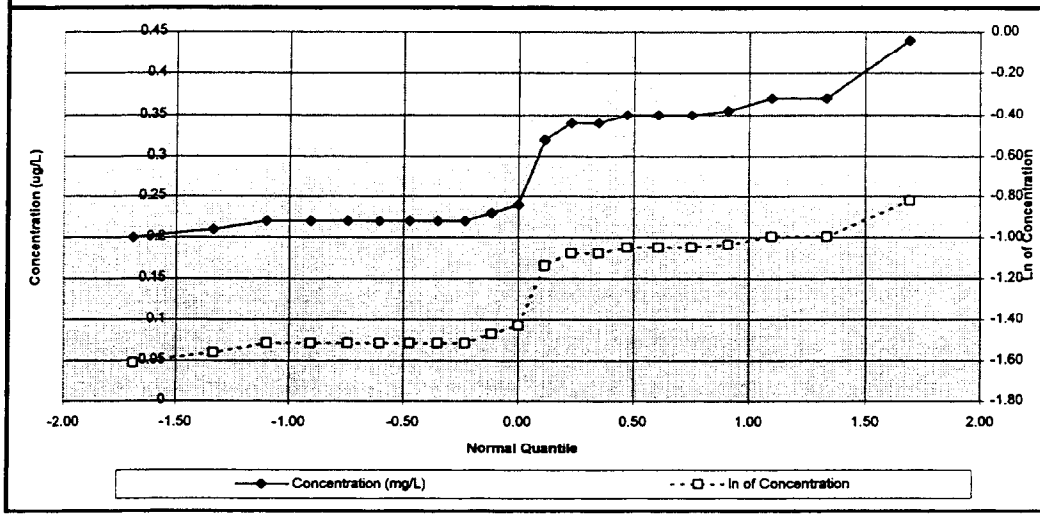
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
23-Oct-93	SB10175	U	0.2	-1.61	1	4.55	-1.69
20-Nov-93	SB10440	U	0.21	-1.56	2	9.09	-1.34
23-Oct-93	SB10125	U	0.22	-1.51	3	13.64	-1.10
18-Nov-93	SB10840	U	0.22	-1.51	4	18.18	-0.91
06-Nov-93	SB11412	U	0.22	-1.51	5	22.73	-0.75
17-Nov-93	SB11512	U	0.22	-1.51	6	27.27	-0.60
19-Nov-93	SBPS1015	U	0.22	-1.51	7	31.82	-0.47
19-Nov-93	SBPS1025	U	0.22	-1.51	8	36.36	-0.35
03-Nov-93	SBPS925	U	0.22	-1.51	9	40.91	-0.23
03-Nov-93	SBPS915	U	0.23	-1.47	10	45.45	-0.11
23-Oct-93	SB10145	U	0.24	-1.43	11	50.00	0.00
09-Feb-92	11-SB-08	U	0.32	-1.14	12	54.55	0.11
10-Feb-92	11-SB-02	U	0.34	-1.08	13	59.09	0.23
10-Feb-92	11-SB-07	U	0.34	-1.08	14	63.64	0.35
09-Feb-92	11-SB-01	U	0.35	-1.05	15	68.18	0.47
10-Feb-92	11-SB-05	U	0.35	-1.05	16	72.73	0.60
10-Feb-92	11-SB-06	U	0.35	-1.05	17	77.27	0.75
10-Feb-92	11-SB-03	U	0.355	-1.04	18	81.82	0.91
09-Feb-92	11-SB-09	U	0.37	-0.99	19	86.36	1.10
20-Nov-93	SB10425	J	0.37	-0.99	20	90.91	1.34
18-Nov-93	SB11220	J	0.44	-0.82	21	95.45	1.69

% Non-detects: 90%

Normal Distribution	Log-Normal Distribution
Mean = 0.29	Mean = -1.28
Standard Deviation = 0.07	Standard Deviation = 0.26
Coefficient of Variance = 0.26	Coefficient of Variance = -0.2
Skew = 0.4	Skew = 0.23
Kurtosis = -1.33	Kurtosis = -1.73
R2 = 0.84	R2 = 0.85

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Tin Concentrations for Characterization Subsurface Soil

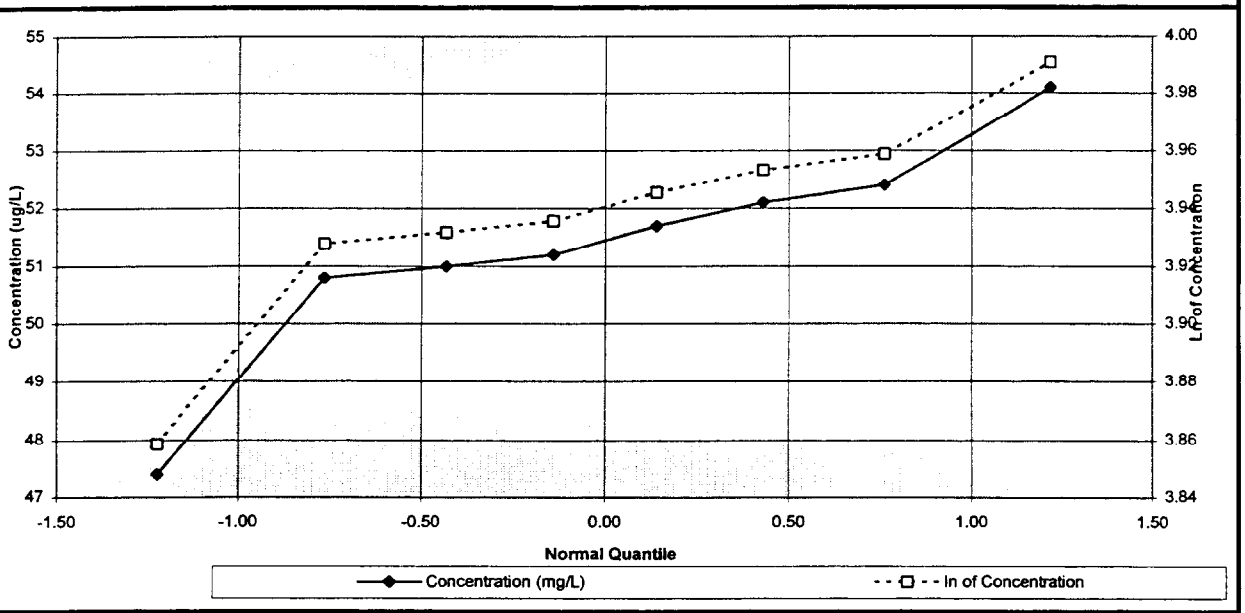
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-08	U	47.4	3.86	1	11.11	-1.22
10-Feb-92	11-SB-07	U	50.8	3.93	2	22.22	-0.76
10-Feb-92	11-SB-02	U	51	3.93	3	33.33	-0.43
10-Feb-92	11-SB-06	U	51.2	3.94	4	44.44	-0.14
10-Feb-92	11-SB-05	U	51.7	3.95	5	55.56	0.14
09-Feb-92	11-SB-01	U	52.1	3.95	6	66.67	0.43
10-Feb-92	11-SB-03	U	52.4	3.96	7	77.78	0.76
09-Feb-92	11-SB-09	U	54.1	3.99	8	88.89	1.22

% Non-detects: 100%

Normal Distribution	Log-Normal Distribution
Mean = 51.34	Mean = 3.94
Standard Deviation = 1.9	Standard Deviation = 0.04
Coefficient of Variance = 0.04	Coefficient of Variance = 0.01
Skew = -1.06	Skew = -1.19
Kurtosis = 2.92	Kurtosis = 3.14
R2 = 0.85	R2 = 0.84

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Vanadium Concentrations for Characterization Subsurface Soil

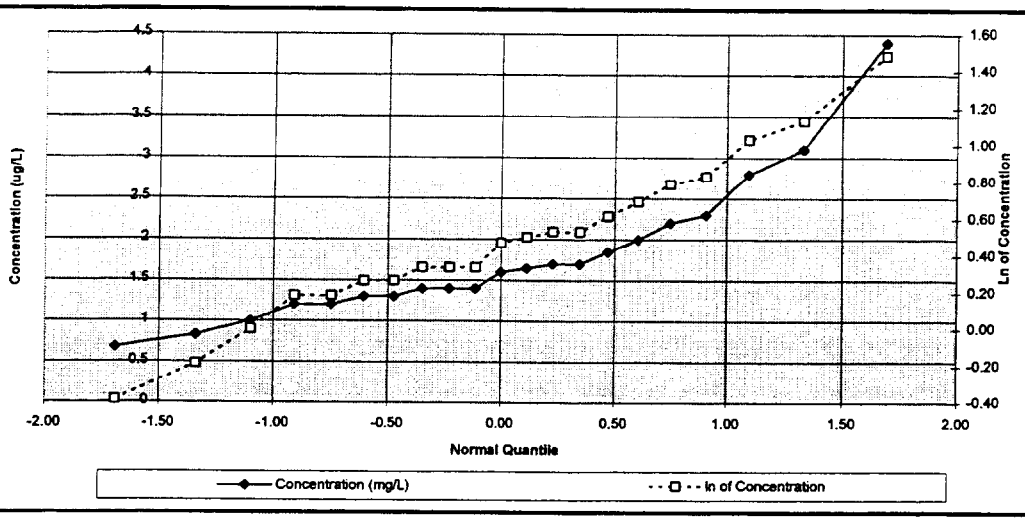
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
09-Feb-92	11-SB-01	U	0.68	-0.39	1	4.55	-1.69
18-Nov-93	SB10840	J	0.83	-0.19	2	9.09	-1.34
10-Feb-92	11-SB-05	J	1	0.00	3	13.64	-1.10
20-Nov-93	SB10440	J	1.2	0.18	4	18.18	-0.91
09-Feb-92	11-SB-09	U	1.2	0.18	5	22.73	-0.75
10-Feb-92	11-SB-07	J	1.3	0.26	6	27.27	-0.60
19-Nov-93	SBPS1015	J	1.3	0.26	7	31.82	-0.47
10-Feb-92	11-SB-02	J	1.4	0.34	8	36.36	-0.35
10-Feb-92	11-SB-06	J	1.4	0.34	9	40.91	-0.23
03-Nov-93	SBPS925	J	1.4	0.34	10	45.45	-0.11
09-Feb-92	11-SB-08	U	1.6	0.47	11	50.00	0.00
10-Feb-92	11-SB-03	J	1.65	0.50	12	54.55	0.11
18-Nov-93	SB11220	J	1.7	0.53	13	59.09	0.23
17-Nov-93	SB11512	J	1.7	0.53	14	63.64	0.35
20-Nov-93	SB10425	J	1.85	0.62	15	68.18	0.47
06-Nov-93	SB11412	J	2	0.69	16	72.73	0.60
03-Nov-93	SBPS915	J	2.2	0.79	17	77.27	0.75
19-Nov-93	SBPS1025	J	2.3	0.83	18	81.82	0.91
23-Oct-93	SB10145	J	2.8	1.03	19	86.36	1.10
23-Oct-93	SB10175	J	3.1	1.13	20	90.91	1.34
23-Oct-93	SB10125	J	4.4	1.48	21	95.45	1.69

% Non-detects: 14%

Normal Distribution	Log-Normal Distribution
Mean = 1.76	Mean = 0.47
Standard Deviation = 0.85	Standard Deviation = 0.43
Coefficient of Variance = 0.48	Coefficient of Variance = 0.92
Skew = 1.69	Skew = 0.32
Kurtosis = 3.66	Kurtosis = 0.57
R2 = 0.84	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



KINGS BAY - SITE 11

Determination of Distribution

Zinc Concentrations for Characterization Subsurface Soil

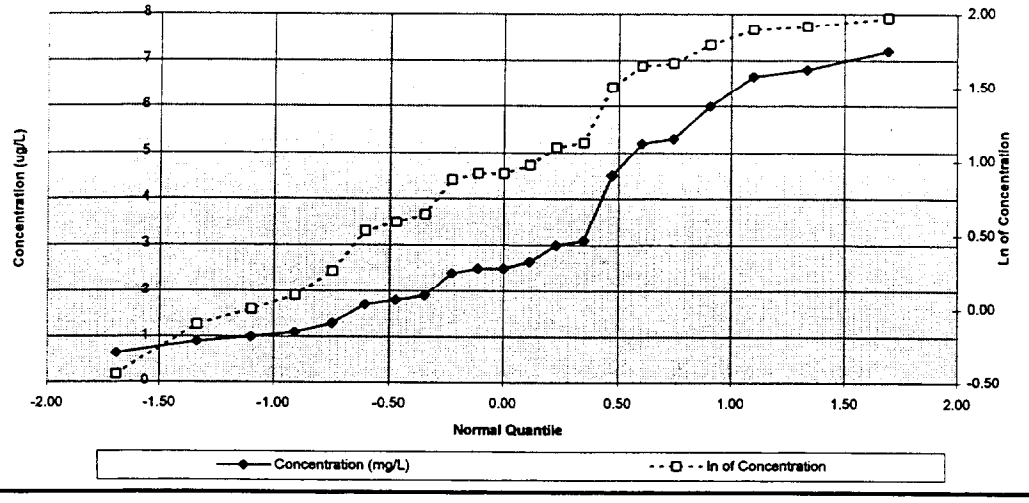
Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Order	Probability	Normal Quantile
17-Nov-93	SB11512	J	0.64	-0.45	1	4.55	-1.69
10-Feb-92	11-SB-05	U	0.9	-0.11	2	9.09	-1.34
03-Nov-93	SBPS925	J	1	0.00	3	13.64	-1.10
03-Nov-93	SBPS915	J	1.1	0.10	4	18.18	-0.91
19-Nov-93	SBPS1015	U	1.3	0.26	5	22.73	-0.75
06-Nov-93	SB11412	J	1.7	0.53	6	27.27	-0.60
09-Feb-92	11-SB-01	U	1.8	0.59	7	31.82	-0.47
10-Feb-92	11-SB-02	U	1.9	0.64	8	36.36	-0.35
10-Feb-92	11-SB-06	U	2.4	0.88	9	40.91	-0.23
18-Nov-93	SB10840	J	2.5	0.92	10	45.45	-0.11
10-Feb-92	11-SB-07	U	2.5	0.92	11	50.00	0.00
10-Feb-92	11-SB-03	U	2.65	0.97	12	54.55	0.11
23-Oct-93	SB10175	J	3	1.10	13	59.09	0.23
20-Nov-93	SB10440	J	3.1	1.13	14	63.64	0.35
20-Nov-93	SB10425	J	4.5	1.50	15	68.18	0.47
23-Oct-93	SB10145	J	5.2	1.65	16	72.73	0.60
09-Feb-92	11-SB-09		5.3	1.67	17	77.27	0.75
19-Nov-93	SBPS1025	U	6	1.79	18	81.82	0.91
23-Oct-93	SB10125		6.65	1.89	19	86.36	1.10
09-Feb-92	11-SB-08		6.8	1.92	20	90.91	1.34
18-Nov-93	SB11220		7.2	1.97	21	95.45	1.69

% Non-detects: 38%

Normal Distribution	Log-Normal Distribution
Mean = 3.24	Mean = 0.95
Standard Deviation = 2.14	Standard Deviation = 0.73
Coefficient of Variance = 0.66	Coefficient of Variance = 0.77
Skew = 0.65	Skew = -0.21
Kurtosis = -0.97	Kurtosis = -0.94
R2 = 0.91	R2 = 0.97

Notes:

U = Non-detected value.
J = Estimated detected value.
UJ = Estimated quantitation limit.
Probability = Order/(total number of data points + 1).
Normal Quantile = Inverse of the standard normal cumulative distribution for the respective probability.
Coefficient of Variance = Standard Deviation/Mean.
Kurtosis = Characterizes the relative peakedness or flatness of a distribution.
R2 = Pearson product moment correlation coefficient.
Skew = Degree of asymmetry of a distribution around its mean.



APPENDIX F

OUTLIER TESTS

Background Groundwater

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Manganese Ground Water Concentrations for Background Wells

	Ln of Concentration	Significance Level	Critical Value [1]
Total Data Points	19.00	99.9%	3.266
Average Ln Conc.	2.76	99.5%	3.031
Maximum Ln Conc.	3.83	99.0%	2.912
Minimum Ln Conc.	1.69	97.5%	2.733
Standard Deviation	0.74	95.0%	2.580
Coeff. of Variance	0.27		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
Jan	11A	46.05	3.83	1.447
Sep	04	42.6	3.75	1.342
Apr	04	39.7	3.68	1.247
Sep	20	32	3.47	0.957
Jan	20	31.2	3.44	0.923
Apr	20	29.2	3.37	0.833
Apr	12	26.55	3.28	0.705
Jan	04	25.5	3.24	0.651
Jan	12	20.2	3.01	0.337
Apr	11A	14.9 J	2.70	-0.073
Sep	11B	13.2 J	2.58	-0.236
Sep	01	9.8 J	2.28	-0.637
Sep	07	9.6 J	2.26	-0.665
Apr	07	8.9 J	2.19	-0.767
Apr	01	8.2 J	2.10	-0.877
Sep	11A	6.9 J	1.93	-1.109
Sep	12	6 J	1.79	-1.297
Jan	01	5.8 J	1.76	-1.343
Jan	07	5.4 J	1.69	-1.439

Conclusion: No statistical outliers

Notes:

Duplicate samples have been averaged.

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11
Determination of Outliers
Log Transformed Iron Ground Water Concentrations for Background Wells

	Ln of Concentration	Significance Level	Critical Value [1]
Total Data Points	19.00	99.9%	3.266
Average Ln Conc.	6.98	99.5%	3.031
Maximum Ln Conc.	8.68	99.0%	2.912
Minimum Ln Conc.	4.40	97.5%	2.733
Standard Deviation	1.20	95.0%	2.580
Coeff. of Variance	0.17		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
Apr	12	5885	8.68	1.420
Jan	11A	5340	8.58	1.338
Jan	12	3805	8.24	1.055
Sep	04	3400 J	8.13	0.961
Apr	20	3120	8.05	0.889
Jan	20	2880	7.97	0.822
Sep	01	2630	7.87	0.746
Apr	11A	1880	7.54	0.466
Sep	07	1300	7.17	0.157
Apr	01	968	6.88	-0.089
Sep	11B	749	6.62	-0.304
Sep	12	679.5	6.52	-0.385
Sep	11A	678	6.52	-0.387
Sep	20	574	6.35	-0.526
Apr	07	542	6.30	-0.574
Apr	04	388	5.96	-0.854
Jan	07	331	5.80	-0.986
Jan	04	161 J	5.08	-1.589
Jan	01	81.4 J	4.40	-2.159

Conclusion: No statistical outliers

Notes:

Duplicate samples have been averaged.
Data is assumed to be approximately log-normally distributed.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
σ = Sample event standard deviation.
$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.
*Duplicate samples have been averaged.
Significance level critical values as reported in [1].
N/A = Analyte was not tested for at this location.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Aluminum Ground Water Concentrations for Background Wells

	Ln of Concentration	Significance Level	Critical Value [1]
Total Data Points	19.00	99.9%	3.266
Average Ln Conc.	8.08	99.5%	3.031
Maximum Ln Conc.	10.62	99.0%	2.912
Minimum Ln Conc.	5.04	97.5%	2.733
Standard Deviation	1.76	95.0%	2.580
Coeff. of Variance	0.22		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
Sep	01	41100	10.62	1.441
Sep	04	29500	10.29	1.253
Sep	07	29100	10.28	1.245
Jan	07	28700 J	10.26	1.237
Apr	01	16700 J	9.72	0.930
Apr	07	12100	9.40	0.748
Apr	12	7445	8.92	0.472
Jan	04	5670 J	8.64	0.318
Apr	20	4290	8.36	0.160
Jan	12	4045 J	8.31	0.126
Apr	04	2960	7.99	-0.051
Apr	11A	2120 J	7.66	-0.240
Jan	01	1590 J	7.37	-0.403
Sep	11B	701	6.55	-0.867
Jan	11A	572.5 J	6.35	-0.982
Sep	11A	565	6.34	-0.990
Sep	12	355.5 U	5.87	-1.252
Jan	20	265 J	5.58	-1.419
Sep	20	154 U	5.04	-1.727

Conclusion: No statistical outliers

Notes:

Duplicate samples have been averaged.

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11
Determination of Outliers
Log Transformed Antimony Ground Water Concentrations for Background Wells

	Ln of Concentration	Significance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	1.15	99.5%	3.031
Maximum Ln Conc.	2.56	99.0%	2.912
Minimum Ln Conc.	0.59	97.5%	2.733
Standard Deviation	0.60	95.0%	2.580
Coeff. of Variance	0.53		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
SEP	04	13 U	2.56	2.350
JAN	07	10.5	2.35	1.996
JAN	11B	10.1 U	2.31	1.932
APR	11B	6 U	1.79	1.069
JAN	11A*	3.85 UJ	1.35	0.335
APR	01	3 U	1.10	-0.078
APR	04	3 U	1.10	-0.078
APR	07	3 U	1.10	-0.078
APR	11A*	3 U	1.10	-0.078
APR	12*	3 U	1.10	-0.078
APR	20	3 U	1.10	-0.078
JAN	12*	2.55 U	0.94	-0.347
JAN	01	2.3 J	0.83	-0.518
SEP	01	2 U	0.69	-0.750
SEP	07	2 U	0.69	-0.750
SEP	11A*	2 U	0.69	-0.750
SEP	11B	2 U	0.69	-0.750
SEP	12*	2 U	0.69	-0.750
SEP	20	2 U	0.69	-0.750
JAN	04	1.8 U	0.59	-0.924
JAN	20	1.8 UJ	0.59	-0.924

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
σ = Sample event standard deviation.
$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.
*Duplicate samples have been averaged.
Significance level critical values as reported in [1].
N/A = Analyte was not tested for at this location.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Arsenic Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	0.79	99.5%	3.031
Maximum Ln Conc.	2.71	99.0%	2.912
Minimum Ln Conc.	0.00	97.5%	2.733
Standard Deviation	0.71	95.0%	2.580
Coeff. of Variance	0.91		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
APR	12*	15.05	2.71	2.702
APR	11B	8	2.08	1.815
SEP	01	3 U	1.10	0.439
SEP	07	3 U	1.10	0.439
SEP	11A*	3 U	1.10	0.439
SEP	11B	3 U	1.10	0.439
SEP	12*	3 U	1.10	0.439
SEP	20	3 U	1.10	0.439
SEP	04	3 UJ	1.10	0.439
APR	20	2.9 J	1.06	0.392
JAN	20	2.8 J	1.03	0.343
JAN	12*	2 J	0.69	-0.130
JAN	11A*	1.4 J	0.34	-0.630
JAN	01	1.3 U	0.26	-0.734
JAN	07	1.3 U	0.26	-0.734
JAN	04	1.2 J	0.18	-0.846
APR	04	1.2 J	0.18	-0.846
APR	01	1 U	0.00	-1.102
APR	07	1 U	0.00	-1.102
APR	11A	1 U	0.00	-1.102
JAN	11B	1 UJ	0.00	-1.102

Conclusion: Well KBA-11-12* from the April sampling event is a statistical outlier.

Note: This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Barium Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	3.33	99.5%	3.031
Maximum Ln Conc.	4.39	99.0%	2.912
Minimum Ln Conc.	1.63	97.5%	2.733
Standard Deviation	0.71	95.0%	2.580
Coeff. of Variance	0.21		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
APR	11B	81	4.39	1.498
APR	12*	68.45 J	4.23	1.260
APR	20	63.7 J	4.15	1.159
SEP	01	59.6 J	4.09	1.065
JAN	11B	45 J	3.81	0.668
SEP	07	39.8 J	3.68	0.495
JAN	20	39 J	3.66	0.466
JAN	11A*	35.15 J	3.56	0.319
SEP	20	33 J	3.50	0.230
JAN	12*	32.55 J	3.48	0.211
APR	11A	32 J	3.47	0.187
APR	01	31.9 J	3.46	0.182
APR	07	31 J	3.43	0.142
SEP	04	27 J	3.30	-0.053
SEP	11B	23.4 J	3.15	-0.255
SEP	11A*	18.6 J	2.92	-0.579
JAN	01	16 J	2.77	-0.792
JAN	07	15.7 J	2.75	-0.819
SEP	12*	14.25 J	2.66	-0.956
APR	04	6.7 J	1.90	-2.021
JAN	04	5.1 J	1.63	-2.407

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Beryllium Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	-0.22	99.5%	3.031
Maximum Ln Conc.	1.61	99.0%	2.912
Minimum Ln Conc.	-2.12	97.5%	2.733
Standard Deviation	1.06	95.0%	2.580
Coeff. of Variance	-4.75		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
APR	11B	5 U	1.61	1.725
APR	01	2 U	0.69	0.863
APR	04	2 U	0.69	0.863
APR	07	2 U	0.69	0.863
APR	11A	2 U	0.69	0.863
APR	12*	2 U	0.69	0.863
APR	20	2 U	0.69	0.863
SEP	01	1.2 J	0.18	0.382
SEP	20	1 J	0.00	0.210
SEP	04	1 U	0.00	0.210
SEP	07	1 U	0.00	0.210
SEP	11A*	1 U	0.00	0.210
SEP	11B	1 U	0.00	0.210
SEP	12*	1 U	0.00	0.210
JAN	11B	0.51 J	-0.67	-0.423
JAN	07	0.43 J	-0.84	-0.584
JAN	20	0.22 J	-1.51	-1.215
JAN	12*	0.21 J	-1.56	-1.258
JAN	11A*	0.14 J	-1.97	-1.640
JAN	01	0.14 U	-1.97	-1.640
JAN	04	0.12 UJ	-2.12	-1.785

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Cadmium Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	1.27	99.5%	3.031
Maximum Ln Conc.	2.64	99.0%	2.912
Minimum Ln Conc.	1.10	97.5%	2.733
Standard Deviation	0.40	95.0%	2.580
Coeff. of Variance	0.32		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
SEP	20	14	2.64	3.395
SEP	12*	8.95	2.19	2.287
APR	11B	5 U	1.61	0.845
JAN	04	3.5 J	1.25	-0.038
JAN	11A*	3.2 U	1.16	-0.260
JAN	11B	3.2 U	1.16	-0.260
JAN	01	3.1 U	1.13	-0.338
JAN	07	3.1 U	1.13	-0.338
JAN	12*	3.1 U	1.13	-0.338
JAN	20	3.1 U	1.13	-0.338
APR	01	3 U	1.10	-0.420
SEP	01	3 U	1.10	-0.420
SEP	04	3 U	1.10	-0.420
SEP	07	3 U	1.10	-0.420
APR	11A	3 U	1.10	-0.420
SEP	11A*	3 U	1.10	-0.420
SEP	11B	3 U	1.10	-0.420
APR	04	3 UJ	1.10	-0.420
APR	07	3 UJ	1.10	-0.420
APR	12*	3 UJ	1.10	-0.420
APR	20	3 UJ	1.10	-0.420

Conclusion: Well KBA-11-20 from the September sampling event is a statistical outlier

Note: This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Chromium Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	2.55	99.5%	3.031
Maximum Ln Conc.	3.82	99.0%	2.912
Minimum Ln Conc.	0.83	97.5%	2.733
Standard Deviation	0.88	95.0%	2.580
Coeff. of Variance	0.34		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
SEP	01	45.5	3.82	1.447
SEP	07	41	3.71	1.328
APR	11B	41	3.71	1.328
APR	20	40.6	3.70	1.317
SEP	04	29.7	3.39	0.960
APR	01	24.6	3.20	0.746
APR	11A	18.1	2.90	0.396
JAN	07	17.2	2.84	0.338
SEP	20	16	2.77	0.255
SEP	12*	15.75	2.76	0.237
APR	12*	14.1	2.65	0.111
SEP	11B	12	2.48	-0.073
APR	07	10.4	2.34	-0.236
JAN	11B	9.7 J	2.27	-0.315
SEP	11A*	8 U	2.08	-0.535
JAN	12*	7 J	1.95	-0.687
JAN	11A*	6.05 J	1.80	-0.853
JAN	04	5.7 J	1.74	-0.921
APR	04	5 U	1.61	-1.071
JAN	20	2.6 U	0.96	-1.816
JAN	01	2.3 U	0.83	-1.956

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Cobalt Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	1.91	99.5%	3.031
Maximum Ln Conc.	3.91	99.0%	2.912
Minimum Ln Conc.	0.47	97.5%	2.733
Standard Deviation	0.99	95.0%	2.580
Coeff. of Variance	0.52		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
APR	11B	50 U	3.91	2.026
SEP	01	14 U	2.64	0.737
SEP	04	14 U	2.64	0.737
SEP	07	14 U	2.64	0.737
SEP	11A*	14 U	2.64	0.737
SEP	11B	14 U	2.64	0.737
SEP	12*	14 U	2.64	0.737
SEP	20	14 U	2.64	0.737
APR	01	9 U	2.20	0.290
APR	04	9 U	2.20	0.290
APR	07	9 U	2.20	0.290
APR	11A	9 U	2.20	0.290
APR	12*	9 U	2.20	0.290
APR	20	9 U	2.20	0.290
JAN	12*	2.5 J	0.92	-1.006
JAN	04	2.1 U	0.74	-1.183
JAN	11A*	2.1 U	0.74	-1.183
JAN	11B	2.1 U	0.74	-1.183
JAN	01	1.6 U	0.47	-1.458
JAN	07	1.6 U	0.47	-1.458
JAN	20	1.6 U	0.47	-1.458

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Copper Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	2.10	99.5%	3.031
Maximum Ln Conc.	3.33	99.0%	2.912
Minimum Ln Conc.	0.53	97.5%	2.733
Standard Deviation	0.84	95.0%	2.580
Coeff. of Variance	0.40		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
SEP	20	28	3.33	1.471
APR	20	20.3 J	3.01	1.087
JAN	11B	19.1 J	2.95	1.014
APR	11B	18	2.89	0.943
APR	07	16.9 J	2.83	0.868
SEP	12*	15 J	2.71	0.726
SEP	01	14.2 J	2.65	0.660
APR	01	11.9 J	2.48	0.449
JAN	11A*	11.35 J	2.43	0.392
APR	11A	10.7 J	2.37	0.322
SEP	04	9.7 J	2.27	0.205
APR	12*	9.4 J	2.24	0.167
SEP	11B	9.1 J	2.21	0.128
SEP	07	8.5 J	2.14	0.047
APR	04	6.6 UJ	1.89	-0.256
SEP	11A*	4.6 J	1.53	-0.687
JAN	12*	3.45 J	1.24	-1.031
JAN	04	2.9 U	1.06	-1.238
JAN	07	2.3 J	0.83	-1.515
JAN	01	1.7 U	0.53	-1.876
JAN	20	1.7 U	0.53	-1.876

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Cyanide Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	1.56	99.5%	3.031
Maximum Ln Conc.	2.30	99.0%	2.912
Minimum Ln Conc.	0.18	97.5%	2.733
Standard Deviation	1.01	95.0%	2.580
Coeff. of Variance	0.65		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
APR	01	10 U	2.30	0.731
SEP	01	10 U	2.30	0.731
APR	04	10 U	2.30	0.731
SEP	04	10 U	2.30	0.731
APR	07	10 U	2.30	0.731
SEP	07	10 U	2.30	0.731
APR	11A	10 U	2.30	0.731
SEP	11A*	10 U	2.30	0.731
SEP	11B	10 U	2.30	0.731
APR	12*	10 U	2.30	0.731
SEP	12*	10 U	2.30	0.731
APR	20	10 U	2.30	0.731
SEP	20	10 U	2.30	0.731
APR	11B	5 U	1.61	0.046
JAN	01	1.2 U	0.18	-1.365
JAN	04	1.2 U	0.18	-1.365
JAN	07	1.2 U	0.18	-1.365
JAN	11A*	1.2 U	0.18	-1.365
JAN	11B	1.2 U	0.18	-1.365
JAN	12*	1.2 U	0.18	-1.365
JAN	20	1.2 U	0.18	-1.365

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Lead Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	1.28	99.5%	3.031
Maximum Ln Conc.	3.54	99.0%	2.912
Minimum Ln Conc.	0.00	97.5%	2.733
Standard Deviation	1.09	95.0%	2.580
Coeff. of Variance	0.85		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
SEP	01	34.4	3.54	2.067
SEP	07	18.3	2.91	1.489
APR	01	16.3	2.79	1.383
SEP	04	14.5	2.67	1.275
APR	11B	9.6 J	2.26	0.897
APR	20	7.7 J	2.04	0.695
JAN	11A*	5.7 J	1.74	0.420
APR	07	5.3 J	1.67	0.353
APR	12*	4.05 J	1.40	0.106
JAN	11B	3.4	1.22	-0.054
SEP	20	3.4	1.22	-0.054
JAN	20	2 J	0.69	-0.540
JAN	01	2 U	0.69	-0.540
JAN	04	2 U	0.69	-0.540
JAN	12*	2 U	0.69	-0.540
JAN	07	2 UJ	0.69	-0.540
APR	11A	1 U	0.00	-1.175
SEP	11A*	1 U	0.00	-1.175
SEP	11B	1 U	0.00	-1.175
SEP	12*	1 U	0.00	-1.175
APR	04	1 UJ	0.00	-1.175

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Mercury Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	-1.71	99.5%	3.031
Maximum Ln Conc.	-1.11	99.0%	2.912
Minimum Ln Conc.	-2.04	97.5%	2.733
Standard Deviation	0.28	95.0%	2.580
Coeff. of Variance	-0.16		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
SEP	07	0.33	-1.11	2.163
SEP	01	0.31	-1.17	1.938
APR	01	0.2 U	-1.61	0.357
APR	04	0.2 U	-1.61	0.357
SEP	04	0.2 U	-1.61	0.357
APR	07	0.2 U	-1.61	0.357
APR	11A	0.2 U	-1.61	0.357
SEP	11A*	0.2 U	-1.61	0.357
APR	11B	0.2 U	-1.61	0.357
SEP	11B	0.2 U	-1.61	0.357
APR	12*	0.2 U	-1.61	0.357
SEP	12*	0.2 U	-1.61	0.357
APR	20	0.2 U	-1.61	0.357
SEP	20	0.2 U	-1.61	0.357
JAN	01	0.13 U	-2.04	-1.197
JAN	04	0.13 U	-2.04	-1.197
JAN	07	0.13 U	-2.04	-1.197
JAN	11A*	0.13 U	-2.04	-1.197
JAN	11B	0.13 U	-2.04	-1.197
JAN	12*	0.13 U	-2.04	-1.197
JAN	20	0.13 U	-2.04	-1.197

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Nickel Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	2.27	99.5%	3.031
Maximum Ln Conc.	3.69	99.0%	2.912
Minimum Ln Conc.	1.36	97.5%	2.733
Standard Deviation	0.49	95.0%	2.580
Coeff. of Variance	0.22		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
APR	11B	40 U	3.69	2.916
APR	11A	19.8 U	2.99	1.475
APR	20	13 J	2.56	0.612
APR	01	12.6 U	2.53	0.548
APR	04	12 U	2.48	0.448
APR	07	12 U	2.48	0.448
APR	12*	12 U	2.48	0.448
SEP	11B	11.7 J	2.46	0.396
SEP	04	10.8 J	2.38	0.232
SEP	12*	10.65 J	2.37	0.203
SEP	01	9.5 J	2.25	-0.031
JAN	11B	8.4 J	2.13	-0.284
JAN	11A*	8.1 J	2.09	-0.358
JAN	12*	7.35 J	1.99	-0.558
JAN	01	7.3 U	1.99	-0.572
JAN	07	7.3 U	1.99	-0.572
JAN	20	7.3 U	1.99	-0.572
SEP	07	6 U	1.79	-0.974
SEP	11A*	6 U	1.79	-0.974
SEP	20	6 U	1.79	-0.974
JAN	04	3.9 U	1.36	-1.857

Conclusion: Well KBA-11-11B from the April sampling event is a statistical outlier

Note: Outlier data point is a non-detected value. This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Selenium Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	0.99	99.5%	3.031
Maximum Ln Conc.	2.72	99.0%	2.912
Minimum Ln Conc.	0.41	97.5%	2.733
Standard Deviation	0.59	95.0%	2.580
Coeff. of Variance	0.59		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
JAN	20	15.2 U	2.72	2.927
APR	11B	5 UJ	1.61	1.044
SEP	01	4 U	1.39	0.666
SEP	04	4 U	1.39	0.666
SEP	07	4 U	1.39	0.666
SEP	11A*	4 U	1.39	0.666
SEP	11B	4 U	1.39	0.666
SEP	12*	4 U	1.39	0.666
SEP	20	4 U	1.39	0.666
APR	07	2.5 J	0.92	-0.130
APR	01	2 U	0.69	-0.507
APR	04	2 U	0.69	-0.507
APR	11A	2 U	0.69	-0.507
APR	12*	2 U	0.69	-0.507
APR	20	2 U	0.69	-0.507
JAN	01	1.5 U	0.41	-0.995
JAN	04	1.5 U	0.41	-0.995
JAN	07	1.5 U	0.41	-0.995
JAN	11A*	1.5 U	0.41	-0.995
JAN	11B	1.5 U	0.41	-0.995
JAN	12*	1.5 U	0.41	-0.995

Conclusion: Well KBA-11-20 from the January sampling event is a statistical outlier

Note: Outlier data point is a non-detected value. This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Silver Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	20.00	99.9%	3.266
Average Ln Conc.	1.27	99.5%	3.031
Maximum Ln Conc.	2.30	99.0%	2.912
Minimum Ln Conc.	0.79	97.5%	2.733
Standard Deviation	0.40	95.0%	2.580
Coeff. of Variance	0.31		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
APR	11B	10 U	2.30	2.593
SEP	01	5 U	1.61	0.852
SEP	04	5 U	1.61	0.852
SEP	07	5 U	1.61	0.852
SEP	11A*	5 U	1.61	0.852
SEP	11B	5 U	1.61	0.852
SEP	12*	5 U	1.61	0.852
SEP	20	5 U	1.61	0.852
APR	01	3 U	1.10	-0.431
APR	11A	3 U	1.10	-0.431
APR	04	3 UJ	1.10	-0.431
APR	07	3 UJ	1.10	-0.431
APR	12*	3 UJ	1.10	-0.431
APR	20	3 UJ	1.10	-0.431
JAN	01	2.5 UJ	0.92	-0.888
JAN	07	2.5 UJ	0.92	-0.888
JAN	12*	2.5 UJ	0.92	-0.888
JAN	20	2.5 UJ	0.92	-0.888
JAN	11A*	2.2 U	0.79	-1.209
JAN	11B	2.2 U	0.79	-1.209
JAN				-3.189

Conclusion: Well KBA-11-11B from the April sampling event is a statistical outlier

Note: Outlier data point is a non-detected value. This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Sulfide Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	6.42	99.5%	3.031
Maximum Ln Conc.	7.35	99.0%	2.912
Minimum Ln Conc.	4.61	97.5%	2.733
Standard Deviation	0.87	95.0%	2.580
Coeff. of Variance	0.14		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
JAN	11A*	1550 J	7.35	1.065
APR	01	1000 U	6.91	0.560
SEP	01	1000 U	6.91	0.560
APR	04	1000 U	6.91	0.560
SEP	04	1000 U	6.91	0.560
APR	07	1000 U	6.91	0.560
SEP	07	1000 U	6.91	0.560
APR	11A	1000 U	6.91	0.560
SEP	11A*	1000 U	6.91	0.560
APR	11B	1000 U	6.91	0.560
SEP	11B	1000 U	6.91	0.560
APR	12	1000 U	6.91	0.560
SEP	12*	1000 U	6.91	0.560
APR	20	1000 U	6.91	0.560
SEP	20	1000 U	6.91	0.560
JAN	12*	300 J	5.70	-0.828
JAN	07	200 J	5.30	-1.295
JAN	11B	200 J	5.30	-1.295
JAN	20	200 J	5.30	-1.295
JAN	01	100 UJ	4.61	-2.094
JAN	04	100 UJ	4.61	-2.094

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Thallium Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	0.82	99.5%	3.031
Maximum Ln Conc.	2.30	99.0%	2.912
Minimum Ln Conc.	0.00	97.5%	2.733
Standard Deviation	0.88	95.0%	2.580
Coeff. of Variance	1.08		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier	Ln Conc.	T_n
APR	11B	10 U	2.30	1.678
SEP	04	8.5 U	2.14	1.494
SEP	01	6 U	1.79	1.100
SEP	07	6 U	1.79	1.100
SEP	11A*	6 U	1.79	1.100
SEP	11B	6 U	1.79	1.100
SEP	12*	6 U	1.79	1.100
SEP	20	6 U	1.79	1.100
JAN	11A*	1.4 U	0.34	-0.544
JAN	11B	1.4 U	0.34	-0.544
JAN	04	1.3 U	0.26	-0.628
JAN	01	1.3 UJ	0.26	-0.628
JAN	07	1.3 UJ	0.26	-0.628
JAN	12*	1.3 UJ	0.26	-0.628
JAN	20	1.3 UJ	0.26	-0.628
APR	01	1 U	0.00	-0.924
APR	11A	1 U	0.00	-0.924
APR	04	1 UJ	0.00	-0.924
APR	07	1 UJ	0.00	-0.924
APR	12*	1 UJ	0.00	-0.924
APR	20	1 UJ	0.00	-0.924

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Tin Ground Water Concentrations for Background Wells

Total Data Points	7.00	99.9%	2.201
Average Ln Conc.	3.18	99.5%	2.139
Maximum Ln Conc.	6.91	99.0%	2.097
Minimum Ln Conc.	2.52	97.5%	2.020
Standard Deviation	1.64	95.0%	1.938
Coeff. of Variance	0.52		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
APR	11B	1000 U	6.91	2.268
APR	04	13 U	2.56	-0.373
APR	07	13 U	2.56	-0.373
APR	11A	13 U	2.56	-0.373
APR	12*	13 U	2.56	-0.373
APR	20	13 U	2.56	-0.373
JAN	11B	12.4 U	2.52	-0.402

Conclusion: Well KBA-11-11B from the April sampling event is a statistical outlier.

Note: Outlier data point is a non-detected value. This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

X = Sample event mean concentration.

σ = Sample event standard deviation.

$T_n = (X_n - X)/\sigma$ = Outlier test statistic.

*Duplicate samples have been averaged.

Significance level critical values as reported in [1].

N/A = Analyte was not tested for at this location.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11
Determination of Outliers
Log Transformed Vanadium Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	1.72	99.5%	3.031
Maximum Ln Conc.	3.91	99.0%	2.912
Minimum Ln Conc.	0.41	97.5%	2.733
Standard Deviation	0.80	95.0%	2.580
Coeff. of Variance	0.46		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
APR	11B	50 U	3.91	2.744
SEP	04	16 J	2.77	1.318
SEP	01	13.7 J	2.62	1.123
SEP	07	12 J	2.48	0.957
SEP	11A*	7 U	1.95	0.283
SEP	11B	7 U	1.95	0.283
SEP	12*	7 U	1.95	0.283
SEP	20	7 U	1.95	0.283
APR	12*	6.2 J	1.82	0.131
JAN	07	5.6 J	1.72	0.003
APR	04	5 UJ	1.61	-0.139
APR	07	5 UJ	1.61	-0.139
APR	20	5 UJ	1.61	-0.139
APR	01	5 U	1.61	-0.139
APR	11A	5 U	1.61	-0.139
JAN	04	3.1 J	1.13	-0.737
JAN	12*	3.05 J	1.12	-0.758
JAN	01	2.3 U	0.83	-1.111
JAN	20	2.3 U	0.83	-1.111
JAN	11B	1.9 J	0.64	-1.350
JAN	11A*	1.5 U	0.41	-1.646

Conclusion: Well KBA-11-11B from the April sampling event is a statistical outlier
Note: Outlier data point is a non-detected value. This data point will be omitted from the data set.

Notes:
Data is assumed to be approximately log-normally distributed.
X_n= Individual data point.
X = Sample event mean concentration.
σ = Sample event standard deviation.
$T_n = (X_n - X)/\sigma$ = Outlier test statistic.
*Duplicate samples have been averaged.
Significance level critical values as reported in [1].
N/A = Analyte was not tested for at this location.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Zinc Ground Water Concentrations for Background Wells

	Ln of Concentration	Signifigance Level	Critical Value [1]
Total Data Points	21.00	99.9%	3.266
Average Ln Conc.	3.37	99.5%	3.031
Maximum Ln Conc.	4.48	99.0%	2.912
Minimum Ln Conc.	1.34	97.5%	2.733
Standard Deviation	0.82	95.0%	2.580
Coeff. of Variance	0.24		

Sample Event	Well I.D. (KBA-11-)	Concentration (µg/L)/Qualifier	Ln Conc.	T_n
SEP	11B	88	4.48	1.347
SEP	20	73	4.29	1.119
APR	04	64.7 U	4.17	0.972
APR	11B	59 J	4.08	0.859
JAN	11A*	47.55 J	3.86	0.596
SEP	12*	45.1	3.81	0.532
SEP	07	41.9	3.74	0.442
SEP	01	39	3.66	0.355
APR	20	38.4 U	3.65	0.336
SEP	04	36	3.58	0.257
APR	12*	35.2 U	3.56	0.230
APR	07	34.6 U	3.54	0.209
APR	01	34.2 U	3.53	0.195
JAN	07	34	3.53	0.187
JAN	11B	28.4 U	3.35	-0.032
APR	11A	25.5 U	3.24	-0.163
JAN	20	14.8 J	2.69	-0.827
SEP	11A*	14.45 J	2.67	-0.856
JAN	12*	13.5 J	2.60	-0.939
JAN	04	4.3 U	1.46	-2.334
JAN	01	3.8 J	1.34	-2.484

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
X_n= Individual data point.
X = Sample event mean concentration.
σ = Sample event standard deviation.
$T_n = (X_n - X)/\sigma$ = Outlier test statistic.
*Duplicate samples have been averaged.
Significance level critical values as reported in [1].
N/A = Analyte was not tested for at this location.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

Background Subsurface Soil

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Aluminum Concentrations for Background Subsurface Soil

	Ln of Concentration	Significance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	7.87	99.5%	2.482
Maximum Ln Conc.	8.53	99.0%	2.410
Minimum Ln Conc.	7.38	97.5%	2.290
Standard Deviation	0.38	95.0%	2.176
Coeff. of Variance	0.05		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier		Ln Conc.	T_n
Sep	11SB20803	5040		8.53	1.738
Sep	11SB21003	3850		8.26	1.021
Sep	11SB20303	3370		8.12	0.666
Sep	11SB20403	3190		8.07	0.520
Sep	11SB20903	2770		7.93	0.144
Sep	11SB20103	2470		7.81	-0.161
Sep	11SB20703	2110		7.65	-0.581
Sep	11SB20203	1890		7.54	-0.874
Sep	11SB20503	1700		7.44	-1.156
Sep	11SB20603	1600		7.38	-1.318

Conclusion: No statistical outliers

Notes:

Duplicate samples have been averaged.

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Antimony Concentrations for Background Subsurface Soil

	Ln of Concentration	Significance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	1.97	99.5%	2.482
Maximum Ln Conc.	1.99	99.0%	2.410
Minimum Ln Conc.	1.92	97.5%	2.290
Standard Deviation	0.02	95.0%	2.176
Coeff. of Variance	0.01		

Sample Event	Well I.D. (KBA-11-)	Concentration (μg/L)/Qualifier		Ln Conc.	T_n
SEP	11SB20103	7.3	U	1.99	0.747
SEP	11SB20303	7.3	U	1.99	0.747
SEP	11SB20903	7.3	U	1.99	0.747
SEP	11SB20203	7.2	U	1.97	0.077
SEP	11SB20503	7.2	U	1.97	0.077
SEP	11SB20603	7.2	U	1.97	0.077
SEP	11SB20703	7.2	U	1.97	0.077
SEP	11SB20803	7.2	U	1.97	0.077
SEP	11SB21003	7.2	U	1.97	0.077
SEP	11SB20403	6.8	U	1.92	-2.700

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Arsenic Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-0.62	99.5%	2.482
Maximum Ln Conc.	-0.12	99.0%	2.410
Minimum Ln Conc.	-1.02	97.5%	2.290
Standard Deviation	0.36	95.0%	2.176
Coeff. of Variance	-0.58		

Sample Event	Sample I.D.	Concentration (μg/L)/Qualifier		Ln Conc.	T_n
Sep	11SB20303	0.89	J	-0.12	1.405
Sep	11SB21003	0.84	J	-0.17	1.245
Sep	11SB20703	0.77	J	-0.26	1.005
Sep	11SB20803	0.64	J	-0.45	0.494
Sep	11SB20203	0.57	J	-0.56	0.173
Sep	11SB20103	0.48	J	-0.73	-0.302
Sep	11SB20903	0.40	J	-0.92	-0.806
Sep	11SB20503	0.37	U	-0.99	-1.021
Sep	11SB20403	0.36	J	-1.02	-1.097
Sep	11SB20603	0.36	U	-1.02	-1.097

Conclusion: No statistical outliers.

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Barium Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	1.19	99.5%	2.482
Maximum Ln Conc.	1.39	99.0%	2.410
Minimum Ln Conc.	0.92	97.5%	2.290
Standard Deviation	0.15	95.0%	2.176
Coeff. of Variance	0.13		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB21003	4.0	J	1.39	1.327
Sep	11SB20803	3.9	J	1.36	1.160
Sep	11SB20903	3.7	J	1.31	0.812
Sep	11SB20203	3.4	J	1.22	0.254
Sep	11SB20603	3.4	J	1.22	0.254
Sep	11SB20703	3.3	J	1.19	0.057
Sep	11SB20503	3.1	J	1.13	-0.356
Sep	11SB20103	3.05	J	1.12	-0.463
Sep	11SB20403	2.7	J	0.99	-1.268
Sep	11SB20303	2.5	J	0.92	-1.776

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Beryllium Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-3.00	99.5%	2.482
Maximum Ln Conc.	-2.98	99.0%	2.410
Minimum Ln Conc.	-3.06	97.5%	2.290
Standard Deviation	0.02	95.0%	2.176
Coeff. of Variance	-0.01		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB20903	0.051	U	-2.98	1.199
Sep	11SB20103	0.050	U	-3.00	0.287
Sep	11SB20203	0.050	U	-3.00	0.287
Sep	11SB20303	0.050	U	-3.00	0.287
Sep	11SB20503	0.050	U	-3.00	0.287
Sep	11SB20703	0.05	U	-3.00	0.287
Sep	11SB20803	0.050	U	-3.00	0.287
Sep	11SB21003	0.050	U	-3.00	0.287
Sep	11SB20603	0.049	U	-3.02	-0.644
Sep	11SB20403	0.047	U	-3.06	-2.564

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Cadmium Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-0.29	99.5%	2.482
Maximum Ln Conc.	-0.25	99.0%	2.410
Minimum Ln Conc.	-0.36	97.5%	2.290
Standard Deviation	0.03	95.0%	2.176
Coeff. of Variance	-0.10		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
SEP	11SB21003	0.78	J	-0.25	1.562
SEP	11SB20303	0.76	U	-0.27	0.631
SEP	11SB20903	0.76	U	-0.27	0.631
SEP	11SB20103	0.75	U	-0.29	0.156
SEP	11SB20503	0.75	J	-0.29	0.156
SEP	11SB20803	0.75	U	-0.29	0.156
SEP	11SB20203	0.74	U	-0.30	-0.325
SEP	11SB20603	0.74	U	-0.30	-0.325
SEP	11SB20703	0.74	U	-0.30	-0.325
SEP	11SB20403	0.70	U	-0.36	-2.318

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Chromium Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	0.97	99.5%	2.482
Maximum Ln Conc.	1.25	99.0%	2.410
Minimum Ln Conc.	0.69	97.5%	2.290
Standard Deviation	0.22	95.0%	2.176
Coeff. of Variance	0.23		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
SEP	11SB20803	3.5		1.25	1.290
SEP	11SB20903	3.4		1.22	1.158
SEP	11SB21003	3.4		1.22	1.158
SEP	11SB20303	3.0		1.10	0.587
SEP	11SB20103	2.65	J	0.97	0.022
SEP	11SB20703	2.5		0.92	-0.244
SEP	11SB20403	2.3	J	0.83	-0.624
SEP	11SB20503	2.2	J	0.79	-0.826
SEP	11SB20203	2.0	J	0.69	-1.261
SEP	11SB20603	2.0		0.69	-1.261

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Cobalt Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-0.38	99.5%	2.482
Maximum Ln Conc.	-0.05	99.0%	2.410
Minimum Ln Conc.	-0.76	97.5%	2.290
Standard Deviation	0.28	95.0%	2.176
Coeff. of Variance	-0.74		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
SEP	11SB20203	0.95	J	-0.05	1.172
SEP	11SB20503	0.95	J	-0.05	1.172
SEP	11SB20703	0.92	J	-0.08	1.057
APR	11SB21003	0.86	J	-0.15	0.816
SEP	11SB20603	0.67	J	-0.40	-0.079
APR	11SB20103	0.65	J	-0.43	-0.187
APR	11SB20903	0.58	J	-0.54	-0.596
SEP	11SB20303	0.57	J	-0.56	-0.658
SEP	11SB20403	0.47	J	-0.76	-1.349
APR	11SB20803	0.47	U	-0.76	-1.349

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Copper Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-0.49	99.5%	2.482
Maximum Ln Conc.	0.00	99.0%	2.410
Minimum Ln Conc.	-0.87	97.5%	2.290
Standard Deviation	0.32	95.0%	2.176
Coeff. of Variance	-0.66		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
SEP	11SB20603	1.0	J	0.00	1.505
SEP	11SB20903	0.93	J	-0.07	1.281
SEP	11SB20503	0.80	J	-0.22	0.817
SEP	11SB20703	0.72	J	-0.33	0.492
SEP	11SB20203	0.68	J	-0.39	0.316
SEP	11SB20103	0.50	J	-0.69	-0.632
SEP	11SB20303	0.49	J	-0.71	-0.695
SEP	11SB20803	0.45	U	-0.80	-0.957
SEP	11SB21003	0.45	U	-0.80	-0.957
SEP	11SB20403	0.42	U	-0.87	-1.170

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Cyanide Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-2.54	99.5%	2.482
Maximum Ln Conc.	-1.90	99.0%	2.410
Minimum Ln Conc.	-2.66	97.5%	2.290
Standard Deviation	0.24	95.0%	2.176
Coeff. of Variance	-0.09		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB21003	0.15	J	-1.90	2.743
Sep	11SB20103	0.08	U	-2.53	0.073
Sep	11SB20303	0.08	U	-2.53	0.073
Sep	11SB20903	0.08	U	-2.53	0.073
Sep	11SB20203	0.07	U	-2.66	-0.494
Sep	11SB20403	0.07	U	-2.66	-0.494
Sep	11SB20503	0.07	U	-2.66	-0.494
Sep	11SB20603	0.07	U	-2.66	-0.494
Sep	11SB20703	0.07	U	-2.66	-0.494
Sep	11SB20803	0.07	U	-2.66	-0.494

Conclusion: 11SB21003 is a statistical outlier

Note: This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Iron Concentrations for Background Subsurface Soil

	Ln of Concentration	Significance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	6.66	99.5%	2.482
Maximum Ln Conc.	7.17	99.0%	2.410
Minimum Ln Conc.	6.29	97.5%	2.290
Standard Deviation	0.28	95.0%	2.176
Coeff. of Variance	0.04		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB20803	1300		7.17	1.840
Sep	11SB21003	996		6.90	0.873
Sep	11SB20403	951		6.86	0.705
Sep	11SB20103	882.5		6.78	0.434
Sep	11SB20903	873		6.77	0.394
Sep	11SB20503	679		6.52	-0.518
Sep	11SB20603	656		6.49	-0.643
Sep	11SB20203	625		6.44	-0.818
Sep	11SB20303	608		6.41	-0.918
Sep	11SB20703	540		6.29	-1.349

Conclusion: No statistical outliers

Notes:

Duplicate samples have been averaged.

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Lead Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	0.86	99.5%	2.482
Maximum Ln Conc.	1.19	99.0%	2.410
Minimum Ln Conc.	0.64	97.5%	2.290
Standard Deviation	0.17	95.0%	2.176
Coeff. of Variance	0.19		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
SEP	11SB20403	3.3		1.19	1.980
SEP	11SB20303	2.8		1.03	0.998
SEP	11SB20903	2.6		0.96	0.556
SEP	11SB20203	2.4		0.88	0.077
SEP	11SB20103	2.3		0.83	-0.177
SEP	11SB20703	2.3		0.83	-0.177
SEP	11SB20803	2.3		0.83	-0.177
SEP	11SB21003	2.2		0.79	-0.443
SEP	11SB20503	1.9		0.64	-1.319
SEP	11SB20603	1.9		0.64	-1.319

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Manganese Concentrations for Background Subsurface Soil

	Ln of Concentration	Significance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	1.45	99.5%	2.482
Maximum Ln Conc.	2.21	99.0%	2.410
Minimum Ln Conc.	1.10	97.5%	2.290
Standard Deviation	0.34	95.0%	2.176
Coeff. of Variance	0.23		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB21003	9.1		2.21	2.261
Sep	11SB20803	5.9		1.77	0.975
Sep	11SB20903	4.9		1.59	0.424
Sep	11SB20103	4.5	J	1.50	0.172
Sep	11SB20303	3.7	J	1.31	-0.409
Sep	11SB20503	3.7	J	1.31	-0.409
Sep	11SB20603	3.5	J	1.25	-0.574
Sep	11SB20703	3.4	J	1.22	-0.660
Sep	11SB20203	3.3	J	1.19	-0.749
Sep	11SB20403	3.0	J	1.10	-1.032

Conclusion: Sample 11SB21003 is a statistical outlier

Note: This data point will be omitted from the data set.

Notes:

Duplicate samples have been averaged.

Data is assumed to be approximately log-normally distributed.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Mercury Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-4.51	99.5%	2.482
Maximum Ln Conc.	-3.91	99.0%	2.410
Minimum Ln Conc.	-4.83	97.5%	2.290
Standard Deviation	0.33	95.0%	2.176
Coeff. of Variance	-0.07		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
SEP	11SB20303	0.02	J	-3.91	1.823
SEP	11SB21003	0.02	J	-3.91	1.823
SEP	11SB20103	0.01	J	-4.61	-0.286
SEP	11SB20203(check)	0.01	U	-4.61	-0.286
SEP	11SB20403	0.01	J	-4.61	-0.286
SEP	11SB20503	0.01	U	-4.61	-0.286
SEP	11SB20703	0.01	U	-4.61	-0.286
SEP	11SB20803	0.01	J	-4.61	-0.286
SEP	11SB20603	0.008	U	-4.83	-0.965
SEP	11SB20903	0.008	U	-4.83	-0.965

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Nickel Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	1.00	99.5%	2.482
Maximum Ln Conc.	1.50	99.0%	2.410
Minimum Ln Conc.	0.88	97.5%	2.290
Standard Deviation	0.19	95.0%	2.176
Coeff. of Variance	0.19		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB21003	4.5	J	1.50	2.696
Sep	11SB20203	3.0	J	1.10	0.523
Sep	11SB20103	2.6	U	0.96	-0.244
Sep	11SB20303	2.6	U	0.96	-0.244
Sep	11SB20903	2.6	U	0.96	-0.244
Sep	11SB20503	2.5	U	0.92	-0.454
Sep	11SB20603	2.5	U	0.92	-0.454
Sep	11SB20703	2.5	U	0.92	-0.454
Sep	11SB20803	2.5	U	0.92	-0.454
Sep	11SB20403	2.4	U	0.88	-0.673

Conclusion: 11SB21003 is a statistical outlier

Note: This data point will be omitted from the data set.

Notes:

Data is assumed to be approximately log-normally distributed.

Duplicate samples have been averaged.

X_n= Individual data point.

$\underline{X}$ = Sample event mean concentration.

s = Sample event standard deviation.

$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.

U = Non-detected value. Sample quantitation limit reported.

J = Estimated detected value.

UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Selenium Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-1.90	99.5%	2.482
Maximum Ln Conc.	-1.90	99.0%	2.410
Minimum Ln Conc.	-1.97	97.5%	2.290
Standard Deviation	0.02	95.0%	2.176
Coeff. of Variance	-0.01		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB20103	0.15	U	-1.90	0.316
Sep	11SB20203	0.15	U	-1.90	0.316
Sep	11SB20303	0.15	U	-1.90	0.316
Sep	11SB20503	0.15	U	-1.90	0.316
Sep	11SB20603	0.15	U	-1.90	0.316
Sep	11SB20703	0.15	U	-1.90	0.316
Sep	11SB20803	0.15	U	-1.90	0.316
Sep	11SB20903	0.15	U	-1.90	0.316
Sep	11SB21003	0.15	U	-1.90	0.316
Sep	11SB20403	0.14	U	-1.97	-2.846

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Silver Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-0.33	99.5%	2.482
Maximum Ln Conc.	-0.31	99.0%	2.410
Minimum Ln Conc.	-0.39	97.5%	2.290
Standard Deviation	0.02	95.0%	2.176
Coeff. of Variance	-0.06		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB20103	0.73	U	-0.31	0.801
Sep	11SB20303	0.73	U	-0.31	0.801
Sep	11SB20903	0.73	U	-0.31	0.801
Sep	11SB20203	0.72	U	-0.33	0.142
Sep	11SB20503	0.72	U	-0.33	0.142
Sep	11SB20703	0.72	U	-0.33	0.142
Sep	11SB20803	0.72	U	-0.33	0.142
Sep	11SB21003	0.72	U	-0.33	0.142
Sep	11SB20603	0.71	U	-0.34	-0.526
Sep	11SB20403	0.68	U	-0.39	-2.588

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Sulfide Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	3.82	99.5%	2.482
Maximum Ln Conc.	4.50	99.0%	2.410
Minimum Ln Conc.	3.14	97.5%	2.290
Standard Deviation	0.52	95.0%	2.176
Coeff. of Variance	0.14		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB20203	90.2	J	4.50	1.306
Sep	11SB20803	75.7	J	4.33	0.970
Sep	11SB20703	71.2	J	4.27	0.853
Sep	11SB20903	68.2	J	4.22	0.770
Sep	11SB20303	64.0	J	4.16	0.649
Sep	11SB20103	33.3	J	3.51	-0.603
Sep	11SB21003	31.9	J	3.46	-0.686
Sep	11SB20503	31.8	J	3.46	-0.692
Sep	11SB20403	23.5	J	3.16	-1.272
Sep	11SB20603	23.2	J	3.14	-1.296

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
σ = Sample event standard deviation.
$T_n = (X_n - \underline{X})/\sigma$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Thallium Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	-1.63	99.5%	2.482
Maximum Ln Conc.	-1.61	99.0%	2.410
Minimum Ln Conc.	-1.71	97.5%	2.290
Standard Deviation	0.04	95.0%	2.176
Coeff. of Variance	-0.02		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB20103	0.20	U	-1.61	0.569
Sep	11SB20203	0.20	U	-1.61	0.569
Sep	11SB20303	0.20	U	-1.61	0.569
Sep	11SB20503	0.20	U	-1.61	0.569
Sep	11SB20803	0.20	U	-1.61	0.569
Sep	11SB20903	0.20	U	-1.61	0.569
Sep	11SB21003	0.20	U	-1.61	0.569
Sep	11SB20603	0.19	U	-1.66	-0.834
Sep	11SB20703	0.19	U	-1.66	-0.834
Sep	11SB20403	0.18	U	-1.71	-2.312

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
$\underline{X}$ = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - \underline{X})/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Vanadium Concentrations for Background Subsurface Soil

	Ln of Concentration	Signifigance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	0.67	99.5%	2.482
Maximum Ln Conc.	1.25	99.0%	2.410
Minimum Ln Conc.	-0.11	97.5%	2.290
Standard Deviation	0.37	95.0%	2.176
Coeff. of Variance	0.55		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
Sep	11SB20803	3.5	J	1.25	1.568
Sep	11SB20403	2.5	J	0.92	0.662
Sep	11SB21003	2.4	J	0.88	0.552
Sep	11SB20903	2.2	J	0.79	0.318
Sep	11SB20303	2.1	J	0.74	0.193
Sep	11SB20703	2.1	J	0.74	0.193
Sep	11SB20103	1.9	J	0.64	-0.077
Sep	11SB20503	1.8	J	0.59	-0.222
Sep	11SB20203	1.3	J	0.26	-1.098
Sep	11SB20603	0.90	J	-0.11	-2.088

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
X = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - X)/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

KINGS BAY - SITE 11

Determination of Outliers

Log Transformed Zinc Concentrations for Background Subsurface Soil

	Ln of Concentration	Significance Level	Critical Value
Total Data Points	10.00	99.9%	2.606
Average Ln Conc.	0.28	99.5%	2.482
Maximum Ln Conc.	0.47	99.0%	2.410
Minimum Ln Conc.	-0.06	97.5%	2.290
Standard Deviation	0.17	95.0%	2.176
Coeff. of Variance	0.61		

Sample Event	Sample I.D.	Concentration (mg/kg)/Qualifier		Ln Conc.	T_n
SEP	11SB20103	1.6	J	0.47	1.153
SEP	11SB21003	1.6	J	0.47	1.153
SEP	11SB20803	1.5	J	0.41	0.769
SEP	11SB20203	1.4	J	0.34	0.360
SEP	11SB20603	1.4	J	0.34	0.360
SEP	11SB20303	1.3	J	0.26	-0.080
SEP	11SB20703	1.3	J	0.26	-0.080
SEP	11SB20503	1.2	J	0.18	-0.556
SEP	11SB20903	1.1	J	0.10	-1.072
SEP	11SB20403	0.94	J	-0.06	-2.005

Conclusion: No statistical outliers

Notes:

Data is assumed to be approximately log-normally distributed.
Duplicate samples have been averaged.
X_n= Individual data point.
X = Sample event mean concentration.
s = Sample event standard deviation.
$T_n = (X_n - X)/ s$ = Outlier test statistic.
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.

APPENDIX G

ANALYSIS OF VARIANCE TESTS

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Aluminum Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January		April		September	
01	1590 J		16700 J		41100	
04	5670 J		2960		29500	
07	28700 J		12100		29100	
11A	572 J		2120 J		565	
11B					701	
12	4045 J		7445		355.5 U	
20	265 J		4290		154 U	

Log Transformed Data

Well I.D. (KBA-11-)	January		April		September		$X_{i.}$	$\underline{X}_{i.}$	n_i
01	7.37		9.72		10.62		27.72	9.24	3
04	8.64		7.99		10.29		26.93	8.98	3
07	10.26		9.40		10.28		29.94	9.98	3
11A*	6.35		7.66		6.34		20.35	6.78	3
11B					6.55		6.55	6.55	1
12*	8.31		8.92		5.87		23.09	7.70	3
20	5.58		8.36		5.04		18.98	6.33	3
							$X_{..}$ = 153.56	$\underline{X}_{..}$ = 8.08	N = 19

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	4.02	9.66
04	2.40	5.21
07	10.82	11.33
11A	5.07	6.23
11B	2.34	2.34
12	0.44	5.62
20	9.24	15.62
SS_{wells}= 34.33	SS_{total} = 56.00	SS_{error} = 21.66

	January	April	September	All Sample Events
Total Points	6	6	7	19
Average Concentration	7.75	8.68	7.86	8.08
Maximum Concentration	10.26	9.72	10.62	10.62
Minumum Concentration	5.58	7.66	5.04	5.04
Standard Deviation	1.69	0.81	2.43	1.76
Coefficient of Variation	0.22	0.09	0.31	0.22

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	34.33	6	5.72	1.23	2.81
Error (within wells)	21.66	12	4.67		
Total	56.00	18			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
*Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Antimony Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	2.3 J		3 U		2 U	
04	1.8 U		3 U		13 U	
07	10.5		3 U		2 U	
11A	4.4 UJ	3.3 UJ	3 U		2 U	2 U
11B	10.1 U		6 U		2 U	
12	2.2 U	2.9 U	3 U	3 U	2 U	2 U
20	1.8 UJ		3 U		2 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.83		1.10		0.69		2.62	0.87	3
04	0.59		1.10		2.56		4.25	1.42	3
07	2.35		1.10		0.69		4.14	1.38	3
11A*	1.35		1.10		0.69		3.14	1.05	3
11B	2.31		1.79		0.69		4.80	1.60	3
12*	0.94		1.10		0.69		2.73	0.91	3
20	0.59		1.10		0.69		2.38	0.79	3
							$X_{..}$ = 24.06	$\underline{X}_{..}$ = 1.15	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{i.})^2$
01	0.22	0.31
04	0.22	2.33
07	0.17	1.66
11A	0.03	0.25
11B	0.62	1.98
12	0.17	0.25
20	0.37	0.52
SS_{wells}=	1.79	SS_{total} = 7.29
		SS_{error} = 5.50

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	1.28	1.20	0.96	1.15
Maximum Concentration	2.35	1.79	2.56	2.56
Minumum Concentration	0.59	1.10	0.69	0.59
Standard Deviation	0.76	0.26	0.71	0.60
Coefficient of Variation	0.60	0.22	0.74	0.53

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.79	6	0.30	0.57	2.81
Error (within wells)	5.50	14	0.52		
Total	7.29	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
SS[illegible]$(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
S[illegible]$_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well m[illegible]

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
*Duplicate samples were averaged.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Arsenic Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	1.3 U		1 U		3 U	
04	1.2 J		1.2 J		3 UJ	
07	1.3 U		1 U		3 U	
11A	1 UJ	1.8 J	1 U		3 U	3 U
11B	1 UJ		8		3 U	
12	2.7 J	1.3 U	14.9	15.2	3 U	3 U
20	2.8 J		2.9 J		3 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.26		0.00		1.10		1.36	0.45	3
04	0.18		0.18		1.10		1.46	0.49	3
07	0.26		0.00		1.10		1.36	0.45	3
11A*	0.34		0.00		1.10		1.44	0.48	3
11B	0.00		2.08		1.10		3.18	1.06	3
12*	0.69		**		1.10		1.79	0.90	2
20	1.03		1.06		1.10		3.19	1.06	3
						$X_{..}$ =	13.78	$\underline{X}_{..}$ = 0.69	N = 20

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.17	0.82
04	0.12	0.68
07	0.17	0.82
11A	0.13	0.77
11B	0.41	2.58
12	0.09	0.17
20	0.42	0.42
SS_{wells}=	1.51	SS_{total} = 6.27
		SS_{error} = 4.76

	January	April	September	All Sample Events
Total Points	7	6	7	20
Average Concentration	0.40	0.55	1.10	0.69
Maximum Concentration	1.03	2.08	1.10	2.08
Minumum Concentration	0.00	0.00	1.10	0.00
Standard Deviation	0.35	0.85	0.00	0.57
Coefficient of Variation	0.88	1.54	0.00	0.83

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.51	6	0.25	0.52	2.63
Error (within wells)	4.76	13	0.48		
Total	6.27	19			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

*Duplicate samples were averaged.
Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
** Indicates outlier data points that were not used for data analysis.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Barium Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	16 J		31.9 J		59.6 J	
04	5.1 J		6.7 J		27 J	
07	15.7 J		31 J		39.8 J	
11A	35.9 J	34.4 J	32 J		20 J	17.2 J
11B	45 J		81		23.4 J	
12	31.8 J	33.3 J	73.7 J	63.2 J	14.2 J	14.3 J
20	39 J		63.7 J		33 J	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	2.77		3.46		4.09		10.32	3.44	3
04	1.63		1.90		3.30		6.83	2.28	3
07	2.75		3.43		3.68		9.87	3.29	3
11A*	3.56		3.47		2.92		9.95	3.32	3
11B	3.81		4.39		3.15		11.35	3.78	3
12*	3.48		4.23		2.66		10.37	3.46	3
20	3.66		4.15		3.50		11.31	3.77	3
							$X_{..}$ = 70.00	$\underline{X}_{..}$ = 3.33	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{i.})^2$
01	0.03	0.90
04	3.36	4.95
07	0.01	0.47
11A	0.00	0.24
11B	0.61	1.38
12	0.04	1.28
20	0.58	0.81
SS_{wells}= 4.63	SS_{total} = 10.03	SS_{error} = 5.40

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	3.10	3.58	3.33	3.33
Maximum Concentration	3.81	4.39	4.09	4.39
Minumum Concentration	1.63	1.90	2.66	1.63
Standard Deviation	0.77	0.84	0.48	0.71
Coefficient of Variation	0.25	0.24	0.14	0.21

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	4.63	6	0.77	1.08	2.66
Error (within wells)	5.40	14	0.72		
Total	10.03	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
S[illegible] $SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well m[illegible]

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Beryllium Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	0.14 U		2 U		1.2 J	
04	0.12 UJ		2 U		1 U	
07	0.43 J		2 U		1 U	
11A	0.16 J	0.12 J	2 U		1 U	1 U
11B	0.51 J		5 U		1 U	
12	0.21 J	0.21 J	2 U	2 U	1 U	1 U
20	0.22 J		2 U		1 J	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	-1.97		0.69		0.18		-1.09	-0.36	3
04	-2.12		0.69		0.00		-1.43	-0.48	3
07	-0.84		0.69		0.00		-0.15	-0.05	3
11A*	-1.97		0.69		0.00		-1.27	-0.42	3
11B	-0.67		1.61		0.00		0.94	0.31	3
12*	-1.56		0.69		0.00		-0.87	-0.29	3
20	-1.51		0.69		0.00		-0.82	-0.27	3
							$X_{..}$ = -4.69	$\underline{X}_{..}$ = -0.22	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.06	4.04
04	0.19	4.49
07	0.09	1.28
11A	0.12	3.93
11B	0.86	3.61
12	0.01	2.68
20	0.01	2.56
SS_{wells}=	1.34	SS_{total} = 22.58
		SS_{error} = 21.24

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	-1.52	0.82	0.03	-0.22
Maximum Concentration	-0.67	1.61	0.18	1.61
Minumum Concentration	-2.12	0.69	0.00	-2.12
Standard Deviation	0.57	0.35	0.07	1.06
Coefficient of Variation	-0.37	0.42	2.65	-4.75

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.34	6	0.22	0.14	2.7
Error (within wells)	21.24	14	1.61		
Total	22.58	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Cadmium Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	3.1 U		3 U		3 U	
04	3.5 J		3 UJ		3 U	
07	3.1 U		3 UJ		3 U	
11A	3.2 U	3.2 U	3 U		3 U	3 U
11B	3.2 U		5 U		3 U	
12	3.1 U	3.1 U	3 UJ	3 UJ	9.8	8.1
20	3.1 U		3 UJ		**14	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	1.13		1.10		1.10		3.33	1.11	3
04	1.25		1.10		1.10		3.45	1.15	3
07	1.13		1.10		1.10		3.33	1.11	3
11A*	1.16		1.10		1.10		3.36	1.12	3
11B	1.16		1.61		1.10		3.87	1.29	3
12*	1.13		1.10		2.19		4.42	1.47	3
20	1.13		1.10				2.23	1.12	2
							$X_{..}$ = 23.99	$\underline{X}_{..}$ = 1.20	N = 20

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.02	0.03
04	0.01	0.02
07	0.02	0.03
11A	0.02	0.02
11B	0.02	0.18
12	0.23	1.00
20	0.01	0.01
SS_{wells}=	0.34	SS_{total} = 1.29
SS_{error} =	0.95	

	January	April	September	All Sample Events
Total Points	7	7	6	20
Average Concentration	1.16	1.17	1.28	1.20
Maximum Concentration	1.25	1.61	2.19	2.19
Minumum Concentration	1.13	1.10	1.10	1.10
Standard Deviation	0.04	0.19	0.45	0.26
Coefficient of Variation	0.04	0.16	0.35	0.22

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	0.34	6	0.06	0.57	2.7
Error (within wells)	0.95	13	0.10		
Total	1.29	19			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$\Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

* Duplicate samples were averaged.
Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
** Indicates outlier data points that were not used for data analysis.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Chromium Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	2.3 U		24.6		45.5	
04	5.7 J		5 U		29.7	
07	17.2		10.4		41	
11A	6.9 J	5.2 J	18.1		8 U	8 U
11B	9.7 J		41		12	
12	8.2 J	5.8 J	13.9	14.3	17.2	14.3
20	2.6 U		40.6		16	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.83		3.20		3.82		7.85	2.62	3
04	1.74		1.61		3.39		6.74	2.25	3
07	2.84		2.34		3.71		8.90	2.97	3
11A*	1.80		2.90		2.08		6.78	2.26	3
11B	2.27		3.71		2.48		8.47	2.82	3
12*	1.95		2.65		2.76		7.35	2.45	3
20	0.96		3.70		2.77		7.43	2.48	3
							$X_{..}$ = 53.52	$\underline{X}_{..}$ = 2.55	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.01	4.98
04	0.27	2.25
07	0.52	1.49
11A	0.25	0.90
11B	0.23	1.44
12	0.03	0.42
20	0.02	3.92
SS_{wells}=	1.34	SS_{total} = 15.39
		SS_{error} = 14.06

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	1.77	2.87	3.00	2.55
Maximum Concentration	2.84	3.71	3.82	3.82
Minumum Concentration	0.96	1.61	2.08	0.96
Standard Deviation	0.70	0.76	0.65	0.88
Coefficient of Variation	0.40	0.26	0.22	0.34

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.34	6	0.22	0.20	2.66
Error (within wells)	14.06	14	1.10		
Total	15.39	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Cobalt Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	1.6 U		9 U		14 U	
04	2.1 U		9 U		14 U	
07	1.6 U		9 U		14 U	
11A	2.1 U	2.1 U	9 U		14 U	14 U
11B	2.1 U		50 U		14 U	
12	2.8 J	2.2 J	9 U	9 U	14 U	14 U
20	1.6 U		9 U		14 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.47		2.20		2.64		5.31	1.77	3
04	0.74		2.20		2.64		5.58	1.86	3
07	0.47		2.20		2.64		5.31	1.77	3
11A*	0.74		2.20		2.64		5.58	1.86	3
11B	0.74		3.91		2.64		7.29	2.43	3
12*	0.92		2.20		2.64		5.75	1.92	3
20	0.47		2.20		2.64		5.31	1.77	3
							$X_{..}$ = 40.12	$\underline{X}_{..}$ = 1.91	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.06	2.69
04	0.01	1.98
07	0.06	2.69
11A	0.01	1.98
11B	0.81	5.90
12	0.00	1.60
20	0.06	2.69
SS_{wells}= 1.01	SS_{total} = 19.53	SS_{error} = 18.52

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	0.65	2.44	2.64	1.91
Maximum Concentration	0.92	3.91	2.64	3.91
Minumum Concentration	0.47	2.20	2.64	0.47
Standard Deviation	0.18	0.65	0.00	0.99
Coefficient of Variation	0.28	0.27	0.00	0.52

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.01	6	0.17	0.12	2.66
Error (within wells)	18.52	14	1.39		
Total	19.53	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$\Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Copper Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	1.7 U		11.9 J		14.2 J	
04	2.9 U		6.6 UJ		9.7 J	
07	2.3 J		16.9 J		8.5 J	
11A	14.9 J	7.8 U	10.7 J		4.4 J	4.8 J
11B	19.1 J		18		9.1 J	
12	3.1 J	3.8 J	8.1 UJ	10.7 J	24.3 J	5.7 J
20	1.7 U		20.3 J		28	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.53		2.48		2.65		5.66	1.89	3
04	1.06		1.89		2.27		5.22	1.74	3
07	0.83		2.83		2.14		5.80	1.93	3
11A*	2.43		2.37		1.53		6.33	2.11	3
11B	2.95		2.89		2.21		8.05	2.68	3
12*	1.24		2.24		2.71		6.19	2.06	3
20	0.53		3.01		3.33		6.87	2.29	3
							$X_{..}$ = 44.12	$\underline{X}_{..}$ = 2.10	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.14	2.91
04	0.39	1.15
07	0.08	2.14
11A	0.00	0.51
11B	1.02	1.36
12	0.00	1.13
20	0.11	4.81
SS_{wells}= 1.74	SS_{total} = 14.01	SS_{error} = 12.27

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	1.37	2.53	2.41	2.10
Maximum Concentration	2.95	3.01	3.33	3.33
Minumum Concentration	0.53	1.89	1.53	0.53
Standard Deviation	0.95	0.40	0.56	0.84
Coefficient of Variation	0.70	0.16	0.23	0.40

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.74	6	0.29	0.29	2.63
Error (within wells)	12.27	14	1.00		
Total	14.01	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Cyanide Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	1.2 U		10 U		10 U	
04	1.2 U		10 U		10 U	
07	1.2 U		10 U		10 U	
11A	1.2 U	1.2 U	10 U		10 U	10 U
11B	1.2 U		5 U		10 U	
12	1.2 U	1.2 U	10 U	10 U	10 U	10 U
20	1.2 U		10 U		10 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.18		2.30		2.30		4.79	1.60	3
04	0.18		2.30		2.30		4.79	1.60	3
07	0.18		2.30		2.30		4.79	1.60	3
11A*	0.18		2.30		2.30		4.79	1.60	3
11B	0.18		1.61		2.30		4.09	1.36	3
12*	0.18		2.30		2.30		4.79	1.60	3
20	0.18		2.30		2.30		4.79	1.60	3
						$X_{..}$ =	32.82	$\underline{X}_{..}$ = 1.56	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{i.})^2$
01	0.00	3.00
04	0.00	3.00
07	0.00	3.00
11A	0.00	3.00
11B	0.12	2.46
12	0.00	3.00
20	0.00	3.00
SS_{wells} =	0.14	SS_{total} = 20.46
		SS_{error} = 20.32

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	0.18	2.20	2.30	1.56
Maximum Concentration	0.18	2.30	2.30	2.30
Minumum Concentration	0.18	1.61	2.30	0.18
Standard Deviation	0.00	0.26	0.00	1.01
Coefficient of Variation	0.00	0.12	0.00	0.65

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	0.14	6	0.02	0.02	2.66
Error (within wells)	20.32	14	1.46		
Total	20.46	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$SS_{error} = \Sigma\Sigma(X_{ij} - \underline{X}_{i.})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{i.}$ for all wells.
$SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Iron Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January		April		September	
01	81.4 J		968		2630	
04	161 J		388		3400 J	
07	331		542		1300	
11A	5340		1880		678	
11B					749	
12	3805		5885		679.5	
20	2880		3120		574 J	

Log Transformed Data

Well I.D. (KBA-11-)	January		April		September		$X_{i.}$	$\underline{X}_{i.}$	n_i
01	4.40		6.88		7.87		19.15	6.38	3
04	5.08		5.96		8.13		19.17	6.39	3
07	5.80		6.30		7.17		19.27	6.42	3
11A*	7.89		7.54		5.83		21.25	7.08	3
11B					6.62		6.62	6.62	1
12*	7.55		8.68		5.83		22.06	7.35	3
20	7.97		8.05		6.35		22.36	7.45	3
						$X_{..}$ =	129.89	$\underline{X}_{..}$ = 6.84	N = 19

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.62	7.02
04	0.59	5.52
07	0.51	1.47
11A	0.19	2.62
11B	0.05	0.05
12	0.80	4.93
20	1.15	2.97
SS_{wells}=	3.90	SS_{total} = 24.59
		SS_{error} = 20.68

	January	April	September	All Sample Events
Total Points	6	6	7	19
Average Concentration	6.45	7.23	6.83	6.84
Maximum Concentration	7.97	8.68	8.13	8.68
Minumum Concentration	5.08	5.96	5.83	5.08
Standard Deviation	1.55	1.05	0.93	1.17
Coefficient of Variation	0.24	0.14	0.14	0.17

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	3.90	6	0.65	0.32	2.81
Error (within wells)	20.68	12	2.05		
Total	24.59	18			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
*Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Lead Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	2 U		16.3		34.4	
04	2 U		1 UJ		14.5	
07	2 UJ		5.3 J		18.3	
11A	8.1 J	3.3 J	1 U		1 U	1 U
11B	3.4		9.6 J		1 U	
12	2 U	2 U	4 J	4.1 J	1 U	1 U
20	2 J		7.7 J		3.4	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.69		2.79		3.54		7.02	2.34	3
04	0.69		0.00		2.67		3.37	1.12	3
07	0.69		1.67		2.91		5.27	1.76	3
11A*	1.74		0.00		0.00		1.74	0.58	3
11B	1.22		2.26		0.00		3.49	1.16	3
12*	0.69		1.40		0.00		2.09	0.70	3
20	0.69		2.04		1.22		3.96	1.32	3
						$X_{..}$ =	26.93	$\underline{X}_{..}$ = 1.28	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	3.36	7.71
04	0.08	3.93
07	0.67	3.13
11A	1.48	3.50
11B	0.04	2.61
12	1.03	2.01
20	0.00	0.93
SS_{wells}=	6.66	SS_{total} = 23.81
		SS_{error} = 17.15

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	0.92	1.45	1.48	1.28
Maximum Concentration	1.74	2.79	3.54	3.54
Minumum Concentration	0.69	0.00	0.00	0.00
Standard Deviation	0.41	1.08	1.55	1.09
Coefficient of Variation	0.45	0.75	1.05	0.85

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	6.66	6	1.11	0.65	2.7
Error (within wells)	17.15	14	1.70		
Total	23.81	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $X_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Manganese Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January		April		September	
01	5.8 J		8.2 J		9.8 J	
04	25.5		39.7		42.6	
07	5.4 J		8.9 J		9.6 J	
11A	46.05 J		14.9 J		6.9 J	
11B					13.2 J	
12	20.2		26.55		6 J	
20	31.2		29.2		32	

Log Transformed Data

Well I.D. (KBA-11-)	January		April		September		$X_{i.}$	$\underline{X}_{i.}$	n_i
01	1.76		2.10		2.28		6.14	2.05	3
04	3.24		3.68		3.75		10.67	3.56	3
07	1.69		2.19		2.26		6.13	2.04	3
11A*	3.14		2.70		1.24		7.08	2.36	3
11B					2.58		2.58	2.58	1
12*	2.31		3.28		1.10		6.69	2.23	3
20	3.44		3.37		3.47		10.28	3.43	3
						$X_{..}$ =	49.58	$\underline{X}_{..}$ = 2.61	N = 19

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.94	1.09
04	2.70	2.85
07	0.96	1.15
11A	0.19	2.17
11B	0.00	0.00
12	0.43	2.82
20	2.00	2.01
SS_{wells}= 7.22	SS_{total} = 12.08	SS_{error} = 4.86

	January	April	September	All Sample Events
Total Points	6	6	7	19
Average Concentration	2.60	2.89	2.38	2.61
Maximum Concentration	3.44	3.68	3.75	3.75
Minumum Concentration	1.69	2.19	1.10	1.10
Standard Deviation	0.78	0.66	1.01	0.82
Coefficient of Variation	0.30	0.23	0.42	0.31

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	7.22	6	1.20	1.20	2.81
Error (within wells)	4.86	12	1.01		
Total	12.08	18			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
*Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Mercury Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	0.13 U		0.2 U		0.31	
04	0.13 U		0.2 U		0.2 U	
07	0.13 U		0.2 U		0.33	
11A	0.13 U	0.13 U	0.2 U		0.2 U	0.2 U
11B	0.13 U		0.2 U		0.2 U	
12	0.13 U	0.13 U	0.2 U	0.2 U	0.2 U	0.2 U
20	0.13 U		0.2 U		0.2 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	-2.04		-1.61		-1.17		-4.82	-1.61	3
04	-2.04		-1.61		-1.61		-5.26	-1.75	3
07	-2.04		-1.61		-1.11		-4.76	-1.59	3
11A*	-2.04		-1.61		-1.61		-5.26	-1.75	3
11B	-2.04		-1.61		-1.61		-5.26	-1.75	3
12*	-2.04		-1.61		-1.61		-5.26	-1.75	3
20	-2.04		-1.61		-1.61		-5.26	-1.75	3
						$X_{..}$ =	-35.87	$\underline{X}_{..}$ = -1.71	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{i.})^2$
01	0.03	0.41
04	0.01	0.13
07	0.04	0.48
11A	0.01	0.13
11B	0.01	0.13
12	0.01	0.13
20	0.01	0.13
SS_{wells}=	0.11	SS_{total} = 1.54
		SS_{error} = 1.43

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	-2.04	-1.61	-1.48	-1.71
Maximum Concentration	-2.04	-1.61	-1.11	-1.11
Minumum Concentration	-2.04	-1.61	-1.61	-2.04
Standard Deviation	0.00	0.00	0.23	0.28
Coefficient of Variation	0.00	0.00	-0.16	-0.16

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	0.11	6	0.02	0.16	2.63
Error (within wells)	1.43	14	0.11		
Total	1.54	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Nickel Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	7.3 U		12.6 U		9.5 J	
04	3.9 U		12 U		10.8 J	
07	7.3 U		12 U		6 U	
11A	9 J	7.2 J	19.8 U		6 U	6 U
11B	8.4 J		**40 U		11.7 J	
12	7.3 U	7.4 J	12 U	12 U	13.7 J	7.6 J
20	7.3 U		13 J		6 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	1.99		2.53		2.25		6.77	2.26	3
04	1.36		2.48		2.38		6.23	2.08	3
07	1.99		2.48		1.79		6.26	2.09	3
11A*	2.09		2.99		1.79		6.87	2.29	3
11B	2.13				2.46		4.59	2.29	2
12*	1.99		2.48		2.37		6.85	2.28	3
20	1.99		2.56		1.79		6.34	2.11	3
							$X_{..}$ = 43.91	$\underline{X}_{..}$ = 2.20	N = 20

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.01	0.16
04	0.04	0.81
07	0.03	0.29
11A	0.03	0.80
11B	0.02	0.07
12	0.02	0.15
20	0.02	0.34
SS_{wells}= 0.18	SS_{total} = 2.63	SS_{error} = 2.46

	January	April	September	All Sample Events
Total Points	7	6	7	20
Average Concentration	1.93	2.59	2.12	2.20
Maximum Concentration	2.13	2.99	2.46	2.99
Minumum Concentration	1.36	2.48	1.79	1.36
Standard Deviation	0.26	0.20	0.31	0.37
Coefficient of Variation	0.13	0.08	0.15	0.17

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	0.18	6	0.03	0.15	2.66
Error (within wells)	2.46	13	0.20		
Total	2.63	19			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

* Duplicate samples were averaged.
Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
** Indicates outlier data points that were not used for data analysis.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Selenium Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	1.5 U		2 U		4 U	
04	1.5 U		2 U		4 U	
07	1.5 U		2.5 J		4 U	
11A	1.5 U	1.5 U	2 U		4 U	4 U
11B	1.5 U		5 UJ		4 U	
12	1.5 U	1.5 U	2 U	2 U	4 U	4 U
20	**15.2 U		2 U		4 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.41		0.69		1.39		2.48	0.83	3
04	0.41		0.69		1.39		2.48	0.83	3
07	0.41		0.92		1.39		2.71	0.90	3
11A*	0.41		0.69		1.39		2.48	0.83	3
11B	0.41		1.61		1.39		3.40	1.13	3
12*	0.41		0.69		1.39		2.48	0.83	3
20			0.69		1.39		2.08	1.04	2
							$X_{..}$ = 18.13	$\underline{X}_{..}$ = 0.91	N = 20

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.02	0.53
04	0.02	0.53
07	0.00	0.48
11A	0.02	0.53
11B	0.16	0.98
12	0.02	0.53
20	0.04	0.28
SS_{wells}=	0.26	SS_{total} = 3.84
		SS_{error} = 3.58

	January	April	September	All Sample Events
Total Points	6	7	7	20
Average Concentration	0.41	0.86	1.39	0.91
Maximum Concentration	0.41	1.61	1.39	1.61
Minumum Concentration	0.41	0.69	1.39	0.41
Standard Deviation	0.00	0.34	0.00	0.45
Coefficient of Variation	0.00	0.40	0.00	0.50

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	0.26	6	0.04	0.15	2.7
Error (within wells)	3.58	13	0.30		
Total	3.84	19			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

* Duplicate samples were averaged.
Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
** Indicates outlier data points that were not used for data analysis.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Silver Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	2.5 UJ		3 U		5 U	
04			3 UJ		5 U	
07	2.5 UJ		3 UJ		5 U	
11A	2.2 U	2.2 U	3 U		5 U	5 U
11B	2.2 U		**10 U		5 U	
12	2.5 UJ	2.5 UJ	3 UJ	3 UJ	5 U	5 U
20	2.5 UJ		3 UJ		5 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.92		1.10		1.61		3.62	1.21	3
04			1.10		1.61		2.71	1.35	2
07	0.92		1.10		1.61		3.62	1.21	3
11A*	0.79		1.10		1.61		3.50	1.17	3
11B	0.79				1.61		2.40	1.20	2
12*	0.92		1.10		1.61		3.63	1.21	3
20	0.92		1.10		1.61		3.62	1.21	3
						$X_{..}$ =	23.11	$\underline{X}_{..}$ = 1.22	N = 19

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.00	0.26
04	0.04	0.17
07	0.00	0.26
11A	0.01	0.35
11B	0.00	0.34
12	0.00	0.26
20	0.00	0.26
SS_{wells}=	0.05	SS_{total} = 1.89
		SS_{error} = 1.84

	January	April	September	All Sample Events
Total Points	6	6	7	19
Average Concentration	0.87	1.10	1.61	1.22
Maximum Concentration	0.92	1.10	1.61	1.61
Minumum Concentration	0.79	1.10	1.61	0.79
Standard Deviation	0.07	0.00	0.00	0.32
Coefficient of Variation	0.08	0.00	0.00	0.27

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	0.05	6	0.01	0.05	2.7
Error (within wells)	1.84	12	0.16		
Total	1.89	18			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

* Duplicate samples were averaged.
Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
** Indicates outlier data points that were not used for data analysis.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Sulfide Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	100 UJ		1000 U		1000 U	
04	100 UJ		1000 U		1000 U	
07	200 J		1000 U		1000 U	
11A	1600 J	1500 J	1000 U		1000 U	1000 U
11B	200 J		1000 U		1000 U	
12	400 J	200 J	1000 U		1000 U	1000 U
20	200 J		1000 U		1000 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	4.61		6.91		6.91		18.42	6.14	3
04	4.61		6.91		6.91		18.42	6.14	3
07	5.30		6.91		6.91		19.11	6.37	3
11A*	7.35		6.91		6.91		21.16	7.05	3
11B	5.30		6.91		6.91		19.11	6.37	3
12*	5.70		6.91		6.91		19.52	6.51	3
20	5.30		6.91		6.91		19.11	6.37	3
							$X_{..}$ = 134.86	$\underline{X}_{..}$ = 6.42	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.24	3.77
04	0.24	3.77
07	0.01	1.73
11A	1.20	1.33
11B	0.01	1.73
12	0.02	0.99
20	0.01	1.73
SS_{wells}=	1.72	SS_{total} = 15.06	SS_{error} = 13.34

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	5.45	6.91	6.91	6.42
Maximum Concentration	7.35	6.91	6.91	7.35
Minumum Concentration	4.61	6.91	6.91	4.61
Standard Deviation	0.93	0.00	0.00	0.87
Coefficient of Variation	0.17	0.00	0.00	0.14

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.72	6	0.29	0.27	2.66
Error (within wells)	13.34	14	1.08		
Total	15.06	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
S [illegible] $(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
[illegible] $_{total}$ - SS_{wells} = Sum of squares of differences of observations within wells from the well [illegible]

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11

Analysis of Variance

Log Transformed Thallium Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	1.3 UJ		1 U		6 U	
04	1.3 U		1 UJ		8.5 U	
07	1.3 UJ		1 UJ		6 U	
11A	1.4 U	1.4 U	1 U		6 U	6 U
11B	1.4 U		10 U		6 U	
12	1.3 UJ	1.3 UJ	1 UJ	1 UJ	6 U	6 U
20	1.3 UJ		1 UJ		6 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.26		0.00		1.79		2.05	0.68	3
04	0.26		0.00		2.14		2.40	0.80	3
07	0.26		0.00		1.79		2.05	0.68	3
11A*	0.34		0.00		1.79		2.13	0.71	3
11B	0.34		2.30		1.79		4.43	1.48	3
12*	0.26		0.00		1.79		2.05	0.68	3
20	0.26		0.00		1.79		2.05	0.68	3
						$X_{..}$ =	17.18	$\underline{X}_{..}$ = 0.82	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.05	1.93
04	0.00	2.73
07	0.05	1.93
11A	0.04	1.85
11B	1.30	3.38
12	0.05	1.93
20	0.05	1.93
SS_{wells}=	1.55	SS_{total} = 15.66
SS_{error} = 14.11		

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	0.28	0.33	1.84	0.82
Maximum Concentration	0.34	2.30	2.14	2.30
Minumum Concentration	0.26	0.00	1.79	0.00
Standard Deviation	0.04	0.87	0.13	0.88
Coefficient of Variation	0.13	2.65	0.07	1.08

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.55	6	0.26	0.23	2.7
Error (within wells)	14.11	14	1.12		
Total	15.66	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Tin Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01						
04			13 U			
07			13 U			
11A			13 U			
11B	12.4 U		**1000 U			
12			13 U	13 U		
20			13 U			

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01							0.00	--	0
04			2.56				2.56	2.56	1
07			2.56				2.56	2.56	1
11A			2.56				2.56	2.56	1
11B	2.52						2.52	2.52	1
12*			2.56				2.56	2.56	1
20			2.56				2.56	2.56	1
							$X_{..}$ = 15.34	$\underline{X}_{..}$ = 2.56	N = 6

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{i.})^2$
01	--	0.00
04	0.00	0.00
07	0.00	0.00
11A	0.00	0.00
11B	0.00	0.00
12	0.00	0.00
20	0.00	0.00
SS_{wells}=	0.00	SS_{total} = 0.00
		SS_{error} = 0.00

	January	April	September	All Sample Events
Total Points	1	5	0	6
Average Concentration	2.52	2.56		2.56
Maximum Concentration	2.52	2.56		2.56
Minumum Concentration	2.52	2.56		2.52
Standard Deviation		0.00		0.02
Coefficient of Variation		0.00		0.01

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	0.00	6	0.00	--	--
Error (within wells)	0.00	-1	--		
Total	0.00	5			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$\Sigma(X_{ij} - \underline{X}_{i.})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{i.}$ for all wells.
$SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

* Duplicate samples were averaged.
Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
** Indicates outlier data points that were not used for data analysis.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Vanadium Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	2.3 U		5 U		13.7 J	
04	3.1 J		5 UJ		16 J	
07	5.6 J		5 UJ		12 J	
11A	1.5 U	1.5 U	5 U		7 U	7 U
11B	1.9 J		**50 U		7 U	
12	3.5 J	2.6 J	6.4 J	6 J	7 U	7 U
20	2.3 U		5 UJ		7 U	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	0.83		1.61		2.62		5.06	1.69	3
04	1.13		1.61		2.77		5.51	1.84	3
07	1.72		1.61		2.48		5.82	1.94	3
11A*	0.41		1.61		1.95		3.96	1.32	3
11B	0.64				1.95		2.59	1.29	2
12*	1.12		1.82		1.95		4.89	1.63	3
20	0.83		1.61		1.95		4.39	1.46	3
							$X_{..}$ = 32.21	$\underline{X}_{..}$ = 1.61	N = 20

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{..})^2$
01	0.02	1.62
04	0.15	1.58
07	0.32	0.78
11A	0.25	1.56
11B	0.20	1.05
12	0.00	0.40
20	0.07	0.72
SS_{wells}=	1.02	SS_{total} = 7.71

SS_{error} = 6.70

	January	April	September	All Sample Events
Total Points	7	6	7	20
Average Concentration	0.95	1.65	2.24	1.61
Maximum Concentration	1.72	1.82	2.77	2.77
Minumum Concentration	0.41	1.61	1.95	0.41
Standard Deviation	0.42	0.09	0.37	0.64
Coefficient of Variation	0.44	0.05	0.17	0.40

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	1.02	6	0.17	0.29	2.7
Error (within wells)	6.70	13	0.59		
Total	7.71	19			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between $X_{i.}$ and $\underline{X}_{..}$.
$SS_{total} = \Sigma\Sigma(X_{ij} - \underline{X}_{..})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{..}$ for all wells.
$SS_{error} = SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well means.

* Duplicate samples were averaged.
Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
** Indicates outlier data points that were not used for data analysis.

KINGS BAY - SITE 11
Analysis of Variance
Log Transformed Zinc Ground Water Concentrations for Background Wells

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate
01	3.8 J		34.2 U		39	
04	4.3 U		64.7 U		36	
07	34		34.6 U		41.9	
11A	62.4 J	32.7 UJ	25.5 U		14.1 J	14.8 J
11B	28.4 U		59 J		88	
12	13.7 J	13.3 J	29.4 U	41 U	53.8	36.4
20	14.8 J		38.4 U		73	

Log Transformed Data

Well I.D. (KBA-11-)	January	January Duplicate	April	April Duplicate	September	September Duplicate	$X_{i.}$	$\underline{X}_{i.}$	n_i
01	1.34		3.53		3.66		8.53	2.84	3
04	1.46		4.17		3.58		9.21	3.07	3
07	3.53		3.54		3.74		10.81	3.60	3
11A*	3.86		3.24		2.67		9.77	3.26	3
11B	3.35		4.08		4.48		11.90	3.97	3
12*	2.60		3.56		3.81		9.97	3.32	3
20	2.69		3.65		4.29		10.63	3.54	3
							$X_{..}$ = 70.83	$\underline{X}_{..}$ = 3.37	N = 21

Well I.D. (KBA-11-)	$n_i(\underline{X}_{i.} - \underline{X}_{..})^2$	$\Sigma(X_{ij} - \underline{X}_{i.})^2$
01	0.84	4.26
04	0.27	4.34
07	0.16	0.18
11A	0.04	0.75
11B	1.06	1.72
12	0.01	0.82
20	0.09	1.38
SS_{wells}= 2.47	SS_{total} = 13.45	SS_{error} = 10.99

	January	April	September	All Sample Events
Total Points	7	7	7	21
Average Concentration	2.69	3.68	3.75	3.37
Maximum Concentration	3.86	4.17	4.48	4.48
Minumum Concentration	1.46	3.24	2.67	1.46
Standard Deviation	0.99	0.33	0.58	0.82
Coefficient of Variation	0.37	0.09	0.16	0.24

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	Calculated F	Tabulated F
Between Wells	2.47	6	0.41	0.43	2.66
Error (within wells)	10.99	14	0.96		
Total	13.45	20			

Conclusion: There is no significant difference between these data.

Notes:

n_i = Number of concentration measurements for individual well.
N = Total number of concentration measurements.
p = Total number of wells sampled.
X_{ij} = Individual concentration measurement at well i, sample event j.
$X_{i.}$ = Sum of all measurements at well i.
$\underline{X}_{i.}$ = Mean of all measurements at well i.
$X_{..}$ = Sum of all measurements at all wells.
$\underline{X}_{..}$ = Mean of all measurements at all wells.
$SS_{wells} = \Sigma n_i(\underline{X}_{i.} - \underline{X}_{..})^2$ = Sum of squares of differences between X_i and $\underline{X}_{..}$
$\Sigma(X_{ij} - \underline{X}_{i.})^2$ = Sum of the sum of squares of differences between X_{ij} and $\underline{X}_{i.}$ for all wells.
$SS_{total} - SS_{wells}$ = Sum of squares of differences of observations within wells from the well

Degrees of Freedom Between Wells = p - 1.
Degrees of Freedom for Error Within Wells = N - p.
Total Degrees of Freedom = N - 1.
Mean Squares Between Wells = $MS_{wells} = SS_{wells}/(p-1)$.
Mean Squares for Error Within Wells = $MS_{error} = SS_{error}/(N-p)$.
Calculated F = MS_{wells}/MS_{error}.
Tabulated F as reported in [1].
U = Non-detected value. Sample quantitation limit reported.
J = Estimated detected value.
UJ = Estimated quantitation limit.
* Duplicate samples were averaged.

APPENDIX H

STATISTICAL COMPARISONS

Onsite Characterization Wells Versus Background

KINGS BAY - SITE 11

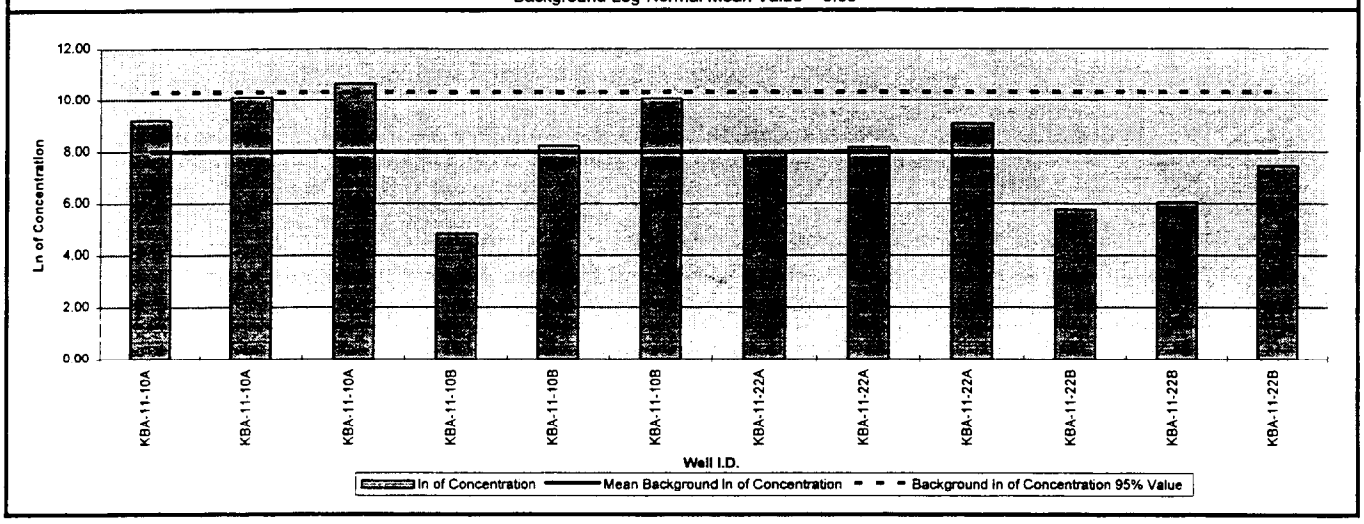
Aluminum Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	Sep	20	U	154	4.34	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 8.01	
Background	Jan	20	J	265	5.58	$f_{cs}=n_{cs}-1$ = 2		
Background	Sep	12	U	355.5	5.18	f = 20	BG variance = 3.5631	
Background	Sep	11A		565	6.34	BG variance = 3.563		
Background	Jan	11A	J	572.5	6.35	degrees freedom = 1		
Background	Sep	11B		701	6.55	0.95 Percentile Value = 3.841		
Background	Jan	01	J	1590	7.37			
Background	Apr	11A	J	2120	7.66			
Background	Apr	04		2960	7.99			
Background	Jan	12	J	4045	8.31			
Background	Apr	20		4290	8.36			
Background	Jan	04	J	5670	8.64			
Background	Apr	12		7445	8.92			
Background	Apr	07		12100	9.40			
Background	Apr	01	J	16700	9.72			
Background	Jan	07	J	28700	10.26			
Background	Sep	07		29100	10.28			
Background	Sep	04		29500	10.29			
Background	Sep	01		41100	10.62			Reject H_o
Onsite	Jan	KBA-11-10A	J	10100.00	9.22	Pooled Var. = 3.259	t statistic = 1.774	
Onsite	Apr	KBA-11-10A		25050.00	10.13	Char. variance = 0.522	d.f. = 20.00	
Onsite	Sep	KBA-11-10A		42100.00	10.65	Chi Square Statistic = 2.057	$t_{0.05}$ = 1.725	NO
Onsite	Sep	KBA-11-10B	U	248.00	4.82	Pooled Var. = 3.913	t statistic = -0.250	
Onsite	Jan	KBA-11-10B	J	3750.00	8.23	Char. variance = 7.062	d.f. = 20.00	
Onsite	Apr	KBA-11-10B	J	23300.00	10.06	Chi Square Statistic = 0.505	$t_{0.05}$ = 1.725	NO
Onsite	Apr	KBA-11-22A	J	3150.00	8.06	Pooled Var. = 3.238	t statistic = 0.387	
Onsite	Jan	KBA-11-22A	J	3580.00	8.18	Char. variance = 0.316	d.f. = 20.00	
Onsite	Sep	KBA-11-22A		8840.00	9.09	Chi Square Statistic = 2.932	$t_{0.05}$ = 1.725	NO
Onsite	Sep	KBA-11-22B		320.00	5.77	Pooled Var. = 3.285	t statistic = -1.418	
Onsite	Apr	KBA-11-22B	J	423.00	6.05	Char. variance = 0.785	d.f. = 20.00	
Onsite	Jan	KBA-11-22B	J	1675.00	7.42	Chi Square Statistic = 1.401	$t_{0.05}$ = 1.725	NO

Percent Non-Detects: 10%

Background Log-Normal 95th Percentile Value = 10.32

Background Log-Normal Mean Value = 8.08



KINGS BAY - SITE 11

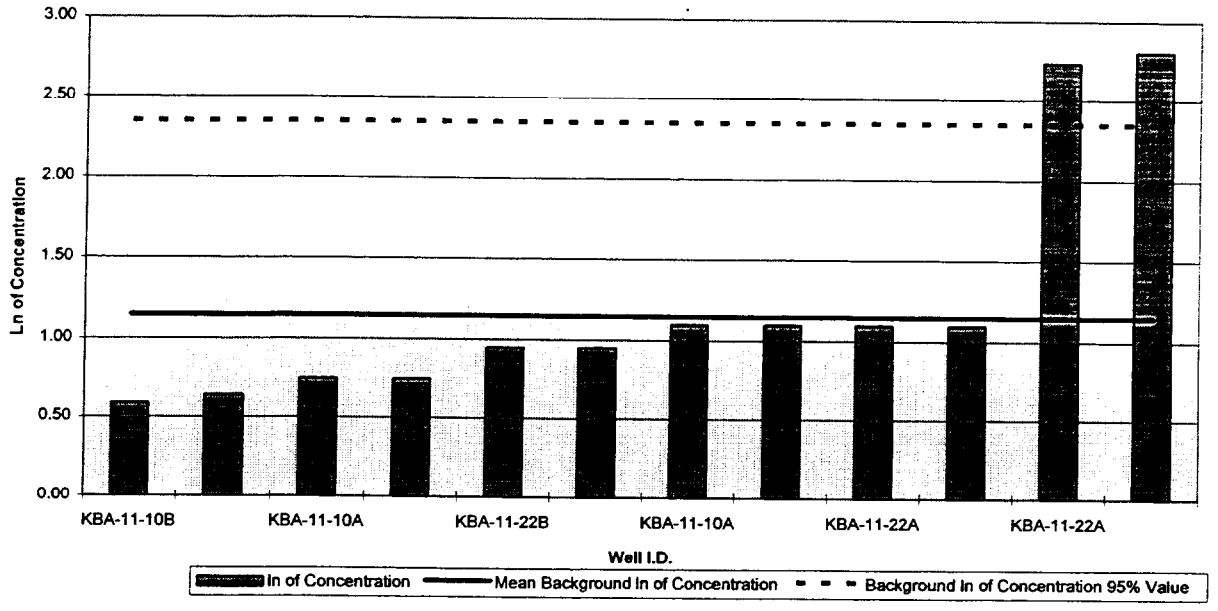
Antimony Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	04	U	1.8	0.59	P= 0.18
Background	JAN	20	UJ	1.8	0.59	n= 33
Background	SEP	01	U	2	0.69	nP= 6.00
Background	SEP	07	U	2	0.69	n(1-P)= 27.00
Background	SEP	11A*	U	2	0.69	P_{cw}= 0.33
Background	SEP	11B	U	2	0.69	P_{bg}= 0.10
Background	SEP	12*	U	2	0.69	S_D= 0.14
Background	SEP	20	U	2	0.69	z= 1.71
Background	JAN	01	J	2.3	0.83	
Background	JAN	12	U	2.55	0.94	$z_{0.05}$= 1.645
Background	APR	01	U	3	1.10	
Background	APR	04	U	3	1.10	Reject H_o.
Background	APR	07	U	3	1.10	
Background	APR	11A	U	3	1.10	
Background	APR	12	U	3	1.10	
Background	APR	20	U	3	1.10	
Background	JAN	11A	UJ	3.85	1.35	
Background	APR	11B	U	6	1.79	
Background	JAN	11B	U	10.1	2.31	
Background	JAN	07		10.5	2.35	
Background	SEP	04	U	13	2.56	
Onsite	Jan	KBA-11-10B	U	1.8	0.59	
Onsite	Jan	KBA-11-22B	UJ	1.9	0.64	
Onsite	Jan	KBA-11-10A	U	2.1	0.74	
Onsite	Jan	KBA-11-22A	U	2.1	0.74	
Onsite	Sep	KBA-11-22B	J	2.6	0.96	
Onsite	Sep	KBA-11-10B	J	2.6	0.96	
Onsite	Apr	KBA-11-10A	U	3.0	1.10	
Onsite	Apr	KBA-11-10B	U	3.0	1.10	
Onsite	Apr	KBA-11-22A	U	3.0	1.10	
Onsite	Apr	KBA-11-22B	U	3.0	1.10	
Onsite	Sep	KBA-11-22A	J	15.4	2.73	
Onsite	Sep	KBA-11-10A	J	16.5	2.80	

Percent Non-Detects: 82%

Background Log-Normal 95th Percentile Value = 2.35

Background Log-Normal Mean Value = 1.15



KINGS BAY - SITE 11

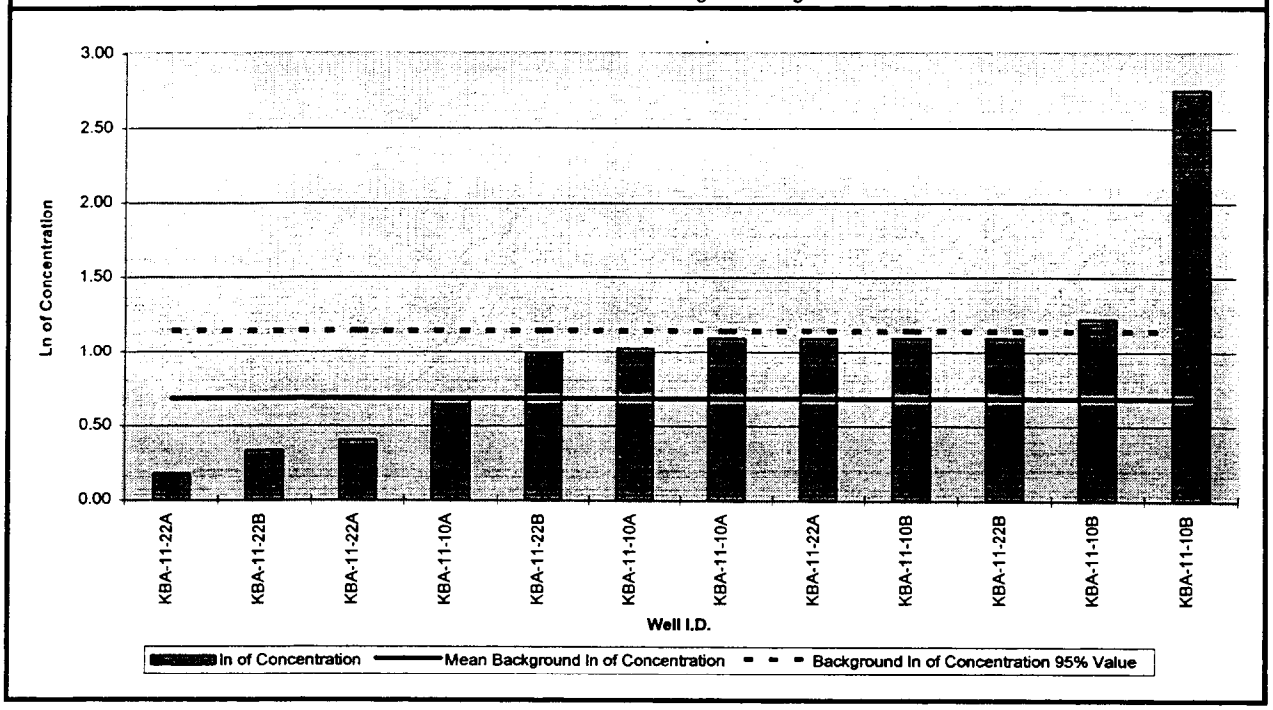
Arsenic Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	APR	01	U	1	0.00	P= 0.47
Background	APR	07	U	1	0.00	n= 32
Background	APR	11A	U	1	0.00	nP= 15.00
Background	JAN	11B	UJ	1	0.00	n(1-P)= 17.00
Background	APR	04	J	1.2	0.18	P_{cw}= 0.67
Background	JAN	04	J	1.2	0.18	P_{bg}= 0.35
Background	JAN	01	U	1.3	0.26	S_D= 0.18
Background	JAN	07	U	1.3	0.26	z= 1.74
Background	JAN	11A	J	1.4	0.34	
Background	JAN	12	J	2	0.69	$z_{0.05}$= 1.645
Background	JAN	20	J	2.8	1.03	
Background	APR	20	J	2.9	1.06	Reject H_o.
Background	SEP	01	U	3	1.10	
Background	SEP	07	U	3	1.10	
Background	SEP	11A	U	3	1.10	
Background	SEP	11B	U	3	1.10	
Background	SEP	12	U	3	1.10	
Background	SEP	20	U	3	1.10	
Background	SEP	04	UJ	3	1.10	
Background	APR	11B		8	2.08	
Onsite	Apr	KBA-11-22A	J	1.2	0.18	
Onsite	Apr	KBA-11-22B	J	1.4	0.34	
Onsite	Jan	KBA-11-22A	J	1.5	0.41	
Onsite	Apr	KBA-11-10A	J	2.0	0.69	
Onsite	Jan	KBA-11-22B	J	2.7	0.99	
Onsite	Jan	KBA-11-10A	J	2.8	1.03	
Onsite	Sep	KBA-11-10A	UJ	3.0	1.10	
Onsite	Sep	KBA-11-22A	UJ	3.0	1.10	
Onsite	Sep	KBA-11-10B	U	3.0	1.10	
Onsite	Sep	KBA-11-22B	U	3.0	1.10	
Onsite	Jan	KBA-11-10B	J	3.4	1.22	
Onsite	Apr	KBA-11-10B		15.7	2.75	

Percent Non-Detects: 53%

Background Log-Normal 95th Percentile Value = 1.15

Background Log-Normal Mean Value = 0.69



KINGS BAY - SITE 11

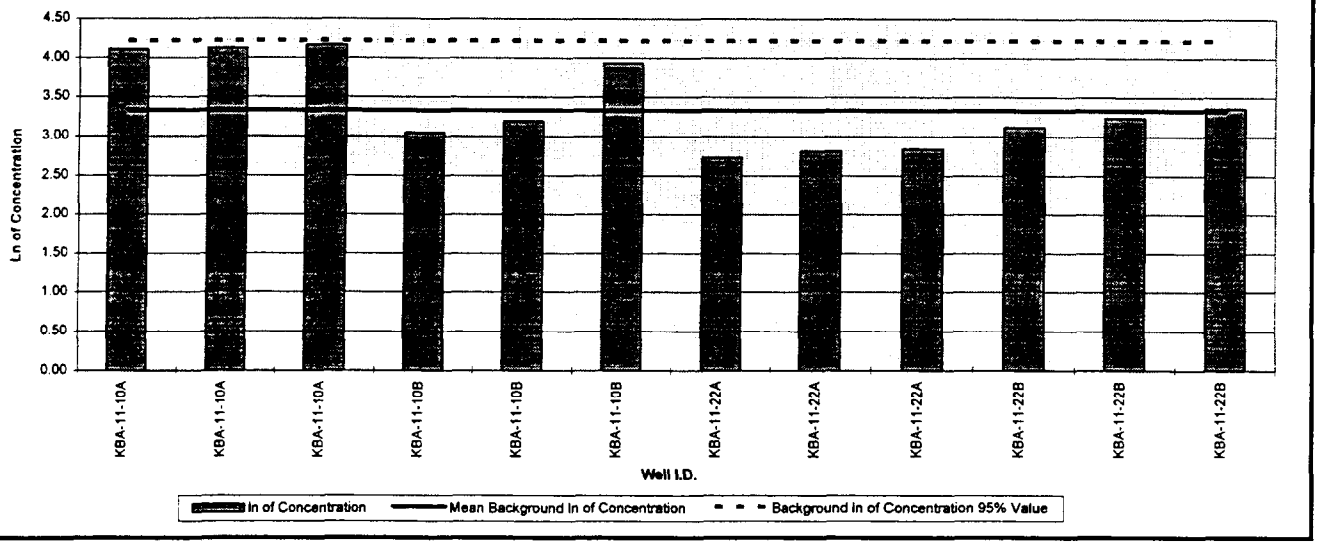
Barium Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	JAN	01	J	16	2.77	$f_{bg}=n_{bg}-1$ = 20	BG Mean = 3.33	
Background	APR	01	J	31.9	3.46	$f_{cs}=n_{cs}-1$ = 2		
Background	SEP	01	J	59.6	4.09	f = 22	BG variance = 0.5098	
Background	JAN	04	J	5.1	1.63	BG variance = 0.501		
Background	APR	04	J	6.7	1.90	degrees freedom = 1		
Background	SEP	04	J	27	3.30	0.95 Percentile Value = 3.841		
Background	JAN	07	J	15.7	2.75			
Background	APR	07	J	31	3.43			
Background	SEP	07	J	39.8	3.68			
Background	SEP	11A	J	18.6	2.92			
Background	APR	11A	J	32	3.47			
Background	JAN	11A	J	35.15	3.56			
Background	SEP	11B	J	23.4	3.15			
Background	JAN	11B	J	45	3.81			
Background	APR	11B		81	4.39			
Background	SEP	12	J	14.25	2.66			
Background	JAN	12	J	32.55	3.48			
Background	APR	12	J	68.45	4.23			
Background	SEP	20	J	33	3.50			
Background	JAN	20	J	39	3.66			
Background	APR	20	J	63.7	4.15			Reject H_o
Onsite	Jan	KBA-11-10A	J	61.1	4.11	Pooled Var. = 0.456	t statistic = 5.122	
Onsite	Apr	KBA-11-10A	J	62.0	4.13	Char. variance = 0.001	d.f. = 20.46	
Onsite	Sep	KBA-11-10A	J	64.7	4.17	Chi Square Statistic = 10.587	$t_{0.05}$ = 1.723	YES
Onsite	Jan	KBA-11-10B	J	21.0	3.04	Pooled Var. = 0.477	t statistic = 0.136	
Onsite	Sep	KBA-11-10B	J	24.4	3.19	Char. variance = 0.228	d.f. = 22.00	
Onsite	Apr	KBA-11-10B	J	51.2	3.94	Chi Square Statistic = 0.459	$t_{0.05}$ = 1.717	NO
Onsite	Jan	KBA-11-22A	J	15.3	2.73	Pooled Var. = 0.456	t statistic = -3.383	
Onsite	Apr	KBA-11-22A	J	16.7	2.82	Char. variance = 0.003	d.f. = 21.45	
Onsite	Sep	KBA-11-22A	J	17.1	2.84	Chi Square Statistic = 7.886	$t_{0.05}$ = 1.719	NO
Onsite	Sep	KBA-11-22B	J	22.6	3.12	Pooled Var. = 0.457	t statistic = -0.546	
Onsite	Apr	KBA-11-22B	J	25.6	3.24	Char. variance = 0.015	d.f. = 20.53	
Onsite	Jan	KBA-11-22B	J	28.8	3.36	Chi Square Statistic = 5.027	$t_{0.05}$ = 1.723	NO

Percent Non-Detects: 0%

Background Log-Normal 95th Percentile Value = 4.23

Background Log-Normal Mean Value = 3.33



KINGS BAY - SITE 11

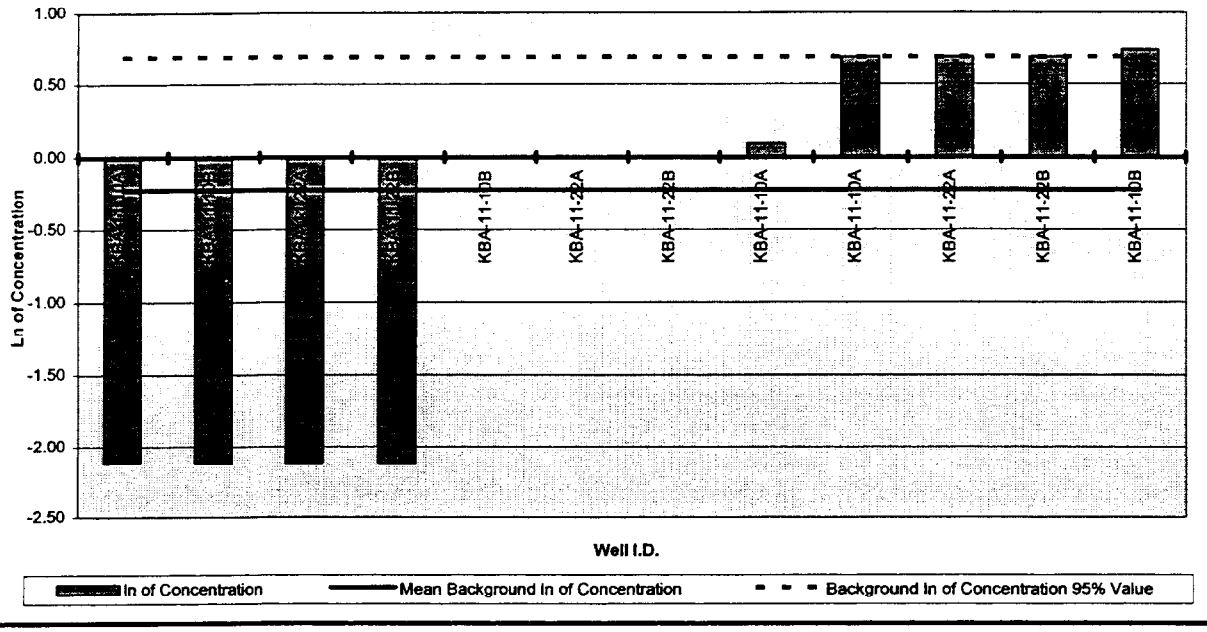
Beryllium Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	04	UJ	0.12	-2.12	P= 0.27
Background	JAN	11A	J	0.14	-1.97	n= 33
Background	JAN	01	U	0.14	-1.97	nP= 9.00
Background	JAN	12	J	0.21	-1.56	n(1-P)= 24.00
Background	JAN	20	J	0.22	-1.51	P_{cw}= 0.17
Background	JAN	07	J	0.43	-0.84	P_{bg}= 0.33
Background	JAN	11B	J	0.51	-0.67	S_D= 0.16
Background	SEP	20	J	1	0.00	z= 1.03
Background	SEP	04	U	1	0.00	
Background	SEP	07	U	1	0.00	$z_{0.05}$= 1.645
Background	SEP	11A	U	1	0.00	
Background	SEP	11B	U	1	0.00	Do not reject H_o.
Background	SEP	12	U	1	0.00	
Background	SEP	01	J	1.2	0.18	
Background	APR	01	U	2	0.69	
Background	APR	04	U	2	0.69	
Background	APR	07	U	2	0.69	
Background	APR	11A	U	2	0.69	
Background	APR	12	U	2	0.69	
Background	APR	20	U	2	0.69	
Background	APR	11B	U	5	1.61	
Onsite	Jan	KBA-11-10A	UJ	0.12	-2.12	
Onsite	Jan	KBA-11-10B	UJ	0.12	-2.12	
Onsite	Jan	KBA-11-22A	UJ	0.12	-2.12	
Onsite	Jan	KBA-11-22B	UJ	0.12	-2.12	
Onsite	Sep	KBA-11-10B	U	1.0	0.00	
Onsite	Sep	KBA-11-22A	U	1.0	0.00	
Onsite	Sep	KBA-11-22B	U	1.0	0.00	
Onsite	Sep	KBA-11-10A	J	1.1	0.10	
Onsite	Apr	KBA-11-10A	U	2.0	0.69	
Onsite	Apr	KBA-11-22A	U	2.0	0.69	
Onsite	Apr	KBA-11-22B	U	2.0	0.69	
Onsite	Apr	KBA-11-10B	J	2.1	0.74	

Percent Non-Detects: 73%

Background Log-Normal 95th Percentile Value = 0.69

Background Log-Normal Mean Value = -0.22



KINGS BAY - SITE 11

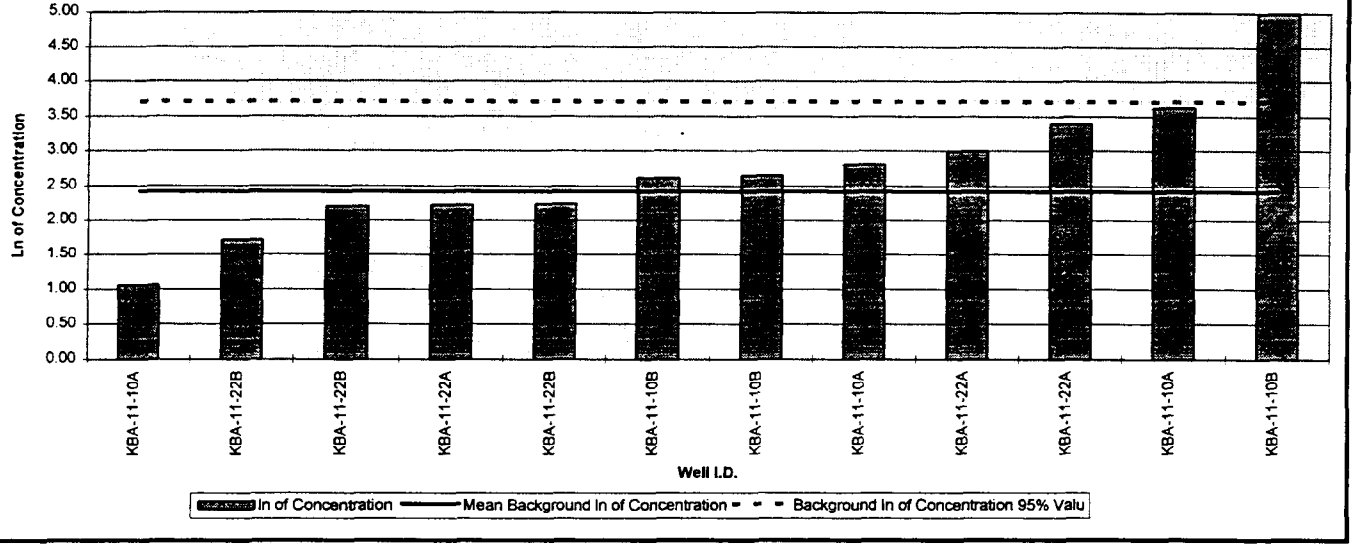
Chromium Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	01	U	2.3	0.83	0.14	1	R_{cs}= 208
Background	JAN	20	U	2.6	0.96	0.26	2	n_{cs}= 12
Background	APR	04	U	5	1.61	0.92	4	n_{bg}= 21
Background	SEP	11A	U	8	2.08	1.39	5	U_{cs}= 122
Background	JAN	04	J	5.7	1.74	1.74	7	z= -0.1497
Background	JAN	11A	J	6.05	1.80	1.80	8	$z_{0.05}$= -1.645
Background	JAN	12	J	7	1.95	1.95	9	
Background	JAN	11B	J	9.7	2.27	2.27	13	Do not reject H_o.
Background	APR	07		10.4	2.34	2.34	14	
Background	SEP	11B		12	2.48	2.48	15	
Background	APR	12		14.1	2.65	2.65	17	
Background	SEP	12		15.75	2.76	2.76	19	
Background	SEP	20		16	2.77	2.77	20	
Background	SEP	07		17.2	2.84	2.84	22	
Background	APR	11A		18.1	2.90	2.90	23	
Background	APR	01		24.6	3.20	3.20	25	
Background	SEP	04		29.7	3.39	3.39	27	
Background	APR	20		40.6	3.70	3.70	29	
Background	SEP	07		41	3.71	3.71	30.5	
Background	APR	11B		41	3.71	3.71	30.5	
Background	SEP	01		45.5	3.82	3.82	32	
Onsite	Jan	KBA-11-10A	U	2.9	1.06	0.37	3	
Onsite	Jan	KBA-11-22B	J	5.6	1.72	1.72	6	
Onsite	Apr	KBA-11-22B	J	9.0	2.20	2.20	10	
Onsite	Jan	KBA-11-22A	J	9.2	2.22	2.22	11	
Onsite	Sep	KBA-11-22B	J	9.4	2.24	2.24	12	
Onsite	Jan	KBA-11-10B		13.7	2.62	2.62	16	
Onsite	Sep	KBA-11-10B		14.2	2.65	2.65	18	
Onsite	Apr	KBA-11-10A		16.6	2.81	2.81	21	
Onsite	Apr	KBA-11-22A		20.1	3.00	3.00	24	
Onsite	Sep	KBA-11-22A		29.6	3.39	3.39	26	
Onsite	Sep	KBA-11-10A		37.6	3.63	3.63	28	
Onsite	Apr	KBA-11-10B		147	4.99	4.99	33	

Percent Non-Detects: 15%

Background Log-Normal 95th Percentile Value = 3.71

Background Log-Normal Mean Value = 2.42



KINGS BAY - SITE 11

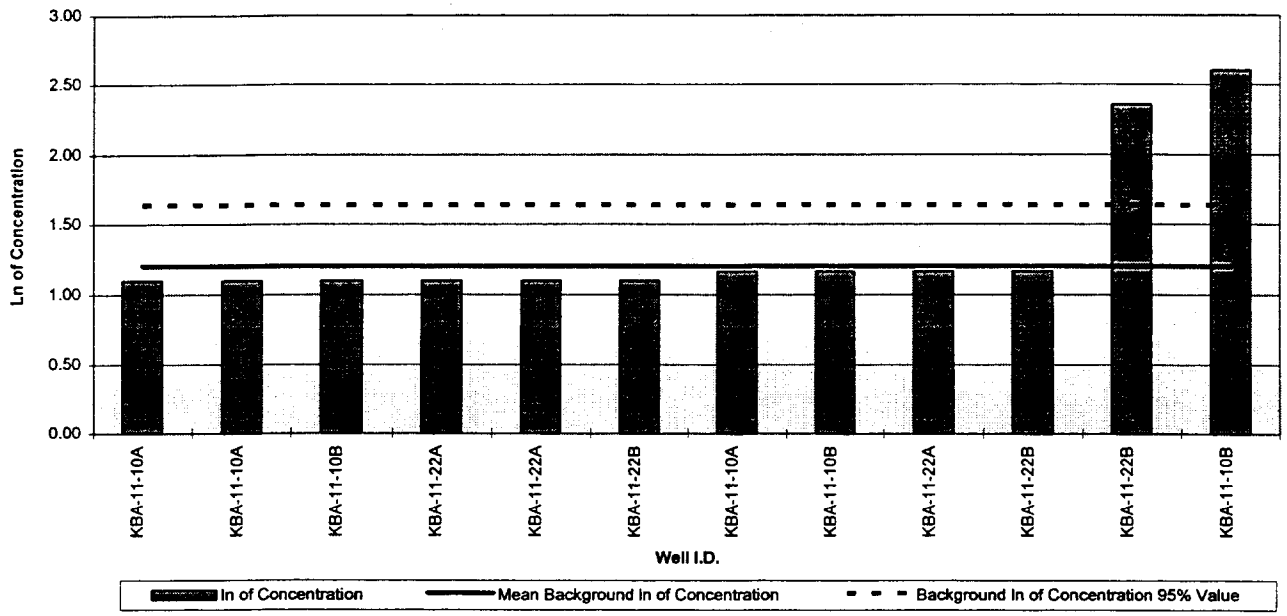
Cadmium Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier		Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	APR	01	U	1	3	1.10	P= 0.13
Background	SEP	01	U	1	3	1.10	n= 32
Background	SEP	04	U	1	3	1.10	nP= 4.00
Background	SEP	07	U	1	3	1.10	n(1-P)= 28.00
Background	APR	11A	U	1	3	1.10	
Background	SEP	11A	U	1	3	1.10	Cannot perform test.
Background	SEP	11B	U	1	3	1.10	nP < 5
Background	APR	04	UJ	1	3	1.10	
Background	APR	07	UJ	1	3	1.10	
Background	APR	12	UJ	1	3	1.10	
Background	APR	20	UJ	1	3	1.10	
Background	JAN	01	U	1	3.1	1.13	
Background	JAN	07	U	1	3.1	1.13	
Background	JAN	12	U	1	3.1	1.13	
Background	JAN	20	U	1	3.1	1.13	
Background	JAN	11A	U	1	3.2	1.16	
Background	JAN	11B	U	1	3.2	1.16	
Background	JAN	04	J		3.5	1.25	
Background	APR	11B	U	1	5	1.61	
Background	SEP	12			8.95	2.19	
Onsite	Apr	KBA-11-10A	UJ	1.00	3.0	1.10	
Onsite	Sep	KBA-11-10A	U	1.00	3.0	1.10	
Onsite	Apr	KBA-11-10B	U	1.00	3.0	1.10	
Onsite	Apr	KBA-11-22A	U	1.00	3.0	1.10	
Onsite	Sep	KBA-11-22A	U	1.00	3.0	1.10	
Onsite	Apr	KBA-11-22B	U	1.00	3.0	1.10	
Onsite	Jan	KBA-11-10A	U	1.00	3.2	1.16	
Onsite	Jan	KBA-11-10B	U	1.00	3.2	1.16	
Onsite	Jan	KBA-11-22A	U	1.00	3.2	1.16	
Onsite	Jan	KBA-11-22B	U	1.00	3.2	1.16	
Onsite	Sep	KBA-11-22B			10.6	2.36	
Onsite	Sep	KBA-11-10B			13.5	2.60	

Percent Non-Detects: 88%

Background Log-Normal 95th Percentile Value = 1.64

Background Log-Normal Mean Value = 1.20

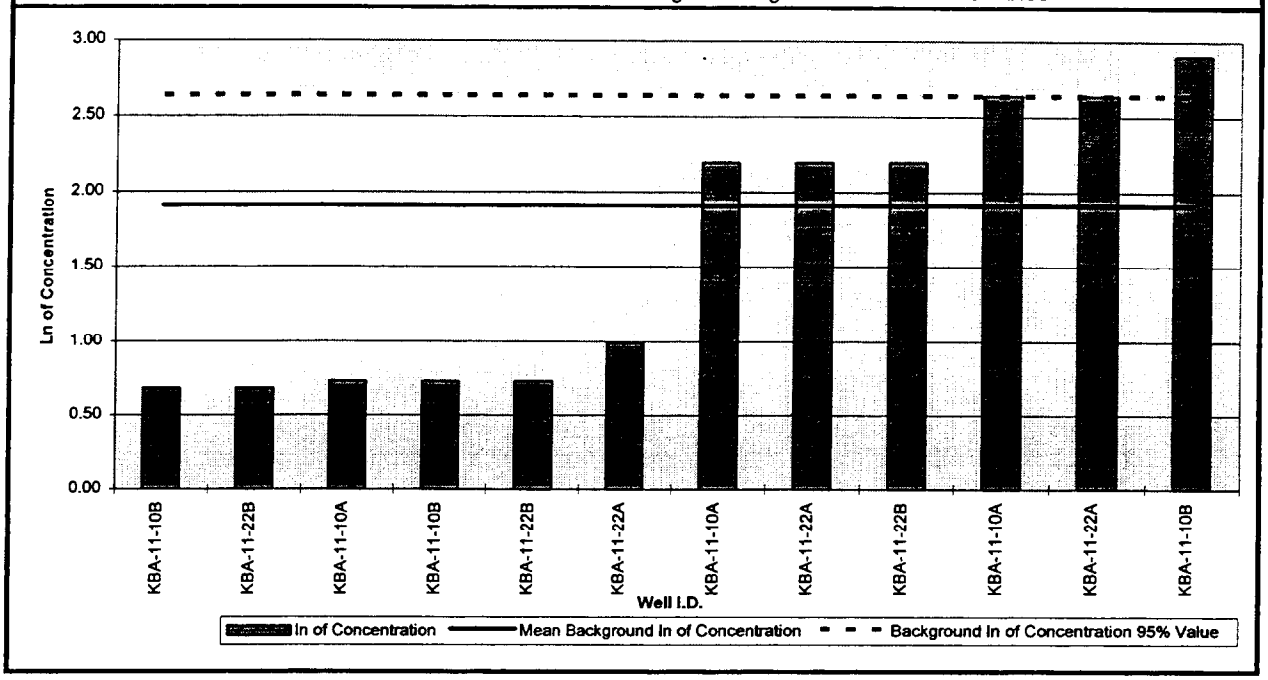


KINGS BAY - SITE 11
Cobalt Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	U	1.6	0.47	P= 0.12
Background	JAN	07	U	1.6	0.47	n= 33
Background	JAN	20	U	1.6	0.47	nP= 4.00
Background	JAN	04	U	2.1	0.74	n(1-P)= 29.00
Background	JAN	11A	U	2.1	0.74	
Background	JAN	11B	U	2.1	0.74	Cannot perform test.
Background	JAN	12	J	2.5	0.92	nP < 5
Background	APR	01	U	9	2.20	
Background	APR	04	U	9	2.20	
Background	APR	07	U	9	2.20	
Background	APR	11A	U	9	2.20	
Background	APR	12	U	9	2.20	
Background	APR	20	U	9	2.20	
Background	SEP	01	U	14	2.64	
Background	SEP	04	U	14	2.64	
Background	SEP	07	U	14	2.64	
Background	SEP	11A	U	14	2.64	
Background	SEP	11B	U	14	2.64	
Background	SEP	12	U	14	2.64	
Background	SEP	20	U	14	2.64	
Background	APR	11B	U	50	3.91	
Onsite	Sep	KBA-11-10B	U	2.0	0.69	
Onsite	Sep	KBA-11-22B	U	2.0	0.69	
Onsite	Jan	KBA-11-10A	U	2.1	0.74	
Onsite	Jan	KBA-11-10B	U	2.1	0.74	
Onsite	Jan	KBA-11-22B	U	2.1	0.74	
Onsite	Jan	KBA-11-22A	J	2.7	0.99	
Onsite	Apr	KBA-11-10A	U	9.0	2.20	
Onsite	Apr	KBA-11-22A	U	9.0	2.20	
Onsite	Apr	KBA-11-22B	U	9.0	2.20	
Onsite	Sep	KBA-11-10A	U	14.0	2.64	
Onsite	Sep	KBA-11-22A	U	14.0	2.64	
Onsite	Apr	KBA-11-10B	J	18.2	2.90	

Percent Non-Detects: 88%

Background Log-Normal 95th Percentile Value = 3.71
Background Log-Normal Mean Value = 2.55



KINGS BAY - SITE 11

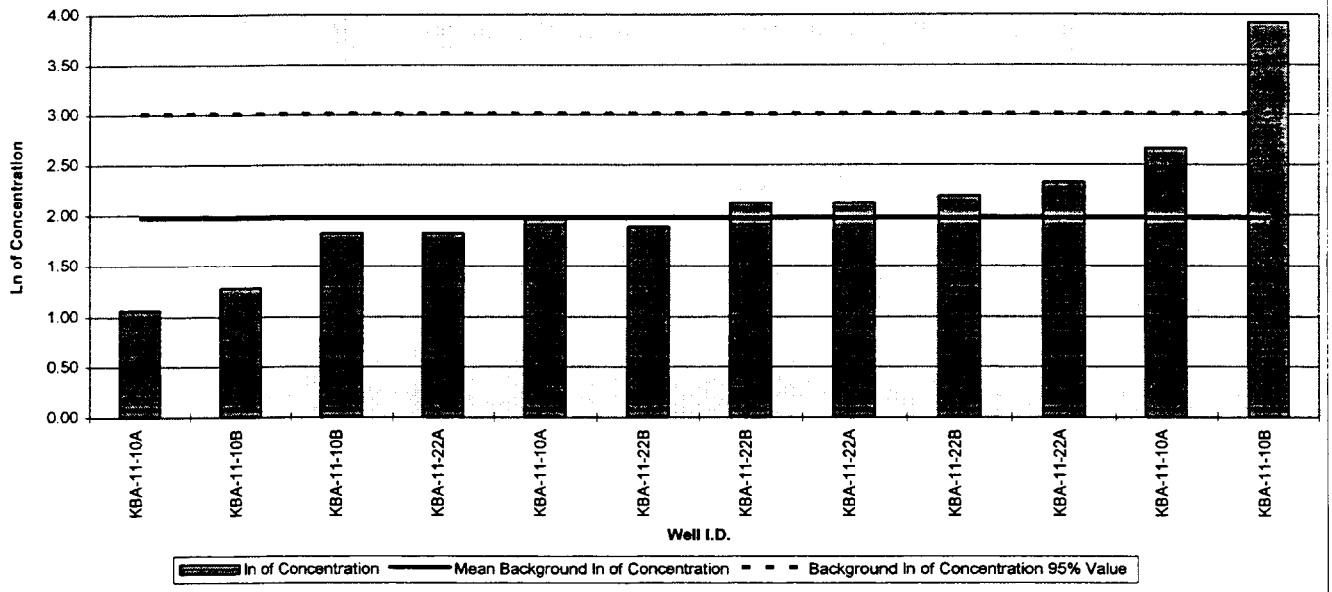
Copper Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	01	U	1.7	0.53	-0.16	1.5	R_{cs}= 173.5
Background	JAN	20	U	1.7	0.53	-0.16	1.5	n_{cs}= 12
Background	JAN	04	U	2.9	1.06	0.37	3.5	n_{bg}= 21
Background	JAN	07	J	2.3	0.83	0.83	6	U_{cs}= 156.5
Background	APR	04	UJ	6.6	1.89	1.19	9	z= 1.1414
Background	JAN	12	J	3.45	1.24	1.24	10	$z_{0.05}$= -1.645
Background	SEP	11A	J	4.6	1.53	1.53	12	
Background	SEP	07	J	8.5	2.14	2.14	16	Do not reject H_0.
Background	SEP	11B	J	9.1	2.21	2.21	18	
Background	APR	12	J	9.4	2.24	2.24	19	
Background	SEP	04	J	9.7	2.27	2.27	20	
Background	APR	11A	J	10.7	2.37	2.37	22	
Background	JAN	11A	J	11.35	2.43	2.43	23	
Background	APR	01	J	11.9	2.48	2.48	24	
Background	SEP	01	J	14.2	2.65	2.65	25	
Background	SEP	12	J	15	2.71	2.71	27	
Background	APR	07	J	16.9	2.83	2.83	28	
Background	APR	11B		18	2.89	2.89	29	
Background	JAN	11B	J	19.1	2.95	2.95	30	
Background	APR	20	J	20.3	3.01	3.01	31	
Background	SEP	20		28	3.33	3.33	32	
Onsite	Jan	KBA-11-10A	U	2.9	1.06	0.37	3.5	
Onsite	Sep	KBA-11-10B	U	3.6	1.28	0.59	5	
Onsite	Jan	KBA-11-10B	U	6.2	1.82	1.13	7.5	
Onsite	Jan	KBA-11-22A	U	6.2	1.82	1.13	7.5	
Onsite	Apr	KBA-11-10A	UJ	7.2	1.97	1.28	11	
Onsite	Sep	KBA-11-22B	J	6.6	1.89	1.89	13	
Onsite	Apr	KBA-11-22B	J	8.4	2.13	2.13	14	
Onsite	Apr	KBA-11-22A	J	8.4	2.13	2.13	15	
Onsite	Jan	KBA-11-22B	J	9.0	2.20	2.20	17	
Onsite	Sep	KBA-11-22A	J	10.3	2.33	2.33	21	
Onsite	Sep	KBA-11-10A	J	14.3	2.66	2.66	26	
Onsite	Apr	KBA-11-10B		50.2	3.92	3.92	33	

Percent Non-Detects: 27%

Background Log-Normal 95th Percentile Value = 3.01

Background Log-Normal Mean Value = 2.01



KINGS BAY - SITE 11

Cyanide Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	1.2	0.18
Background	JAN	04	U	1.2	0.18
Background	JAN	07	U	1.2	0.18
Background	JAN	11A	U	1.2	0.18
Background	JAN	11B	U	1.2	0.18
Background	JAN	12	U	1.2	0.18
Background	JAN	20	U	1.2	0.18
Background	APR	11B	U	5	1.61
Background	APR	01	U	10	2.30
Background	SEP	01	U	10	2.30
Background	APR	04	U	10	2.30
Background	SEP	04	U	10	2.30
Background	APR	07	U	10	2.30
Background	SEP	07	U	10	2.30
Background	APR	11A	U	10	2.30
Background	SEP	11A	U	10	2.30
Background	SEP	11B	U	10	2.30
Background	APR	12	U	10	2.30
Background	SEP	12	U	10	2.30
Background	APR	20	U	10	2.30
Background	SEP	20	U	10	2.30
Onsite	Apr	KBA-11-10B	U	10	2.30
Onsite	Apr	KBA-11-22A	U	10	2.30
Onsite	Apr	KBA-11-22B	U	10	2.30
Onsite	Apr	KBA-11-10A	U	10	2.30
Onsite	Jan	KBA-11-10A	U	1.2	0.18
Onsite	Jan	KBA-11-22A	U	1.2	0.18
Onsite	Jan	KBA-11-10B	U	1.2	0.18
Onsite	Jan	KBA-11-22B	U	1.2	0.18
Onsite	Sep	KBA-11-10A	U	10	2.30
Onsite	Sep	KBA-11-22A	U	10	2.30
Onsite	Sep	KBA-11-10B	UJ	10	2.30
Onsite	Sep	KBA-11-22B	UJ	10	2.30
Percent Non-Detects:		100%			

KINGS BAY - SITE 11

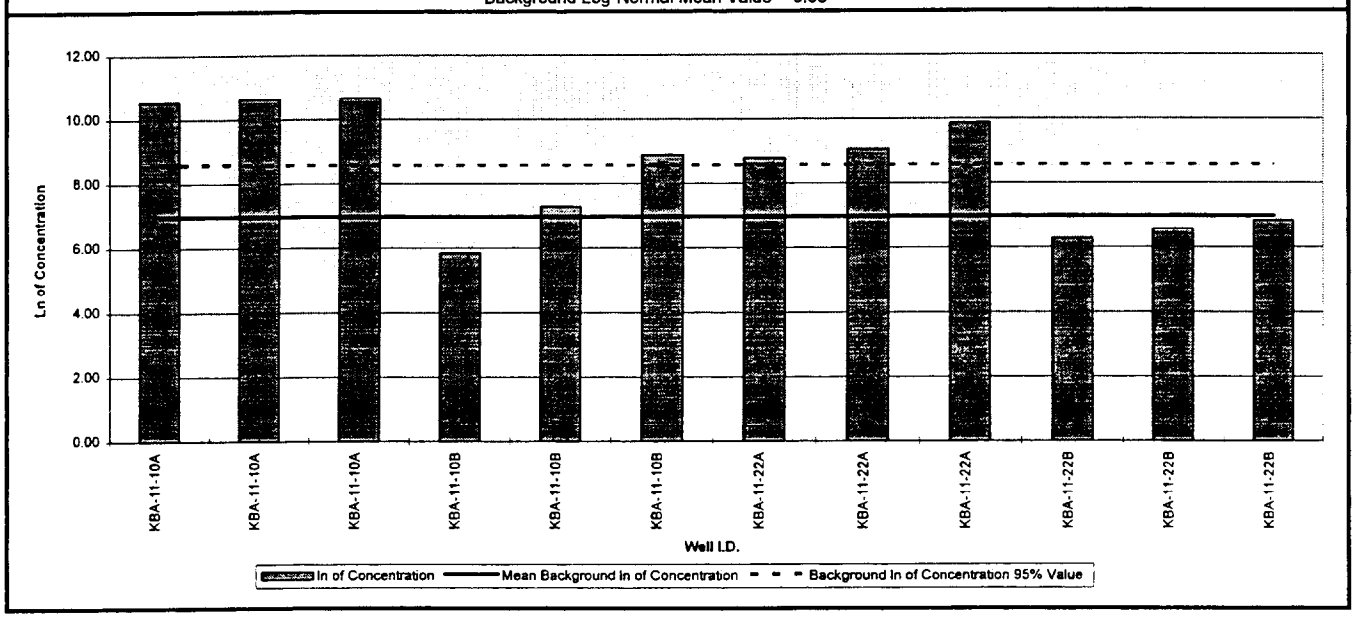
Iron Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	Jan	01	J	81.4	4.40	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 6.98	
Background	Jan	04	J	161	5.08	$f_{cs}=n_{cs}-1$ = 2		
Background	Jan	07		331	5.80	f = 20	BG variance = 1.4309	
Background	Apr	04		388	5.96	BG variance = 1.431		
Background	Apr	07		542	6.30	degrees freedom = 1		
Background	Sep	20		574	6.35	0.95 Percentile Value = 3.841		
Background	Sep	11A		678	6.52			
Background	Sep	12		679.5	6.52			
Background	Sep	11B		749	6.62			
Background	Apr	01		968	6.88			
Background	Sep	07		1300	7.17			
Background	Apr	11A		1880	7.54			
Background	Sep	01		2630	7.87			
Background	Jan	20		2880	7.97			
Background	Apr	20		3120	8.05			
Background	Sep	04	J	3400	8.13			
Background	Jan	12		3805	8.24			
Background	Jan	11A		5340	8.58			
Background	Apr	12		5885	8.68			Reject H_o?
Onsite	Sep	KBA-11-10A	J	38000	10.55	Pooled Var. = 1.288	t statistic = 13.129	
Onsite	Jan	KBA-11-10A	J	41800	10.64	Char. variance = 0.004	d.f. = 18.60	
Onsite	Apr	KBA-11-10A		42900	10.67	Chi Square Statistic = 9.620	$t_{0.05}$ = 1.731	YES
Onsite	Sep	KBA-11-10B		344	5.84	Pooled Var. = 1.523	t statistic = 0.473	
Onsite	Jan	KBA-11-10B	J	1460	7.29	Char. variance = 2.355	d.f. = 20.00	
Onsite	Apr	KBA-11-10B		7390	8.91	Chi Square Statistic = 0.255	$t_{0.05}$ = 1.725	NO
Onsite	Sep	KBA-11-22A	J	6680	8.81	Pooled Var. = 1.319	t statistic = 3.183	
Onsite	Apr	KBA-11-22A		8770	9.08	Char. variance = 0.307	d.f. = 20.00	
Onsite	Jan	KBA-11-22A	J	19400	9.87	Chi Square Statistic = 1.443	$t_{0.05}$ = 1.725	YES
Onsite	Sep	KBA-11-22B		527	6.27	Pooled Var. = 1.296	t statistic = -0.603	
Onsite	Apr	KBA-11-22B		712	6.57	Char. variance = 0.080	d.f. = 20.00	
Onsite	Jan	KBA-11-22B	J	927	6.83	Chi Square Statistic = 3.788	$t_{0.05}$ = 1.725	NO

Percent Non-Detects: 0%

Background Log-Normal 95th Percentile Value = 8.59

Background Log-Normal Mean Value = 6.98

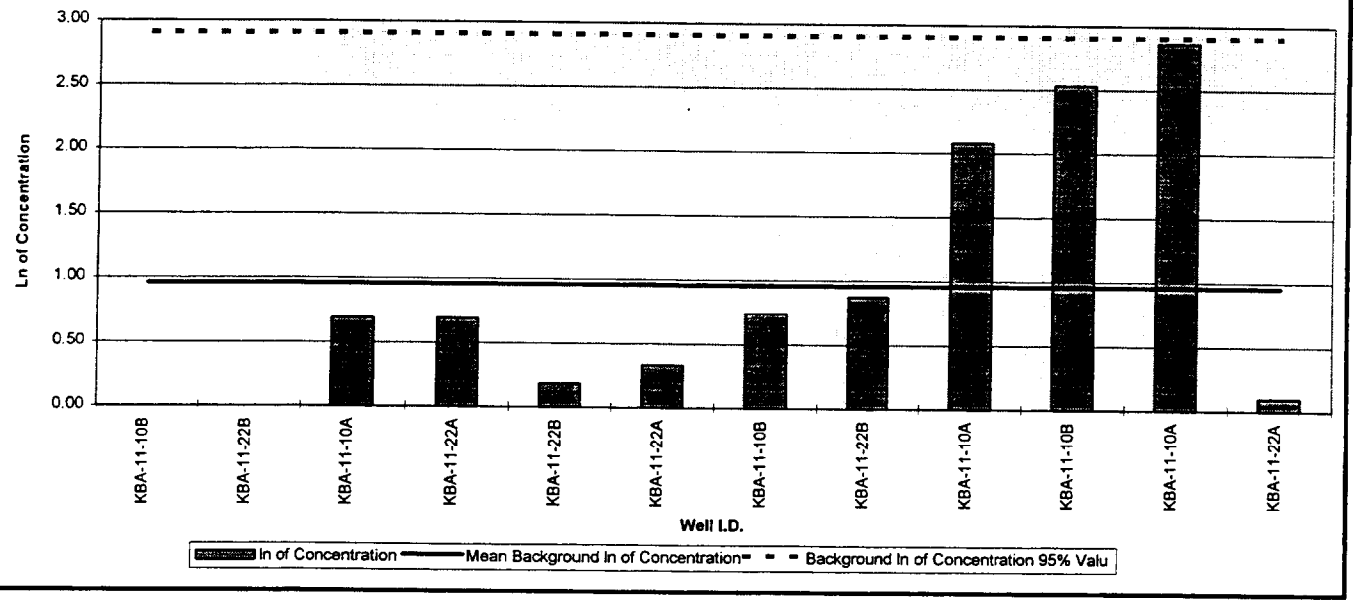


KINGS BAY - SITE 11
Lead Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	APR	04	UJ	1	0.00	-0.69	4	R_{cs}= 326
Background	APR	11A	U	1	0.00	-0.69	4	n_{cs}= 12
Background	SEP	11A	U	1	0.00	-0.69	4	n_{bg}= 21
Background	SEP	11B	U	1	0.00	-0.69	4	U_{cs}= 4
Background	SEP	12	U	1	0.00	-0.69	4	z= -4.5657
Background	JAN	07	UJ	2	0.69	0.00	10.5	$z_{0.05}$= -1.645
Background	JAN	01	U	2	0.69	0.00	10.5	
Background	JAN	04	U	2	0.69	0.00	10.5	Reject H_o.
Background	JAN	12	U	2	0.69	0.00	10.5	
Background	JAN	20	J	2	0.69	0.69	17	
Background	JAN	11A	J	3.3	1.19	1.19	20	
Background	JAN	11B		3.4	1.22	1.22	21.5	
Background	SEP	20		3.4	1.22	1.22	21.5	
Background	APR	12	J	4.05	1.40	1.40	23	
Background	APR	07	J	5.3	1.67	1.67	24	
Background	APR	20	J	7.7	2.04	2.04	25	
Background	APR	11B	J	9.6	2.26	2.26	27	
Background	SEP	04		14.5	2.67	2.67	29	
Background	APR	01		16.3	2.79	2.79	30	
Background	SEP	07		18.3	2.91	2.91	32	
Background	SEP	01		34.4	3.54	3.54	33	
Onsite	Sep	KBA-11-10B	UJ	1.0	0.00	-0.69	4	
Onsite	Sep	KBA-11-22B	UJ	1.0	0.00	-0.69	4	
Onsite	Jan	KBA-11-10A	U	2.0	0.69	0.00	10.5	
Onsite	Jan	KBA-11-22A	U	2.0	0.69	0.00	10.5	
Onsite	Apr	KBA-11-22B	J	1.2	0.18	0.18	15	
Onsite	Sep	KBA-11-22A	J	1.4	0.34	0.34	16	
Onsite	Jan	KBA-11-10B	J	2.1	0.74	0.74	18	
Onsite	Jan	KBA-11-22B	J	2.4	0.88	0.88	19	
Onsite	Apr	KBA-11-10A	J	8.0	2.08	2.08	26	
Onsite	Apr	KBA-11-10B		12.6	2.53	2.53	28	
Onsite	Sep	KBA-11-10A		17.6	2.87	2.87	31	
Onsite	Apr	KBA-11-22A	J	1.1	0.10	0.10	144	

Percent Non-Detects: 35%

Background Log-Normal 95th Percentile Value = 2.91
Background Log-Normal Mean Value = 1.19



KINGS BAY - SITE 11

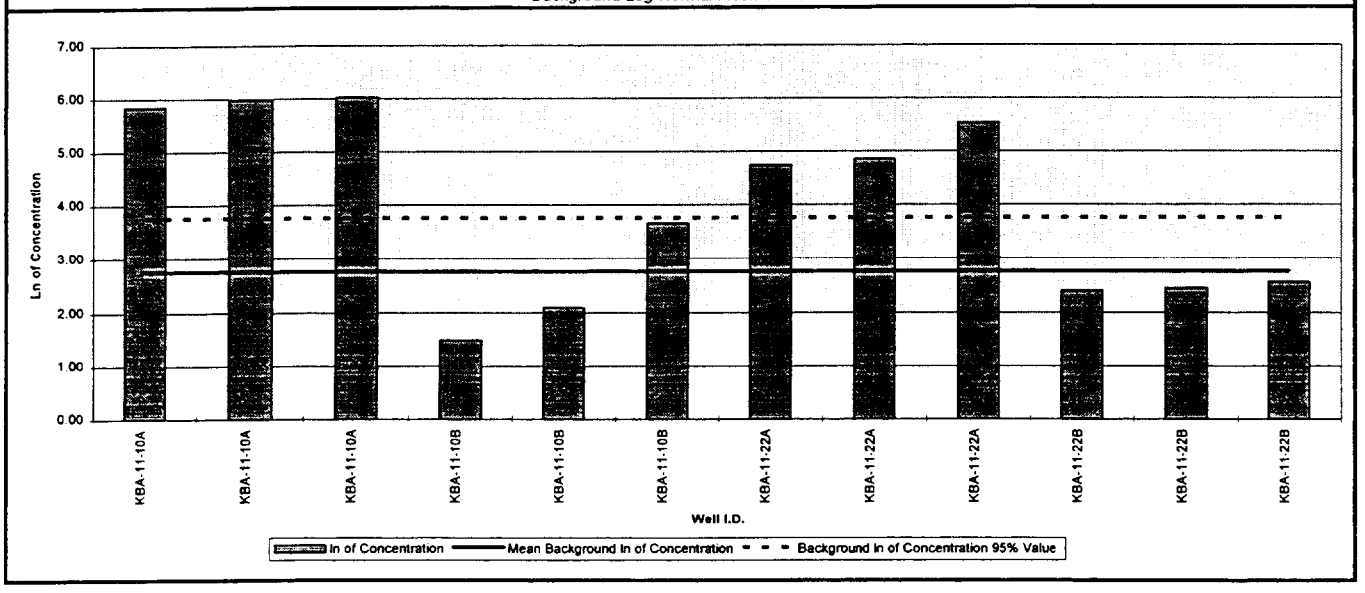
Manganese Groundwater Concentrations for Onsite Wells vs Background

Samplel Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	Jan	07	J	5.4	1.69	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 2.76	
Background	Jan	01	J	5.8	1.76	$f_{cs}=n_{cs}-1$ = 2		
Background	Sep	12	J	6	1.79	f = 20	BG variance = 0.5515	
Background	Sep	11A	J	6.9	1.93	BG variance = 0.551		
Background	Apr	01	J	8.2	2.10	degrees freedom = 1		
Background	Apr	07	J	8.9	2.19	0.95 Percentile Value = 3.841		
Background	Sep	07	J	9.6	2.26			
Background	Sep	01	J	9.8	2.28			
Background	Sep	11B	J	13.2	2.58			
Background	Apr	11A	J	14.9	2.70			
Background	Jan	12		20.2	3.01			
Background	Jan	04		25.5	3.24			
Background	Apr	12		26.55	3.28			
Background	Apr	20		29.2	3.37			
Background	Jan	20		31.2	3.44			
Background	Sep	20		32	3.47			
Background	Apr	04		39.7	3.68			
Background	Sep	04		42.6	3.75			
Background	Jan	11A		46.05	3.83			Reject H_o?
Onsite	Sep	KBA-11-10A		346	5.85	Pooled Var. = 0.497	t statistic = 17.872	
Onsite	Apr	KBA-11-10A		396	5.98	Char. variance = 0.009	d.f. = 19.99	
Onsite	Jan	KBA-11-10A		415	6.03	Chi Square Statistic = 6.179	$t_{0.05}$ = 1.725	YES
Onsite	Sep	KBA-11-10B	J	4.4	1.48	Pooled Var. = 0.621	t statistic = -0.699	
Onsite	Jan	KBA-11-10B	J	8.2	2.10	Char. variance = 1.251	d.f. = 20.00	
Onsite	Apr	KBA-11-10B		38.6	3.65	Chi Square Statistic = 0.750	$t_{0.05}$ = 1.725	NO
Onsite	Sep	KBA-11-22A		115	4.74	Pooled Var. = 0.515	t statistic = 5.147	
Onsite	Apr	KBA-11-22A		129	4.86	Char. variance = 0.187	d.f. = 20.00	
Onsite	Jan	KBA-11-22A		256	5.55	Chi Square Statistic = 0.794	$t_{0.05}$ = 1.725	YES
Onsite	Sep	KBA-11-22B	J	11.0	2.40	Pooled Var. = 0.497	t statistic = -1.601	
Onsite	Apr	KBA-11-22B	J	11.6	2.45	Char. variance = 0.007	d.f. = 19.89	
Onsite	Jan	KBA-11-22B	J	13.0	2.56	Chi Square Statistic = 6.576	$t_{0.05}$ = 1.725	NO

Percent Non-Detects: 0%

Background Log-Normal 95th Percentile Value = 3.76

Background Log-Normal Mean Value = 2.76



KINGS BAY - SITE 11

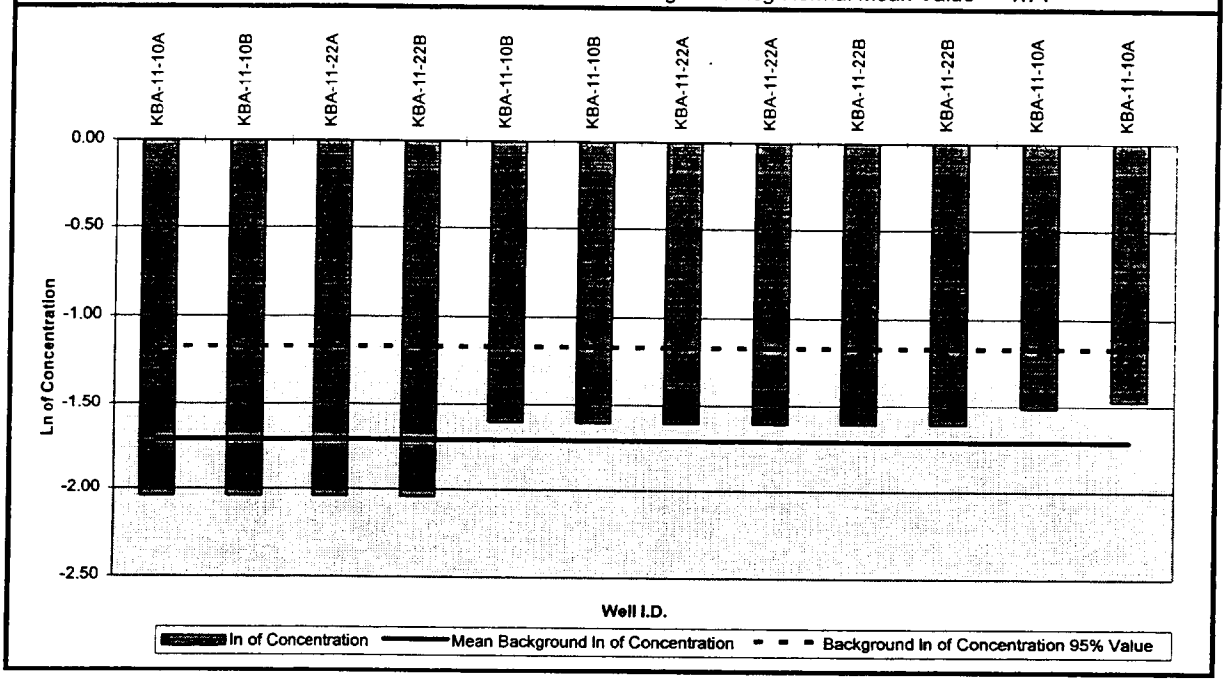
Mercury Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	U	0.13	-2.04	P= 0.12
Background	JAN	04	U	0.13	-2.04	n= 33
Background	JAN	07	U	0.13	-2.04	nP= 4.00
Background	JAN	11A	U	0.13	-2.04	n(1-P)= 29.00
Background	JAN	11B	U	0.13	-2.04	
Background	JAN	12	U	0.13	-2.04	Cannot perform test.
Background	JAN	20	U	0.13	-2.04	nP < 5
Background	APR	01	U	0.2	-1.61	
Background	APR	04	U	0.2	-1.61	
Background	SEP	04	U	0.2	-1.61	
Background	APR	07	U	0.2	-1.61	
Background	APR	11A	U	0.2	-1.61	
Background	SEP	11A	U	0.2	-1.61	
Background	APR	11B	U	0.2	-1.61	
Background	SEP	11B	U	0.2	-1.61	
Background	APR	12	U	0.2	-1.61	
Background	SEP	12	U	0.2	-1.61	
Background	APR	20	U	0.2	-1.61	
Background	SEP	20	U	0.2	-1.61	
Background	SEP	01		0.31	-1.17	
Background	SEP	07		0.33	-1.11	
Onsite	Jan	KBA-11-10A	U	0.13	-2.04	
Onsite	Jan	KBA-11-10B	U	0.13	-2.04	
Onsite	Jan	KBA-11-22A	U	0.13	-2.04	
Onsite	Jan	KBA-11-22B	U	0.13	-2.04	
Onsite	Apr	KBA-11-10B	U	0.20	-1.61	
Onsite	Sep	KBA-11-10B	U	0.20	-1.61	
Onsite	Apr	KBA-11-22A	U	0.20	-1.61	
Onsite	Sep	KBA-11-22A	U	0.20	-1.61	
Onsite	Apr	KBA-11-22B	U	0.20	-1.61	
Onsite	Sep	KBA-11-22B	U	0.20	-1.61	
Onsite	Apr	KBA-11-10A		0.22	-1.51	
Onsite	Sep	KBA-11-10A		0.23	-1.47	

Percent Non-Detects: 88%

Background Log-Normal 95th Percentile Value = -1.17

Background Log-Normal Mean Value = -1.71



KINGS BAY - SITE 11

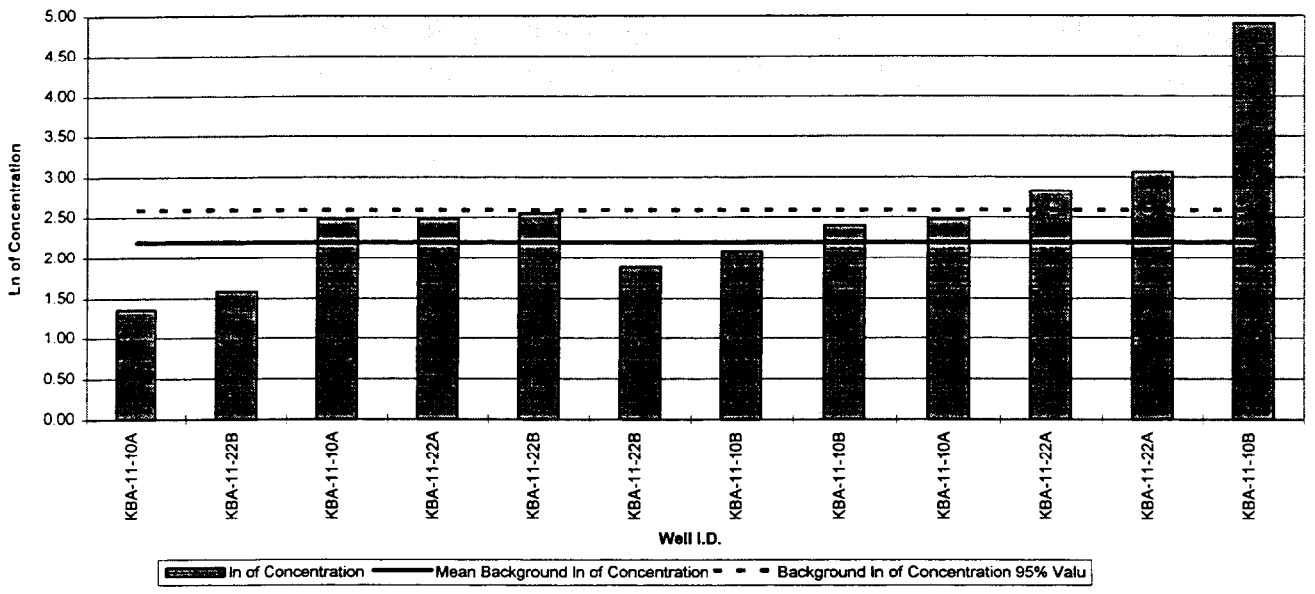
Nickel Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	04	U	3.9	1.36	0.67	1.5	R_{cs}= 234
Background	SEP	07	U	6	1.79	1.10	4	n_{cs}= 12
Background	SEP	11A	U	6	1.79	1.10	4	n_{bg}= 20
Background	SEP	20	U	6	1.79	1.10	4	U_{cs}= 84
Background	JAN	01	U	7.3	1.99	1.29	7	z= -1.4013
Background	JAN	07	U	7.3	1.99	1.29	7	$z_{0.05}$= -1.645
Background	JAN	20	U	7.3	1.99	1.29	7	
Background	APR	04	U	12	2.48	1.79	12	Do not reject H_0.
Background	APR	07	U	12	2.48	1.79	12	
Background	APR	12	U	12	2.48	1.79	12	
Background	APR	01	U	12.6	2.53	1.84	15	
Background	JAN	12	J	7.35	1.99	1.99	18	
Background	JAN	11B	J	8.4	2.13	2.13	21	
Background	SEP	01	J	9.5	2.25	2.25	22	
Background	APR	11A	U	19.8	2.99	2.29	23	
Background	SEP	12	J	10.65	2.37	2.37	24	
Background	SEP	04	J	10.8	2.38	2.38	25	
Background	SEP	11B	J	11.7	2.46	2.46	27	
Background	APR	20	J	13	2.56	2.56	29	
Background	JAN	11A	J	8.1	2.09	2.09	49.5	
Onsite	Jan	KBA-11-10A	U	3.9	1.36	0.67	1.5	
Onsite	Jan	KBA-11-22B	J	4.9	1.59	1.59	9	
Onsite	Apr	KBA-11-10A	U	12.0	2.48	1.79	12	
Onsite	Apr	KBA-11-22A	U	12.0	2.48	1.79	12	
Onsite	Apr	KBA-11-22B	U	12.8	2.55	1.86	16	
Onsite	Sep	KBA-11-22B	J	6.6	1.89	1.89	17	
Onsite	Sep	KBA-11-10B	J	8.1	2.09	2.09	19.5	
Onsite	Jan	KBA-11-10B	J	11.1	2.41	2.41	26	
Onsite	Sep	KBA-11-10A	J	11.9	2.48	2.48	28	
Onsite	Sep	KBA-11-22A	J	16.9	2.83	2.83	30	
Onsite	Jan	KBA-11-22A	J	21.4	3.06	3.06	31	
Onsite	Apr	KBA-11-10B		135	4.91	4.91	32	

Percent Non-Detects: 50%

Background Log-Normal 95th Percentile Value = 2.58

Background Log-Normal Mean Value = 2.20



KINGS BAY - SITE 11

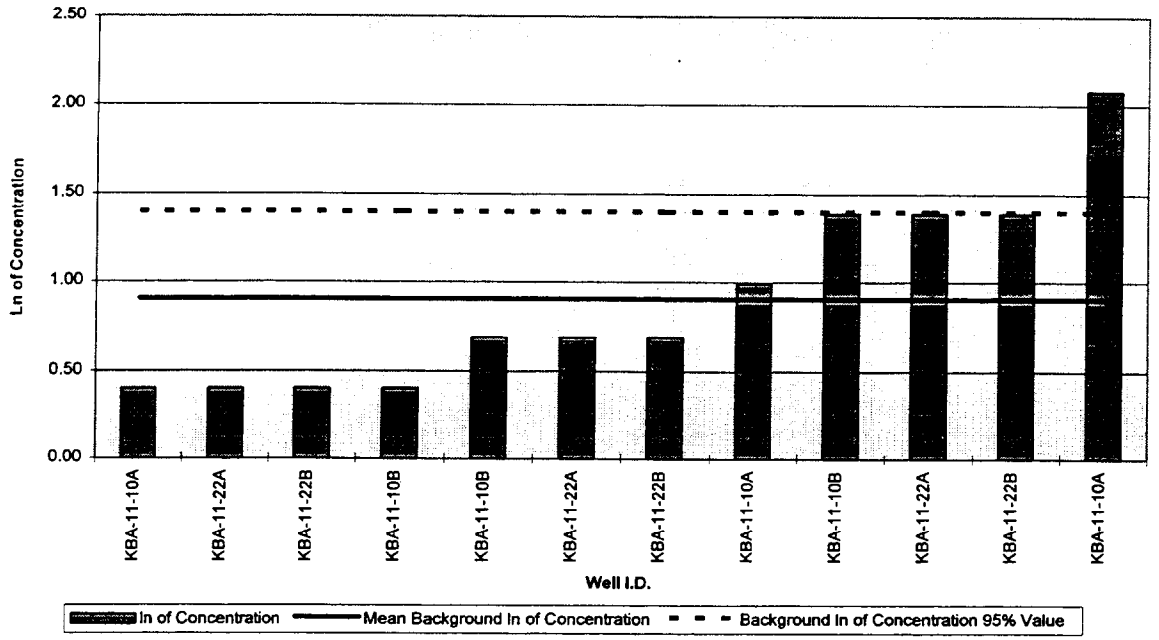
Selenium Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportion
Background	JAN	01	U	1.5	0.41	P= 0.13
Background	JAN	04	U	1.5	0.41	n= 32
Background	JAN	07	U	1.5	0.41	nP= 4.00
Background	JAN	11A	U	1.5	0.41	n(1-P)= 28.00
Background	JAN	11B	U	1.5	0.41	
Background	JAN	12	U	1.5	0.41	Cannot perform test.
Background	APR	01	U	2	0.69	nP < 5
Background	APR	04	U	2	0.69	
Background	APR	11A	U	2	0.69	
Background	APR	12	U	2	0.69	
Background	APR	20	U	2	0.69	
Background	APR	07	J	2.5	0.92	
Background	SEP	01	U	4	1.39	
Background	SEP	04	U	4	1.39	
Background	SEP	07	U	4	1.39	
Background	SEP	11A	U	4	1.39	
Background	SEP	11B	U	4	1.39	
Background	SEP	12	U	4	1.39	
Background	SEP	20	U	4	1.39	
Background	APR	11B	UJ	5	1.61	
Onsite	Jan	KBA-11-10A	UJ	1.5	0.41	
Onsite	Jan	KBA-11-22A	UJ	1.5	0.41	
Onsite	Jan	KBA-11-22B	UJ	1.5	0.41	
Onsite	Jan	KBA-11-10B	U	1.5	0.41	
Onsite	Apr	KBA-11-10B	UJ	2.0	0.69	
Onsite	Apr	KBA-11-22A	U	2.0	0.69	
Onsite	Apr	KBA-11-22B	U	2.0	0.69	
Onsite	Apr	KBA-11-10A	J	2.7	0.99	
Onsite	Sep	KBA-11-10B	U	4.0	1.39	
Onsite	Sep	KBA-11-22A	U	4.0	1.39	
Onsite	Sep	KBA-11-22B	U	4.0	1.39	
Onsite	Sep	KBA-11-10A		8.0	2.08	

Percent Non-Detects: 88%

Background Log-Normal 95th Percentile Value = 2.58

Background Log-Normal Mean Value = 2.20



KINGS BAY - SITE 11

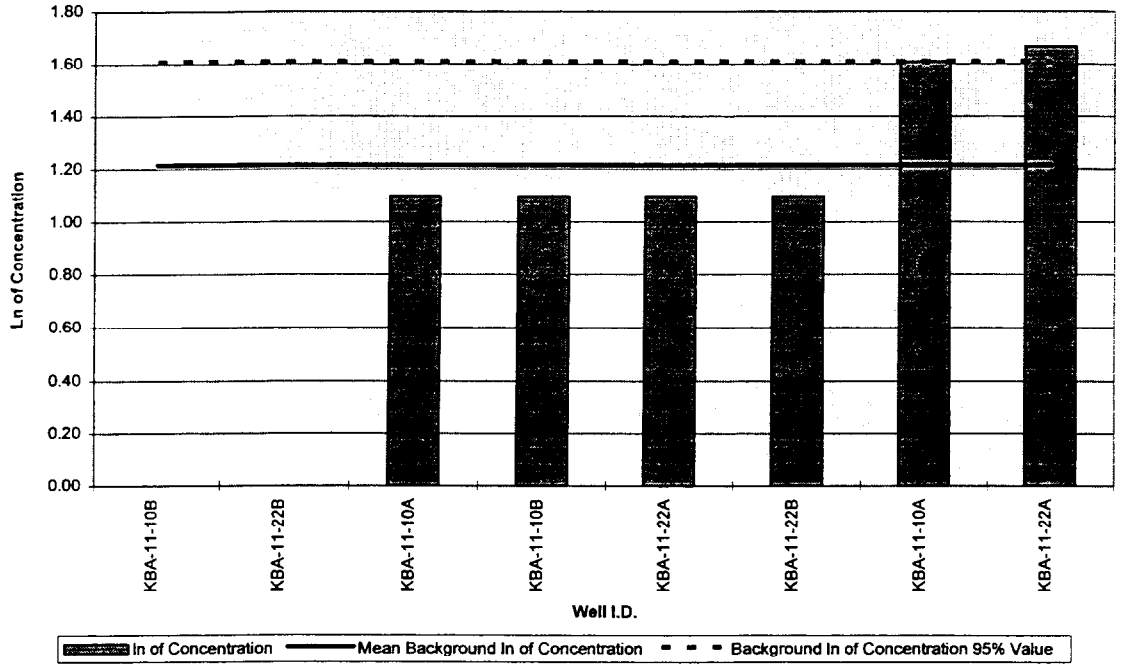
Silver Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	11A	U	2.2	0.79
Background	JAN	11B	U	2.2	0.79
Background	JAN	01	UJ	2.5	0.92
Background	JAN	07	UJ	2.5	0.92
Background	JAN	12	UJ	2.5	0.92
Background	JAN	20	UJ	2.5	0.92
Background	APR	04	UJ	3	1.10
Background	APR	07	UJ	3	1.10
Background	APR	12	UJ	3	1.10
Background	APR	20	UJ	3	1.10
Background	APR	01	U	3	1.10
Background	APR	11A	U	3	1.10
Background	SEP	01	U	5	1.61
Background	SEP	04	U	5	1.61
Background	SEP	07	U	5	1.61
Background	SEP	11A	U	5	1.61
Background	SEP	11B	U	5	1.61
Background	SEP	12	U	5	1.61
Background	SEP	20	U	5	1.61
Onsite	Sep	KBA-11-10B	U	1.0	0.00
Onsite	Sep	KBA-11-22B	U	1.0	0.00
Onsite	Apr	KBA-11-10A	UJ	3.0	1.10
Onsite	Apr	KBA-11-10B	U	3.0	1.10
Onsite	Apr	KBA-11-22A	U	3.0	1.10
Onsite	Apr	KBA-11-22B	U	3.0	1.10
Onsite	Sep	KBA-11-10A	U	5.0	1.61
Onsite	Sep	KBA-11-22A	J	5.3	1.67

Percent Non-Detects: 96%

Background Log-Normal 95th Percentile Value =1.61

Background Log-Normal Mean Value = 1.22



KINGS BAY - SITE 11

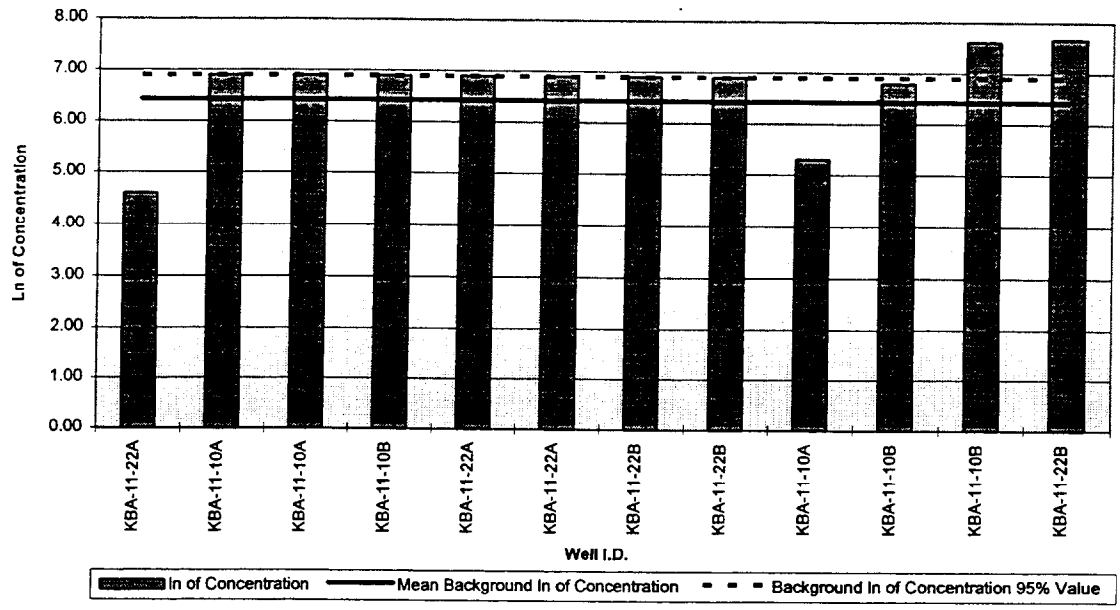
Sulfide Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	UJ	100	4.61	P= 0.27
Background	JAN	04	UJ	100	4.61	n= 33
Background	APR	01	U	1000	6.91	nP= 9.00
Background	SEP	01	U	1000	6.91	n(1-P)= 24.00
Background	APR	04	U	1000	6.91	P_{cw}= 0.33
Background	SEP	04	U	1000	6.91	P_{bg}= 0.24
Background	APR	07	U	1000	6.91	S_D= 0.16
Background	SEP	07	U	1000	6.91	z= 0.59
Background	APR	11A	U	1000	6.91	
Background	SEP	11A	U	1000	6.91	$z_{0.05}$= 1.645
Background	APR	11B	U	1000	6.91	
Background	SEP	11B	U	1000	6.91	Do not reject H_o.
Background	APR	12	U	1000	6.91	
Background	SEP	12	U	1000	6.91	
Background	APR	20	U	1000	6.91	
Background	SEP	20	U	1000	6.91	
Background	JAN	07	J	200	5.30	
Background	JAN	11B	J	200	5.30	
Background	JAN	20	J	200	5.30	
Background	JAN	12	J	300	5.70	
Background	JAN	11A	J	1550	7.35	
Onsite	Jan	KBA-11-22A	UJ	100	4.61	
Onsite	Apr	KBA-11-10A	U	1000	6.91	
Onsite	Sep	KBA-11-10A	U	1000	6.91	
Onsite	Sep	KBA-11-10B	U	1000	6.91	
Onsite	Apr	KBA-11-22A	U	1000	6.91	
Onsite	Sep	KBA-11-22A	U	1000	6.91	
Onsite	Apr	KBA-11-22B	U	1000	6.91	
Onsite	Sep	KBA-11-22B	U	1000	6.91	
Onsite	Jan	KBA-11-10A	J	200	5.30	
Onsite	Jan	KBA-11-10B	J	900	6.80	
Onsite	Apr	KBA-11-10B		2000	7.60	
Onsite	Jan	KBA-11-22B	J	2100	7.65	

Percent Non-Detects: 73%

Background Log-Normal 95th Percentile Value = 6.91

Background Log-Normal Mean Value = 6.42



KINGS BAY - SITE 11

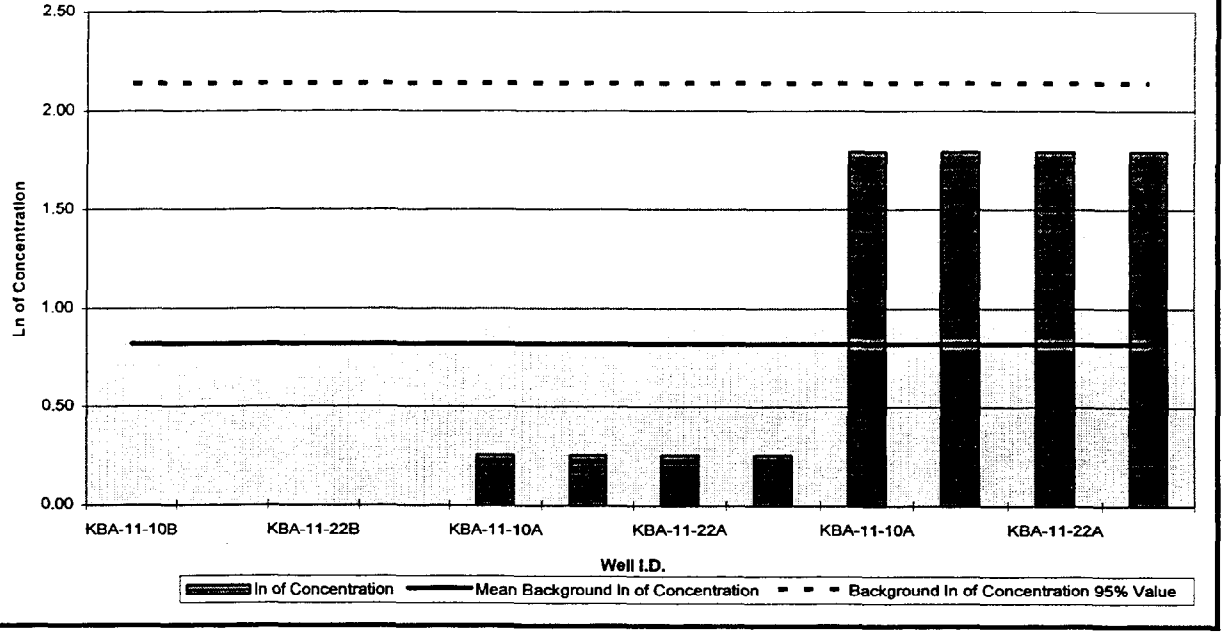
Thallium Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	APR	04	UJ	1	0.00
Background	APR	07	UJ	1	0.00
Background	APR	12	UJ	1	0.00
Background	APR	20	UJ	1	0.00
Background	APR	01	U	1	0.00
Background	APR	11A	U	1	0.00
Background	JAN	01	UJ	1.3	0.26
Background	JAN	07	UJ	1.3	0.26
Background	JAN	12	UJ	1.3	0.26
Background	JAN	20	UJ	1.3	0.26
Background	JAN	04	U	1.3	0.26
Background	JAN	11A	U	1.4	0.34
Background	JAN	11B	U	1.4	0.34
Background	SEP	01	U	6	1.79
Background	SEP	07	U	6	1.79
Background	SEP	11A	U	6	1.79
Background	SEP	11B	U	6	1.79
Background	SEP	12	U	6	1.79
Background	SEP	04	U	8.5	2.14
Background	APR	11B	U	10	2.30
Background	SEP	20	U	6	1.79
Onsite	Apr	KBA-11-10B	U	1.0	0.00
Onsite	Apr	KBA-11-22A	U	1.0	0.00
Onsite	Apr	KBA-11-22B	U	1.0	0.00
Onsite	Apr	KBA-11-10A	J	1.0	0.00
Onsite	Jan	KBA-11-10A	UJ	1.3	0.26
Onsite	Jan	KBA-11-10B	UJ	1.3	0.26
Onsite	Jan	KBA-11-22A	UJ	1.3	0.26
Onsite	Jan	KBA-11-22B	UJ	1.3	0.26
Onsite	Sep	KBA-11-10A	U	6.0	1.79
Onsite	Sep	KBA-11-10B	U	6.0	1.79
Onsite	Sep	KBA-11-22A	U	6.0	1.79
Onsite	Sep	KBA-11-22B	U	6.0	1.79

Percent Non-Detects: 91%

Background Log-Normal 95th Percentile Value =2.14

Background Log-Normal Mean Value =0.82



KINGS BAY - SITE 11

Tin Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	11B	U	12.4	2.52
Background	APR	04	U	13	2.56
Background	APR	07	U	13	2.56
Background	APR	11A	U	13	2.56
Background	APR	12	U	13	2.56
Background	APR	20	U	13	2.56
Onsite	Apr	KBA-11-10A	J	13.4	2.60
Percent Non-Detects:		86%			

KINGS BAY - SITE 11

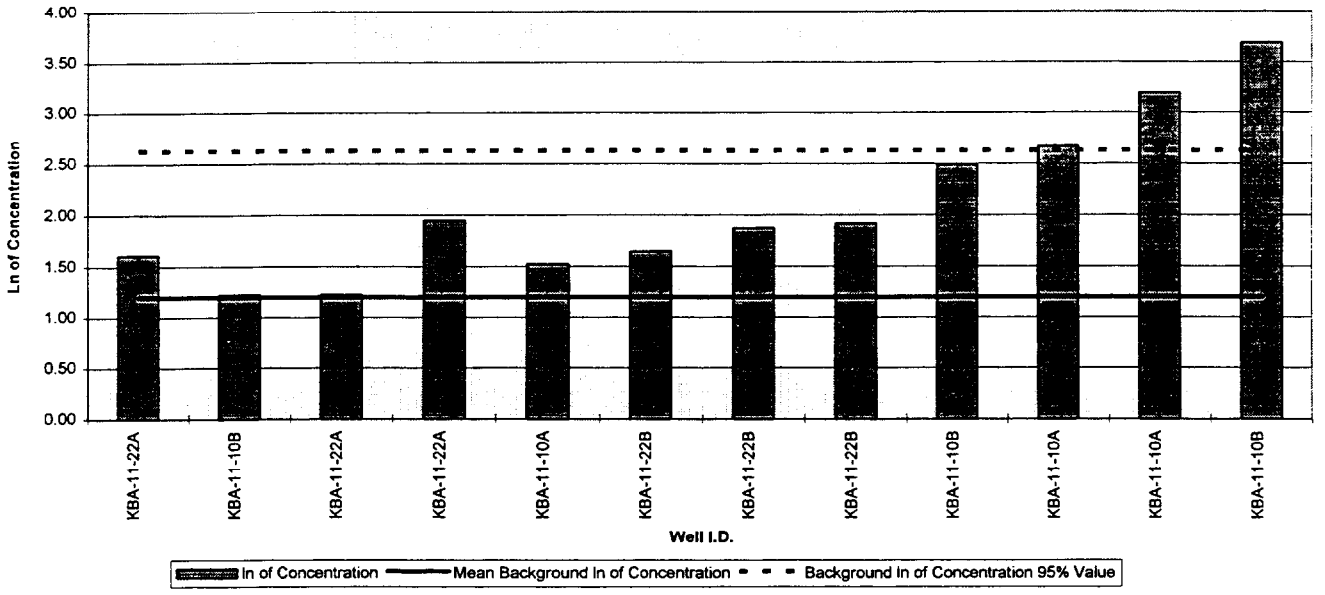
Vanadium Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	11A	U	1.5	0.41	-0.29	1	R_{cs}= 260.5
Background	JAN	01	U	2.3	0.83	0.14	2.5	n_{cs}= 12
Background	JAN	20	U	2.3	0.83	0.14	2.5	n_{bg}= 20
Background	JAN	11B	J	1.9	0.64	0.64	4	U_{cs}= 57.5
Background	APR	04	UJ	5	1.61	0.92	7.5	z= -2.4328
Background	APR	07	UJ	5	1.61	0.92	7.5	$z_{0.05}$= -1.645
Background	APR	20	UJ	5	1.61	0.92	7.5	
Background	APR	01	U	5	1.61	0.92	7.5	
Background	APR	11A	U	5	1.61	0.92	7.5	Reject H_o.
Background	JAN	12	J	3.05	1.12	1.12	11	
Background	JAN	04	J	3.1	1.13	1.13	12	
Background	SEP	11A	U	7	1.95	1.25	17	
Background	SEP	11B	U	7	1.95	1.25	17	
Background	SEP	12	U	7	1.95	1.25	17	
Background	SEP	20	U	7	1.95	1.25	17	
Background	JAN	07	J	5.6	1.72	1.72	22	
Background	APR	12	J	6.2	1.82	1.82	23	
Background	SEP	07	J	12	2.48	2.48	26	
Background	SEP	01	J	13.7	2.62	2.62	28	
Background	SEP	04	J	16	2.77	2.77	30	
Onsite	Apr	KBA-11-22A	U	5.0	1.61	0.92	7.5	
Onsite	Sep	KBA-11-10B	J	3.4	1.22	1.22	13.5	
Onsite	Jan	KBA-11-22A	J	3.4	1.22	1.22	13.5	
Onsite	Sep	KBA-11-22A	U	7.0	1.95	1.25	17	
Onsite	Jan	KBA-11-10A	J	4.6	1.53	1.53	20	
Onsite	Apr	KBA-11-22B	J	5.2	1.65	1.65	21	
Onsite	Jan	KBA-11-22B	J	6.5	1.87	1.87	24	
Onsite	Sep	KBA-11-22B	J	6.8	1.92	1.92	25	
Onsite	Jan	KBA-11-10B	J	12.1	2.49	2.49	27	
Onsite	Apr	KBA-11-10A	J	14.4	2.67	2.67	29	
Onsite	Sep	KBA-11-10A	J	24.3	3.19	3.19	31	
Onsite	Apr	KBA-11-10B	J	40.0	3.69	3.69	32	

Percent Non-Detects: 44%

Background Log-Normal 95th Percentile Value =2.62

Background Log-Normal Mean Value = 1.16



KINGS BAY - SITE 11

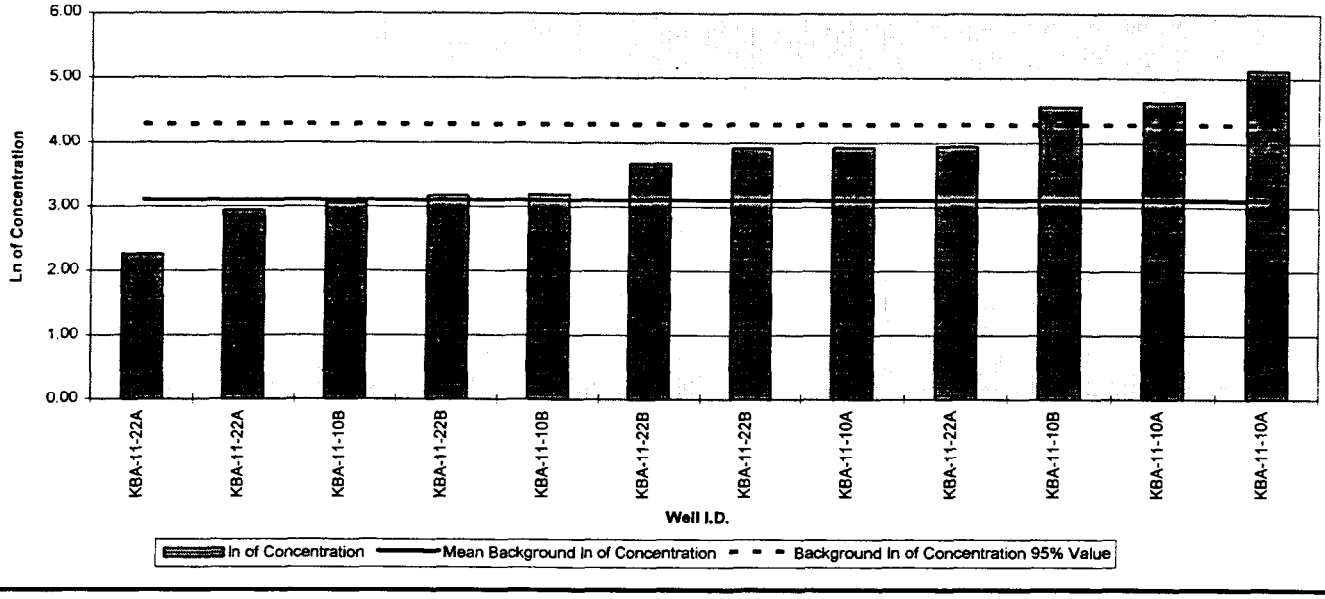
Zinc Groundwater Concentrations for Onsite Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	04	U	4.3	1.46	0.77	1	R_{cs}= 247
Background	JAN	01	J	3.8	1.34	1.34	2	n_{cs}= 12
Background	APR	11A	U	25.5	3.24	2.55	5	n_{bg}= 21
Background	JAN	12	J	13.5	2.60	2.60	6	U_{cs}= 83
Background	JAN	11B	U	28.4	3.35	2.65	7	z= -1.6092
Background	SEP	11A	J	14.45	2.67	2.67	8	$z_{0.05}$= -1.645
Background	JAN	20	J	14.8	2.69	2.69	9	
Background	APR	01	U	34.2	3.53	2.84	10	Do not reject H_o.
Background	APR	07	U	34.6	3.54	2.85	11	
Background	APR	12	U	35.2	3.56	2.87	12	
Background	APR	20	U	38.4	3.65	2.95	13	
Background	APR	04	U	64.7	4.17	3.48	17	
Background	JAN	07		34	3.53	3.53	18	
Background	SEP	04		36	3.58	3.58	19	
Background	SEP	01		39	3.66	3.66	20	
Background	SEP	07		41.9	3.74	3.74	22	
Background	SEP	12		45.1	3.81	3.81	23	
Background	JAN	11A	J	47.55	3.86	3.86	24	
Background	APR	11B	J	59	4.08	4.08	28	
Background	SEP	20		73	4.29	4.29	29	
Background	SEP	11B		88	4.48	4.48	30	
Onsite	Jan	KBA-11-22A	U	9.7	2.27	1.58	3	
Onsite	Apr	KBA-11-22A	U	19.0	2.94	2.25	4	
Onsite	Sep	KBA-11-10B		21.2	3.05	3.05	14	
Onsite	Sep	KBA-11-22B		24.2	3.19	3.19	15	
Onsite	Jan	KBA-11-10B		24.6	3.20	3.20	16	
Onsite	Apr	KBA-11-22B		39.8	3.68	3.68	21	
Onsite	Jan	KBA-11-22B		50.4	3.92	3.92	25	
Onsite	Jan	KBA-11-10A		51.0	3.93	3.93	26	
Onsite	Sep	KBA-11-22A		52.0	3.95	3.95	27	
Onsite	Apr	KBA-11-10B		96.3	4.57	4.57	31	
Onsite	Apr	KBA-11-10A		103	4.63	4.63	32	
Onsite	Sep	KBA-11-10A		167	5.12	5.12	33	

Percent Non-Detects: 30%

Background Log-Normal 95th Percentile Value = 4.29

Background Log-Normal Mean Value = 2.74



Characterization Wells Adjacent to Landfill Versus Background

KINGS BAY - SITE 11

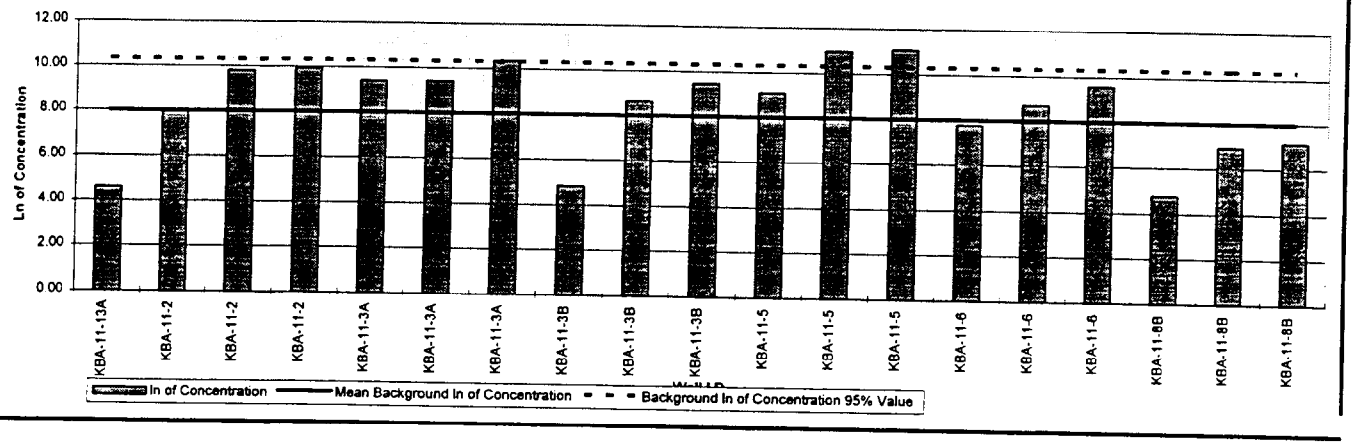
Aluminum Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	Reject H_o?
Background	Sep	20	U	154	4.34	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 8.01	
Background	Jan	20	J	265	5.58	$f_{cs}=n_{cs}-1$ = 2		
Background	Sep	12	U	355.5	5.18	f = 20	BG variance = 3.5631	
Background	Sep	11A		565	6.34	BG variance = 3.563		
Background	Jan	11A	J	572.5	6.35	degrees freedom = 1		
Background	Sep	11B		701	6.55	0.95 Percentile Value = 3.841		
Background	Jan	01	J	1590	7.37			
Background	Apr	11A	J	2120	7.66			
Background	Apr	04		2960	7.99			
Background	Jan	12	J	4045	8.31			
Background	Apr	20		4290	8.36			
Background	Jan	04	J	5670	8.64			
Background	Apr	12		7445	8.92			
Background	Apr	07		12100	9.40			
Background	Apr	01	J	16700	9.72			
Background	Jan	07	J	28700	10.26			
Background	Sep	07		29100	10.28			
Background	Sep	04		29500	10.29			
Background	Sep	01		41100	10.62			
Site Adjacent	Sep	KBA-11-13A	U	198	4.60	Single value much below BG mean. Not tested.		
Site Adjacent	Jan	KBA-11-2	J	3010	8.01	Pooled Var. = 3.323	t statistic = 1.097	
Site Adjacent	Sep	KBA-11-2		18200	9.81	Char. variance = 1.162	d.f. = 20.00	
Site Adjacent	Apr	KBA-11-2	J	20700	9.94	Chi Square Statistic = 0.846	$t_{0.05}$ = 1.725	NO
Site Adjacent	Apr	KBA-11-3A	J	12200	9.41	Pooled Var. = 3.236	t statistic = 1.536	
Site Adjacent	Jan	KBA-11-3A	J	12300	9.42	Char. variance = 0.293	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-3A		31300	10.35	Chi Square Statistic = 3.069	$t_{0.05}$ = 1.725	NO
Site Adjacent	Sep	KBA-11-3B	U	248	4.82	Pooled Var. = 3.824	t statistic = -0.298	
Site Adjacent	Jan	KBA-11-3B	J	5660	8.64	Char. variance = 6.170	d.f. = 20.00	
Site Adjacent	Apr	KBA-11-3B	J	13100	9.48	Chi Square Statistic = 0.314	$t_{0.05}$ = 1.725	NO
Site Adjacent	Jan	KBA-11-5	J	8970	9.10	Pooled Var. = 3.329	t statistic = 2.089	
Site Adjacent	Sep	KBA-11-5		57700	10.96	Char. variance = 1.224	d.f. = 20.00	
Site Adjacent	Apr	KBA-11-5		64100	11.07	Chi Square Statistic = 0.779	$t_{0.05}$ = 1.725	YES
Site Adjacent	Jan	KBA-11-6	J	2380	7.77	Pooled Var. = 3.290	t statistic = 0.607	
Site Adjacent	Apr	KBA-11-6		6060	8.71	Char. variance = 0.829	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-6		14700	9.60	Chi Square Statistic = 1.320	$t_{0.05}$ = 1.725	NO
Site Adjacent	Sep	KBA-11-8B	U	240	4.79	Pooled Var. = 3.382	t statistic = -1.487	
Site Adjacent	Apr	KBA-11-8B	J	1060	6.97	Char. variance = 1.751	d.f. = 20.00	
Site Adjacent	Jan	KBA-11-8B	J	1310	7.18	Chi Square Statistic = 0.377	$t_{0.05}$ = 1.725	NO

Percent Non-Detected: 13%

Background Log-normal 95th Percentile Value = 10.32

Background Log-normal Mean Value = 8.08



KINGS BAY - SITE 11

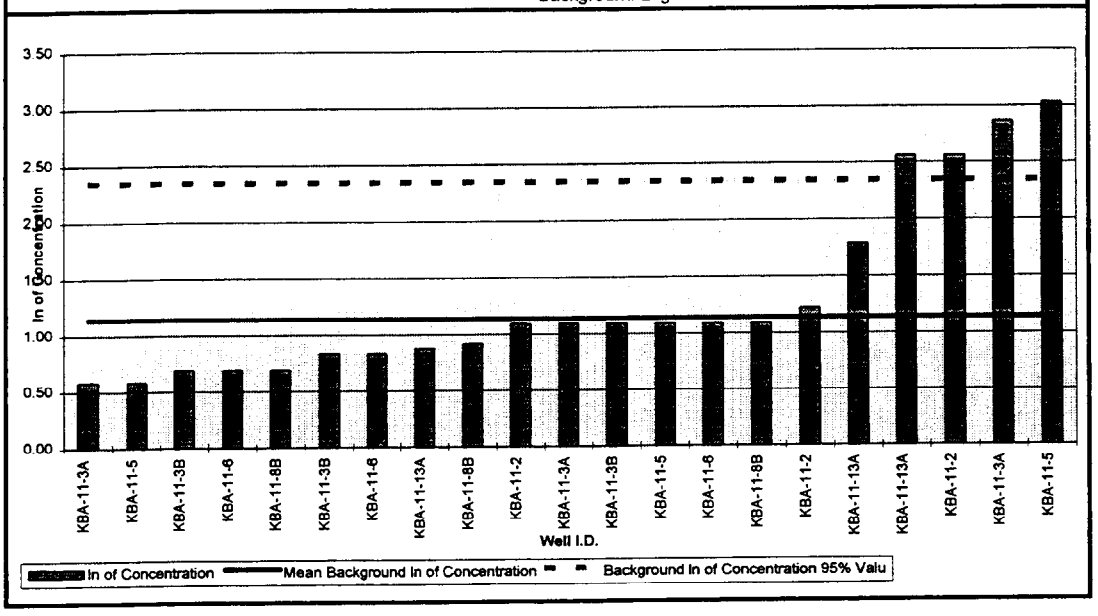
Antimony Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	04	U	1.8	0.59	P= 0.14
Background	JAN	20	UJ	1.8	0.59	n= 42
Background	SEP	01	U	2	0.69	nP= 6.00
Background	SEP	07	U	2	0.69	n(1-P)= 36.00
Background	SEP	11A	U	2	0.69	P_{cw}= 0.19
Background	SEP	11B	U	2	0.69	P_{bg}= 0.10
Background	SEP	12	U	2	0.69	S_D= 0.11
Background	SEP	20	U	2	0.69	z= 0.88
Background	JAN	01	J	2.3	0.83	
Background	JAN	12	U	2.55	0.94	$z_{0.05}$ = 1.645
Background	APR	01	U	3	1.10	
Background	APR	04	U	3	1.10	Do not reject H_o.
Background	APR	07	U	3	1.10	
Background	APR	11A	U	3	1.10	
Background	APR	12	U	3	1.10	
Background	APR	20	U	3	1.10	
Background	JAN	11A	UJ	3.85	1.35	
Background	APR	11B	U	6	1.79	
Background	JAN	11B	U	10.1	2.31	
Background	JAN	07		10.5	2.35	
Background	Sep	04	U	13	2.56	
Site Adjacent	Jan	KBA-11-3A	U	1.8	0.59	
Site Adjacent	Jan	KBA-11-5	U	1.8	0.59	
Site Adjacent	Sep	KBA-11-3B	U	2.0	0.69	
Site Adjacent	Sep	KBA-11-6	U	2.0	0.69	
Site Adjacent	Sep	KBA-11-8B	U	2.0	0.69	
Site Adjacent	Jan	KBA-11-3B	UJ	2.3	0.83	
Site Adjacent	Jan	KBA-11-6	U	2.3	0.83	
Site Adjacent	Jan	KBA-11-13A	J	2.4	0.88	
Site Adjacent	Jan	KBA-11-8B	U	2.5	0.92	
Site Adjacent	Apr	KBA-11-2	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-3A	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-3B	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-5	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-6	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-8B	U	3.0	1.10	
Site Adjacent	Jan	KBA-11-2	J	3.4	1.22	
Site Adjacent	Apr	KBA-11-13A	U	6.0	1.79	
Site Adjacent	Sep	KBA-11-13A	U	13.0	2.56	
Site Adjacent	Sep	KBA-11-2	U	13.0	2.56	
Site Adjacent	Sep	KBA-11-3A	J	17.6	2.87	
Site Adjacent	Sep	KBA-11-5	J	20.7	3.03	

Percent Non-Detected: 86%

Background Log-normal 95th Percentile Value = 2.35

Background Log-normal Mean Value = 1.15

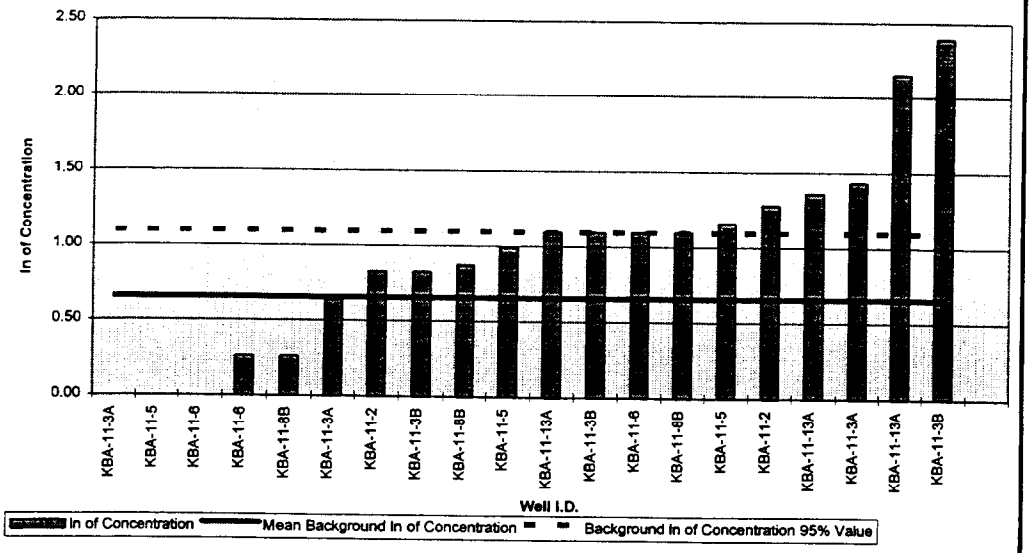


KINGS BAY - SITE 11
Arsenic Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	APR	01	U	1	0.00	P= 0.44
Background	APR	07	U	1	0.00	n= 41
Background	APR	11A	U	1	0.00	nP= 18.00
Background	JAN	11B	UJ	1	0.00	n(1-P)= 23.00
Background	APR	04	J	1.2	0.18	P_{cw}= 0.52
Background	JAN	04	J	1.2	0.18	P_{bg}= 0.35
Background	JAN	01	U	1.3	0.26	S_D= 0.16
Background	JAN	07	U	1.3	0.26	z= 1.12
Background	JAN	11A	J	1.4	0.34	
Background	JAN	12	J	2	0.69	$z_{0.05}$ = 1.645
Background	JAN	20	J	2.8	1.03	
Background	APR	20	J	2.9	1.06	Do not reject H_0.
Background	SEP	01	U	3	1.10	
Background	SEP	07	U	3	1.10	
Background	SEP	11A	U	3	1.10	
Background	SEP	11B	U	3	1.10	
Background	SEP	12	U	3	1.10	
Background	SEP	20	U	3	1.10	
Background	SEP	04	UJ	3	1.10	
Background	APR	11B		8	2.08	
Site Adjacent	Jan	KBA-11-2	U	1.0	0.00	
Site Adjacent	Apr	KBA-11-3A	U	1.0	0.00	
Site Adjacent	Jan	KBA-11-5	U	1.0	0.00	
Site Adjacent	Apr	KBA-11-6	U	1.0	0.00	
Site Adjacent	Jan	KBA-11-6	U	1.3	0.26	
Site Adjacent	Jan	KBA-11-8B	U	1.3	0.26	
Site Adjacent	Jan	KBA-11-3A	J	1.9	0.64	
Site Adjacent	Apr	KBA-11-2	J	2.3	0.83	
Site Adjacent	Jan	KBA-11-3B	J	2.3	0.83	
Site Adjacent	Apr	KBA-11-8B	J	2.4	0.88	
Site Adjacent	Apr	KBA-11-5	J	2.7	0.99	
Site Adjacent	Sep	KBA-11-13A	UJ	3.0	1.10	
Site Adjacent	Sep	KBA-11-3B	U	3.0	1.10	
Site Adjacent	Sep	KBA-11-6	U	3.0	1.10	
Site Adjacent	Sep	KBA-11-8B	U	3.0	1.10	
Site Adjacent	Sep	KBA-11-5	J	3.2	1.16	
Site Adjacent	Sep	KBA-11-2	J	3.6	1.28	
Site Adjacent	Jan	KBA-11-13A	J	3.9	1.36	
Site Adjacent	Sep	KBA-11-3A	J	4.2	1.44	
Site Adjacent	Apr	KBA-11-13A		8.6	2.15	
Site Adjacent	Apr	KBA-11-3B		10.9	2.39	

Percent Non-Detected: 56%

Background Log-Normal 95th Percentile Value = 1.10
Background Log-Normal Mean Value = 0.66



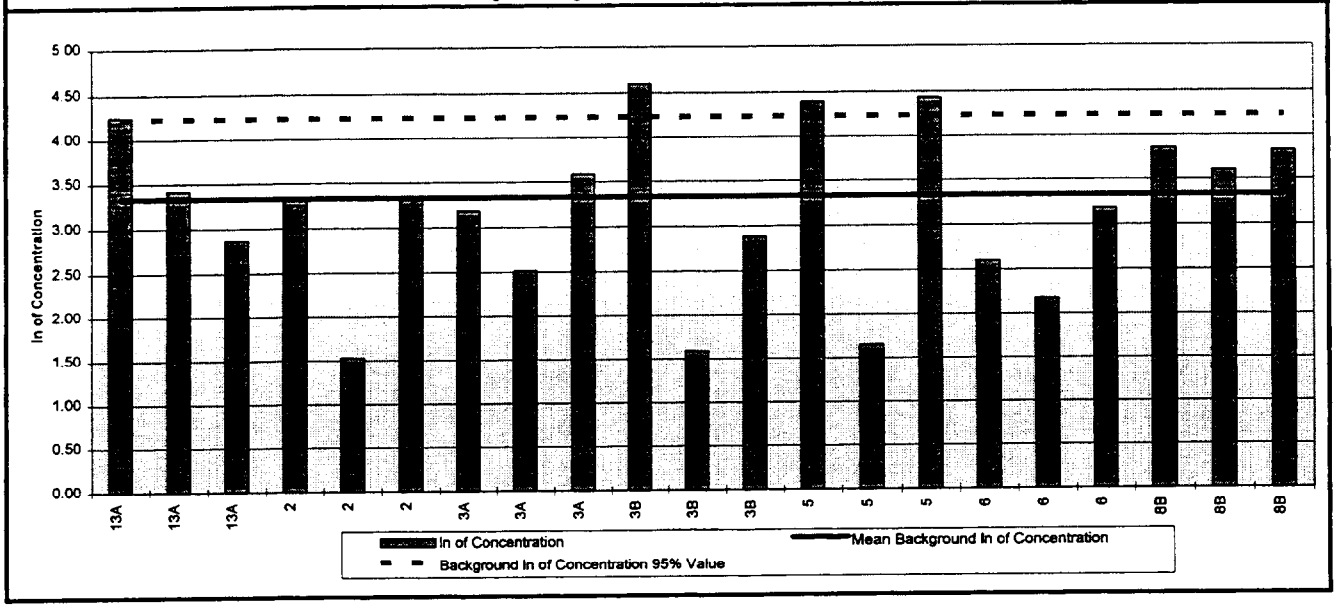
KINGS BAY - SITE 11
Barium Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	JAN	04	J	5.1	1.63	$f_{bg}=n_{bg}-1$ = 20	BG Mean = 3.33	
Background	APR	04	J	6.7	1.90	$f_{cs}=n_{cs}-1$ = 2		
Background	SEP	12	J	14.25	2.66	f = 22	BG variance = 0.5015	
Background	JAN	07	J	15.7	2.75	BG variance = 0.501		
Background	JAN	01	J	16	2.77	degrees freedom = 1		
Background	SEP	11A	J	18.6	2.92	0.95 Percentile Value = 3.841		
Background	SEP	11B	J	23.4	3.15			
Background	SEP	04	J	27	3.30			
Background	APR	07	J	31	3.43			
Background	APR	01	J	31.9	3.46			
Background	APR	11A	J	32	3.47			
Background	JAN	12	J	32.55	3.48			
Background	SEP	20	J	33	3.50			
Background	JAN	11A	J	35.15	3.56			
Background	JAN	20	J	39	3.66			
Background	SEP	07	J	39.8	3.68			
Background	JAN	11B	J	45	3.81			
Background	SEP	01	J	59.6	4.09			
Background	APR	20	J	63.7	4.15			
Background	APR	12	J	68.45	4.23			
Background	APR	11B		81	4.39			Reject H_o?
Site Adjacent	Apr	13A		70.0	4.25	Pooled Var. = 0.444	t statistic = 0.431	
Site Adjacent	Jan	13A	J	30.6	3.42	Char. variance = 0.486	d.f. = 22.00	
Site Adjacent	Sep	13A	J	17.5	2.86	Chi Square Statistic = -2.619	$t_{0.05}$ = 1.717	NO
Site Adjacent	Apr	2	J	28.5	3.35	Pooled Var. = 0.505	t statistic = -1.359	
Site Adjacent	Jan	2	J	4.6	1.53	Char. variance = 1.100	d.f. = 22.00	
Site Adjacent	Sep	2	J	28.1	3.34	Chi Square Statistic = -1.402	$t_{0.05}$ = 1.717	NO
Site Adjacent	Apr	3A	J	24.2	3.19	Pooled Var. = 0.424	t statistic = -0.589	
Site Adjacent	Jan	3A	J	12.4	2.52	Char. variance = 0.291	d.f. = 22.00	
Site Adjacent	Sep	3A	J	36.1	3.59	Chi Square Statistic = -2.583	$t_{0.05}$ = 1.717	NO
Site Adjacent	Apr	3B	J	99.1	4.60	Pooled Var. = 0.623	t statistic = -0.640	
Site Adjacent	Jan	3B	J	4.9	1.59	Char. variance = 2.276	d.f. = 22.00	
Site Adjacent	Sep	3B	J	17.8	2.88	Chi Square Statistic = 1.745	$t_{0.05}$ = 1.717	NO
Site Adjacent	Apr	5	J	81.4	4.40	Pooled Var. = 0.651	t statistic = 0.323	
Site Adjacent	Jan	5	J	5.2	1.65	Char. variance = 2.556	d.f. = 22.00	
Site Adjacent	Sep	5	J	84.4	4.44	Chi Square Statistic = 2.480	$t_{0.05}$ = 1.717	NO
Site Adjacent	Apr	6	J	13.4	2.60	Pooled Var. = 0.420	t statistic = -1.697	
Site Adjacent	Jan	6	J	8.9	2.19	Char. variance = 0.251	d.f. = 22.00	
Site Adjacent	Sep	6	J	24.1	3.18	Chi Square Statistic = -2.494	$t_{0.05}$ = 1.717	NO
Site Adjacent	Apr	8B	J	47.5	3.86	Pooled Var. = 0.397	t statistic = 1.115	
Site Adjacent	Jan	8B	J	36.9	3.61	Char. variance = 0.019	d.f. = 22.00	
Site Adjacent	Sep	8B	J	46.2	3.83	Chi Square Statistic = 1.401	$t_{0.05}$ = 1.717	NO

Percent Non-Detected: 0%

Background Log-Normal 95th Percentile Value = 4.23

Background Log-Normal Mean Value = 3.33



KINGS BAY - SITE 11
Beryllium Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	04	UJ	0.12	-2.12
Background	JAN	11A	J	0.14	-1.97
Background	JAN	01	U	0.14	-1.97
Background	JAN	12	J	0.21	-1.56
Background	JAN	20	J	0.22	-1.51
Background	JAN	07	J	0.43	-0.84
Background	JAN	11B	J	0.51	-0.67
Background	SEP	20	J	1	0.00
Background	SEP	04	U	1	0.00
Background	SEP	07	U	1	0.00
Background	SEP	11A	U	1	0.00
Background	SEP	11B	U	1	0.00
Background	SEP	12	U	1	0.00
Background	SEP	01	J	1.2	0.18
Background	APR	01	U	2	0.69
Background	APR	04	U	2	0.69
Background	APR	07	U	2	0.69
Background	APR	11A	U	2	0.69
Background	APR	12	U	2	0.69
Background	APR	20	U	2	0.69
Background	APR	11B	U	5	1.61
Site Adjacent	Jan	KBA-11-13A	UJ	0.12	-2.12
Site Adjacent	Jan	KBA-11-2	UJ	0.12	-2.12
Site Adjacent	Jan	KBA-11-3A	UJ	0.12	-2.12
Site Adjacent	Jan	KBA-11-3B	UJ	0.12	-2.12
Site Adjacent	Jan	KBA-11-5	UJ	0.12	-2.12
Site Adjacent	Jan	KBA-11-8B	J	0.18	-1.71
Site Adjacent	Jan	KBA-11-6	J	0.19	-1.66
Site Adjacent	Sep	KBA-11-13A	U	1.0	0.00
Site Adjacent	Sep	KBA-11-2	U	1.0	0.00
Site Adjacent	Sep	KBA-11-3A	U	1.0	0.00
Site Adjacent	Sep	KBA-11-3B	U	1.0	0.00
Site Adjacent	Sep	KBA-11-6	U	1.0	0.00
Site Adjacent	Sep	KBA-11-8B	U	1.0	0.00
Site Adjacent	Sep	KBA-11-5	J	1.2	0.18
Site Adjacent	Apr	KBA-11-2	U	2.0	0.69
Site Adjacent	Apr	KBA-11-3A	U	2.0	0.69
Site Adjacent	Apr	KBA-11-3B	U	2.0	0.69
Site Adjacent	Apr	KBA-11-5	U	2.0	0.69
Site Adjacent	Apr	KBA-11-6	U	2.0	0.69
Site Adjacent	Apr	KBA-11-8B	U	2.0	0.69
Site Adjacent	Apr	KBA-11-13A	U	5.00	1.61

Test for Proportions

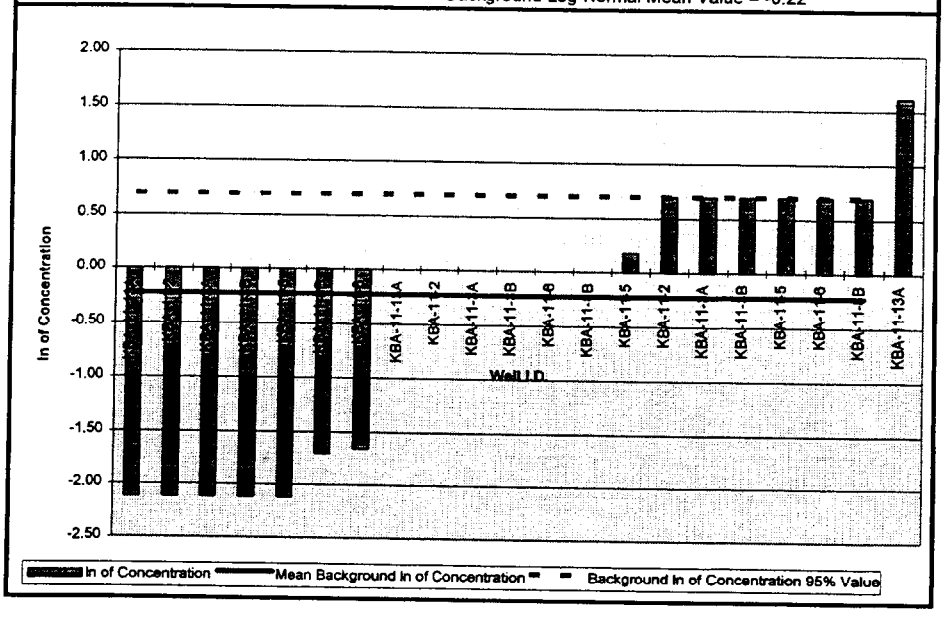
$P = 0.24$
$n = 42$
$nP = 10.00$
$n(1-P) = 32.00$
$P_{cw} = 0.14$
$P_{bg} = 0.33$
$S_D = 0.13$
$z = 1.45$

$z_{0.05} = 1.645$

Do not reject H_o.

Percent Non-Detected: 76%

Background Log-Normal 95th Percentile Value = 0.69
Background Log-Normal Mean Value = -0.22



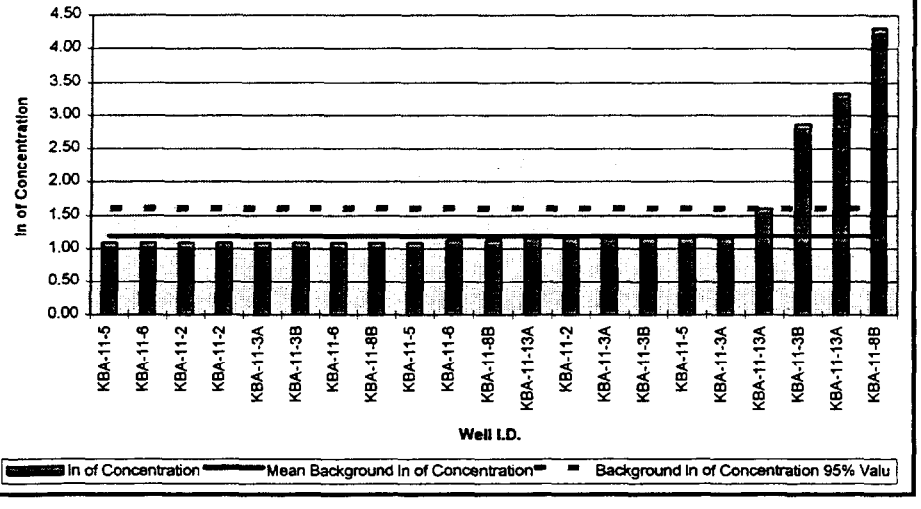
KINGS BAY - SITE 11

Cadmium Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	APR	01	U	3	1.10	P= 0.17
Background	SEP	01	U	3	1.10	n= 41
Background	SEP	04	U	3	1.10	nP= 7.00
Background	SEP	07	U	3	1.10	n(1-P)= 34.00
Background	APR	11A	U	3	1.10	P_{cw}= 0.24
Background	SEP	11A	U	3	1.10	P_{bg}= 0.10
Background	SEP	11B	U	3	1.10	S_D= 0.12
Background	APR	04	UJ	3	1.10	z= 1.17
Background	APR	07	UJ	3	1.10	
Background	APR	12	UJ	3	1.10	$z_{0.05}$= 1.645
Background	APR	20	UJ	3	1.10	
Background	JAN	01	U	3.1	1.13	Do not reject H_o.
Background	JAN	07	U	3.1	1.13	
Background	JAN	12	U	3.1	1.13	
Background	JAN	20	U	3.1	1.13	
Background	JAN	11A	U	3.2	1.16	
Background	JAN	11B	U	3.2	1.16	
Background	JAN	04	J	3.5	1.25	
Background	APR	11B	U	5	1.61	
Background	SEP	12		8.95	2.19	
Site Adjacent	Apr	KBA-11-5	UJ	3.0	1.10	
Site Adjacent	Apr	KBA-11-6	UJ	3.0	1.10	
Site Adjacent	Apr	KBA-11-2	U	3.0	1.10	
Site Adjacent	Sep	KBA-11-2	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-3A	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-3B	U	3.0	1.10	
Site Adjacent	Sep	KBA-11-6	U	3.0	1.10	
Site Adjacent	Apr	KBA-11-8B	U	3.0	1.10	
Site Adjacent	Sep	KBA-11-5	J	3.0	1.10	
Site Adjacent	Jan	KBA-11-6	U	3.1	1.13	
Site Adjacent	Jan	KBA-11-8B	U	3.1	1.13	
Site Adjacent	Jan	KBA-11-13A	U	3.2	1.16	
Site Adjacent	Jan	KBA-11-2	U	3.2	1.16	
Site Adjacent	Jan	KBA-11-3A	U	3.2	1.16	
Site Adjacent	Jan	KBA-11-3B	U	3.2	1.16	
Site Adjacent	Jan	KBA-11-5	U	3.2	1.16	
Site Adjacent	Sep	KBA-11-3A	J	3.2	1.16	
Site Adjacent	Apr	KBA-11-13A	U	5.0	1.61	
Site Adjacent	Sep	KBA-11-3B		17.7	2.87	
Site Adjacent	Sep	KBA-11-13A		28.2	3.34	
Site Adjacent	Sep	KBA-11-8B		74.9	4.32	

Percent Non-Detected: 83%

Background Log-Normal 95th Percentile Value = 1.61
Background Log-Normal Mean Value = 1.19



KINGS BAY - SITE 11
Chromium Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank
Background	JAN	01	U	2.3	0.83	0.14	1.5
Background	JAN	20	U	2.6	0.96	0.26	3
Background	APR	04	U	5	1.61	0.92	6
Background	SEP	11A	U	8	2.08	1.39	8.5
Background	JAN	04	J	5.7	1.74	1.74	14
Background	JAN	11A	J	6.05	1.80	1.80	15
Background	JAN	12	J	7	1.95	1.95	17
Background	JAN	11B	J	9.7	2.27	2.27	19
Background	APR	07		10.4	2.34	2.34	20
Background	SEP	11B		12	2.48	2.48	22
Background	APR	12		14.1	2.65	2.65	23
Background	SEP	12		15.75	2.76	2.76	24
Background	SEP	20		16	2.77	2.77	25
Background	SEP	07		17.2	2.84	2.84	26
Background	APR	11A		18.1	2.90	2.90	27
Background	APR	01		24.6	3.20	3.20	30
Background	SEP	04		29.7	3.39	3.39	33
Background	APR	20		40.6	3.70	3.70	35
Background	SEP	07		41	3.71	3.71	36.5
Background	APR	11B		41	3.71	3.71	36.5
Background	SEP	01		45.5	3.82	3.82	38
Site Adjacent	Jan	KBA-11-6	U	2.3	0.83	0.14	1.5
Site Adjacent	Jan	KBA-11-2	U	3.1	1.13	0.44	4.5
Site Adjacent	Jan	KBA-11-5	U	3.1	1.13	0.44	4.5
Site Adjacent	Jan	KBA-11-3B	J	3.6	1.28	1.28	7
Site Adjacent	Sep	KBA-11-13A	U	8.0	2.08	1.39	8.5
Site Adjacent	Jan	KBA-11-8B	J	4.4	1.48	1.48	10
Site Adjacent	Jan	KBA-11-3A	J	5.0	1.61	1.61	11
Site Adjacent	Sep	KBA-11-3B	J	5.3	1.67	1.67	12
Site Adjacent	Apr	KBA-11-3A	J	5.6	1.72	1.72	13
Site Adjacent	Apr	KBA-11-6	J	6.3	1.84	1.84	16
Site Adjacent	Jan	KBA-11-13A	J	8.1	2.09	2.09	18
Site Adjacent	Apr	KBA-11-8B		10.5	2.35	2.35	21
Site Adjacent	Sep	KBA-11-6		19.3	2.96	2.96	28
Site Adjacent	Sep	KBA-11-2		20.7	3.03	3.03	29
Site Adjacent	Apr	KBA-11-2		26.5	3.28	3.28	31
Site Adjacent	Sep	KBA-11-3A		28.3	3.34	3.34	32
Site Adjacent	Sep	KBA-11-8B		39.7	3.68	3.68	34
Site Adjacent	Apr	KBA-11-13A		47	3.85	3.85	39
Site Adjacent	Apr	KBA-11-5		63.9	4.16	4.16	40
Site Adjacent	Apr	KBA-11-3B		73.1	4.29	4.29	41
Site Adjacent	Sep	KBA-11-5		74.3	4.31	4.31	42

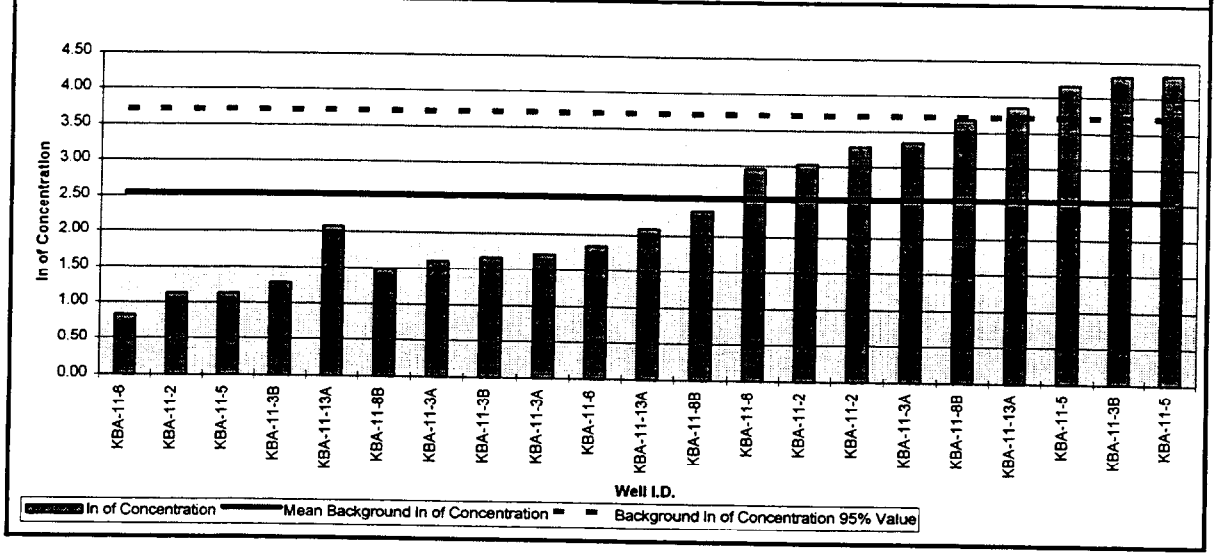
U test

R_{cs}= 443
n_{cs}= 21
n_{bg}= 21
U_{cs}= 229
z= 0.2138
$z_{0.05}$= -1.645

Do not reject H_o.

Percent Non-Detected: 19%

Background Log-Normal 95th Percentile Value = 3.71
Background Log-Normal Mean Value = 2.55

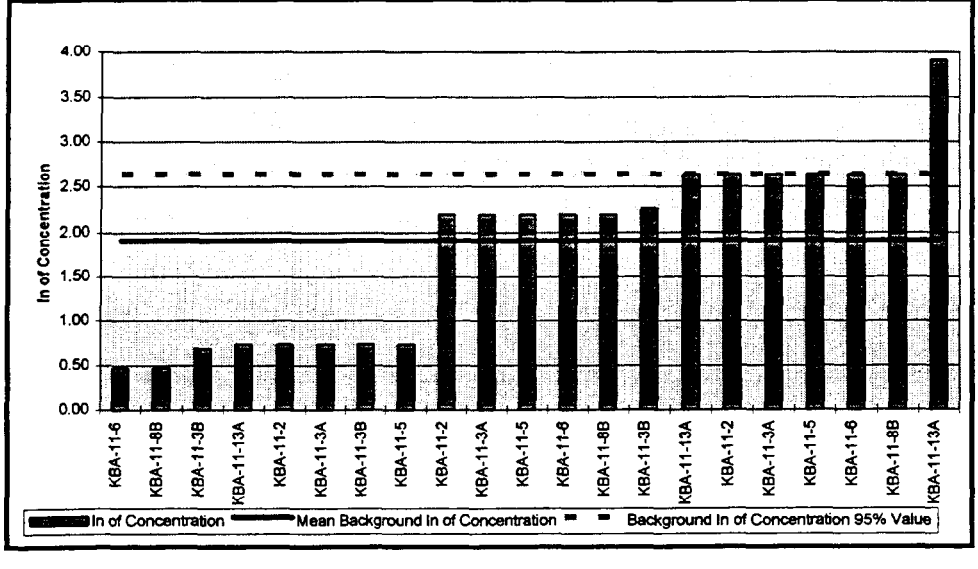


KINGS BAY - SITE 11
Cobalt Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	1.6	0.47
Background	JAN	07	U	1.6	0.47
Background	JAN	20	U	1.6	0.47
Background	JAN	04	U	2.1	0.74
Background	JAN	11A	U	2.1	0.74
Background	JAN	11B	U	2.1	0.74
Background	JAN	12	J	2.5	0.92
Background	APR	01	U	9	2.20
Background	APR	04	U	9	2.20
Background	APR	07	U	9	2.20
Background	APR	11A	U	9	2.20
Background	APR	12	U	9	2.20
Background	APR	20	U	9	2.20
Background	SEP	01	U	14	2.64
Background	SEP	04	U	14	2.64
Background	SEP	07	U	14	2.64
Background	SEP	11A	U	14	2.64
Background	SEP	11B	U	14	2.64
Background	SEP	12	U	14	2.64
Background	SEP	20	U	14	2.64
Background	APR	11B	U	50	3.91
Site Adjacent	Jan	KBA-11-6	U	1.6	0.47
Site Adjacent	Jan	KBA-11-8B	U	1.6	0.47
Site Adjacent	Sep	KBA-11-3B	U	2.0	0.69
Site Adjacent	Jan	KBA-11-13A	U	2.1	0.74
Site Adjacent	Jan	KBA-11-2	U	2.1	0.74
Site Adjacent	Jan	KBA-11-3A	U	2.1	0.74
Site Adjacent	Jan	KBA-11-3B	U	2.1	0.74
Site Adjacent	Jan	KBA-11-5	U	2.1	0.74
Site Adjacent	Apr	KBA-11-2	U	9.0	2.20
Site Adjacent	Apr	KBA-11-3A	U	9.0	2.20
Site Adjacent	Apr	KBA-11-5	U	9.0	2.20
Site Adjacent	Apr	KBA-11-6	U	9.0	2.20
Site Adjacent	Apr	KBA-11-8B	U	9.0	2.20
Site Adjacent	Apr	KBA-11-3B	J	9.6	2.26
Site Adjacent	Sep	KBA-11-13A	U	14.0	2.64
Site Adjacent	Sep	KBA-11-2	U	14.0	2.64
Site Adjacent	Sep	KBA-11-3A	U	14.0	2.64
Site Adjacent	Sep	KBA-11-5	U	14.0	2.64
Site Adjacent	Sep	KBA-11-6	U	14.0	2.64
Site Adjacent	Sep	KBA-11-8B	U	14.0	2.64
Site Adjacent	Apr	KBA-11-13A	U	50.0	3.91

Percent Non-Detected: 93%

Background Log-Normal 95th Percentile Value = 2.64
Background Log-Normal Mean Value = 1.91



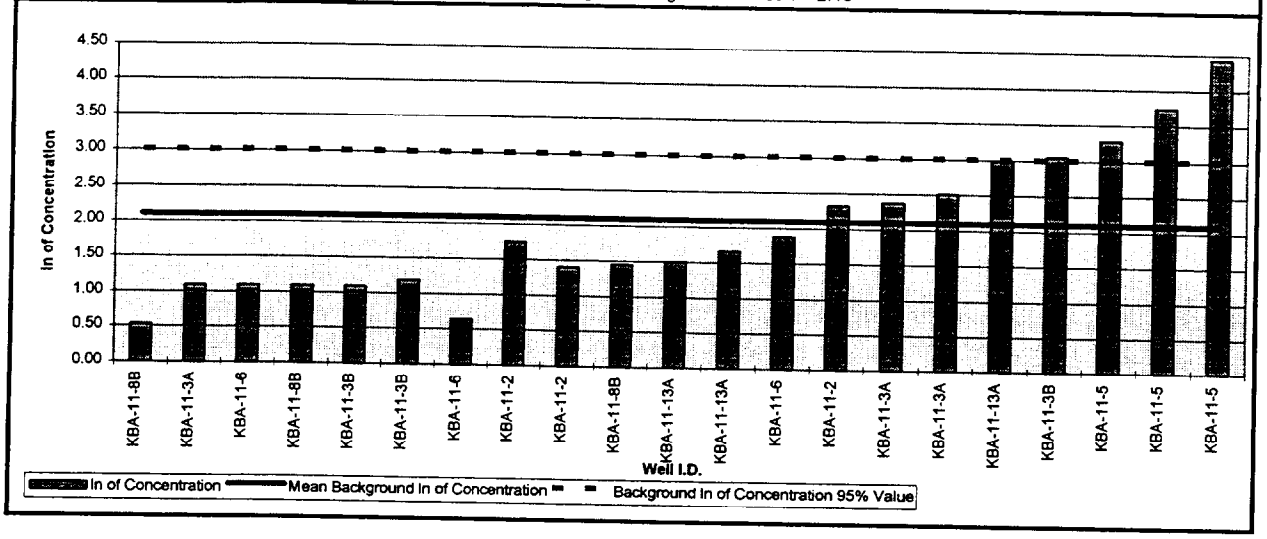
KINGS BAY - SITE 11

Copper Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier		Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	rank	U test
Background	JAN	01	U	1	1.7	0.53	-0.16	2	R_{cs}= 424
Background	JAN	20	U	1	1.7	0.53	-0.16	2	n_{cs}= 21
Background	JAN	04	U	1	2.9	1.06	0.37	4	n_{bg}= 21
Background	JAN	07	J		2.3	0.83	0.83	11	U_{cs}= 248
Background	APR	04	UJ	1	6.6	1.89	1.19	13	z= 0.6918
Background	JAN	12	J		3.45	1.24	1.24	14	$z_{0.05}$= -1.645
Background	SEP	11A	J		4.6	1.53	1.53	18	
Background	SEP	07	J		8.5	2.14	2.14	21	Do not reject H_o.
Background	SEP	11B	J		9.1	2.21	2.21	22	
Background	APR	12	J		9.4	2.24	2.24	23	
Background	SEP	04	J		9.7	2.27	2.27	24	
Background	APR	11A	J		10.7	2.37	2.37	26	
Background	JAN	11A	J		11.35	2.43	2.43	28	
Background	APR	01	J		11.9	2.48	2.48	29	
Background	SEP	01	J		14.2	2.65	2.65	31	
Background	SEP	12	J		15	2.71	2.71	32	
Background	APR	07	J		16.9	2.83	2.83	33	
Background	APR	11B			18	2.89	2.89	34	
Background	JAN	11B	J		19.1	2.95	2.95	35	
Background	APR	20	J		20.3	3.01	3.01	37	
Background	SEP	20			28	3.33	3.33	40	
Site Adjacent	Jan	KBA-11-8B	U	1.00	1.7	0.53	-0.16	2	
Site Adjacent	Apr	KBA-11-3A	U	1.00	3.0	1.10	0.41	6.5	
Site Adjacent	Apr	KBA-11-6	UJ	1.00	3.0	1.10	0.41	6.5	
Site Adjacent	Apr	KBA-11-8B	U	1.00	3.0	1.10	0.41	6.5	
Site Adjacent	Sep	KBA-11-3B	U	1.00	3.0	1.10	0.41	6.5	
Site Adjacent	Jan	KBA-11-3B	U	1.00	3.3	1.19	0.50	9	
Site Adjacent	Jan	KBA-11-6	J		1.9	0.64	0.64	10	
Site Adjacent	Jan	KBA-11-2	U	1.00	5.8	1.76	1.06	12	
Site Adjacent	Apr	KBA-11-2	J		4.1	1.41	1.41	15	
Site Adjacent	Sep	KBA-11-8B	J		4.3	1.46	1.46	16	
Site Adjacent	Jan	KBA-11-13A	J		4.5	1.50	1.50	17	
Site Adjacent	Sep	KBA-11-13A	J		5.3	1.67	1.67	19	
Site Adjacent	Sep	KBA-11-6	J		6.6	1.89	1.89	20	
Site Adjacent	Sep	KBA-11-2	J		10.3	2.33	2.33	25	
Site Adjacent	Sep	KBA-11-3A	J		10.8	2.38	2.38	27	
Site Adjacent	Jan	KBA-11-3A	J		12.3	2.51	2.51	30	
Site Adjacent	Apr	KBA-11-13A			20	3.00	3.00	36	
Site Adjacent	Apr	KBA-11-3B	J		21.3	3.06	3.06	38	
Site Adjacent	Jan	KBA-11-5			26.7	3.28	3.28	39	
Site Adjacent	Apr	KBA-11-5			42.4	3.75	3.75	41	
Site Adjacent	Sep	KBA-11-5			84.0	4.43	4.43	42	

Percent Non-Detected: 26%

Background Log-Normal 95th Percentile = 3.01
Background Log-Normal Mean = 2.10



KINGS BAY - SITE 11

Cyanide Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	1.2	0.18
Background	JAN	04	U	1.2	0.18
Background	JAN	07	U	1.2	0.18
Background	JAN	11A	U	1.2	0.18
Background	JAN	11B	U	1.2	0.18
Background	JAN	12	U	1.2	0.18
Background	JAN	20	U	1.2	0.18
Background	APR	11B	U	5	1.61
Background	APR	01	U	10	2.30
Background	APR	04	U	10	2.30
Background	APR	07	U	10	2.30
Background	APR	11A	U	10	2.30
Background	APR	12	U	10	2.30
Background	APR	20	U	10	2.30
Background	SEP	01	U	10	2.30
Background	SEP	04	U	10	2.30
Background	SEP	07	U	10	2.30
Background	SEP	11A	U	10	2.30
Background	SEP	11B	U	10	2.30
Background	SEP	12	U	10	2.30
Background	SEP	20	U	10	2.30
Site Adjacent	Apr	KBA-11-13A	U	5	1.61
Site Adjacent	Jan	KBA-11-13A	U	1.2	0.18
Site Adjacent	Sep	KBA-11-13A	U	10	2.30
Site Adjacent	Apr	KBA-11-2	U	10	2.30
Site Adjacent	Jan	KBA-11-2	U	1.2	0.18
Site Adjacent	Sep	KBA-11-2	U	10	2.30
Site Adjacent	Apr	KBA-11-3A	U	10	2.30
Site Adjacent	Jan	KBA-11-3A	U	1.2	0.18
Site Adjacent	Sep	KBA-11-3A	U	10	2.30
Site Adjacent	Apr	KBA-11-3B	U	10	2.30
Site Adjacent	Jan	KBA-11-3B	U	1.2	0.18
Site Adjacent	Sep	KBA-11-3B	UJ	10	2.30
Site Adjacent	Apr	KBA-11-5	U	10	2.30
Site Adjacent	Jan	KBA-11-5	U	1.2	0.18
Site Adjacent	Sep	KBA-11-5	U	10	2.30
Site Adjacent	Apr	KBA-11-6	U	10	2.30
Site Adjacent	Jan	KBA-11-6	U	1.2	0.18
Site Adjacent	Sep	KBA-11-6	U	10	2.30
Site Adjacent	Apr	KBA-11-8B	U	10	2.30
Site Adjacent	Jan	KBA-11-8B	U	1.2	0.18
Site Adjacent	Sep	KBA-11-8B	U	10	2.30

Percent Non-Detected: 100%

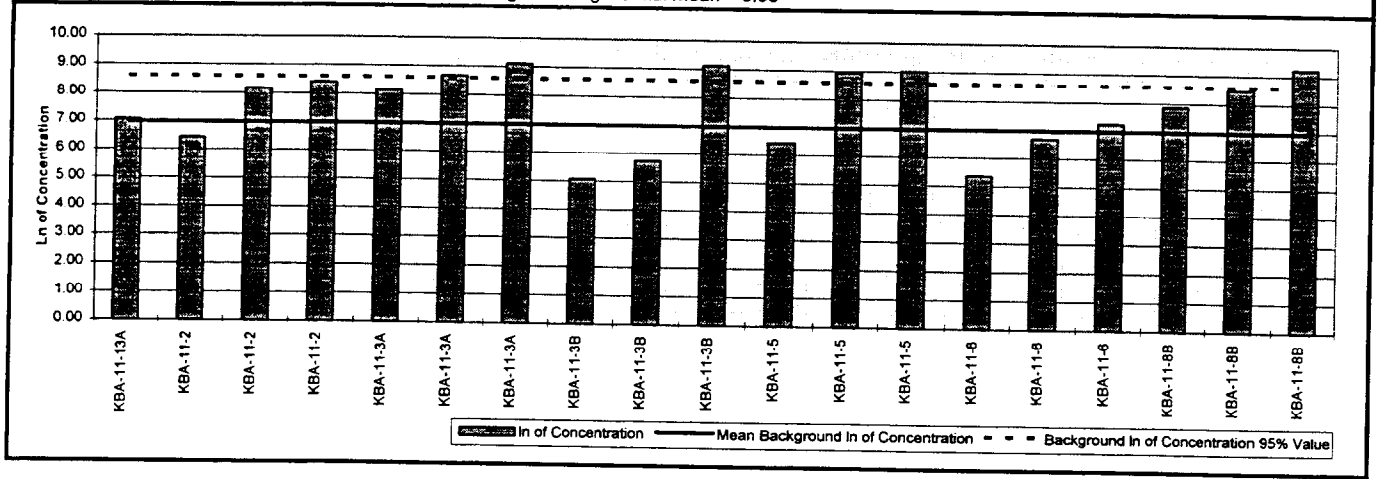
KINGS BAY - SITE 11
Iron Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t test	
Background	Jan	01	J	81.4	4.40	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 6.98	
Background	Jan	04	J	161	5.08	$f_{cs}=n_{cs}-1$ = 2		
Background	Jan	07		331	5.80	f = 20	G variance = 1.4309	
Background	Apr	04		388	5.96	BG variance = 1.431		
Background	Apr	07		542	6.30	degrees freedom = 1		
Background	Sep	20		574	6.35	0.95 Percentile Value = 3.841		
Background	Sep	11A		678	6.52			
Background	Sep	12		679.5	6.52			
Background	Sep	11B		749	6.62			
Background	Apr	01		968	6.88			
Background	Sep	07		1300	7.17			
Background	Apr	11A		1880	7.54			
Background	Sep	01		2630	7.87			
Background	Jan	20		2880	7.97			
Background	Apr	20		3120	8.05			
Background	Sep	04	J	3400	8.13			
Background	Jan	12		3805	8.24			
Background	Jan	11A		5340	8.58			
Background	Apr	12		5885	8.68			Reject H_o?
Site Adjacent	Sep	KBA-11-13A	J	1190	7.08	Single value not tested.		
Site Adjacent	Jan	KBA-11-2	J	621	6.43	Pooled Var. = 1.404	t statistic = 0.933	
Site Adjacent	Apr	KBA-11-2		3550	8.17	Char. variance = 1.161	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-2	J	4450	8.40	Chi Square Statistic = 0.037	$t_{0.05}$ = 1.725	NO
Site Adjacent	Jan	KBA-11-3A	J	3480	8.15	Pooled Var. = 1.311	t statistic = 2.343	
Site Adjacent	Apr	KBA-11-3A		5870	8.68	Char. variance = 0.231	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-3A	J	9080	9.11	Chi Square Statistic = 1.899	$t_{0.05}$ = 1.725	YES
Site Adjacent	Jan	KBA-11-3B	J	160	5.08	Pooled Var. = 1.761	t statistic = -0.409	
Site Adjacent	Sep	KBA-11-3B		309	5.73	Char. variance = 4.728	d.f. = 20.00	
Site Adjacent	Apr	KBA-11-3B		9200	9.13	Chi Square Statistic = 1.757	$t_{0.05}$ = 1.725	NO
Site Adjacent	Jan	KBA-11-5	J	632	6.45	Pooled Var. = 1.505	t statistic = 1.533	
Site Adjacent	Apr	KBA-11-5		7890	8.97	Char. variance = 2.172	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-5	J	8340	9.03	Chi Square Statistic = 0.175	$t_{0.05}$ = 1.725	NO
Site Adjacent	Jan	KBA-11-6		216	5.38	Pooled Var. = 1.381	t statistic = -0.736	
Site Adjacent	Apr	KBA-11-6		812	6.70	Char. variance = 0.935	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-6		1420	7.26	Chi Square Statistic = 0.145	$t_{0.05}$ = 1.725	NO
Site Adjacent	Sep	KBA-11-8B		2650	7.88	Pooled Var. = 1.334	t statistic = 2.172	
Site Adjacent	Apr	KBA-11-8B		4910	8.50	Char. variance = 0.462	d.f. = 20.00	
Site Adjacent	Jan	KBA-11-8B		10300	9.24	Chi Square Statistic = 0.859	$t_{0.05}$ = 1.725	YES

Percent Non-Detected: 0%

Background Log-Normal 95th Percentile = 8.59

Background Log-Normal Mean = 6.98

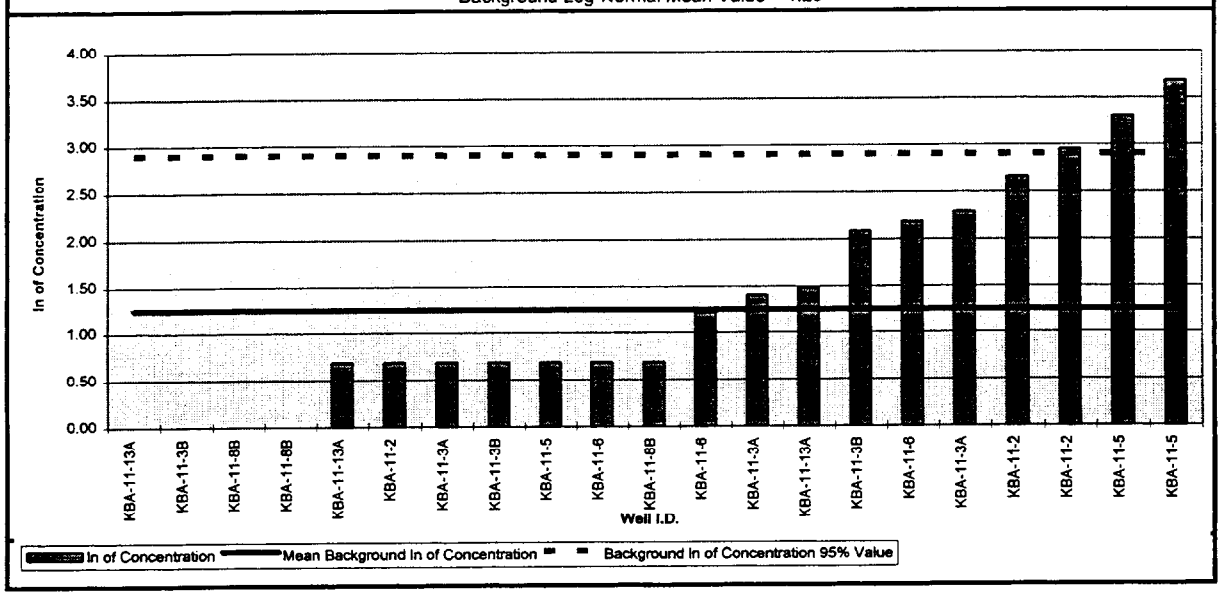


KINGS BAY - SITE 11
Lead Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detectio Limit	rank	U test
Background	APR	04	UJ	1	0.00	-0.69	5	R_{cs}= 457.5
Background	APR	11A	U	1	0.00	-0.69	5	n_{cs}= 21
Background	SEP	11A	U	1	0.00	-0.69	5	n_{bg}= 21
Background	SEP	11B	U	1	0.00	-0.69	5	U_{cs}= 214.5
Background	SEP	12	U	1	0.00	-0.69	5	z= -0.1509
Background	JAN	07	UJ	2	0.69	0.00	15	$z_{0.05}$= -1.645
Background	JAN	01	U	2	0.69	0.00	15	
Background	JAN	04	U	2	0.69	0.00	15	Do not reject H_o.
Background	JAN	12	U	2	0.69	0.00	15	
Background	JAN	20	J	2	0.69	0.69	21	
Background	JAN	11A	J	3.3	1.19	1.19	22	
Background	JAN	11B		3.4	1.22	1.22	24	
Background	SEP	20		3.4	1.22	1.22	24	
Background	APR	12	J	4.05	1.40	1.40	26	
Background	APR	07	J	5.3	1.67	1.67	29	
Background	APR	20	J	7.7	2.04	2.04	30	
Background	APR	11B	J	9.6	2.26	2.26	33	
Background	SEP	04		14.5	2.67	2.67	35.5	
Background	APR	01		16.3	2.79	2.79	37	
Background	SEP	07		18.3	2.91	2.91	38	
Background	SEP	01		34.4	3.54	3.54	41	
Site Adjacent	Sep	KBA-11-13A	UJ	1.0	0.00	-0.69	5	
Site Adjacent	Sep	KBA-11-3B	UJ	1.0	0.00	-0.69	5	
Site Adjacent	Apr	KBA-11-8B	U	1.0	0.00	-0.69	5	
Site Adjacent	Sep	KBA-11-8B	U	1.0	0.00	-0.69	5	
Site Adjacent	Jan	KBA-11-13A	U	2.0	0.69	0.00	15	
Site Adjacent	Jan	KBA-11-2	U	2.0	0.69	0.00	15	
Site Adjacent	Jan	KBA-11-3A	U	2.0	0.69	0.00	15	
Site Adjacent	Jan	KBA-11-3B	U	2.0	0.69	0.00	15	
Site Adjacent	Jan	KBA-11-5	U	2.0	0.69	0.00	15	
Site Adjacent	Jan	KBA-11-6	U	2.0	0.69	0.00	15	
Site Adjacent	Jan	KBA-11-8B	U	2.0	0.69	0.00	15	
Site Adjacent	Apr	KBA-11-6	J	3.4	1.22	1.22	24	
Site Adjacent	Apr	KBA-11-3A		4.1	1.41	1.41	27	
Site Adjacent	Apr	KBA-11-13A	J	4.4	1.48	1.48	28	
Site Adjacent	Apr	KBA-11-3B		8.1	2.09	2.09	31	
Site Adjacent	Sep	KBA-11-6		8.9	2.19	2.19	32	
Site Adjacent	Sep	KBA-11-3A	J	9.9	2.29	2.29	34	
Site Adjacent	Sep	KBA-11-2		14.4	2.67	2.67	35.5	
Site Adjacent	Apr	KBA-11-2		19.2	2.95	2.95	39	
Site Adjacent	Apr	KBA-11-5	J	27.3	3.31	3.31	40	
Site Adjacent	Sep	KBA-11-5		39.8	3.68	3.68	42	

Percent Non-Detected: 48%

Background Log-Normal 95th Percentile Value = 2.91
Background Log-Normal Mean Value = 1.26

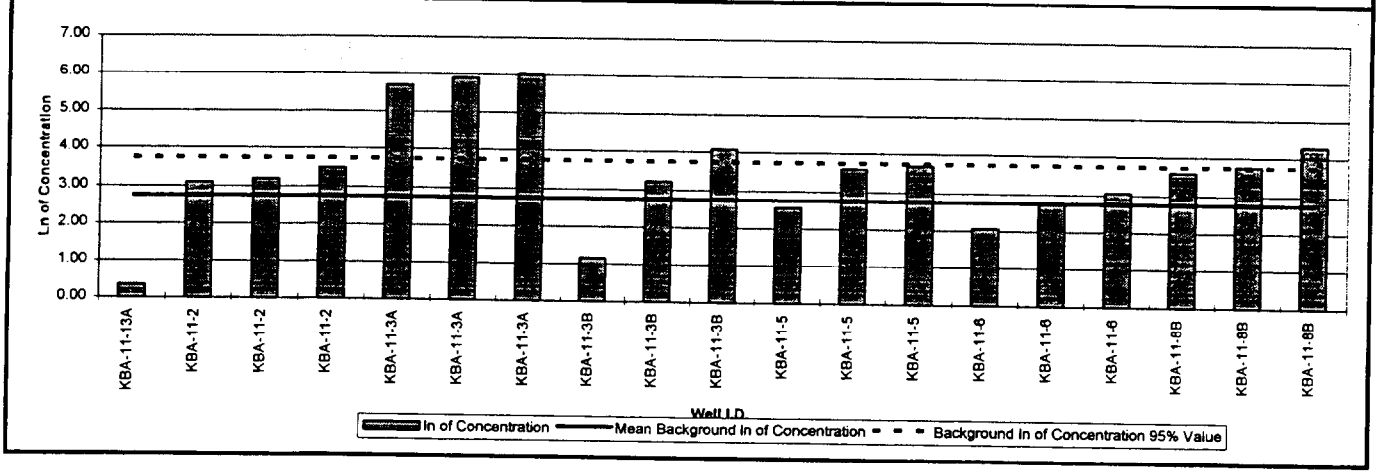


KINGS BAY - SITE 11
Manganese Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t test	
Background	Jan	07	J	5.4	1.69	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 2.76	
Background	Jan	01	J	5.8	1.76	$f_{cs}=n_{cs}-1$ = 2		
Background	Sep	12	J	6	1.79	f = 20	G variance = 0.5515	
Background	Sep	11A	J	6.9	1.93	BG variance = 0.551		
Background	Apr	01	J	8.2	2.10	degrees freedom = 1		
Background	Apr	07	J	8.9	2.19	0.95 Percentile Value = 3.841		
Background	Sep	07	J	9.6	2.26			
Background	Sep	01	J	9.8	2.28			
Background	Sep	11B	J	13.2	2.58			
Background	Apr	11A	J	14.9	2.70			
Background	Jan	12		20.2	3.01			
Background	Jan	04		25.5	3.24			
Background	Apr	12		26.55	3.28			
Background	Apr	20		29.2	3.37			
Background	Jan	20		31.2	3.44			
Background	Sep	20		32	3.47			
Background	Apr	04		39.7	3.68			
Background	Sep	04		42.6	3.75			
Background	Jan	11A		46.05	3.83			Reject H_o?
Site Adjacent	Sep	KBA-11-13A	U	2.0	0.35	Single value not tested.		
Site Adjacent	Jan	KBA-11-2		22.3	3.10	Pooled Var. = 0.500	t statistic = 1.166	
Site Adjacent	Apr	KBA-11-2		24.6	3.20	Char. variance = 0.042	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-2		33.0	3.50	Chi Square Statistic = 3.229	$t_{0.05}$ = 1.725	NO
Site Adjacent	Jan	KBA-11-3A		302	5.71	Pooled Var. = 0.499	t statistic = 16.182	
Site Adjacent	Apr	KBA-11-3A		371	5.92	Char. variance = 0.025	d.f. = 17.13	
Site Adjacent	Sep	KBA-11-3A		412	6.02	Chi Square Statistic = 4.183	$t_{0.05}$ = 1.739	YES
Site Adjacent	Sep	KBA-11-3B	J	3.2	1.16	Pooled Var. = 0.723	t statistic = 0.139	
Site Adjacent	Jan	KBA-11-3B		25.3	3.23	Char. variance = 2.267	d.f. = 20.00	
Site Adjacent	Apr	KBA-11-3B		59.9	4.09	Chi Square Statistic = 2.589	$t_{0.05}$ = 1.725	NO
Site Adjacent	Jan	KBA-11-5	J	13.1	2.57	Pooled Var. = 0.536	t statistic = 1.189	
Site Adjacent	Apr	KBA-11-5		37.0	3.61	Char. variance = 0.394	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-5		40.6	3.70	Chi Square Statistic = 0.093	$t_{0.05}$ = 1.725	NO
Site Adjacent	Jan	KBA-11-6	J	7.9	2.07	Pooled Var. = 0.523	t statistic = -0.271	
Site Adjacent	Apr	KBA-11-6		15.9	2.77	Char. variance = 0.264	d.f. = 20.00	
Site Adjacent	Sep	KBA-11-6		21.5	3.07	Chi Square Statistic = 0.403	$t_{0.05}$ = 1.725	NO
Site Adjacent	Sep	KBA-11-8B		37.0	3.61	Pooled Var. = 0.509	t statistic = 2.571	
Site Adjacent	Apr	KBA-11-8B		43.6	3.78	Char. variance = 0.129	d.f. = 20.00	
Site Adjacent	Jan	KBA-11-8B		73.6	4.30	Chi Square Statistic = 1.311	$t_{0.05}$ = 1.725	YES

Percent Non-Detected: 3%

Background Log-Normal 95th Percentile Value = 3.76
Background Log-Normal Mean Value = 2.76



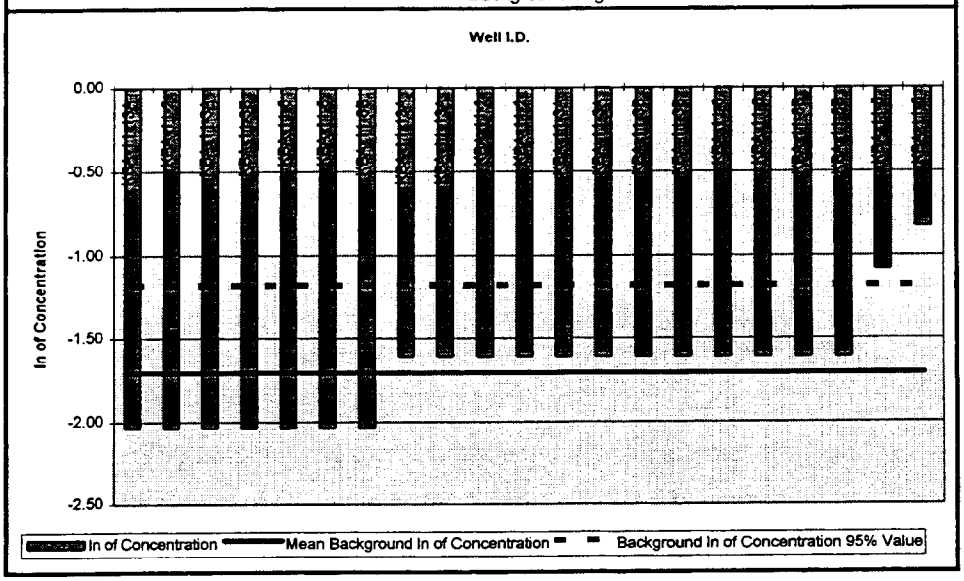
KINGS BAY - SITE 11

Mercury Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	U	0.13	-2.04	P= 0.10
Background	JAN	04	U	0.13	-2.04	n= 42
Background	JAN	07	U	0.13	-2.04	nP= 4.00
Background	JAN	11A	U	0.13	-2.04	n(1-P)= 38.00
Background	JAN	11B	U	0.13	-2.04	
Background	JAN	12	U	0.13	-2.04	
Background	JAN	20	U	0.13	-2.04	Cannot perform test.
Background	APR	01	U	0.2	-1.61	nP<5
Background	APR	04	U	0.2	-1.61	
Background	SEP	04	U	0.2	-1.61	
Background	APR	07	U	0.2	-1.61	
Background	APR	11A	U	0.2	-1.61	
Background	SEP	11A	U	0.2	-1.61	
Background	APR	11B	U	0.2	-1.61	
Background	SEP	11B	U	0.2	-1.61	
Background	APR	12	U	0.2	-1.61	
Background	SEP	12	U	0.2	-1.61	
Background	APR	20	U	0.2	-1.61	
Background	SEP	20	U	0.2	-1.61	
Background	SEP	01		0.31	-1.17	
Background	SEP	07		0.33	-1.11	
Site Adjacent	Jan	KBA-11-13A	U	0.13	-2.04	
Site Adjacent	Jan	KBA-11-2	U	0.13	-2.04	
Site Adjacent	Jan	KBA-11-3A	U	0.13	-2.04	
Site Adjacent	Jan	KBA-11-3B	U	0.13	-2.04	
Site Adjacent	Jan	KBA-11-5	U	0.13	-2.04	
Site Adjacent	Jan	KBA-11-6	U	0.13	-2.04	
Site Adjacent	Jan	KBA-11-8B	U	0.13	-2.04	
Site Adjacent	Apr	KBA-11-13A	U	0.20	-1.61	
Site Adjacent	Sep	KBA-11-13A	U	0.20	-1.61	
Site Adjacent	Apr	KBA-11-2	U	0.20	-1.61	
Site Adjacent	Sep	KBA-11-2	U	0.20	-1.61	
Site Adjacent	Apr	KBA-11-3A	U	0.20	-1.61	
Site Adjacent	Sep	KBA-11-3A	U	0.20	-1.61	
Site Adjacent	Apr	KBA-11-3B	U	0.20	-1.61	
Site Adjacent	Sep	KBA-11-3B	U	0.20	-1.61	
Site Adjacent	Apr	KBA-11-6	U	0.20	-1.61	
Site Adjacent	Sep	KBA-11-6	U	0.20	-1.61	
Site Adjacent	Apr	KBA-11-8B	U	0.20	-1.61	
Site Adjacent	Sep	KBA-11-8B	U	0.20	-1.61	
Site Adjacent	Sep	KBA-11-5		0.34	-1.08	
Site Adjacent	Apr	KBA-11-5		0.44	-0.82	

Percent Non-Detected: 90%

Background Log-Normal 95th Percentile Value = -1.17
Background Log-Normal Mean Value = -1.71



KINGS BAY - SITE 11

Nickel Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	04	U	3.9	1.36
Background	SEP	07	U	6	1.79
Background	SEP	11A	U	6	1.79
Background	SEP	20	U	6	1.79
Background	JAN	01	U	7.3	1.99
Background	JAN	07	U	7.3	1.99
Background	JAN	20	U	7.3	1.99
Background	JAN	12	J	7.35	1.99
Background	JAN	11A	J	8.1	2.09
Background	JAN	11B	J	8.4	2.13
Background	SEP	01	J	9.5	2.25
Background	SEP	12	J	10.65	2.37
Background	SEP	04	J	10.8	2.38
Background	SEP	11B	J	11.7	2.46
Background	APR	04	U	12	2.48
Background	APR	07	U	12	2.48
Background	APR	12	U	12	2.48
Background	APR	01	U	12.6	2.53
Background	APR	20	J	13	2.56
Background	APR	11A	U	19.8	2.99
Site Adjacent	Sep	KBA-11-3B	U	3.4	1.22
Site Adjacent	Jan	KBA-11-2	U	3.9	1.36
Site Adjacent	Jan	KBA-11-3A	U	3.9	1.36
Site Adjacent	Jan	KBA-11-3B	U	3.9	1.36
Site Adjacent	Jan	KBA-11-5	J	5.3	1.67
Site Adjacent	Sep	KBA-11-6	U	6.0	1.79
Site Adjacent	Jan	KBA-11-6	U	7.3	1.99
Site Adjacent	Jan	KBA-11-8B	U	7.3	1.99
Site Adjacent	Sep	KBA-11-13A	J	8.3	2.12
Site Adjacent	Sep	KBA-11-2	J	10.7	2.37
Site Adjacent	Sep	KBA-11-3A	J	11.4	2.43
Site Adjacent	Apr	KBA-11-2	U	12.0	2.48
Site Adjacent	Apr	KBA-11-3A	U	12.0	2.48
Site Adjacent	Apr	KBA-11-5	U	12.0	2.48
Site Adjacent	Apr	KBA-11-6	U	12.0	2.48
Site Adjacent	Apr	KBA-11-8B	U	12.0	2.48
Site Adjacent	Jan	KBA-11-13A	J	17.0	2.83
Site Adjacent	Sep	KBA-11-8B	J	23.6	3.16
Site Adjacent	Sep	KBA-11-5	J	23.7	3.17
Site Adjacent	Apr	KBA-11-13A	U	40.0	3.69
Site Adjacent	Apr	KBA-11-3B		46.6	3.84

Test for Proportions

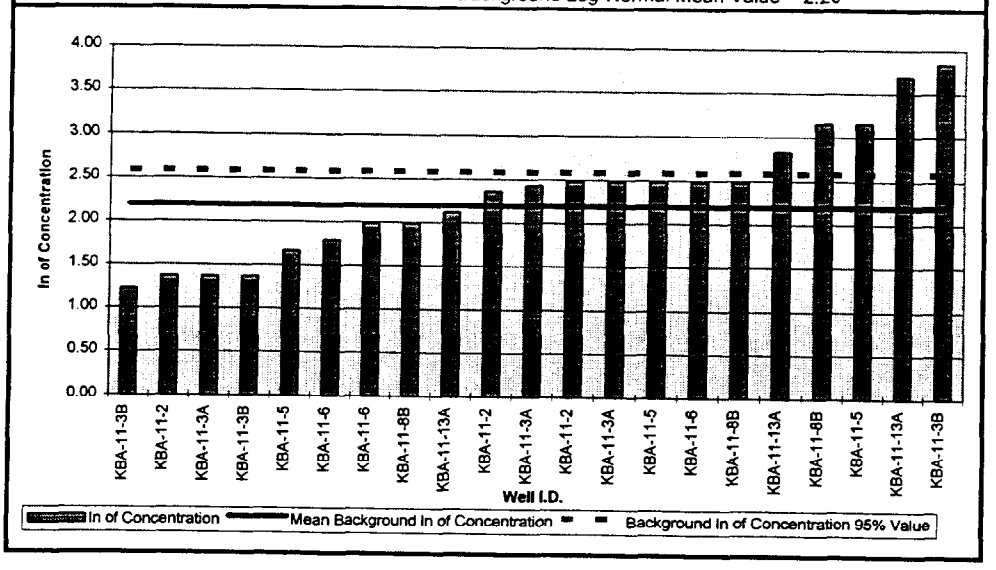
P= 0.39
n= 41
nP= 16.00
n(1-P)= 25.00
P_{cw}= 0.38
P_{bg}= 0.40
S_D= 0.15
z= 0.12

$z_{0.05}$= 1.645

Do not reject H_o.

Percent Non-Detected: 61%

Background Log-Normal 95th Percentile Value = 2.58
Background Log-Normal Mean Value = 2.20

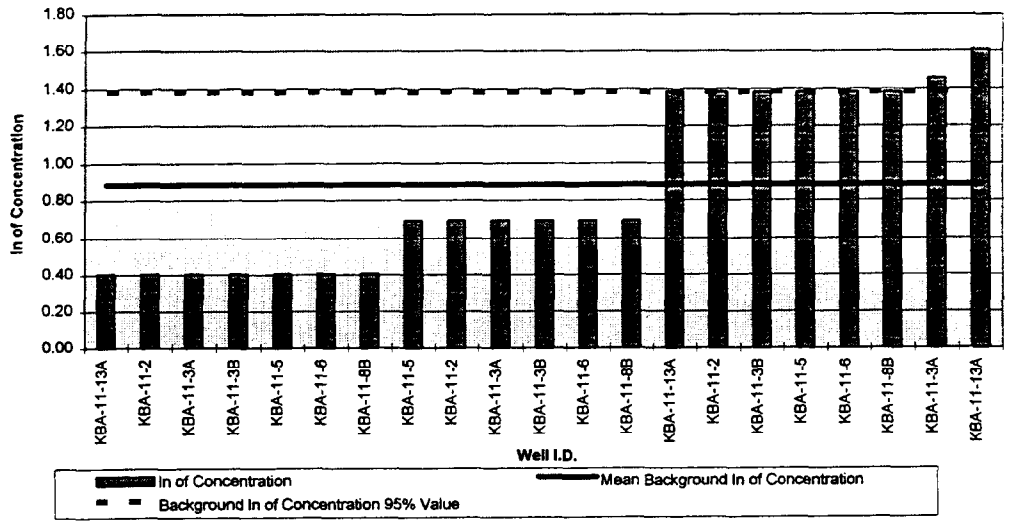


KINGS BAY - SITE 11
Selenium Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	1.5	0.41
Background	JAN	04	U	1.5	0.41
Background	JAN	07	U	1.5	0.41
Background	JAN	11A	U	1.5	0.41
Background	JAN	11B	U	1.5	0.41
Background	JAN	12	U	1.5	0.41
Background	APR	01	U	2	0.69
Background	APR	04	U	2	0.69
Background	APR	11A	U	2	0.69
Background	APR	12	U	2	0.69
Background	APR	20	U	2	0.69
Background	APR	07	J	2.5	0.92
Background	SEP	01	U	4	1.39
Background	SEP	04	U	4	1.39
Background	SEP	07	U	4	1.39
Background	SEP	11A	U	4	1.39
Background	SEP	11B	U	4	1.39
Background	SEP	12	U	4	1.39
Background	SEP	20	U	4	1.39
Background	APR	11B	UJ	5	1.61
Site Adjacent	Jan	KBA-11-13A	U	1.5	0.41
Site Adjacent	Jan	KBA-11-2	U	1.5	0.41
Site Adjacent	Jan	KBA-11-3A	U	1.5	0.41
Site Adjacent	Jan	KBA-11-3B	U	1.5	0.41
Site Adjacent	Jan	KBA-11-5	U	1.5	0.41
Site Adjacent	Jan	KBA-11-6	U	1.5	0.41
Site Adjacent	Jan	KBA-11-8B	U	1.5	0.41
Site Adjacent	Apr	KBA-11-5	UJ	2.0	0.69
Site Adjacent	Apr	KBA-11-2	U	2.0	0.69
Site Adjacent	Apr	KBA-11-3A	U	2.0	0.69
Site Adjacent	Apr	KBA-11-3B	U	2.0	0.69
Site Adjacent	Apr	KBA-11-6	U	2.0	0.69
Site Adjacent	Apr	KBA-11-8B	U	2.0	0.69
Site Adjacent	Sep	KBA-11-13A	U	4.0	1.39
Site Adjacent	Sep	KBA-11-2	U	4.0	1.39
Site Adjacent	Sep	KBA-11-3B	U	4.0	1.39
Site Adjacent	Sep	KBA-11-5	U	4.0	1.39
Site Adjacent	Sep	KBA-11-6	U	4.0	1.39
Site Adjacent	Sep	KBA-11-8B	U	4.0	1.39
Site Adjacent	Sep	KBA-11-3A	J	4.3	1.46
Site Adjacent	Apr	KBA-11-13A	UJ	5.0	1.61

Percent NonDetected: 95%

Background Log-Normal 95th Percentile Value = 1.39
Background Log-Normal Mean Value = 0.88

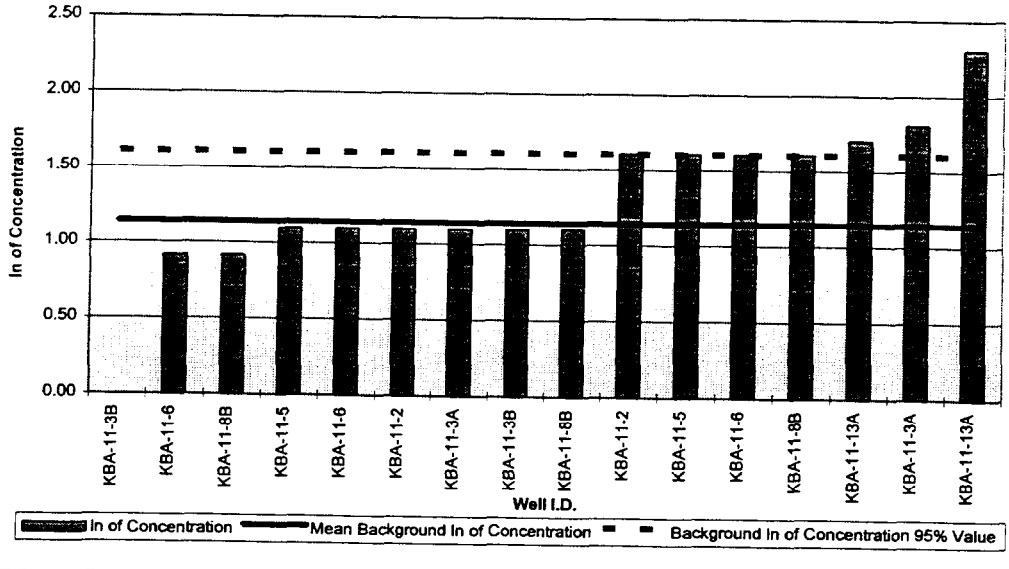


KINGS BAY - SITE 11
Silver Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	11A	U	2.2	0.79
Background	JAN	11B	U	2.2	0.79
Background	JAN	01	UJ	2.5	0.92
Background	JAN	07	UJ	2.5	0.92
Background	JAN	12	UJ	2.5	0.92
Background	JAN	20	UJ	2.5	0.92
Background	APR	04	UJ	3	1.10
Background	APR	07	UJ	3	1.10
Background	APR	12	UJ	3	1.10
Background	APR	20	UJ	3	1.10
Background	APR	01	U	3	1.10
Background	APR	11A	U	3	1.10
Background	SEP	01	U	5	1.61
Background	SEP	04	U	5	1.61
Background	SEP	07	U	5	1.61
Background	SEP	11A	U	5	1.61
Background	SEP	11B	U	5	1.61
Background	SEP	12	U	5	1.61
Background	SEP	20	U	5	1.61
Site Adjacent	Sep	KBA-11-3B	U	1.0	0.00
Site Adjacent	Jan	KBA-11-6	UJ	2.5	0.92
Site Adjacent	Jan	KBA-11-8B	UJ	2.5	0.92
Site Adjacent	Apr	KBA-11-5	UJ	3.0	1.10
Site Adjacent	Apr	KBA-11-6	UJ	3.0	1.10
Site Adjacent	Apr	KBA-11-2	U	3.0	1.10
Site Adjacent	Apr	KBA-11-3A	U	3.0	1.10
Site Adjacent	Apr	KBA-11-3B	U	3.0	1.10
Site Adjacent	Apr	KBA-11-8B	U	3.0	1.10
Site Adjacent	Sep	KBA-11-2	U	5.0	1.61
Site Adjacent	Sep	KBA-11-5	U	5.0	1.61
Site Adjacent	Sep	KBA-11-6	U	5.0	1.61
Site Adjacent	Sep	KBA-11-8B	U	5.0	1.61
Site Adjacent	Sep	KBA-11-13A	J	5.5	1.70
Site Adjacent	Sep	KBA-11-3A	J	6.1	1.81
Site Adjacent	Apr	KBA-11-13A	U	10	2.30

Percent Non-Detected: 94%

Backgroun Log-Normal 95th Percentile Value = 1.61
Background Log-Normal Mean Value = 1.14

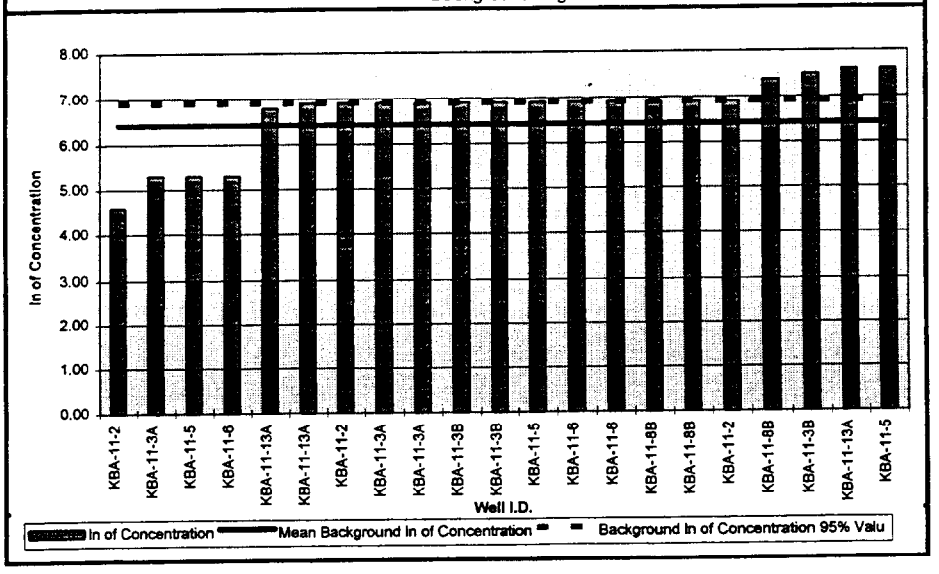


KINGS BAY - SITE 11
Sulfide Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	UJ	100	4.61	P= 0.33
Background	JAN	04	UJ	100	4.61	n= 42
Background	JAN	07	J	200	5.30	nP= 14.00
Background	JAN	11B	J	200	5.30	n(1-P)= 28.00
Background	JAN	20	J	200	5.30	P_{cw}= 0.43
Background	JAN	12	J	300	5.70	P_{bg}= 0.24
Background	APR	01	U	1000	6.91	S_D= 0.15
Background	SEP	01	U	1000	6.91	z= 1.31
Background	APR	04	U	1000	6.91	
Background	SEP	04	U	1000	6.91	Do not reject H_o.
Background	APR	07	U	1000	6.91	
Background	SEP	07	U	1000	6.91	
Background	APR	11A	U	1000	6.91	
Background	SEP	11A	U	1000	6.91	
Background	APR	11B	U	1000	6.91	
Background	SEP	11B	U	1000	6.91	
Background	APR	12	U	1000	6.91	
Background	SEP	12	U	1000	6.91	
Background	APR	20	U	1000	6.91	
Background	SEP	20	U	1000	6.91	
Background	JAN	11A	J	1550	7.35	
Site Adjacent	Jan	KBA-11-2	UJ	100	4.61	
Site Adjacent	Jan	KBA-11-3A	J	200	5.30	
Site Adjacent	Jan	KBA-11-5	J	200	5.30	
Site Adjacent	Jan	KBA-11-6	J	200	5.30	
Site Adjacent	Jan	KBA-11-13	J	900	6.80	
Site Adjacent	Apr	KBA-11-13	U	1000	6.91	
Site Adjacent	Apr	KBA-11-2	U	1000	6.91	
Site Adjacent	Apr	KBA-11-3A	U	1000	6.91	
Site Adjacent	Sep	KBA-11-3A	U	1000	6.91	
Site Adjacent	Apr	KBA-11-3B	U	1000	6.91	
Site Adjacent	Sep	KBA-11-3B	U	1000	6.91	
Site Adjacent	Apr	KBA-11-5	U	1000	6.91	
Site Adjacent	Apr	KBA-11-6	U	1000	6.91	
Site Adjacent	Sep	KBA-11-6	U	1000	6.91	
Site Adjacent	Apr	KBA-11-8B	U	1000	6.91	
Site Adjacent	Sep	KBA-11-8B	U	1000	6.91	
Site Adjacent	Sep	KBA-11-2	J	1000	6.91	
Site Adjacent	Jan	KBA-11-8B	J	1600	7.38	
Site Adjacent	Jan	KBA-11-3B	J	1800	7.50	
Site Adjacent	Sep	KBA-11-13	J	2000	7.60	
Site Adjacent	Sep	KBA-11-5	J	2000	7.60	

Percent Non-Detected: 67%

Background Log-Normal 95th Percentile = 6.91
Background Log-Normal Mean Value = 6.42



KINGS BAY - SITE 11

Thallium Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	APR	04	UJ	1	0.00
Background	APR	07	UJ	1	0.00
Background	APR	12	UJ	1	0.00
Background	APR	20	UJ	1	0.00
Background	APR	01	U	1	0.00
Background	APR	11A	U	1	0.00
Background	JAN	01	UJ	1.3	0.26
Background	JAN	07	UJ	1.3	0.26
Background	JAN	12	UJ	1.3	0.26
Background	JAN	20	UJ	1.3	0.26
Background	JAN	04	U	1.3	0.26
Background	JAN	11A	U	1.4	0.34
Background	JAN	11B	U	1.4	0.34
Background	SEP	01	U	6	1.79
Background	SEP	07	U	6	1.79
Background	SEP	11A	U	6	1.79
Background	SEP	11B	U	6	1.79
Background	SEP	12	U	6	1.79
Background	SEP	04	U	8.5	2.14
Background	APR	11B	U	10	2.30
Background	SEP	20	U	6	1.79
Site Adjacent	Apr	KBA-11-13A	U	0.01	-4.61
Site Adjacent	Jan	KBA-11-13A	UJ	1.3	0.26
Site Adjacent	Sep	KBA-11-13A	U	6	1.79
Site Adjacent	Apr	KBA-11-2	U	1	0.00
Site Adjacent	Jan	KBA-11-2	UJ	1.3	0.26
Site Adjacent	Sep	KBA-11-2	U	8.5	2.14
Site Adjacent	Apr	KBA-11-3A	U	1	0.00
Site Adjacent	Jan	KBA-11-3A	UJ	1.3	0.26
Site Adjacent	Sep	KBA-11-3A	U	8.1	2.09
Site Adjacent	Apr	KBA-11-3B	U	1	0.00
Site Adjacent	Jan	KBA-11-3B	UJ	1.3	0.26
Site Adjacent	Sep	KBA-11-3B	U	6	1.79
Site Adjacent	Apr	KBA-11-5	UJ	1	0.00
Site Adjacent	Jan	KBA-11-5	UJ	1.3	0.26
Site Adjacent	Sep	KBA-11-5	U	6	1.79
Site Adjacent	Apr	KBA-11-6	UJ	1	0.00
Site Adjacent	Jan	KBA-11-6	UJ	1.3	0.26
Site Adjacent	Sep	KBA-11-6	U	6	1.79
Site Adjacent	Apr	KBA-11-8B	U	1	0.00
Site Adjacent	Jan	KBA-11-8B	UJ	1.3	0.26
Site Adjacent	Sep	KBA-11-8B	U	6	1.79

Percent Non-Detected: 100%

KINGS BAY - SITE 11

Tin Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	11B	U	12.4	2.52
Background	APR	04	U	13	2.56
Background	APR	07	U	13	2.56
Background	APR	11A	U	13	2.56
Background	APR	12	U	13	2.56
Background	APR	20	U	13	2.56
Site Adjacent	Apr	KBA-11-13A	U	1	0.00
Site Adjacent	Jan	KBA-11-13A	U	12.4	2.52
Site Adjacent	Apr	KBA-11-5	U	13	2.56
Site Adjacent	Apr	KBA-11-6	U	13	2.56

Percent Non-Detected: 100%

KINGS BAY - SITE 11

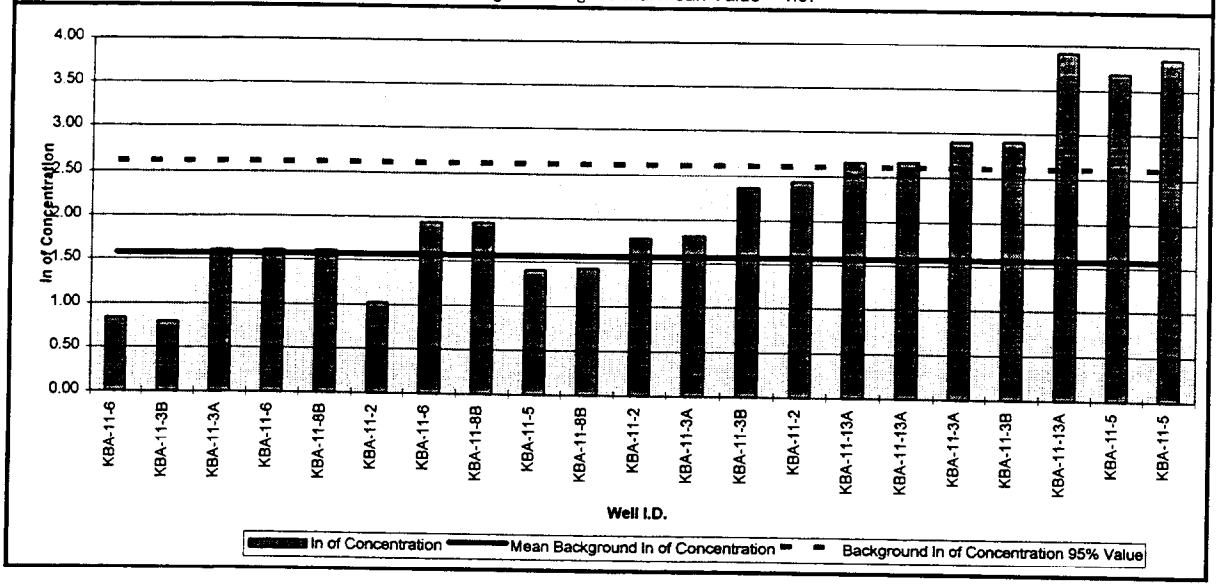
Vanadium Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	rank	U test
Background	JAN	11A	U	1.5	0.41	-0.29	1	R_{cs}= 528
Background	JAN	01	U	2.3	0.83	0.14	3	n_{cs}= 21
Background	JAN	20	U	2.3	0.83	0.14	3	n_{bg}= 20
Background	JAN	11B	J	1.9	0.64	0.64	5	U_{cs}= 123
Background	APR	04	UJ	5	1.61	0.92	10.5	z= -2.2691
Background	APR	07	UJ	5	1.61	0.92	10.5	$z_{0.05}$= -1.645
Background	APR	20	UJ	5	1.61	0.92	10.5	
Background	APR	01	U	5	1.61	0.92	10.5	Reject H_o.
Background	APR	11A	U	5	1.61	0.92	10.5	
Background	JAN	12	J	3.05	1.12	1.12	16	
Background	JAN	04	J	3.1	1.13	1.13	17	
Background	SEP	11A	U	7	1.95	1.25	21.5	
Background	SEP	11B	U	7	1.95	1.25	21.5	
Background	SEP	12	U	7	1.95	1.25	21.5	
Background	SEP	20	U	7	1.95	1.25	21.5	
Background	JAN	07	J	5.6	1.72	1.72	26	
Background	APR	12	J	6.2	1.82	1.82	28.5	
Background	SEP	07	J	12	2.48	2.48	32	
Background	SEP	01	J	13.7	2.62	2.62	33	
Background	SEP	04	J	16	2.77	2.77	36	
Site Adjacent	Jan	KBA-11-6	U	2.3	0.83	0.14	3	
Site Adjacent	Jan	KBA-11-3B	J	2.2	0.79	0.79	6	
Site Adjacent	Apr	KBA-11-3A	U	5.0	1.61	0.92	10.5	
Site Adjacent	Apr	KBA-11-6	UJ	5.0	1.61	0.92	10.5	
Site Adjacent	Apr	KBA-11-8B	U	5.0	1.61	0.92	10.5	
Site Adjacent	Jan	KBA-11-2	J	2.8	1.03	1.03	15	
Site Adjacent	Sep	KBA-11-6	U	7.0	1.95	1.25	21.5	
Site Adjacent	Sep	KBA-11-8B	U	7.0	1.95	1.25	21.5	
Site Adjacent	Jan	KBA-11-5	J	4.1	1.41	1.41	24	
Site Adjacent	Jan	KBA-11-8B	J	4.2	1.44	1.44	25	
Site Adjacent	Apr	KBA-11-2	J	6.0	1.79	1.79	27	
Site Adjacent	Jan	KBA-11-3A	J	6.2	1.82	1.82	28.5	
Site Adjacent	Sep	KBA-11-3B	J	10.7	2.37	2.37	30	
Site Adjacent	Sep	KBA-11-2	J	11.5	2.44	2.44	31	
Site Adjacent	Jan	KBA-11-13A	J	14.4	2.67	2.67	34.5	
Site Adjacent	Sep	KBA-11-13A	J	14.5	2.67	2.67	34.5	
Site Adjacent	Sep	KBA-11-3A	J	18.3	2.91	2.91	37.5	
Site Adjacent	Apr	KBA-11-3B	J	18.4	2.91	2.91	37.5	
Site Adjacent	Apr	KBA-11-13A	U	50	3.91	3.22	39	
Site Adjacent	Sep	KBA-11-5	J	40.0	3.69	3.69	40	
Site Adjacent	Apr	KBA-11-5	J	46.8	3.85	3.85	41	

Percent Non-Detected: 46%

Background Log-Normal 95th Percentile Value = 2.62

Background Log-Normal Mean Value = 1.57

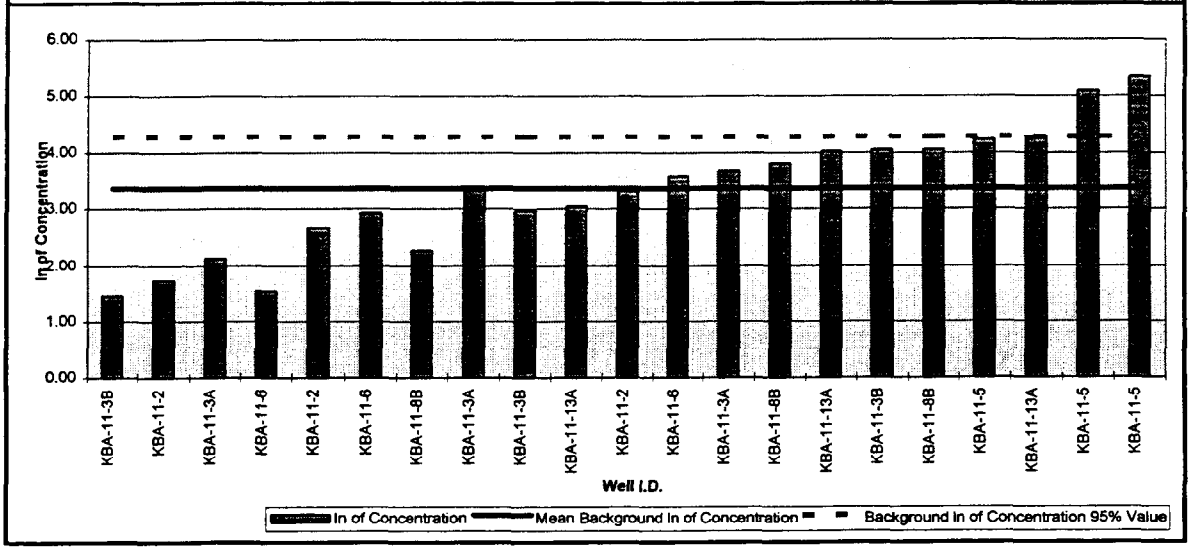


KINGS BAY - SITE 11
Zinc Groundwater Concentrations for Wells Adjacent to the Landfill vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	rank	U test
Background	JAN	04	U	4.3	1.46	0.77	1.5	R_{cs}= 462
Background	JAN	01	J	3.8	1.34	1.34	4	n_{cs}= 21
Background	APR	11A	U	25.5	3.24	2.55	10	n_{bg}= 21
Background	JAN	12	J	13.5	2.60	2.60	11	U_{cs}= 210
Background	JAN	11B	U	28.4	3.35	2.65	12	z= -0.2641
Background	SEP	11A	J	14.45	2.67	2.67	13	$z_{0.05}$= -1.645
Background	JAN	20	J	14.8	2.69	2.69	14.5	
Background	APR	01	U	34.2	3.53	2.84	16	Do not reject H_o.
Background	APR	07	U	34.6	3.54	2.85	17	
Background	APR	12	U	35.2	3.56	2.87	18	
Background	APR	20	U	38.4	3.65	2.95	19	
Background	APR	04	U	64.7	4.17	3.48	23	
Background	JAN	07		34	3.53	3.53	24	
Background	SEP	04		36	3.58	3.58	25	
Background	SEP	01		39	3.66	3.66	27	
Background	SEP	07		41.9	3.74	3.74	29	
Background	SEP	12		45.1	3.81	3.81	30.5	
Background	JAN	11A	J	47.55	3.86	3.86	32	
Background	APR	11B	J	59	4.08	4.08	36	
Background	SEP	20		73	4.29	4.29	38.5	
Background	SEP	11B		88	4.48	4.48	40	
Site Adjacent	Jan	KBA-11-3B	U	4.3	1.46	0.77	1.5	
Site Adjacent	Jan	KBA-11-2	U	5.7	1.74	1.05	3	
Site Adjacent	Jan	KBA-11-3A	U	8.5	2.14	1.45	5	
Site Adjacent	Jan	KBA-11-6	J	4.7	1.55	1.55	6	
Site Adjacent	Apr	KBA-11-2	U	14.5	2.67	1.98	7	
Site Adjacent	Apr	KBA-11-6	U	18.8	2.93	2.24	8	
Site Adjacent	Jan	KBA-11-8B	J	9.8	2.28	2.28	9	
Site Adjacent	Apr	KBA-11-3A	U	29.6	3.39	2.69	14.5	
Site Adjacent	Sep	KBA-11-3B	J	19.5	2.97	2.97	20	
Site Adjacent	Sep	KBA-11-13A		21.1	3.05	3.05	21	
Site Adjacent	Sep	KBA-11-2		27.9	3.33	3.33	22	
Site Adjacent	Sep	KBA-11-6		36.2	3.59	3.59	26	
Site Adjacent	Sep	KBA-11-3A		39.5	3.68	3.68	28	
Site Adjacent	Sep	KBA-11-8B		45.2	3.81	3.81	30.5	
Site Adjacent	Jan	KBA-11-13A		56.0	4.03	4.03	33	
Site Adjacent	Apr	KBA-11-3B		57.8	4.06	4.06	34.5	
Site Adjacent	Apr	KBA-11-8B		57.9	4.06	4.06	34.5	
Site Adjacent	Jan	KBA-11-5		69.3	4.24	4.24	37	
Site Adjacent	Apr	KBA-11-13A	J	73	4.29	4.29	38.5	
Site Adjacent	Apr	KBA-11-5		164	5.10	5.10	41	
Site Adjacent	Sep	KBA-11-5		209	5.34	5.34	42	

Percent Non-Detected: 33%

Background Log-Normal 95th Percentile = 4.29
Background Log-Normal Mean =3.37



Characterization Wells in Subdivision Versus Background

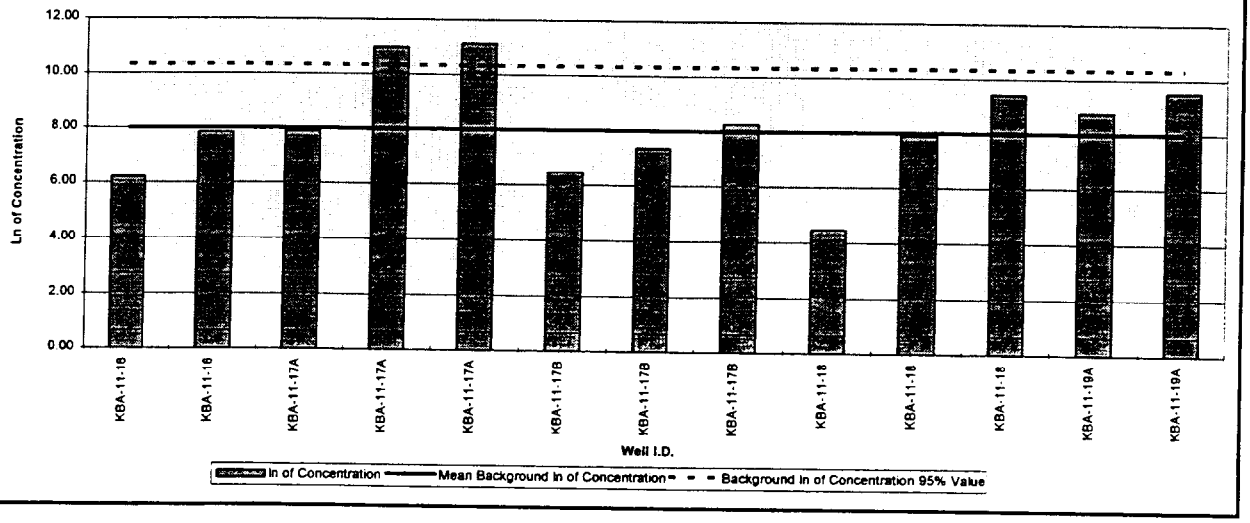
KINGS BAY - SITE 11

Aluminum Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	Sep	20	U	154	4.34	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 8.01	
Background	Jan	20	J	265	5.58	$f_{cs}=n_{cs}-1$ = 2		
Background	Sep	12	U	355.5	5.18	f = 20	BG variance = 3.563	
Background	Sep	11A		565	6.34	BG variance = 3.563		
Background	Jan	11A	J	572.5	6.35	degrees freedom = 1		
Background	Sep	11B		701	6.55	0.95 Percentile Value = 3.841		
Background	Jan	01	J	1590	7.37			
Background	Apr	11A	J	2120	7.66			
Background	Apr	04		2960	7.99			
Background	Jan	12	J	4045	8.31			
Background	Apr	20		4290	8.36			
Background	Jan	04	J	5670	8.64			
Background	Apr	12		7445	8.92			
Background	Apr	07		12100	9.40			
Background	Apr	01	J	16700	9.72			
Background	Jan	07	J	28700	10.26			
Background	Sep	07		29100	10.28			
Background	Sep	04		29500	10.29			
Background	Sep	01		41100	10.62			Reject H_o?
Off Base	Sep	KBA-11-16		504	6.22	Only two measurements. Not suitable for statistical analyses.		
Off Base	Jan	KBA-11-16	J	2550	7.84			
Off Base	Sep	KBA-11-17A		2660	7.89	Pooled Var. = 3.539	t statistic = 1.694	
Off Base	Jan	KBA-11-17A	J	57800	10.96	Char. variance = 3.325	d.f. = 20.00	
Off Base	Apr	KBA-11-17A		67400	11.12	Chi Square Statistic = 0.004	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-17B		644	6.47	Pooled Var. = 3.288	t statistic = -0.568	
Off Base	Jan	KBA-11-17B	J	1580	7.37	Char. variance = 0.816	d.f. = 20.00	
Off Base	Apr	KBA-11-17B		3920	8.27	Chi Square Statistic = 1.344	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-18	U	176	4.48	Pooled Var. = 3.852	t statistic = -0.607	
Off Base	Apr	KBA-11-18		2670	7.89	Char. variance = 6.449	d.f. = 20.00	
Off Base	Jan	KBA-11-18	J	12600	9.44	Chi Square Statistic = 0.371	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-19A		6430	8.77	Only two measurements. Not suitable for statistical analyses.		
Off Base	Apr	KBA-11-19A		13900	9.54			

Percent Non-Detects: 9%

Background Log-Normal 95th Percentile Value = 10.32
Background Log-Normal Mean Value = 8.08

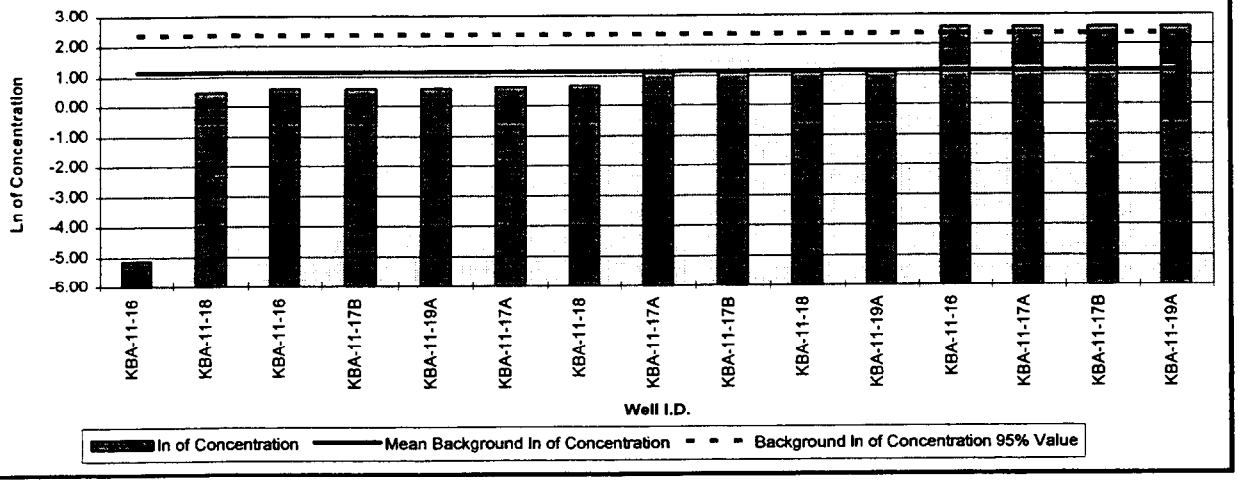


KINGS BAY - SITE 11
Antimony Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	04	U	1.8	0.59
Background	JAN	20	UJ	1.8	0.59
Background	SEP	01	U	2	0.69
Background	SEP	07	U	2	0.69
Background	SEP	11A	U	2	0.69
Background	SEP	11B	U	2	0.69
Background	SEP	12	U	2	0.69
Background	SEP	20	U	2	0.69
Background	JAN	01	J	2.3	0.83
Background	JAN	12	U	2.55	0.94
Background	APR	01	U	3	1.10
Background	APR	04	U	3	1.10
Background	APR	07	U	3	1.10
Background	APR	11A	U	3	1.10
Background	APR	12	U	3	1.10
Background	APR	20	U	3	1.10
Background	JAN	11A	UJ	3.85	1.35
Background	APR	11B	U	6	1.79
Background	JAN	11B	U	10.1	2.31
Background	JAN	07		10.5	2.35
Background	SEP	04	U	13	2.56
Off Base	Apr	KBA-11-16	U	0.006	-5.12
Off Base	Jan	KBA-11-18	U	1.6	0.47
Off Base	Jan	KBA-11-16	U	1.8	0.59
Off Base	Jan	KBA-11-17B	U	1.8	0.59
Off Base	Jan	KBA-11-19A	U	1.8	0.59
Off Base	Jan	KBA-11-17A	J	1.9	0.64
Off Base	Sep	KBA-11-18	U	2.0	0.69
Off Base	Apr	KBA-11-17A	U	3.0	1.10
Off Base	Apr	KBA-11-17B	U	3.0	1.10
Off Base	Apr	KBA-11-18	U	3.0	1.10
Off Base	Apr	KBA-11-19A	U	3.0	1.10
Off Base	Sep	KBA-11-16	U	13.0	2.56
Off Base	Sep	KBA-11-17A	U	13.0	2.56
Off Base	Sep	KBA-11-17B	U	13.0	2.56
Off Base	Sep	KBA-11-19A	U	13.0	2.56

Percent Non-Detects: 92%

Background Log-Normal 95th Percentile Value = 2.35
Background Log-Normal Mean Value = 1.15



KINGS BAY - SITE 11

Arsenic Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	APR	01	U	1	0.00
Background	APR	07	U	1	0.00
Background	APR	11A	U	1	0.00
Background	JAN	11B	UJ	1	0.00
Background	APR	04	J	1.2	0.18
Background	JAN	04	J	1.2	0.18
Background	JAN	01	U	1.3	0.26
Background	JAN	07	U	1.3	0.26
Background	JAN	11A	J	1.4	0.34
Background	JAN	12	J	2	0.69
Background	JAN	20	J	2.8	1.03
Background	APR	20	J	2.9	1.06
Background	SEP	01	U	3	1.10
Background	SEP	07	U	3	1.10
Background	SEP	11A	U	3	1.10
Background	SEP	11B	U	3	1.10
Background	SEP	12	U	3	1.10
Background	SEP	20	U	3	1.10
Background	SEP	04	UJ	3	1.10
Background	APR	11B		8	2.08
Off Base	Jan	KBA-11-19A	J	1.3	0.26
Off Base	Jan	KBA-11-17A	J	2.1	0.74
Off Base	Apr	KBA-11-18	J	2.8	1.03
Off Base	Sep	KBA-11-18	U	3.0	1.10
Off Base	Sep	KBA-11-16	UJ	3.0	1.10
Off Base	Sep	KBA-11-17A	UJ	3.0	1.10
Off Base	Sep	KBA-11-17B	UJ	3.0	1.10
Off Base	Sep	KBA-11-19A	UJ	3.0	1.10
Off Base	Jan	KBA-11-16	J	4.3	1.46
Off Base	Jan	KBA-11-18	J	4.5	1.50
Off Base	Apr	KBA-11-19A	J	4.7	1.55
Off Base	Apr	KBA-11-16		6.1	1.81
Off Base	Jan	KBA-11-17B	J	6.4	1.86
Off Base	Apr	KBA-11-17A	J	6.4	1.86
Off Base	Apr	KBA-11-17B	J	6.6	1.89

Test for Proportions

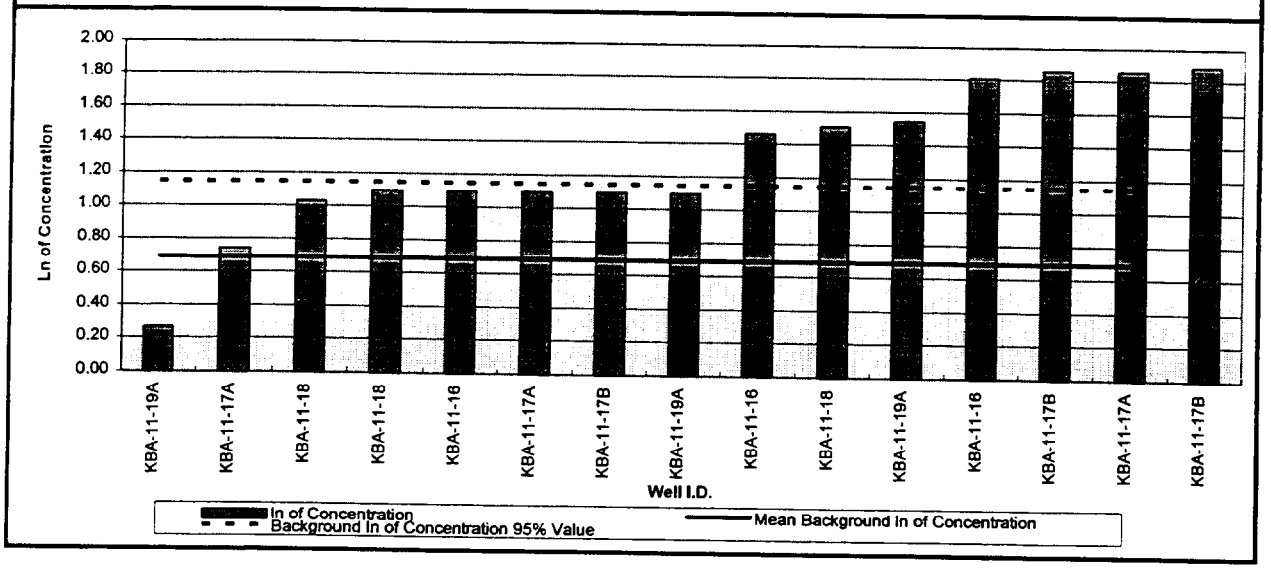
$P = 0.49$
$nP = 17.00$
$n(1-P) = 18.00$
$P_{cw} = 0.67$
$P_{bg} = 0.35$
$S_D = 0.17$
$z = 1.85$

$z_{0.05} = 1.645$

Reject H_o.

Percent Non-Detects: 51%

Background Log-Normal 95th Percentille Value = 1.15
Background Log-Normal Mean Value = 0.69



KINGS BAY - SITE 11

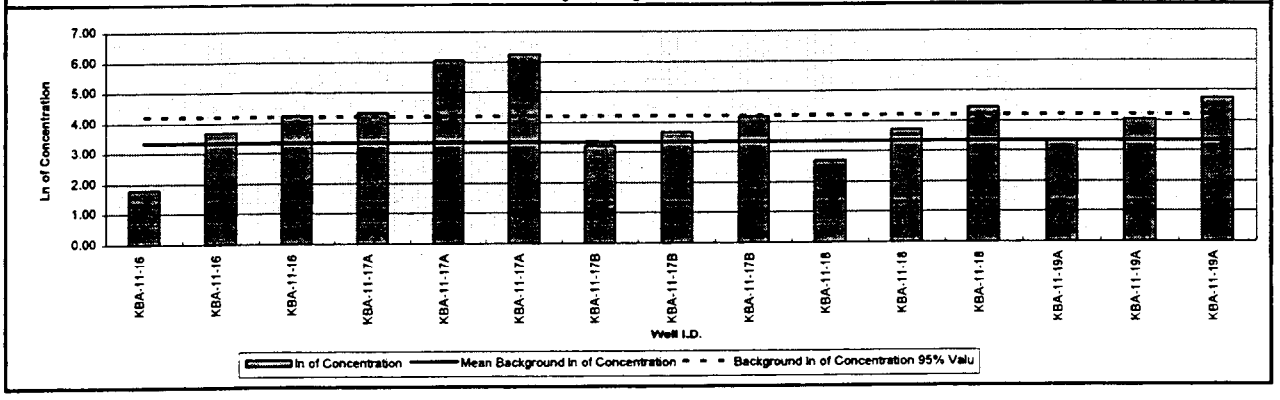
Barium Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	JAN	04	J	5.1	1.63	$f_{bg}=n_{bg}-1$ = 20	BG Mean = 3.33	
Background	APR	04	J	6.7	1.90	$f_{cs}=n_{cs}-1$ = 2		
Background	SEP	12	J	14.25	2.66	f = 22	G variance = 0.5015	
Background	JAN	07	J	15.7	2.75	BG variance = 0.501		
Background	JAN	01	J	16	2.77	degrees freedom = 1		
Background	SEP	11A	J	18.6	2.92	0.95 Percentile Value = 3.841		
Background	SEP	11B	J	23.4	3.15			
Background	SEP	04	J	27	3.30			
Background	APR	07	J	31	3.43			
Background	APR	01	J	31.9	3.46			
Background	APR	11A	J	32	3.47			
Background	JAN	12	J	32.55	3.48			
Background	SEP	20	J	33	3.50			
Background	JAN	11A	J	35.15	3.56			
Background	JAN	20	J	39	3.66			
Background	SEP	07	J	39.8	3.68			
Background	JAN	11B	J	45	3.81			
Background	SEP	01	J	59.6	4.09			
Background	APR	20	J	63.7	4.15			
Background	APR	12	J	68.45	4.23			
Background	APR	11B		81	4.39			Reject H_o
Off Base	Apr	KBA-11-16		6.1	1.81	Pooled Var. = 0.606	t statistic = -0.161	
Off Base	Sep	KBA-11-16	J	40.7	3.71	Char. variance = 1.647	d.f. = 22.00	
Off Base	Jan	KBA-11-16	J	70.4	4.25	Chi Square Statistic = 1.774	$t_{0.05}$ = 1.717	NO
Off Base	Sep	KBA-11-17A	J	77.2	4.35	Pooled Var. = 0.556	t statistic = 4.826	
Off Base	Jan	KBA-11-17A	J	432	6.07	Char. variance = 1.104	d.f. = 22.00	
Off Base	Apr	KBA-11-17A		518	6.25	Chi Square Statistic = 0.702	$t_{0.05}$ = 1.717	YES
Off Base	Sep	KBA-11-17B	J	24.7	3.21	Pooled Var. = 0.477	t statistic = 0.842	
Off Base	Jan	KBA-11-17B	J	40.0	3.69	Char. variance = 0.238	d.f. = 22.00	
Off Base	Apr	KBA-11-17B	J	65.5	4.18	Chi Square Statistic = 0.415	$t_{0.05}$ = 1.717	NO
Off Base	Sep	KBA-11-18	J	15.0	2.71	Pooled Var. = 0.526	t statistic = 0.674	
Off Base	Apr	KBA-11-18	J	42.1	3.74	Char. variance = 0.774	d.f. = 22.00	
Off Base	Jan	KBA-11-18	J	86.3	4.46	Chi Square Statistic = 0.192	$t_{0.05}$ = 1.717	NO
Off Base	Sep	KBA-11-19A	J	28.5	3.35	Pooled Var. = 0.500	t statistic = 1.632	
Off Base	Apr	KBA-11-19A	J	57.4	4.05	Char. variance = 0.480	d.f. = 22.00	
Off Base	Jan	KBA-11-19A	J	114	4.74	Chi Square Statistic = 0.002	$t_{0.05}$ = 1.717	NO

Percent Non-Detects: 0%

Background Log-Normal 95th Percentile Value = 4.23

Background Log-Normal Mean Value = 3.33



KINGS BAY - SITE 11
Beryllium Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	04	UJ	0.12	-2.12
Background	JAN	11A	J	0.14	-1.97
Background	JAN	01	U	0.14	-1.97
Background	JAN	12	J	0.21	-1.56
Background	JAN	20	J	0.22	-1.51
Background	JAN	07	J	0.43	-0.84
Background	JAN	11B	J	0.51	-0.67
Background	SEP	20	J	1	0.00
Background	SEP	04	U	1	0.00
Background	SEP	07	U	1	0.00
Background	SEP	11A	U	1	0.00
Background	SEP	11B	U	1	0.00
Background	SEP	12	U	1	0.00
Background	SEP	01	J	1.2	0.18
Background	APR	01	U	2	0.69
Background	APR	04	U	2	0.69
Background	APR	07	U	2	0.69
Background	APR	11A	U	2	0.69
Background	APR	12	U	2	0.69
Background	APR	20	U	2	0.69
Background	APR	11B	U	5	1.61
Off Base	Jan	KBA-11-16	UJ	0.12	-2.12
Off Base	Jan	KBA-11-17B	UJ	0.16	-1.83
Off Base	Jan	KBA-11-19A	J	0.63	-0.46
Off Base	Jan	KBA-11-17A	J	0.74	-0.30
Off Base	Sep	KBA-11-16	U	1.0	0.00
Off Base	Sep	KBA-11-17A	U	1.0	0.00
Off Base	Sep	KBA-11-17B	U	1.0	0.00
Off Base	Sep	KBA-11-18	U	1.0	0.00
Off Base	Sep	KBA-11-19A	U	1.0	0.00
Off Base	Jan	KBA-11-18	J	2.0	0.69
Off Base	Apr	KBA-11-17A	U	2.0	0.69
Off Base	Apr	KBA-11-17B	U	2.0	0.69
Off Base	Apr	KBA-11-18	U	2.0	0.69
Off Base	Apr	KBA-11-19A	U	2.0	0.69
Off Base	Apr	KBA-11-16	U	5.0	1.61

Test for Proportions

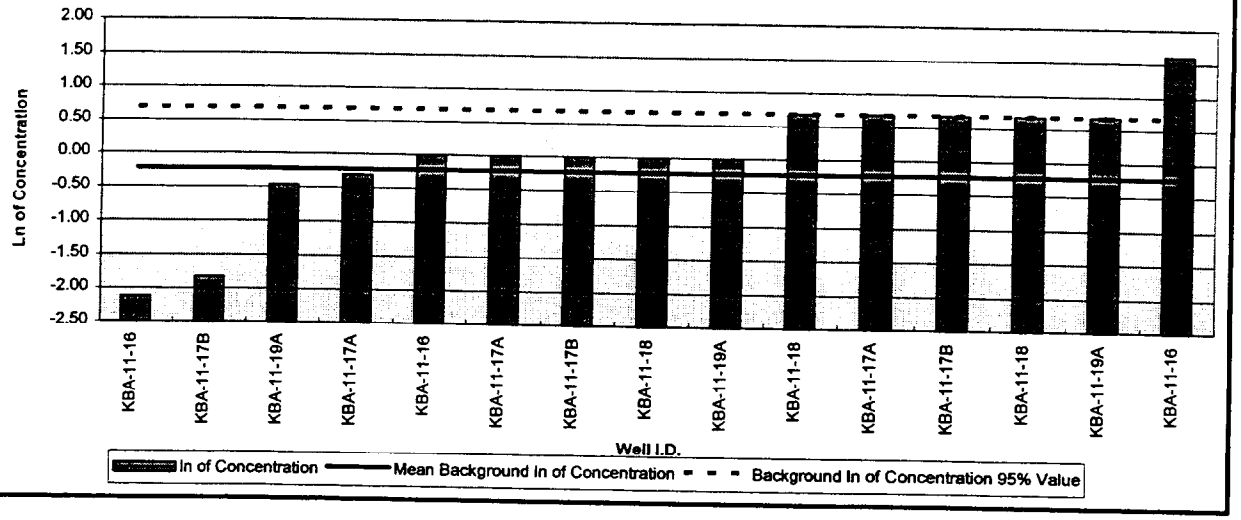
$P = 0.31$
$nP = 11.00$
$n(1-P) = 25.00$
$P_{cw} = 0.200$
$P_{bg} = 0.381$
$S_D = 0.156$
$z = 1.16$

$z_{0.05} = 1.645$

Do not reject H_o.

Percent Non-Detects: 69%

Background Log-Normal 95th Percentille Value = 0.69
Background Log-Normal Mean Value = -0.22



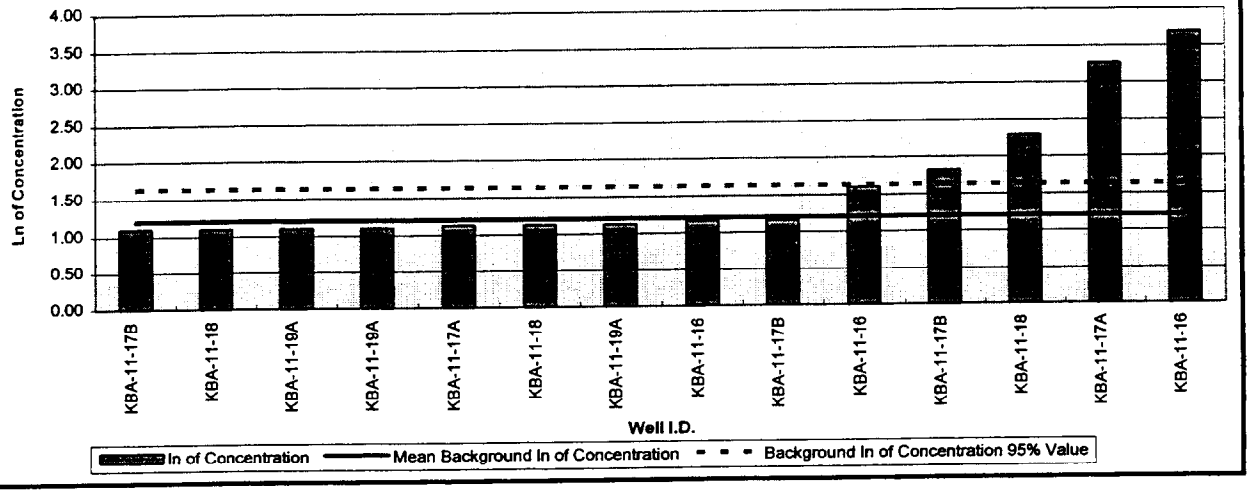
KINGS BAY - SITE 11

Cadmium Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	APR	01	U	3	1.10	P = 0.17
Background	SEP	01	U	3	1.10	nP = 6.00
Background	SEP	04	U	3	1.10	n(1-P) = 29.00
Background	SEP	07	U	3	1.10	P_{cw} = 0.27
Background	APR	11A	U	3	1.10	P_{bg} = 0.10
Background	SEP	11A	U	3	1.10	S_D = 0.13
Background	SEP	11B	U	3	1.10	z = 1.29
Background	APR	04	UJ	3	1.10	$z_{0.05}$= 1.645
Background	APR	07	UJ	3	1.10	
Background	APR	12	UJ	3	1.10	Do not reject H_o.
Background	APR	20	UJ	3	1.10	
Background	JAN	01	U	3.1	1.13	
Background	JAN	07	U	3.1	1.13	
Background	JAN	12	U	3.1	1.13	
Background	JAN	20	U	3.1	1.13	
Background	JAN	11A	U	3.2	1.16	
Background	JAN	11B	U	3.2	1.16	
Background	JAN	04	J	3.5	1.25	
Background	APR	11B	U	5	1.61	
Background	SEP	12		8.95	2.19	
Off Site	Apr	KBA-11-17A	UJ	3.0	1.10	
Off Site	Apr	KBA-11-17B	UJ	3.0	1.10	
Off Site	Apr	KBA-11-18	UJ	3.0	1.10	
Off Site	Apr	KBA-11-19A	UJ	3.0	1.10	
Off Site	Sep	KBA-11-19A	U	3.0	1.10	
Off Site	Jan	KBA-11-17A	U	3.1	1.13	
Off Site	Jan	KBA-11-18	U	3.1	1.13	
Off Site	Jan	KBA-11-19A	U	3.1	1.13	
Off Site	Jan	KBA-11-16	U	3.2	1.16	
Off Site	Jan	KBA-11-17B	U	3.2	1.16	
Off Site	Apr	KBA-11-16	U	5.0	1.61	
Off Site	Sep	KBA-11-17B		6.2	1.82	
Off Site	Sep	KBA-11-18		10.0	2.30	
Off Site	Sep	KBA-11-17A		26.5	3.28	
Off Site	Sep	KBA-11-16		40.0	3.69	

Percent Non-Detects: 83%

Background Log-Normal 95th Percentille Value = 1.64
Background Log-Normal Mean Value = 1.20

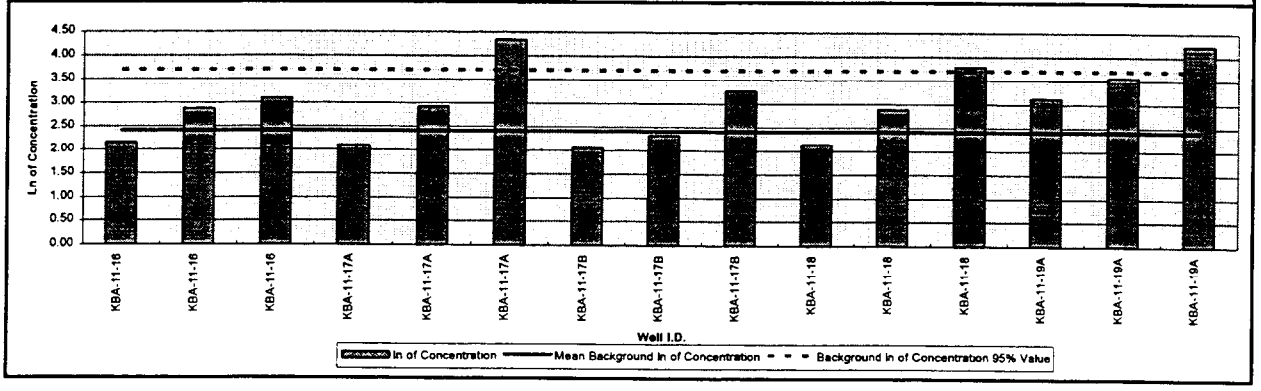


KINGS BAY - SITE 11
Chromium Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	JAN	01	U	2.3	0.42	$f_{bg}=n_{bg}-1$ = 20	BG Mean = 2.42	
Background	JAN	20	U	2.6	0.48	$f_{cs}=n_{cs}-1$ = 2		
Background	APR	04	U	5	0.80	f = 22	BG variance = 1.130	
Background	JAN	04	J	5.7	1.74	BG variance = 1.130		
Background	JAN	11A	J	6.05	1.80	degrees freedom = 1		
Background	JAN	12	J	7	1.95	0.95 Percentile Value = 3.841		
Background	SEP	11A	U	8	1.04			
Background	JAN	11B	J	9.7	2.27			
Background	APR	07		10.4	2.34			
Background	SEP	11B		12	2.48			
Background	APR	12		14.1	2.65			
Background	SEP	12		15.75	2.76			
Background	SEP	20		16	2.77			
Background	SEP	07		17.2	2.84			
Background	APR	11A		18.1	2.90			
Background	APR	01		24.6	3.20			
Background	SEP	04		29.7	3.39			
Background	APR	20		40.6	3.70			
Background	SEP	07		41	3.71			
Background	APR	11B		41	3.71			
Background	SEP	01		45.5	3.82			Reject H_o?
Off Base	Jan	KBA-11-16	J	8.7	2.16	Pooled Var. = 1.049	t statistic = 0.463	
Off Base	Sep	KBA-11-16		17.8	2.88	Char. variance = 0.236	d.f. = 22.00	
Off Base	Apr	KBA-11-16		22.0	3.09	Chi Square Statistic = 1.488	$t_{0.05}$ = 1.717	NO
Off Base	Sep	KBA-11-17A	J	8.2	2.10	Pooled Var. = 1.144	t statistic = 1.066	
Off Base	Jan	KBA-11-17A		18.6	2.92	Char. variance = 1.278	d.f. = 22.00	
Off Base	Apr	KBA-11-17A		76.6	4.34	Chi Square Statistic = 0.014	$t_{0.05}$ = 1.717	NO
Off Base	Jan	KBA-11-17B	J	7.8	2.05	Pooled Var. = 1.065	t statistic = 0.214	
Off Base	Sep	KBA-11-17B		10.3	2.33	Char. variance = 0.411	d.f. = 22.00	
Off Base	Apr	KBA-11-17B		26.5	3.28	Chi Square Statistic = 0.712	$t_{0.05}$ = 1.717	NO
Off Base	Apr	KBA-11-18	J	8.5	2.14	Pooled Var. = 1.090	t statistic = 0.813	
Off Base	Sep	KBA-11-18		18.0	2.89	Char. variance = 0.687	d.f. = 22.00	
Off Base	Jan	KBA-11-18		44.5	3.80	Chi Square Statistic = 0.197	$t_{0.05}$ = 1.717	NO
Off Base	Sep	KBA-11-19A		22.6	3.12	Pooled Var. = 1.056	t statistic = 1.923	
Off Base	Apr	KBA-11-19A		35.2	3.56	Char. variance = 0.316	d.f. = 22.00	
Off Base	Jan	KBA-11-19A		69.0	4.23	Chi Square Statistic = 1.059	$t_{0.05}$ = 1.717	YES

Percent Non-Detects: 11%

Background Log-Normal 95th Percentile Value = 3.71
Background Log-Normal Mean Value = 2.42



Half Detection Limit Used

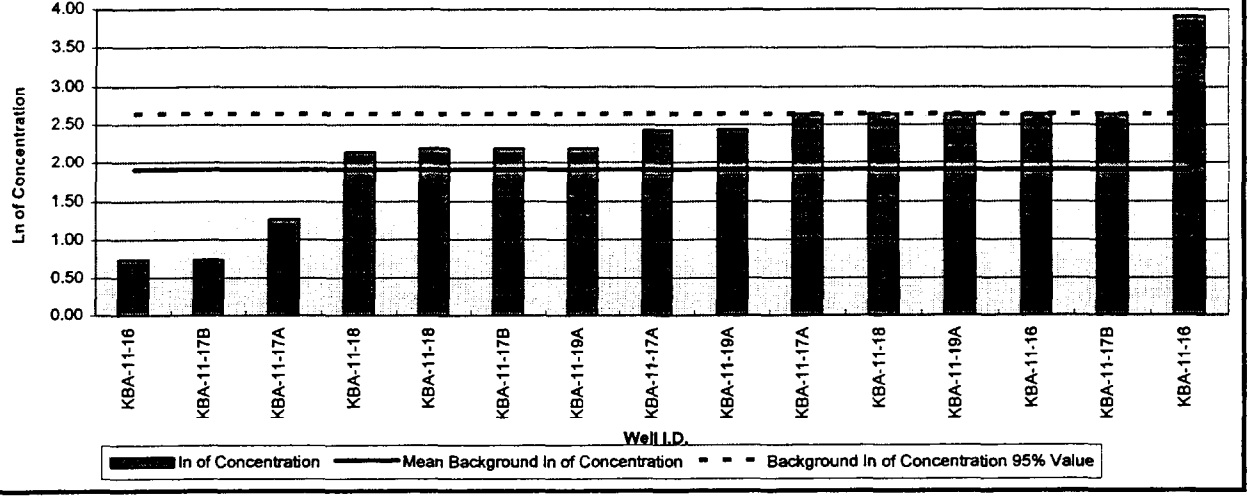
KINGS BAY - SITE 11
Cobalt Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	U	1.6	0.47	P = 0.14
Background	JAN	07	U	1.6	0.47	nP = 5.00
Background	JAN	20	U	1.6	0.47	n(1-P) = 31.00
Background	JAN	04	U	2.1	0.74	P_{cw} = 0.27
Background	JAN	11A	U	2.1	0.74	P_{bg} = 0.05
Background	JAN	11B	U	2.1	0.74	S_D = 0.12
Background	JAN	12	J	2.5	0.92	z = 1.87
Background	APR	01	U	9	2.20	
Background	APR	04	U	9	2.20	$z_{0.05}$ = 1.645
Background	APR	07	U	9	2.20	
Background	APR	11A	U	9	2.20	Reject H_o.
Background	APR	12	U	9	2.20	
Background	APR	20	U	9	2.20	
Background	SEP	01	U	14	2.64	
Background	SEP	04	U	14	2.64	
Background	SEP	07	U	14	2.64	
Background	SEP	11A	U	14	2.64	
Background	SEP	11B	U	14	2.64	
Background	SEP	12	U	14	2.64	
Background	SEP	20	U	14	2.64	
Background	APR	11B	U	50	3.91	
Off Base	Jan	KBA-11-16	U	2.1	0.74	
Off Base	Jan	KBA-11-17B	U	2.1	0.74	
Off Base	Jan	KBA-11-17A	J	3.6	1.28	
Off Base	Jan	KBA-11-18	J	8.6	2.15	
Off Base	Apr	KBA-11-18	U	9.0	2.20	
Off Base	Apr	KBA-11-17B	U	9.0	2.20	
Off Base	Apr	KBA-11-19A	U	9.0	2.20	
Off Base	Apr	KBA-11-17A	J	11.4	2.43	
Off Base	Jan	KBA-11-19A	J	11.5	2.44	
Off Base	Sep	KBA-11-17A	U	14.0	2.64	
Off Base	Sep	KBA-11-18	U	14.0	2.64	
Off Base	Sep	KBA-11-19A	U	14.0	2.64	
Off Base	Sep	KBA-11-16	U	14.0	2.64	
Off Base	Sep	KBA-11-17B	U	14.0	2.64	
Off Base	Apr	KBA-11-16	U	50.0	3.91	

Percent Non-Detects: 86%

Background Log-Normal 95th Percentile Value = 2.64

Background Log-Normal Mean Value = 1.91

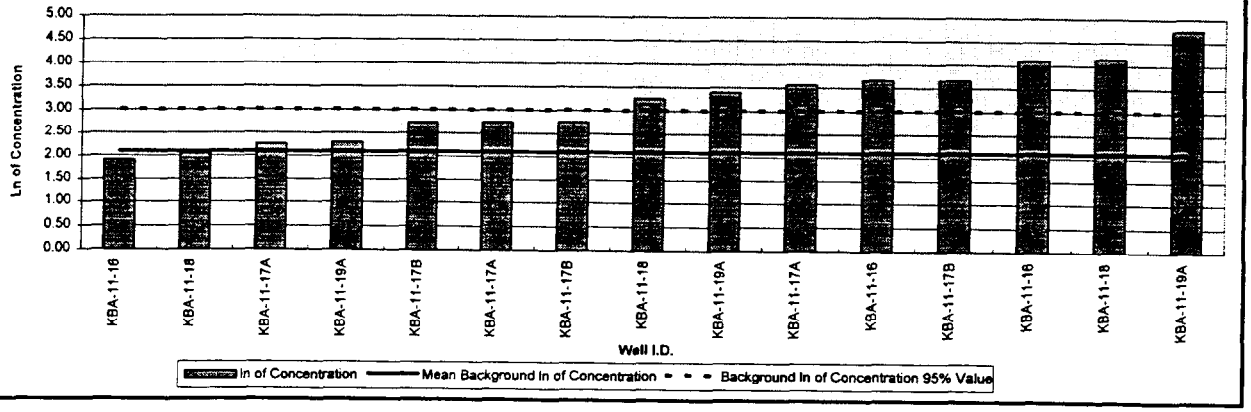


KINGS BAY - SITE 11
Copper Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	01	U	1.7	0.53	-0.16	1.5	R_{cs}= 367
Background	JAN	20	U	1.7	0.53	-0.16	1.5	n_{cs}= 15
Background	JAN	04	U	2.9	1.06	0.37	3	n_{bg}= 21
Background	JAN	07	J	2.3	0.83	0.83	4	U_{cs}= 68
Background	APR	04	UJ	6.6	1.89	1.19	5	z= -2.8718
Background	JAN	12	J	3.45	1.24	1.24	7	$z_{0.05}$= -1.645
Background	SEP	11A	J	4.6	1.53	1.53	9	
Background	SEP	07	J	8.5	2.14	2.14	10	
Background	SEP	11B	J	9.1	2.21	2.21	11	Reject H_o.
Background	APR	12	J	9.4	2.24	2.24	12	
Background	SEP	04	J	9.7	2.27	2.27	14	
Background	APR	11A	J	10.7	2.37	2.37	16	
Background	JAN	11A	J	11.35	2.43	2.43	17	
Background	APR	01	J	11.9	2.48	2.48	18	
Background	SEP	01	J	14.2	2.65	2.65	19	
Background	SEP	12	J	15	2.71	2.71	20	
Background	APR	07	J	16.9	2.83	2.83	24	
Background	APR	11B		18	2.89	2.89	25	
Background	JAN	11B	J	19.1	2.95	2.95	26	
Background	APR	20	J	20.3	3.01	3.01	27	
Background	SEP	20		28	3.33	3.33	29	
Off Base	Jan	KBA-11-16	U	6.8	1.92	1.22	6	
Off Base	Apr	KBA-11-18	UJ	7.8	2.05	1.36	8	
Off Base	Jan	KBA-11-17A	J	9.6	2.26	2.26	13	
Off Base	Sep	KBA-11-19A	J	9.9	2.29	2.29	15	
Off Base	Sep	KBA-11-17B	J	15.3	2.73	2.73	21	
Off Base	Sep	KBA-11-17A	J	15.5	2.74	2.74	22	
Off Base	Jan	KBA-11-17B	J	15.6	2.75	2.75	23	
Off Base	Jan	KBA-11-18		26.0	3.26	3.26	28	
Off Base	Apr	KBA-11-19A	J	29.9	3.40	3.40	30	
Off Base	Apr	KBA-11-17A	J	35.2	3.56	3.56	31	
Off Base	Apr	KBA-11-16		39.0	3.66	3.66	32	
Off Base	Apr	KBA-11-17B		39.1	3.67	3.67	33	
Off Base	Sep	KBA-11-16		60.3	4.10	4.10	34	
Off Base	Sep	KBA-11-18		63.0	4.14	4.14	35	
Off Base	Jan	KBA-11-19A		115	4.74	4.74	36	

Percent Non-Detects: 17%

Background Log-Normal 95th Percentile Value = 3.01
Background Log-Normal Mean Value = 2.10

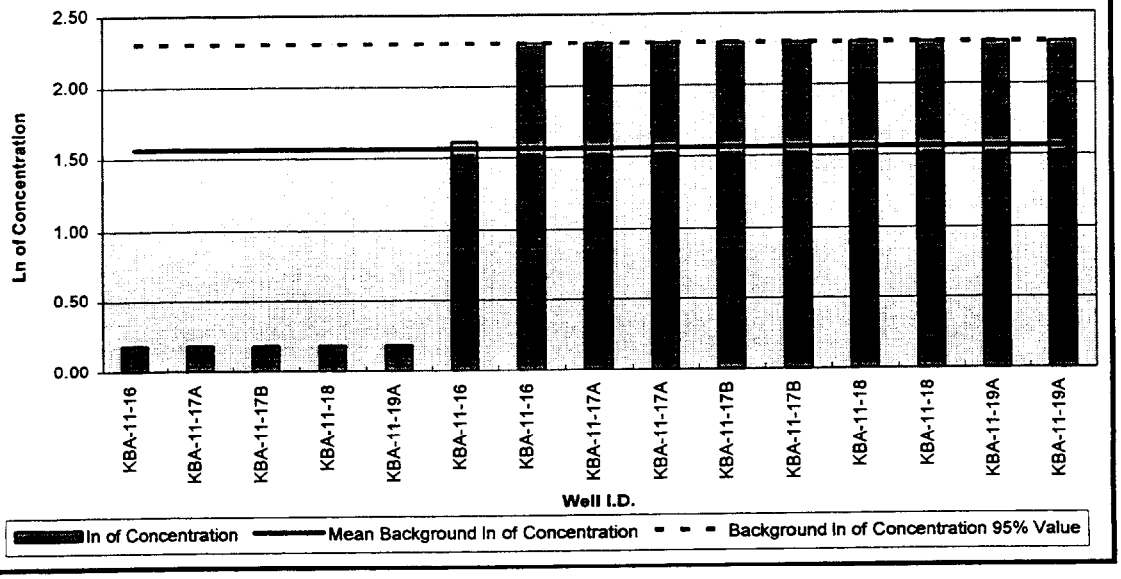


Half Detection Limit Used

KINGS BAY - SITE 11
Cyanide Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	1.2	0.18
Background	JAN	04	U	1.2	0.18
Background	JAN	07	U	1.2	0.18
Background	JAN	11A	U	1.2	0.18
Background	JAN	11B	U	1.2	0.18
Background	JAN	12	U	1.2	0.18
Background	JAN	20	U	1.2	0.18
Background	APR	11B	U	5	1.61
Background	APR	01	U	10	2.30
Background	SEP	01	U	10	2.30
Background	APR	04	U	10	2.30
Background	SEP	04	U	10	2.30
Background	APR	07	U	10	2.30
Background	SEP	07	U	10	2.30
Background	APR	11A	U	10	2.30
Background	SEP	11A	U	10	2.30
Background	SEP	11B	U	10	2.30
Background	APR	12	U	10	2.30
Background	SEP	12	U	10	2.30
Background	APR	20	U	10	2.30
Background	SEP	20	U	10	2.30
Off Base	Jan	KBA-11-16	U	1.2	0.18
Off Base	Jan	KBA-11-17A	U	1.2	0.18
Off Base	Jan	KBA-11-17B	U	1.2	0.18
Off Base	Jan	KBA-11-18	U	1.2	0.18
Off Base	Jan	KBA-11-19A	U	1.2	0.18
Off Base	Apr	KBA-11-16	U	5.0	1.61
Off Base	Sep	KBA-11-16	U	10.0	2.30
Off Base	Apr	KBA-11-17A	U	10.0	2.30
Off Base	Sep	KBA-11-17A	U	10.0	2.30
Off Base	Apr	KBA-11-17B	U	10.0	2.30
Off Base	Sep	KBA-11-17B	U	10.0	2.30
Off Base	Apr	KBA-11-18	U	10.0	2.30
Off Base	Sep	KBA-11-18	U	10.0	2.30
Off Base	Apr	KBA-11-19A	U	10.0	2.30
Off Base	Sep	KBA-11-19A	U	10.0	2.30

Percent Non-Detects: 100%



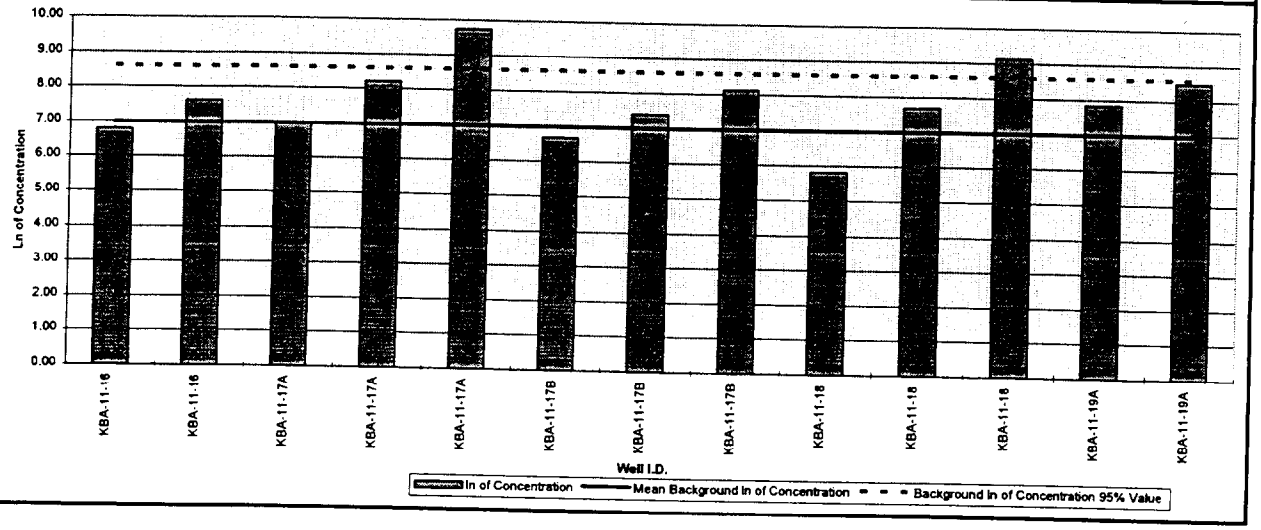
KINGS BAY - SITE 11
Iron Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	Jan	01	J	81.4	4.40	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 6.98	
Background	Jan	04	J	161	5.08	$f_{cs}=n_{cs}-1$ = 2		
Background	Jan	07		331	5.80	f = 20	BG variance = 1.431	
Background	Apr	04		388	5.96	BG variance = 1.431		
Background	Apr	07		542	6.30	degrees freedom = 1		
Background	Sep	20		574	6.35	0.95 Percentile Value = 3.841		
Background	Sep	11A		678	6.52			
Background	Sep	12		679.5	6.52			
Background	Sep	11B		749	6.62			
Background	Apr	01		968	6.88			
Background	Sep	07		1300	7.17			
Background	Apr	11A		1880	7.54			
Background	Sep	01		2630	7.87			
Background	Jan	20		2880	7.97			
Background	Apr	20		3120	8.05			
Background	Sep	04	J	3400	8.13			
Background	Jan	12		3805	8.24			
Background	Jan	11A		5340	8.58			
Background	Apr	12		5885	8.68			Reject H_0?
Off Base	Sep	KBA-11-16	J	878.00	6.78	Only two measurements. Not suitable for statistical analyses.		
Off Base	Jan	KBA-11-16	J	2020.00	7.61			
Off Base	Sep	KBA-11-17A	J	1070.00	6.98	Pooled Var. = 1.480	t statistic = 1.757	
Off Base	Jan	KBA-11-17A		3690.00	8.21	Char. variance = 1.919	d.f. = 20.00	
Off Base	Apr	KBA-11-17A		17000.00	9.74	Chi Square Statistic = 0.084	$t_{0.05}$ = 1.725	YES
Off Base	Sep	KBA-11-17B		796.00	6.68	Pooled Var. = 1.340	t statistic = 0.582	
Off Base	Jan	KBA-11-17B	J	1630.00	7.40	Char. variance = 0.523	d.f. = 20.00	
Off Base	Apr	KBA-11-17B		3380.00	8.13	Chi Square Statistic = 0.702	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-18		336.00	5.82	Pooled Var. = 1.564	t statistic = 0.725	
Off Base	Apr	KBA-11-18		2180.00	7.69	Char. variance = 2.763	d.f. = 20.00	
Off Base	Jan	KBA-11-18		9250.00	9.13	Chi Square Statistic = 0.464	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-19A	J	2590.00	7.86	Only two measurements. Not suitable for statistical analyses.		
Off Base	Apr	KBA-11-19A		4900.00	8.50			

Percent Non-Detects: 0%

Background Log-Normal 95th Percentile Value = 10.32

Background Log-Normal Mean Value = 8.08

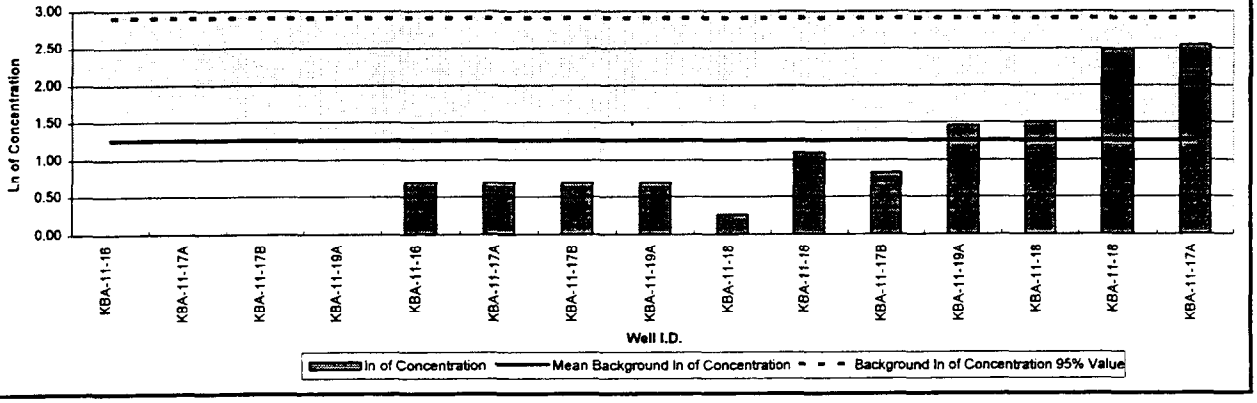


KINGS BAY - SITE 11
Lead Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	APR	04	UJ	1	0.00	-0.69	4.5	R_{cs}= 252.5
Background	APR	11A	U	1	0.00	-0.69	4.5	n_{cs}= 15
Background	SEP	11A	U	1	0.00	-0.69	4.5	n_{bg}= 21
Background	SEP	11B	U	1	0.00	-0.69	4.5	U_{cs}= 182.5
Background	SEP	12	U	1	0.00	-0.69	4.5	z= 0.8022
Background	JAN	07	UJ	2	0.69	0.00	13	$z_{0.05}$= -1.645
Background	JAN	01	U	2	0.69	0.00	13	
Background	JAN	04	U	2	0.69	0.00	13	Do not reject H_o.
Background	JAN	12	U	2	0.69	0.00	13	
Background	JAN	20	J	2	0.69	0.69	20	
Background	JAN	11A	J	3.3	1.19	1.19	22	
Background	JAN	11B		3.4	1.22	1.22	23.5	
Background	SEP	20		3.4	1.22	1.22	23.5	
Background	APR	12	J	4.05	1.40	1.40	25	
Background	APR	07	J	5.3	1.67	1.67	28	
Background	APR	20	J	7.7	2.04	2.04	29	
Background	APR	11B	J	9.6	2.26	2.26	30	
Background	SEP	04		14.5	2.67	2.67	33	
Background	APR	01		16.3	2.79	2.79	34	
Background	SEP	07		18.3	2.91	2.91	35	
Background	SEP	01		34.4	3.54	3.54	36	
Off Base	Sep	KBA-11-16	UJ	1.00	0.00	-0.69	4.5	
Off Base	Sep	KBA-11-17A	UJ	1.00	0.00	-0.69	4.5	
Off Base	Sep	KBA-11-17B	UJ	1.00	0.00	-0.69	4.5	
Off Base	Sep	KBA-11-19A	J	1.00	0.00	0.00	13	
Off Base	Jan	KBA-11-16	U	2.00	0.69	0.00	13	
Off Base	Jan	KBA-11-17A	U	2.00	0.69	0.00	13	
Off Base	Jan	KBA-11-17B	U	2.00	0.69	0.00	13	
Off Base	Jan	KBA-11-19A	U	2.00	0.69	0.00	13	
Off Base	Apr	KBA-11-18	J	1.30	0.26	0.26	18	
Off Base	Apr	KBA-11-16	UJ	3.00	1.10	0.41	19	
Off Base	Apr	KBA-11-17B	J	2.30	0.83	0.83	21	
Off Base	Apr	KBA-11-19A	J	4.30	1.46	1.46	26	
Off Base	Sep	KBA-11-18		4.50	1.50	1.50	27	
Off Base	Jan	KBA-11-18		12.10	2.49	2.49	31	
Off Base	Apr	KBA-11-17A	J	12.80	2.55	2.55	32	

Percent Non-Detects: 47%

Background Log-Normal 95th Percentile Value = 2.91
Background Log-Normal Mean Value = 1.26

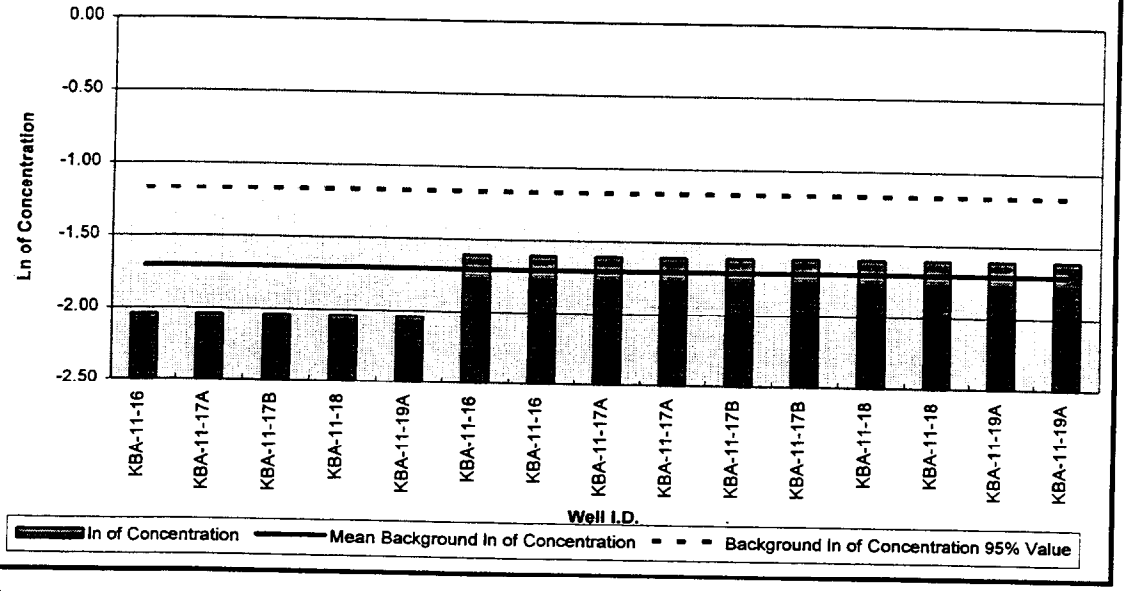


Half Detection Limit Used

KINGS BAY - SITE 11
Mercury Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	0.13	-2.04
Background	JAN	04	U	0.13	-2.04
Background	JAN	07	U	0.13	-2.04
Background	JAN	11A	U	0.13	-2.04
Background	JAN	11B	U	0.13	-2.04
Background	JAN	12	U	0.13	-2.04
Background	JAN	20	U	0.13	-2.04
Background	APR	01	U	0.2	-1.61
Background	APR	04	U	0.2	-1.61
Background	SEP	04	U	0.2	-1.61
Background	APR	07	U	0.2	-1.61
Background	APR	11A	U	0.2	-1.61
Background	SEP	11A	U	0.2	-1.61
Background	APR	11B	U	0.2	-1.61
Background	SEP	11B	U	0.2	-1.61
Background	APR	12	U	0.2	-1.61
Background	SEP	12	U	0.2	-1.61
Background	APR	20	U	0.2	-1.61
Background	SEP	20	U	0.2	-1.61
Background	SEP	01		0.31	-1.17
Background	SEP	07		0.33	-1.11
Off Base	Jan	KBA-11-16	U	0.13	-2.04
Off Base	Jan	KBA-11-17A	U	0.13	-2.04
Off Base	Jan	KBA-11-17B	U	0.13	-2.04
Off Base	Jan	KBA-11-18	U	0.13	-2.04
Off Base	Jan	KBA-11-19A	U	0.13	-2.04
Off Base	Apr	KBA-11-16	U	0.20	-1.61
Off Base	Sep	KBA-11-16	U	0.20	-1.61
Off Base	Apr	KBA-11-17A	U	0.20	-1.61
Off Base	Sep	KBA-11-17A	U	0.20	-1.61
Off Base	Apr	KBA-11-17B	U	0.20	-1.61
Off Base	Sep	KBA-11-17B	U	0.20	-1.61
Off Base	Apr	KBA-11-18	U	0.20	-1.61
Off Base	Sep	KBA-11-18	U	0.20	-1.61
Off Base	Apr	KBA-11-19A	U	0.20	-1.61
Off Base	Sep	KBA-11-19A	U	0.20	-1.61

Percent Non-Detects: 94%



1/16/96 12:12 PM LBH
GWOFFVS2.XLS:Mercury

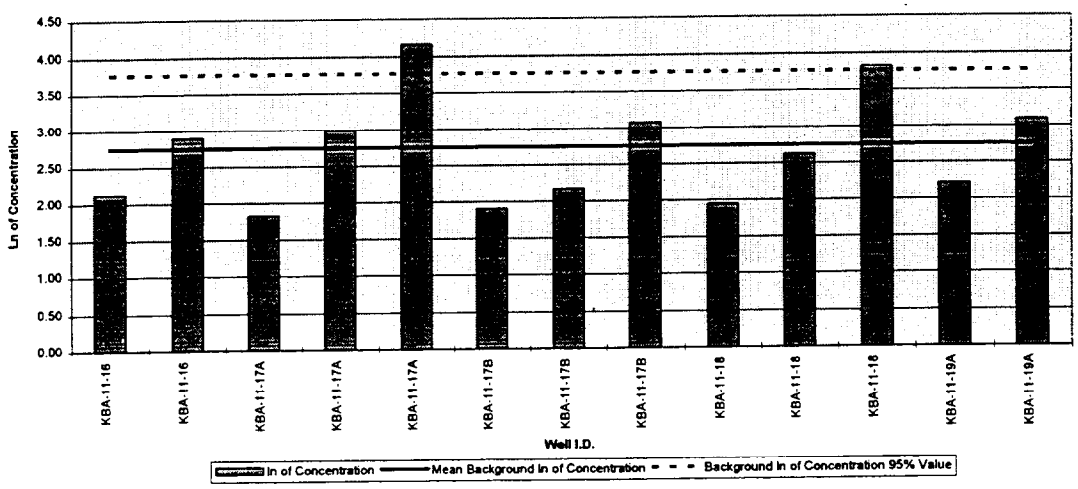
KINGS BAY - SITE 11

Manganese Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	
Background	Jan	07	J	5.4	1.69	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 2.76	
Background	Jan	01	J	5.8	1.76	$f_{cs}=n_{cs}-1$ = 2		
Background	Sep	12	J	6	1.79	f = 20	BG variance = 0.551	
Background	Sep	11A	J	6.9	1.93	BG variance = 0.551		
Background	Apr	01	J	8.2	2.10	degrees freedom = 1		
Background	Apr	07	J	8.9	2.19	0.95 Percentile Value = 3.841		
Background	Sep	07	J	9.6	2.26			
Background	Sep	01	J	9.8	2.28			
Background	Sep	11B	J	13.2	2.58			
Background	Apr	11A	J	14.9	2.70			
Background	Jan	12		20.2	3.01			
Background	Jan	04		25.5	3.24			
Background	Apr	12		26.55	3.28			
Background	Apr	20		29.2	3.37			
Background	Jan	20		31.2	3.44			
Background	Sep	20		32	3.47			
Background	Apr	04		39.7	3.68			
Background	Sep	04		42.6	3.75			
Background	Jan	11A		46.05	3.83			Reject H_0?
Off Base	Sep	KBA-11-16	J	8.40	2.13	Only two measurements. Not suitable for statistical analyses.		
Off Base	Jan	KBA-11-16		18.20	2.90			
Off Base	Sep	KBA-11-17A	J	6.20	1.82	Pooled Var. = 0.633	t statistic = 0.481	
Off Base	Jan	KBA-11-17A		19.90	2.99	Char. variance = 1.368	d.f. = 20.00	
Off Base	Apr	KBA-11-17A		64.30	4.16	Chi Square Statistic = 0.944	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-17B	J	6.70	1.90	Pooled Var. = 0.534	t statistic = -0.816	
Off Base	Jan	KBA-11-17B	J	8.80	2.17	Char. variance = 0.378	d.f. = 20.00	
Off Base	Apr	KBA-11-17B		21.70	3.08	Chi Square Statistic = 0.116	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-18	J	7.00	1.95	Pooled Var. = 0.587	t statistic = 0.092	
Off Base	Apr	KBA-11-18	J	13.80	2.62	Char. variance = 0.907	d.f. = 20.00	
Off Base	Jan	KBA-11-18		45.90	3.83	Chi Square Statistic = 0.254	$t_{0.05}$ = 1.725	NO
Off Base	Sep	KBA-11-19A	J	9.20	2.22	Only two measurements. Not suitable for statistical analyses.		
Off Base	Apr	KBA-11-19A		22.00	3.09			

Percent Non-Detects: 0%

Background Log-Normal 95th Percentile Value = 3.76
Background Log-Normal Mean Value = 2.76

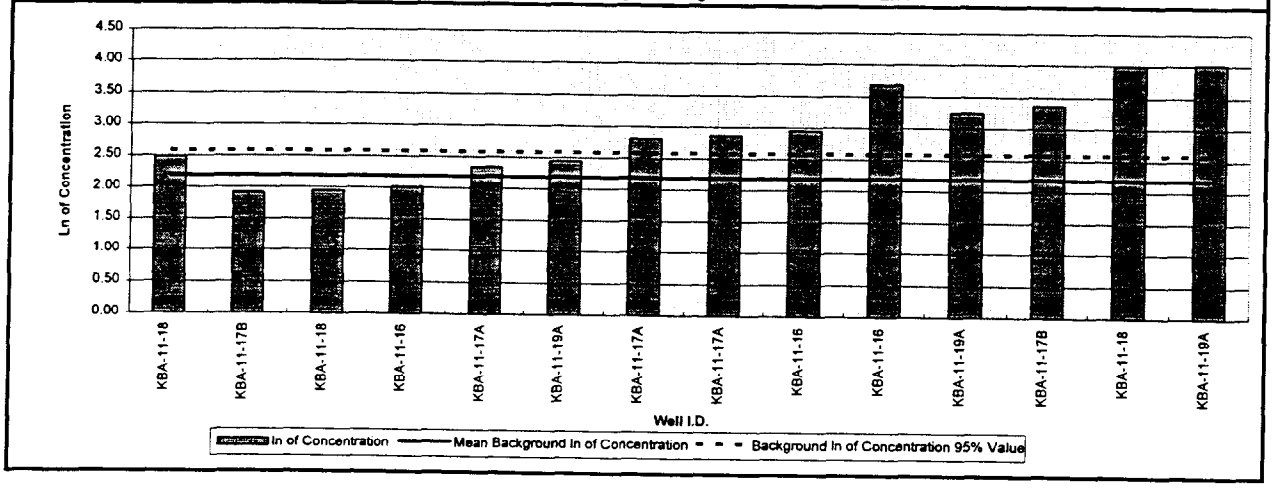


KINGS BAY - SITE 11
Nickel Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	04	U	3.9	1.36	0.67	1	R_{cs}= 360.5
Background	SEP	07	U	6	1.79	1.10	3	n_{cs}= 15
Background	SEP	11A	U	6	1.79	1.10	3	n_{bg}= 20
Background	SEP	20	U	6	1.79	1.10	3	U_{cs}= 59.5
Background	JAN	01	U	7.3	1.99	1.29	7	z= -3.0167
Background	JAN	07	U	7.3	1.99	1.29	7	$z_{0.05}$= -1.645
Background	JAN	20	U	7.3	1.99	1.29	7	
Background	APR	04	U	12	2.48	1.79	10.5	Reject H_o.
Background	APR	07	U	12	2.48	1.79	10.5	
Background	APR	12	U	12	2.48	1.79	10.5	
Background	APR	01	U	12.6	2.53	1.84	13	
Background	JAN	12	J	7.35	1.99	1.99	16	
Background	JAN	11A	J	8.1	2.09	2.09	18	
Background	JAN	11B	J	8.4	2.13	2.13	19	
Background	SEP	01	J	9.5	2.25	2.25	20	
Background	APR	11A	U	19.8	2.99	2.29	21	
Background	SEP	12	J	10.65	2.37	2.37	23	
Background	SEP	04	J	10.8	2.38	2.38	24	
Background	SEP	11B	J	11.7	2.46	2.46	26	
Background	APR	20	J	13	2.56	2.56	27	
Off Base	Sep	KBA-11-17B	U	6.2	1.82	1.13	5	
Off Base	Apr	KBA-11-18	U	12.0	2.48	1.79	10.5	
Off Base	Jan	KBA-11-17B	J	6.8	1.92	1.92	14	
Off Base	Sep	KBA-11-18	J	7.0	1.95	1.95	15	
Off Base	Jan	KBA-11-16	J	7.5	2.01	2.01	17	
Off Base	Sep	KBA-11-17A	J	10.4	2.34	2.34	22	
Off Base	Sep	KBA-11-19A	J	11.6	2.45	2.45	25	
Off Base	Jan	KBA-11-17A	J	16.6	2.81	2.81	28	
Off Base	Apr	KBA-11-17A	J	17.5	2.86	2.86	29	
Off Base	Sep	KBA-11-16	J	19.1	2.95	2.95	30	
Off Base	Apr	KBA-11-16	U	40.0	3.69	3.00	31	
Off Base	Apr	KBA-11-19A	J	26.0	3.26	3.26	32	
Off Base	Apr	KBA-11-17B	J	29.0	3.37	3.37	33	
Off Base	Jan	KBA-11-18		54.3	3.99	3.99	34	
Off Base	Jan	KBA-11-19A		55.6	4.02	4.02	35	

Percent Non-Detects: 43%

Background Log-Normal 95th Percentile Value = 2.59
Background Log-Normal Mean Value = 2.20



1/18/96 12:12 PM LBH
GWOFFV32.XLS:Nickel

Half Detection Limit Used

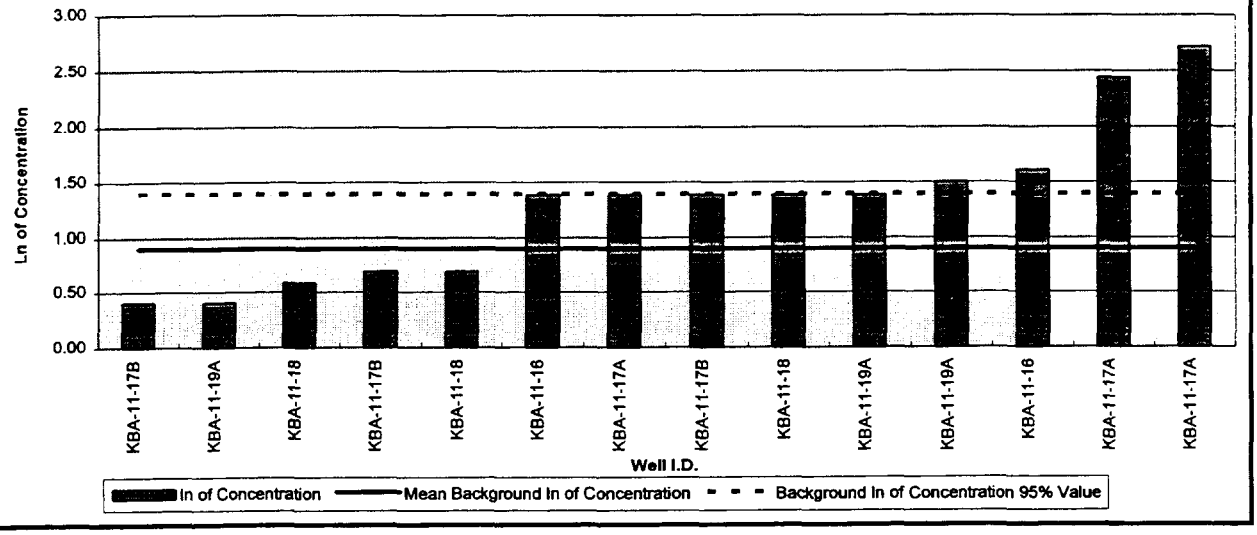
KINGS BAY - SITE 11
Selenium Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	U	1.5	0.41	P = 0.11
Background	JAN	04	U	1.5	0.41	nP = 4.00
Background	JAN	07	U	1.5	0.41	n(1-P) = 31.00
Background	JAN	11A	U	1.5	0.41	
Background	JAN	11B	U	1.5	0.41	Cannot perform test.
Background	JAN	12	U	1.5	0.41	nP < 5
Background	APR	01	U	2	0.69	
Background	APR	04	U	2	0.69	
Background	APR	11A	U	2	0.69	
Background	APR	12	U	2	0.69	
Background	APR	20	U	2	0.69	
Background	APR	07	J	2.5	0.92	
Background	SEP	01	U	4	1.39	
Background	SEP	04	U	4	1.39	
Background	SEP	07	U	4	1.39	
Background	SEP	11A	U	4	1.39	
Background	SEP	11B	U	4	1.39	
Background	SEP	12	U	4	1.39	
Background	SEP	20	U	4	1.39	
Background	APR	11B	UJ	5	1.61	
Off Base	Jan	KBA-11-16	UJ	1.5	0.41	
Off Base	Jan	KBA-11-17B	U	1.5	0.41	
Off Base	Jan	KBA-11-19A	U	1.5	0.41	
Off Base	Jan	KBA-11-18	J	1.8	0.59	
Off Base	Apr	KBA-11-17B	U	2.0	0.69	
Off Base	Apr	KBA-11-18	U	2.0	0.69	
Off Base	Sep	KBA-11-16	U	4.0	1.39	
Off Base	Sep	KBA-11-17A	U	4.0	1.39	
Off Base	Sep	KBA-11-17B	U	4.0	1.39	
Off Base	Sep	KBA-11-18	U	4.0	1.39	
Off Base	Sep	KBA-11-19A	U	4.0	1.39	
Off Base	Apr	KBA-11-19A	J	4.5	1.50	
Off Base	Apr	KBA-11-16	UJ	5.0	1.61	
Off Base	Apr	KBA-11-17A	J	11.5	2.44	
Off Base	Jan	KBA-11-17A	U	15.2	2.72	

Percent Non-Detects: 89%

Background Log-Normal 95th Percentille Value = 1.40

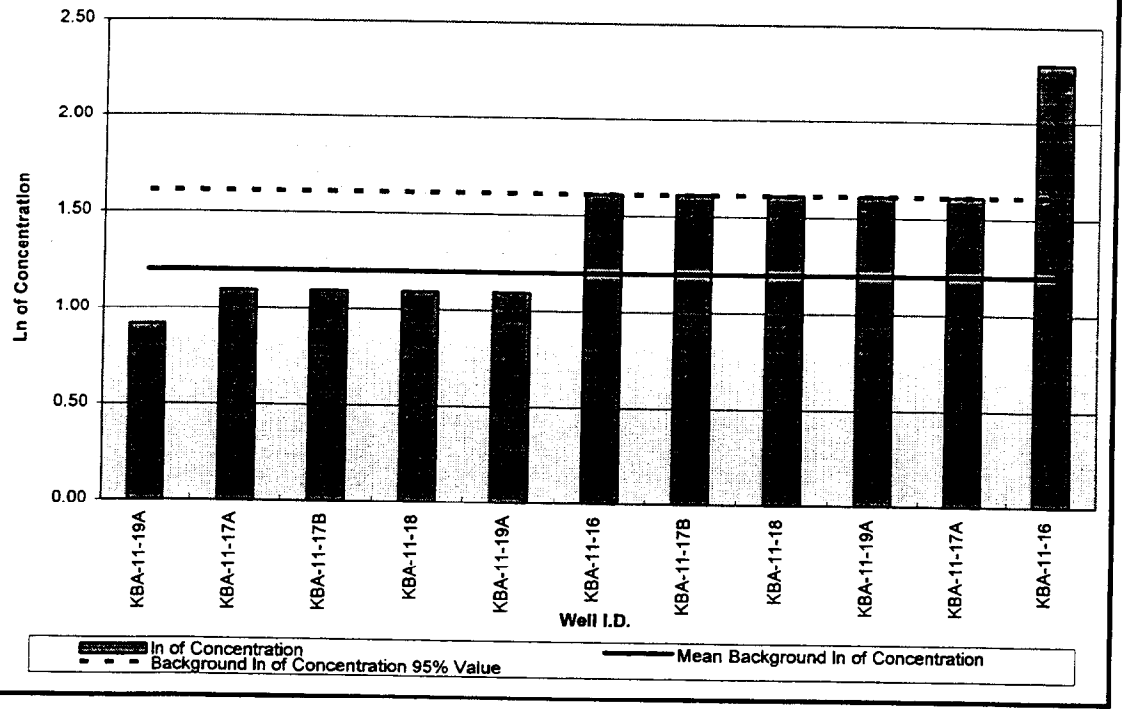
Background Log-Normal Mean Value = 0.91



KINGS BAY - SITE 11
Silver Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	11A	U	2.2	0.79
Background	JAN	11B	U	2.2	0.79
Background	JAN	01	UJ	2.5	0.92
Background	JAN	07	UJ	2.5	0.92
Background	JAN	12	UJ	2.5	0.92
Background	JAN	20	UJ	2.5	0.92
Background	APR	04	UJ	3	1.10
Background	APR	07	UJ	3	1.10
Background	APR	12	UJ	3	1.10
Background	APR	20	UJ	3	1.10
Background	APR	01	U	3	1.10
Background	APR	11A	U	3	1.10
Background	SEP	01	U	5	1.61
Background	SEP	04	U	5	1.61
Background	SEP	07	U	5	1.61
Background	SEP	11A	U	5	1.61
Background	SEP	11B	U	5	1.61
Background	SEP	12	U	5	1.61
Background	SEP	20	U	5	1.61
Off Base	Jan	KBA-11-17A	UJ	2.5	0.92
Off Base	Jan	KBA-11-18	UJ	2.5	0.92
Off Base	Jan	KBA-11-19A	UJ	2.5	0.92
Off Base	Apr	KBA-11-17A	UJ	3.0	1.10
Off Base	Apr	KBA-11-17B	UJ	3.0	1.10
Off Base	Apr	KBA-11-18	UJ	3.0	1.10
Off Base	Apr	KBA-11-19A	UJ	3.0	1.10
Off Base	Sep	KBA-11-16	U	5.0	1.61
Off Base	Sep	KBA-11-17B	U	5.0	1.61
Off Base	Sep	KBA-11-18	U	5.0	1.61
Off Base	Sep	KBA-11-19A	U	5.0	1.61
Off Base	Sep	KBA-11-17A	J	5.0	1.61
Off Base	Apr	KBA-11-16	U	10.0	2.30

Percent Non-Detects: 97%



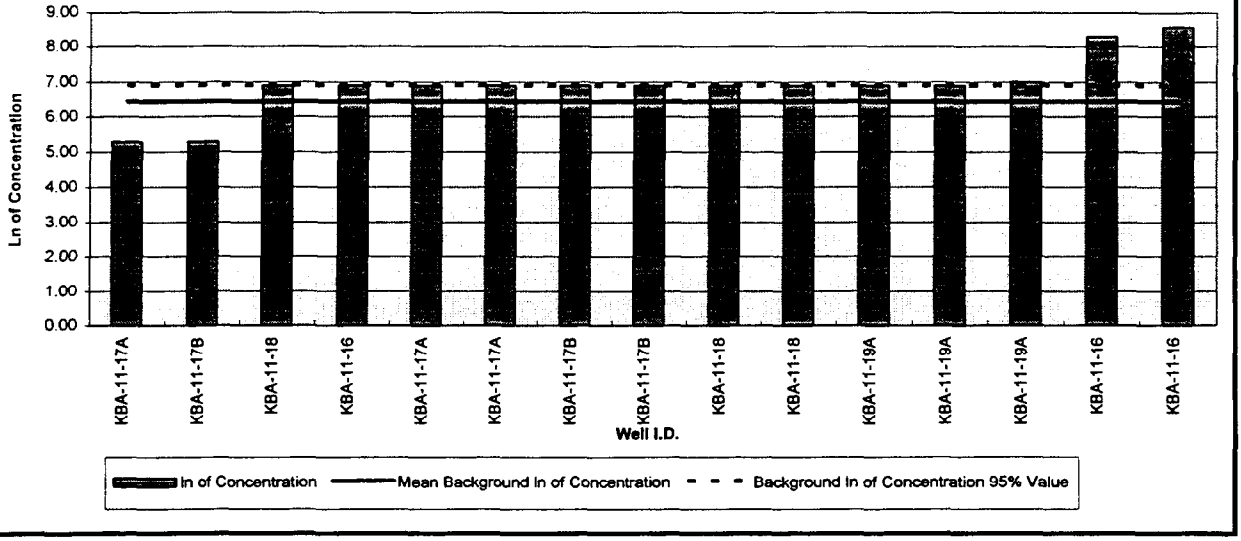
1/16/96 12:12 PM LBH
GWOFFVS2.XLS:Silver

KINGS BAY - SITE 11

Sulfide Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	UJ	100	4.61	P= 0.28
Background	JAN	04	UJ	100	4.61	n= 36
Background	JAN	07	J	200	5.30	nP= 10.00
Background	JAN	11B	J	200	5.30	n(1-P)= 26.00
Background	JAN	20	J	200	5.30	P_{cw}= 0.33
Background	JAN	12	J	300	5.70	P_{bg}= 0.24
Background	APR	01	U	1000	6.91	S_D= 0.15
Background	SEP	01	U	1000	6.91	z= 0.63
Background	APR	04	U	1000	6.91	
Background	SEP	04	U	1000	6.91	$z_{0.05}$= 1.645
Background	APR	07	U	1000	6.91	
Background	SEP	07	U	1000	6.91	Do not reject H_o.
Background	APR	11A	U	1000	6.91	
Background	SEP	11A	U	1000	6.91	
Background	APR	11B	U	1000	6.91	
Background	SEP	11B	U	1000	6.91	
Background	APR	12	U	1000	6.91	
Background	SEP	12	U	1000	6.91	
Background	APR	20	U	1000	6.91	
Background	SEP	20	U	1000	6.91	
Background	JAN	11A	J	1550	7.35	
Off Base	Jan	KBA-11-17A	J	200	5.30	
Off Base	Jan	KBA-11-17B	J	200	5.30	
Off Base	Jan	KBA-11-18	UJ	1000	6.91	
Off Base	Sep	KBA-11-16	U	1000	6.91	
Off Base	Apr	KBA-11-17A	U	1000	6.91	
Off Base	Sep	KBA-11-17A	U	1000	6.91	
Off Base	Apr	KBA-11-17B	U	1000	6.91	
Off Base	Sep	KBA-11-17B	U	1000	6.91	
Off Base	Apr	KBA-11-18	U	1000	6.91	
Off Base	Sep	KBA-11-18	U	1000	6.91	
Off Base	Apr	KBA-11-19A	U	1000	6.91	
Off Base	Sep	KBA-11-19A	U	1000	6.91	
Off Base	Jan	KBA-11-19A	J	1100	7.00	
Off Base	Apr	KBA-11-16		4000	8.29	
Off Base	Jan	KBA-11-16	J	5300	8.58	

Percent Non-Detects: 72%

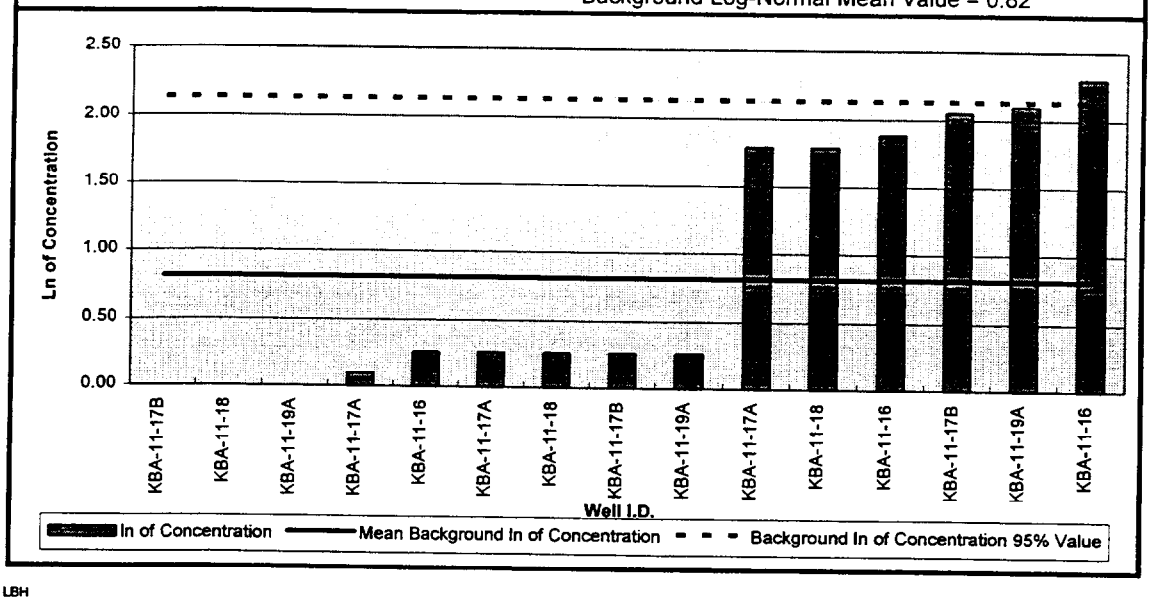


KINGS BAY - SITE 11
Thallium Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	APR	04	UJ	1	0.00
Background	APR	07	UJ	1	0.00
Background	APR	12	UJ	1	0.00
Background	APR	20	UJ	1	0.00
Background	APR	01	U	1	0.00
Background	APR	11A	U	1	0.00
Background	JAN	01	UJ	1.3	0.26
Background	JAN	07	UJ	1.3	0.26
Background	JAN	12	UJ	1.3	0.26
Background	JAN	20	UJ	1.3	0.26
Background	JAN	04	U	1.3	0.26
Background	JAN	11A	U	1.4	0.34
Background	JAN	11B	U	1.4	0.34
Background	SEP	01	U	6	1.79
Background	SEP	07	U	6	1.79
Background	SEP	11A	U	6	1.79
Background	SEP	11B	U	6	1.79
Background	SEP	12	U	6	1.79
Background	SEP	04	U	8.5	2.14
Background	APR	11B	U	10	2.30
Background	SEP	20	U	6	1.79
Off Base	Apr	KBA-11-17B	UJ	1.0	0.00
Off Base	Apr	KBA-11-18	UJ	1.0	0.00
Off Base	Apr	KBA-11-19A	UJ	1.0	0.00
Off Base	Apr	KBA-11-17A	J	1.1	0.10
Off Base	Jan	KBA-11-16	UJ	1.3	0.26
Off Base	Jan	KBA-11-17A	UJ	1.3	0.26
Off Base	Jan	KBA-11-18	UJ	1.3	0.26
Off Base	Jan	KBA-11-17B	U	1.3	0.26
Off Base	Jan	KBA-11-19A	U	1.3	0.26
Off Base	Sep	KBA-11-17A	U	6.0	1.79
Off Base	Sep	KBA-11-18	U	6.0	1.79
Off Base	Sep	KBA-11-16	U	6.6	1.89
Off Base	Sep	KBA-11-17B	U	7.8	2.05
Off Base	Sep	KBA-11-19A	U	8.2	2.10
Off Base	Apr	KBA-11-16	U	10.0	2.30

Percent Non-Detects: 92%

Background Log-Normal 95th Percentile Value = 2.14
Background Log-Normal Mean Value = 0.82



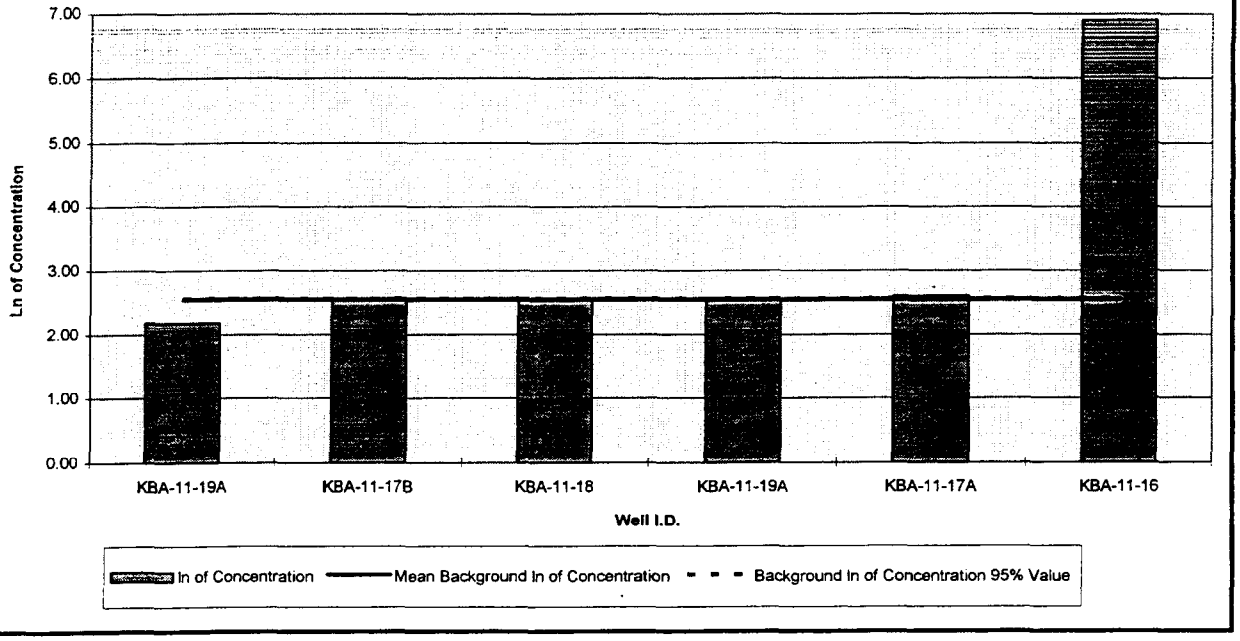
1/16/98 12:12 PM LBH
GWOFFVS2.XLS:Thallium

KINGS BAY - SITE 11
Tin Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	11B	U	12.4	2.52	P= 0.17
Background	APR	04	U	13	2.56	n= 12
Background	APR	07	U	13	2.56	nP= 2.00
Background	APR	11A	U	13	2.56	n(1-P)= 10.00
Background	APR	12	U	13	2.56	
Background	APR	20	U	13	2.56	Cannot perform test.
Off Base	Jan	KBA-11-19A	J	9.0	2.20	nP < 5
Off Base	Apr	KBA-11-17B	U	13.0	2.56	
Off Base	Apr	KBA-11-18	U	13.0	2.56	
Off Base	Apr	KBA-11-19A	U	13.0	2.56	
Off Base	Apr	KBA-11-17A	J	13.6	2.61	
Off Base	Apr	KBA-11-16	U	1000	6.91	

Percent Non-Detects: 83%

Background Log-Normal 95th Percentile Value = 2.56
Background Log-Normal Mean Value = 2.56



KINGS BAY - SITE 11
Vanadium Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	11A	U	1.5	0.41
Background	JAN	11B	J	1.9	0.64
Background	JAN	01	U	2.3	0.83
Background	JAN	20	U	2.3	0.83
Background	JAN	12	J	3.05	1.12
Background	JAN	04	J	3.1	1.13
Background	APR	04	UJ	5	1.61
Background	APR	07	UJ	5	1.61
Background	APR	20	UJ	5	1.61
Background	APR	01	U	5	1.61
Background	APR	11A	U	5	1.61
Background	JAN	07	J	5.6	1.72
Background	APR	12	J	6.2	1.82
Background	SEP	11A	U	7	1.95
Background	SEP	11B	U	7	1.95
Background	SEP	12	U	7	1.95
Background	SEP	20	U	7	1.95
Background	SEP	07	J	12	2.48
Background	SEP	01	J	13.7	2.62
Background	SEP	04	J	16	2.77
Off Base	Jan	KBA-11-17B	U	1.5	0.41
Off Base	Jan	KBA-11-16	J	2.2	0.79
Off Base	Apr	KBA-11-17B	UJ	5.0	1.61
Off Base	Apr	KBA-11-18	UJ	5.0	1.61
Off Base	Sep	KBA-11-16	U	7.0	1.95
Off Base	Sep	KBA-11-17A	U	7.0	1.95
Off Base	Sep	KBA-11-17B	U	7.0	1.95
Off Base	Sep	KBA-11-18	U	7.0	1.95
Off Base	Sep	KBA-11-19A	U	7.0	1.95
Off Base	Apr	KBA-11-19A	J	12.5	2.53
Off Base	Jan	KBA-11-17A	J	18.2	2.90
Off Base	Jan	KBA-11-18	J	18.6	2.92
Off Base	Jan	KBA-11-19A	J	30.2	3.41
Off Base	Apr	KBA-11-16	U	50.0	3.91
Off Base	Apr	KBA-11-17A	J	62.7	4.14

Test for Proportions

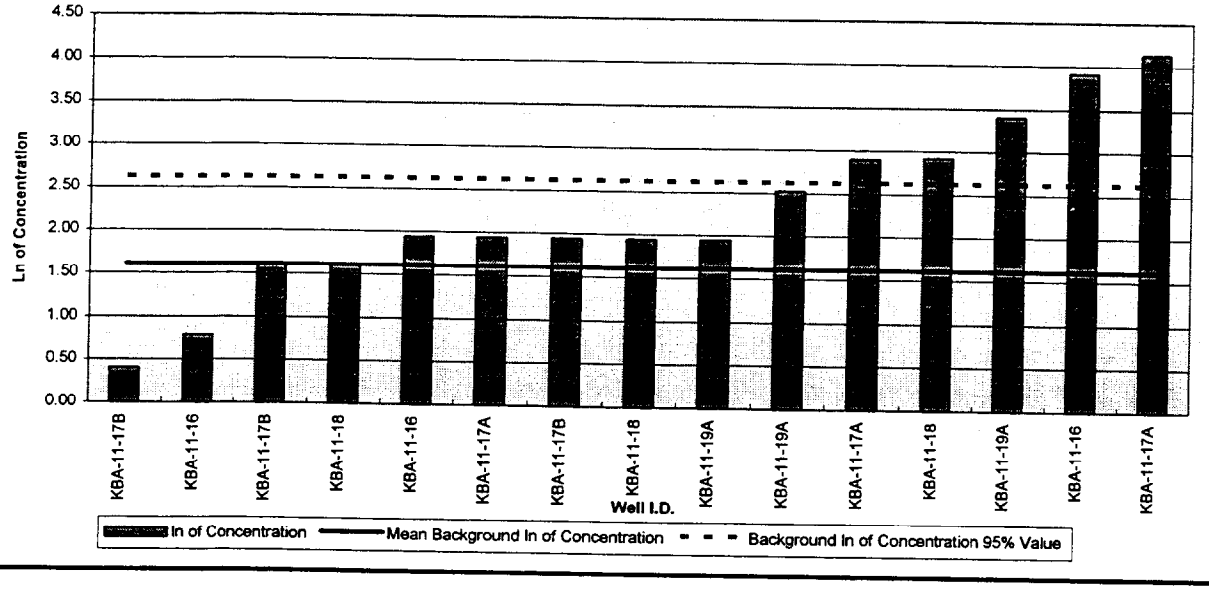
$P = 0.40$
$n = 35$
$nP = 14.00$
$n(1-P) = 21.00$
$P_{cw} = 0.40$
$P_{bg} = 0.40$
$S_D = 0.17$
$z = 0.00$

$z_{0.05} = 1.645$

Do not reject H_o.

Percent Non-Detects: 60%

Background Log-Normal 95th Percentile Value = 2.62
Background Log-Normal Mean Value = 1.61

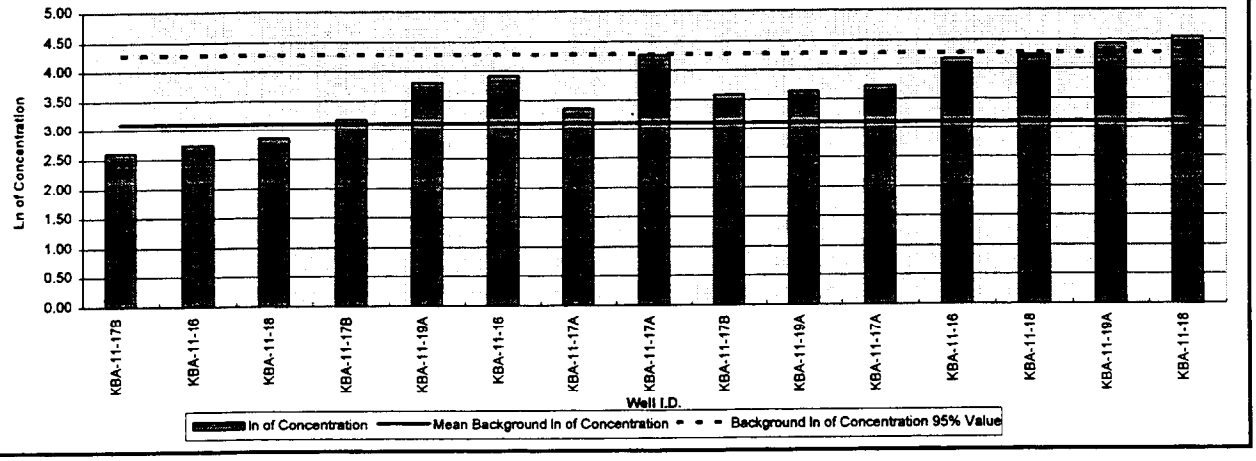


KINGS BAY - SITE 11
Zinc Groundwater Concentrations for Wells Off Base Property vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limits	Rank	U test
Background	JAN	04	U	4.3	1.46	0.77	1	R_{cs}= 296
Background	JAN	01	J	3.8	1.34	1.34	2	n_{cs}= 15
Background	APR	11A	U	25.5	3.24	2.55	7	n_{bg}= 21
Background	JAN	12	J	13.5	2.60	2.60	8	U_{cs}= 139
Background	JAN	11B	U	28.4	3.35	2.65	9	z= -0.5936
Background	SEP	11A	J	14.45	2.67	2.67	10	$z_{0.05}$= -1.645
Background	JAN	20	J	14.8	2.69	2.69	11	
Background	APR	01	U	34.2	3.53	2.84	12	Do not reject H_o.
Background	APR	07	U	34.6	3.54	2.85	13	
Background	APR	12	U	35.2	3.56	2.87	14	
Background	APR	20	U	38.4	3.65	2.95	15	
Background	APR	04	U	64.7	4.17	3.48	19	
Background	JAN	07		34	3.53	3.53	20	
Background	SEP	04		36	3.58	3.58	22	
Background	SEP	01		39	3.66	3.66	25	
Background	SEP	07		41.9	3.74	3.74	27	
Background	SEP	12		45.1	3.81	3.81	28	
Background	JAN	11A	J	47.55	3.86	3.86	29	
Background	APR	11B	J	59	4.08	4.08	30	
Background	SEP	20		73	4.29	4.29	33	
Background	SEP	11B		88	4.48	4.48	35	
Off Base	Jan	KBA-11-17B	U	13.6	2.61	1.92	3	
Off Base	Jan	KBA-11-16	U	15.5	2.74	2.05	4	
Off Base	Apr	KBA-11-18	U	17.4	2.86	2.16	5	
Off Base	Apr	KBA-11-17B	U	24.2	3.19	2.49	6	
Off Base	Apr	KBA-11-19A	U	44.7	3.80	3.11	16	
Off Base	Apr	KBA-11-16	UJ	50.0	3.91	3.22	17	
Off Base	Jan	KBA-11-17A		28.8	3.36	3.36	18	
Off Base	Apr	KBA-11-17A	U	71.6	4.27	3.58	21	
Off Base	Sep	KBA-11-17B		36.1	3.59	3.59	23	
Off Base	Sep	KBA-11-19A		38.1	3.64	3.64	24	
Off Base	Sep	KBA-11-17A		41.3	3.72	3.72	26	
Off Base	Sep	KBA-11-16		66.1	4.19	4.19	31	
Off Base	Jan	KBA-11-18		70.1	4.25	4.25	32	
Off Base	Jan	KBA-11-19A		84.3	4.43	4.43	34	
Off Base	Sep	KBA-11-18		94.0	4.54	4.54	36	

Percent Non-Detects: 42%

Background Log-Normal 95th Percentile Value =2.74
Background Log-Normal Mean Value = 4.29



Half Detection Limit Used

Delineation Wells Versus Background

KINGS BAY - SITE 11
Aluminum Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U Test
Background	Sep	20	U	154	5.04	4.34	8	R_{cs}= 904
Background	Sep	12	U	355.5	5.87	5.18	9	n_{cs}= 36
Background	Jan	20	J	265	5.58	5.58	17	n_{bg}= 19
Background	Sep	11A		565	6.34	6.34	21	U_{cs}= 446
Background	Jan	11A	J	572.5	6.35	6.35	22	z= 1.84
Background	Sep	11B		701	6.55	6.55	24	$z_{0.05}$= -1.65
Background	Jan	01	J	1590	7.37	7.37	28	
Background	Apr	11A	J	2120	7.66	7.66	32	Do not reject H_o.
Background	Apr	04		2960	7.99	7.99	34	
Background	Jan	12	J	4045	8.31	8.31	35	
Background	Apr	20		4290	8.36	8.36	36	
Background	Jan	04	J	5670	8.64	8.64	39	
Background	Apr	12		7445	8.92	8.92	41	
Background	Apr	07		12100	9.40	9.40	43	
Background	Apr	01	J	16700	9.72	9.72	45	
Background	Jan	07	J	28700	10.26	10.26	48	
Background	Sep	07		29100	10.28	10.28	50	
Background	Sep	04		29500	10.29	10.29	51	
Background	Sep	01		41100	10.62	10.62	53	
Delineation	Sep	KBA-11-19B	U	74.3	4.31	3.61	1	
Delineation	Sep	KBA-11-10C	U	88.0	4.48	3.78	2	
Delineation	Sep	KBA-11-11C	U	105	4.65	3.96	3	
Delineation	Sep	KBA-11-15	U	116	4.75	4.06	4	
Delineation	Sep	KBA-11-13B	U	120	4.79	4.09	5	
Delineation	Sep	KBA-11-3C	U	125	4.83	4.14	6	
Delineation	Sep	KBA-11-17C	U	138	4.93	4.23	7	
Delineation	Jan	KBA-11-17C	J	94.8	4.55	4.55	10	
Delineation	Jan	KBA-11-19B	J	104	4.64	4.64	11	
Delineation	Jan	KBA-11-3C	J	130	4.87	4.87	12	
Delineation	Apr	KBA-11-3C	J	162	5.09	5.09	13	
Delineation	Apr	KBA-11-10C	J	191	5.25	5.25	14.5	
Delineation	Jan	KBA-11-10C	J	191	5.25	5.25	14.5	
Delineation	Apr	KBA-11-17C	J	195	5.27	5.27	16	
Delineation	Apr	KBA-11-11C	J	269	5.59	5.59	18	
Delineation	Sep	KBA-11-21		277	5.62	5.62	19	
Delineation	Apr	KBA-11-19B		440	6.09	6.09	20	
Delineation	Jan	KBA-11-11C	J	578	6.36	6.36	23	
Delineation	Jan	KBA-11-15	J	731	6.59	6.59	25	
Delineation	Sep	KBA-11-14		1300	7.17	7.17	26	
Delineation	Jan	KBA-11-13B	J	1390	7.24	7.24	27	
Delineation	Jan	KBA-11-8A	J	1810	7.50	7.50	29	
Delineation	Apr	KBA-11-13B		1830	7.51	7.51	30	
Delineation	Jan	KBA-11-8C	J	1910	7.55	7.55	31	
Delineation	Sep	KBA-11-8C		2410	7.79	7.79	33	
Delineation	Jan	KBA-11-21	J	5530	8.62	8.62	37	
Delineation	Apr	KBA-11-8C	J	5630	8.64	8.64	38	
Delineation	Jan	KBA-11-14	J	6900	8.84	8.84	40	
Delineation	Apr	KBA-11-21		7590	8.93	8.93	42	
Delineation	Apr	KBA-11-14		14200	9.56	9.56	44	
Delineation	Sep	KBA-11-8A		20800	9.94	9.94	46	
Delineation	Apr	KBA-11-15		21800	9.99	9.99	47	
Delineation	Jan	KBA-11-9	J	28900	10.27	10.27	49	
Delineation	Apr	KBA-11-8A	J	35700	10.48	10.48	52	
Delineation	Apr	KBA-11-9	J	48500	10.79	10.79	54	
Delineation	Sep	KBA-11-9		246000	12.41	12.41	55	

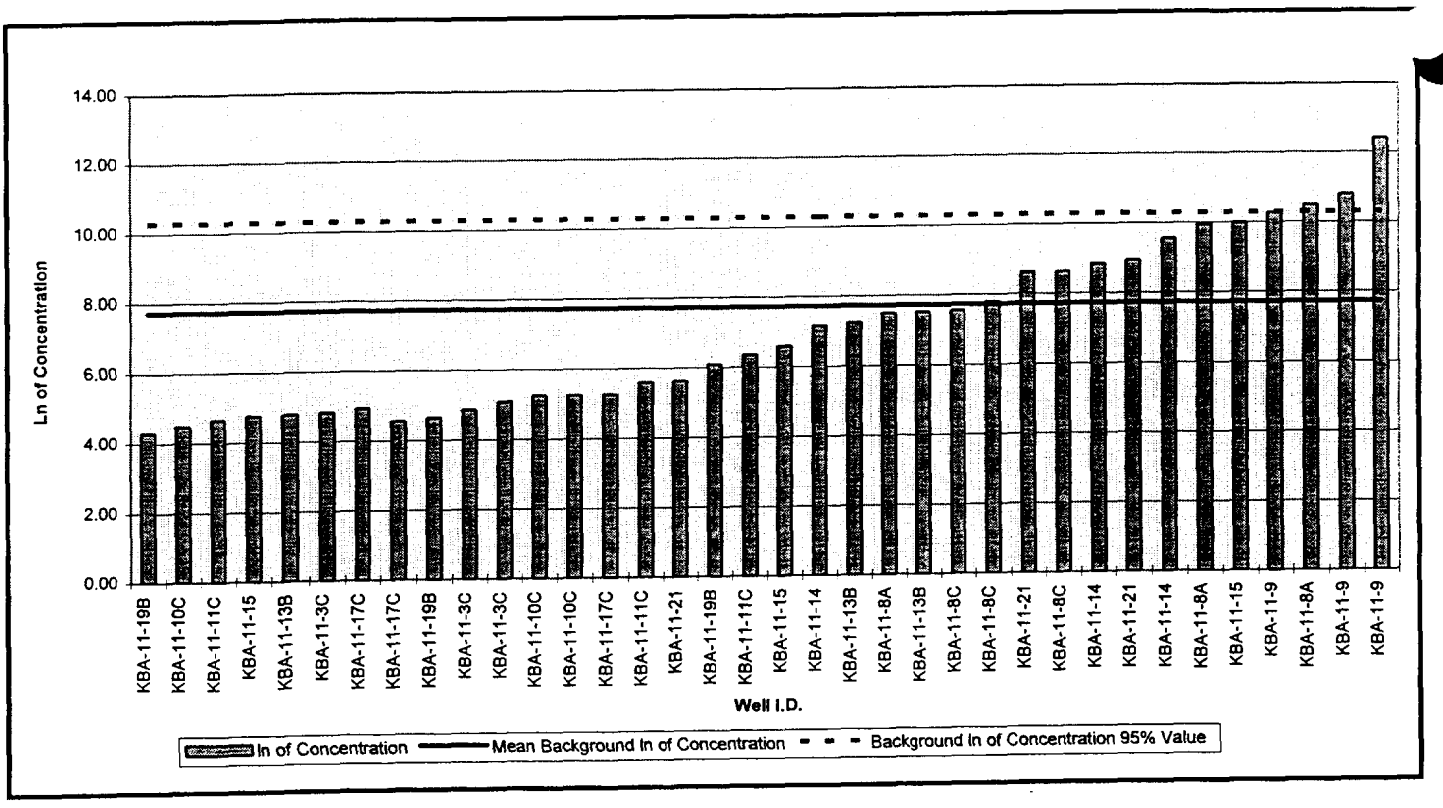
Percent Non-Detected: 16%

Background Log-Normal 95th Percentile Value =10.29
Background Log-Normal Mean Value = 7.73

Half Detection Limit Used

KINGS BAY - SITE 11

Aluminum Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11
Antimony Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	04	U	1.8	0.59
Background	JAN	20	UJ	1.8	0.59
Background	SEP	01	U	2	0.69
Background	SEP	07	U	2	0.69
Background	SEP	11A	U	2	0.69
Background	SEP	11B	U	2	0.69
Background	SEP	12	U	2	0.69
Background	SEP	20	U	2	0.69
Background	JAN	01	J	2.3	0.83
Background	JAN	12	U	2.55	0.94
Background	APR	01	U	3	1.10
Background	APR	04	U	3	1.10
Background	APR	07	U	3	1.10
Background	APR	11A	U	3	1.10
Background	APR	12	U	3	1.10
Background	APR	20	U	3	1.10
Background	JAN	11A	UJ	3.85	1.35
Background	APR	11B	U	6	1.79
Background	JAN	11B	U	10.1	2.31
Background	JAN	07		10.5	2.35
Background	Sep	04	U	13	2.56
Delineation	Jan	KBA-11-9	U	1.8	0.59
Delineation	Jan	KBA-11-15	U	1.9	0.64
Delineation	Sep	KBA-11-10C	U	2.0	0.69
Delineation	Sep	KBA-11-11C	U	2.0	0.69
Delineation	Sep	KBA-11-14	U	2.0	0.69
Delineation	Sep	KBA-11-15	U	2.0	0.69
Delineation	Sep	KBA-11-8A	U	2.0	0.69
Delineation	Sep	KBA-11-8C	U	2.0	0.69
Delineation	Jan	KBA-11-14	U	2.1	0.74
Delineation	Jan	KBA-11-3C	J	2.1	0.74
Delineation	Sep	KBA-11-9	J	2.1	0.74
Delineation	Jan	KBA-11-19B	J	2.2	0.79
Delineation	Jan	KBA-11-10C	U	2.6	0.96
Delineation	Jan	KBA-11-8A	J	2.8	1.03
Delineation	Apr	KBA-11-10C	U	3.0	1.10
Delineation	Apr	KBA-11-11C	U	3.0	1.10
Delineation	Apr	KBA-11-13B	U	3.0	1.10
Delineation	Apr	KBA-11-14	U	3.0	1.10
Delineation	Apr	KBA-11-15	U	3.0	1.10
Delineation	Apr	KBA-11-17C	U	3.0	1.10
Delineation	Apr	KBA-11-19B	U	3.0	1.10
Delineation	Apr	KBA-11-21	U	3.0	1.10
Delineation	Apr	KBA-11-3C	U	3.0	1.10
Delineation	Apr	KBA-11-8A	U	3.0	1.10
Delineation	Apr	KBA-11-8C	U	3.0	1.10
Delineation	Apr	KBA-11-9	U	3.0	1.10
Delineation	Jan	KBA-11-21	J	3.2	1.16
Delineation	Jan	KBA-11-13B	J	3.3	1.19
Delineation	Jan	KBA-11-17C		6.1	1.81
Delineation	Jan	KBA-11-8C	UJ	11.0	2.40
Delineation	Sep	KBA-11-19B	U	13.0	2.56
Delineation	Sep	KBA-11-21	U	13.0	2.56
Delineation	Sep	KBA-11-3C	U	13.0	2.56
Delineation	Sep	KBA-11-17C	J	14.3	2.66
Delineation	Sep	KBA-11-13B	J	15.2	2.72
Delineation	Jan	KBA-11-11C	J	23.0	3.14

Test for Proportions

P= 0.21
n= 57
nP= 12.00
n(1-P)= 45.00
P_{cw}= 0.28
P_{bg}= 0.10
S_D= 0.11
z= 1.63

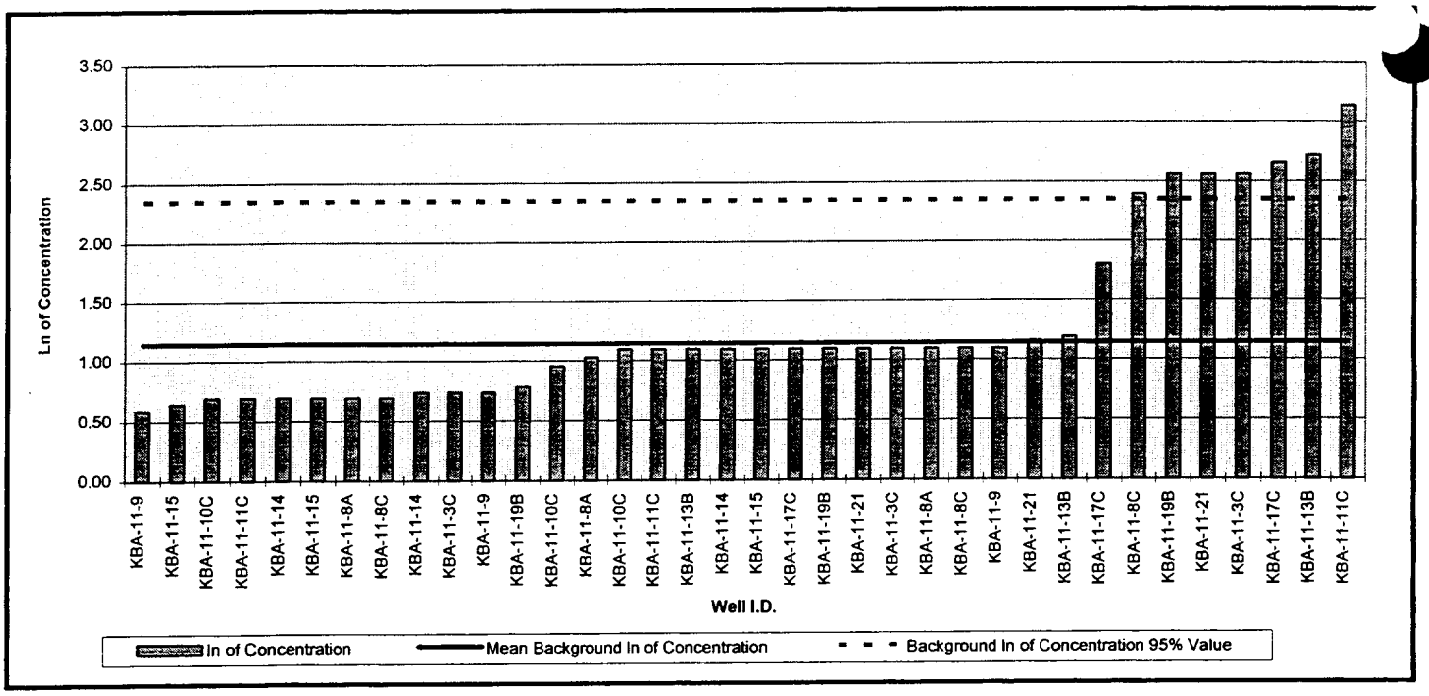
$z_{0.5}$= 1.645

Do not reject H_o.

Percent Non-Detected: 79%

Background Log-Normal 95th Percentile Value = 2.35
Background Log-Normal Mean Value = 1.15

KINGS BAY - SITE 11
Antimony Groundwater Concentrations for Delineation Wells vs. Background



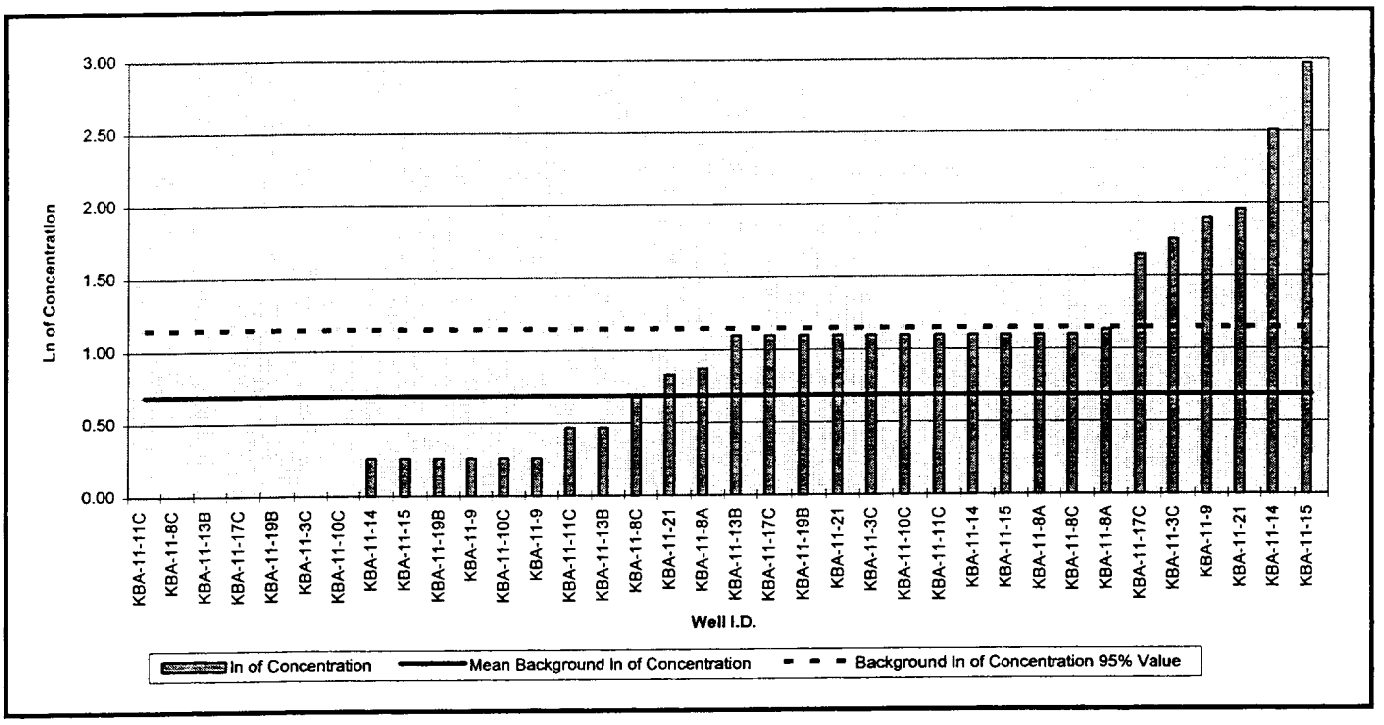
KINGS BAY - SITE 11

Arsenic Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	APR	01	U	1	0.00	P= 0.39
Background	APR	07	U	1	0.00	n= 56
Background	APR	11A	U	1	0.00	nP= 22.00
Background	JAN	11B	UJ	1	0.00	n(1-P)= 34.00
Background	APR	04	J	1.2	0.18	P_{cw}= 0.42
Background	JAN	04	J	1.2	0.18	P_{bg}= 0.35
Background	JAN	01	U	1.3	0.26	S_D= 0.14
Background	JAN	07	U	1.3	0.26	z= 0.49
Background	JAN	11A	J	1.4	0.34	
Background	JAN	12	J	2	0.69	$z_{0.5}$= 1.645
Background	JAN	20	J	2.8	1.03	
Background	APR	20	J	2.9	1.06	Do not reject H_o.
Background	SEP	01	U	3	1.10	
Background	SEP	07	U	3	1.10	
Background	SEP	11A	U	3	1.10	
Background	SEP	11B	U	3	1.10	
Background	SEP	12	U	3	1.10	
Background	SEP	20	U	3	1.10	
Background	SEP	04	UJ	3	1.10	
Background	APR	11B		8	2.08	
Delineation	Jan	KBA-11-11C	UJ	1.0	0.00	
Delineation	Jan	KBA-11-8C	UJ	1.0	0.00	
Delineation	Apr	KBA-11-13B	U	1.0	0.00	
Delineation	Apr	KBA-11-17C	U	1.0	0.00	
Delineation	Apr	KBA-11-19B	U	1.0	0.00	
Delineation	Apr	KBA-11-3C	U	1.0	0.00	
Delineation	Apr	KBA-11-10C	J	1.0	0.00	
Delineation	Jan	KBA-11-14	U	1.3	0.26	
Delineation	Jan	KBA-11-15	U	1.3	0.26	
Delineation	Jan	KBA-11-19B	U	1.3	0.26	
Delineation	Jan	KBA-11-9	U	1.3	0.26	
Delineation	Jan	KBA-11-10C	J	1.3	0.26	
Delineation	Apr	KBA-11-9	J	1.3	0.26	
Delineation	Apr	KBA-11-11C	J	1.6	0.47	
Delineation	Jan	KBA-11-13B	J	1.6	0.47	
Delineation	Apr	KBA-11-8C	J	2.0	0.69	
Delineation	Jan	KBA-11-21	J	2.3	0.83	
Delineation	Jan	KBA-11-8A	J	2.4	0.88	
Delineation	Sep	KBA-11-13B	UJ	3.0	1.10	
Delineation	Sep	KBA-11-17C	UJ	3.0	1.10	
Delineation	Sep	KBA-11-19B	UJ	3.0	1.10	
Delineation	Sep	KBA-11-21	UJ	3.0	1.10	
Delineation	Sep	KBA-11-3C	UJ	3.0	1.10	
Delineation	Sep	KBA-11-10C	U	3.0	1.10	
Delineation	Sep	KBA-11-11C	U	3.0	1.10	
Delineation	Sep	KBA-11-14	U	3.0	1.10	
Delineation	Sep	KBA-11-15	U	3.0	1.10	
Delineation	Sep	KBA-11-8A	U	3.0	1.10	
Delineation	Sep	KBA-11-8C	U	3.0	1.10	
Delineation	Apr	KBA-11-8A	J	3.1	1.13	
Delineation	Jan	KBA-11-17C	J	5.2	1.65	
Delineation	Jan	KBA-11-3C	J	5.8	1.76	
Delineation	Sep	KBA-11-9	J	6.7	1.90	
Delineation	Apr	KBA-11-21	J	7.1	1.96	
Delineation	Apr	KBA-11-14		12.3	2.51	
Delineation	Apr	KBA-11-15		19.5	2.97	
Percent Non-Detected:		61%		Background Log-Normal 95th Percentile Value = 1.15 Background Log-Normal Mean Value = 0.69		

KINGS BAY - SITE 11

Arsenic Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Barium Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t Test	Reject H_o?
Background	JAN	04	J	5.1	1.63	$f_{bg}=n_{bg}-1$ = 20	BG Mean = 3.33	
Background	APR	04	J	6.7	1.90	$f_{cs}=n_{cs}-1$ = 2		
Background	SEP	12	J	14.25	2.66	f = 22	BG variance = 0.5015	
Background	JAN	07	J	15.7	2.75	BG variance = 0.501		
Background	JAN	01	J	16	2.77	degrees freedom = 1		
Background	SEP	11A	J	18.6	2.92	0.95 Percentile Value = 3.841		
Background	SEP	11B	J	23.4	3.15			
Background	SEP	04	J	27	3.30			
Background	APR	07	J	31	3.43			
Background	APR	01	J	31.9	3.46			
Background	APR	11A	J	32	3.47			
Background	JAN	12	J	32.55	3.48			
Background	SEP	20	J	33	3.50			
Background	JAN	11A	J	35.15	3.56			
Background	JAN	20	J	39	3.66			
Background	SEP	07	J	39.8	3.68			
Background	JAN	11B	J	45	3.81			
Background	SEP	01	J	59.6	4.09			
Background	APR	20	J	63.7	4.15			
Background	APR	12	J	68.45	4.23			
Background	APR	11B		81	4.39			
Delineation	Sep	KBA-11-10C	J	18.2	2.90	Pooled Var. = 0.486	t statistic = -0.088	
Delineation	Apr	KBA-11-10C	J	20.6	3.03	Char. variance = 0.335	d.f. = 22.00	
Delineation	Jan	KBA-11-10C	J	52.5	3.96	Chi Square Statistic = 0.132	$t_{0.05}$ = 1.717	NO
Delineation	Jan	KBA-11-11C	J	20.8	3.03	Pooled Var. = 0.456	t statistic = -1.890	
Delineation	Apr	KBA-11-11C	J	21.0	3.04	Char. variance = 3.05E-05	d.f. = 20.02	
Delineation	Sep	KBA-11-11C	J	21.0	3.04	Chi Square Statistic = 17.317	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-13B	J	11.3	2.42	Pooled Var. = 0.471	t statistic = -1.023	
Delineation	Jan	KBA-11-13B	J	22.6	3.12	Char. variance = 0.170	d.f. = 22.00	
Delineation	Apr	KBA-11-13B	J	23.5	3.16	Chi Square Statistic = 0.802	$t_{0.05}$ = 1.717	NO
Delineation	Sep	KBA-11-14	J	17.3	2.85	Pooled Var. = 0.505	t statistic = 0.795	
Delineation	Jan	KBA-11-14	J	51.7	3.95	Char. variance = 0.541	d.f. = 22.00	
Delineation	Apr	KBA-11-14	J	70.1	4.25	Chi Square Statistic = 0.005	$t_{0.05}$ = 1.717	NO
Delineation	Sep	KBA-11-15	J	21.1	3.05	Pooled Var. = 0.552	t statistic = 1.719	
Delineation	Jan	KBA-11-15	J	68.1	4.22	Char. variance = 1.052	d.f. = 22.00	
Delineation	Apr	KBA-11-15	J	163	5.09	Chi Square Statistic = 0.612	$t_{0.05}$ = 1.717	YES
Delineation	Jan	KBA-11-17C	J	21.2	3.05	Pooled Var. = 0.456	t statistic = -1.547	
Delineation	Sep	KBA-11-17C	J	22.0	3.09	Char. variance = 0.001	d.f. = 20.75	
Delineation	Apr	KBA-11-17C	J	22.9	3.13	Chi Square Statistic = 9.550	$t_{0.05}$ = 1.722	NO
Delineation	Jan	KBA-11-19B	J	10.0	2.30	Pooled Var. = 0.460	t statistic = -4.060	
Delineation	Sep	KBA-11-19B	J	14.2	2.65	Char. variance = 0.043	d.f. = 11.19	
Delineation	Apr	KBA-11-19B	J	14.4	2.67	Chi Square Statistic = 3.017	$t_{0.05}$ = 1.812	NO
Delineation	Sep	KBA-11-21	J	78.9	4.37	Pooled Var. = 0.483	t statistic = 3.890	
Delineation	Apr	KBA-11-21	J	198	5.29	Char. variance = 0.303	d.f. = 22.00	
Delineation	Jan	KBA-11-21	J	211	5.35	Chi Square Statistic = 0.201	$t_{0.05}$ = 1.717	YES
Delineation	Apr	KBA-11-3C	J	11.4	2.43	Pooled Var. = 0.463	t statistic = -1.498	
Delineation	Sep	KBA-11-3C	J	14.8	2.69	Char. variance = 0.076	d.f. = 22.00	
Delineation	Jan	KBA-11-3C	J	19.8	2.99	Chi Square Statistic = 2.002	$t_{0.05}$ = 1.717	NO
Delineation	Jan	KBA-11-8A	J	8.5	2.14	Pooled Var. = 0.514	t statistic = -0.684	
Delineation	Sep	KBA-11-8A	J	26.0	3.26	Char. variance = 0.642	d.f. = 22.00	
Delineation	Apr	KBA-11-8A	J	40.2	3.69	Chi Square Statistic = 0.060	$t_{0.05}$ = 1.717	NO
Delineation	Jan	KBA-11-8C	J	36.1	3.59	Pooled Var. = 0.457	t statistic = 0.813	
Delineation	Sep	KBA-11-8C	J	36.9	3.61	Char. variance = 0.017	d.f. = 22.00	
Delineation	Apr	KBA-11-8C	J	45.8	3.82	Chi Square Statistic = 4.712	$t_{0.05}$ = 1.717	NO
Delineation	Jan	KBA-11-9	J	10.8	2.38	Pooled Var. = 0.664	t statistic = 1.136	
Delineation	Apr	KBA-11-9	J	51.0	3.93	Char. variance = 2.285	d.f. = 22.00	
Delineation	Sep	KBA-11-9		222	5.40	Chi Square Statistic = 3.131	$t_{0.05}$ = 1.717	NO

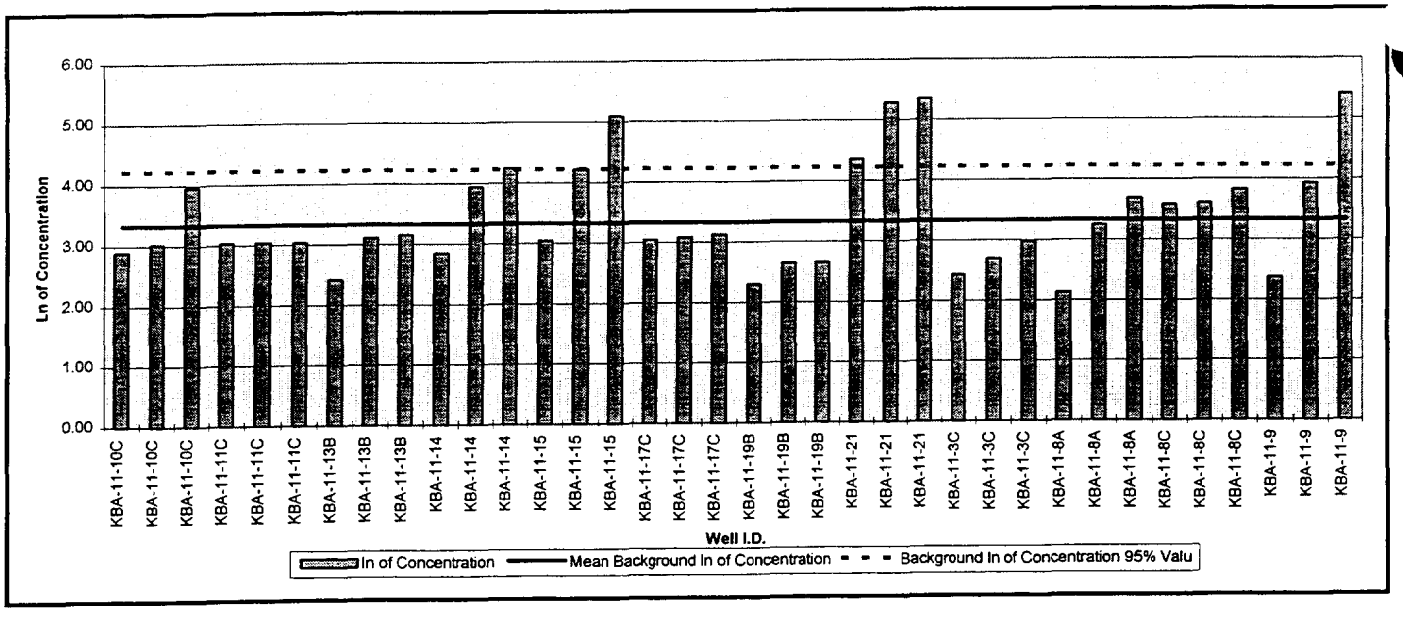
Percent Non-Detected: 0%

Background Log-Normal 95th Percentile Value = 4.23

Background Log-Normal Mean Value = 3.33

KINGS BAY - SITE 11

Barium Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Beryllium Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	04	UJ	0.12	-2.12
Background	JAN	11A	J	0.14	-1.97
Background	JAN	01	U	0.14	-1.97
Background	JAN	12	J	0.21	-1.56
Background	JAN	20	J	0.22	-1.51
Background	JAN	07	J	0.43	-0.84
Background	JAN	11B	J	0.51	-0.67
Background	SEP	20	J	1	0.00
Background	SEP	04	U	1	0.00
Background	SEP	07	U	1	0.00
Background	SEP	11A	U	1	0.00
Background	SEP	11B	U	1	0.00
Background	SEP	12	U	1	0.00
Background	SEP	01	J	1.2	0.18
Background	APR	01	U	2	0.69
Background	APR	04	U	2	0.69
Background	APR	07	U	2	0.69
Background	APR	11A	U	2	0.69
Background	APR	12	U	2	0.69
Background	APR	20	U	2	0.69
Background	APR	11B	U	5	1.61
Delineation	Jan	KBA-11-10C	UJ	0.12	-2.12
Delineation	Jan	KBA-11-13B	UJ	0.12	-2.12
Delineation	Jan	KBA-11-11C	U	0.12	-2.12
Delineation	Jan	KBA-11-15	U	0.14	-1.97
Delineation	Jan	KBA-11-17C	U	0.14	-1.97
Delineation	Jan	KBA-11-19B	U	0.14	-1.97
Delineation	Jan	KBA-11-3C	U	0.14	-1.97
Delineation	Jan	KBA-11-8A	U	0.14	-1.97
Delineation	Jan	KBA-11-8C	J	0.25	-1.39
Delineation	Jan	KBA-11-14	J	0.45	-0.80
Delineation	Jan	KBA-11-9	J	0.94	-0.06
Delineation	Sep	KBA-11-10C	U	1.0	0.00
Delineation	Sep	KBA-11-11C	U	1.0	0.00
Delineation	Sep	KBA-11-13B	U	1.0	0.00
Delineation	Sep	KBA-11-14	U	1.0	0.00
Delineation	Sep	KBA-11-15	U	1.0	0.00
Delineation	Sep	KBA-11-17C	U	1.0	0.00
Delineation	Sep	KBA-11-19B	U	1.0	0.00
Delineation	Sep	KBA-11-21	U	1.0	0.00
Delineation	Sep	KBA-11-3C	U	1.0	0.00
Delineation	Sep	KBA-11-8A	U	1.0	0.00
Delineation	Sep	KBA-11-8C	U	1.0	0.00
Delineation	Jan	KBA-11-21	J	1.3	0.26
Delineation	Apr	KBA-11-10C	U	2.0	0.69
Delineation	Apr	KBA-11-11C	U	2.0	0.69
Delineation	Apr	KBA-11-13B	U	2.0	0.69
Delineation	Apr	KBA-11-14	U	2.0	0.69
Delineation	Apr	KBA-11-15	U	2.0	0.69
Delineation	Apr	KBA-11-17C	U	2.0	0.69
Delineation	Apr	KBA-11-19B	U	2.0	0.69
Delineation	Apr	KBA-11-21	U	2.0	0.69
Delineation	Apr	KBA-11-3C	U	2.0	0.69
Delineation	Apr	KBA-11-8A	U	2.0	0.69
Delineation	Apr	KBA-11-8C	U	2.0	0.69
Delineation	Apr	KBA-11-9	U	2.0	0.69
Delineation	Sep	KBA-11-9		6.1	1.81
Percent Non-Detected:		79%			

Test for Proportions

$P = 0.21$
$n = 57$
$nP = 12.00$
$n(1-P) = 45.00$
$P_{cw} = 0.14$
$P_{bg} = 0.33$
$S_D = 0.11$
$z = 1.74$

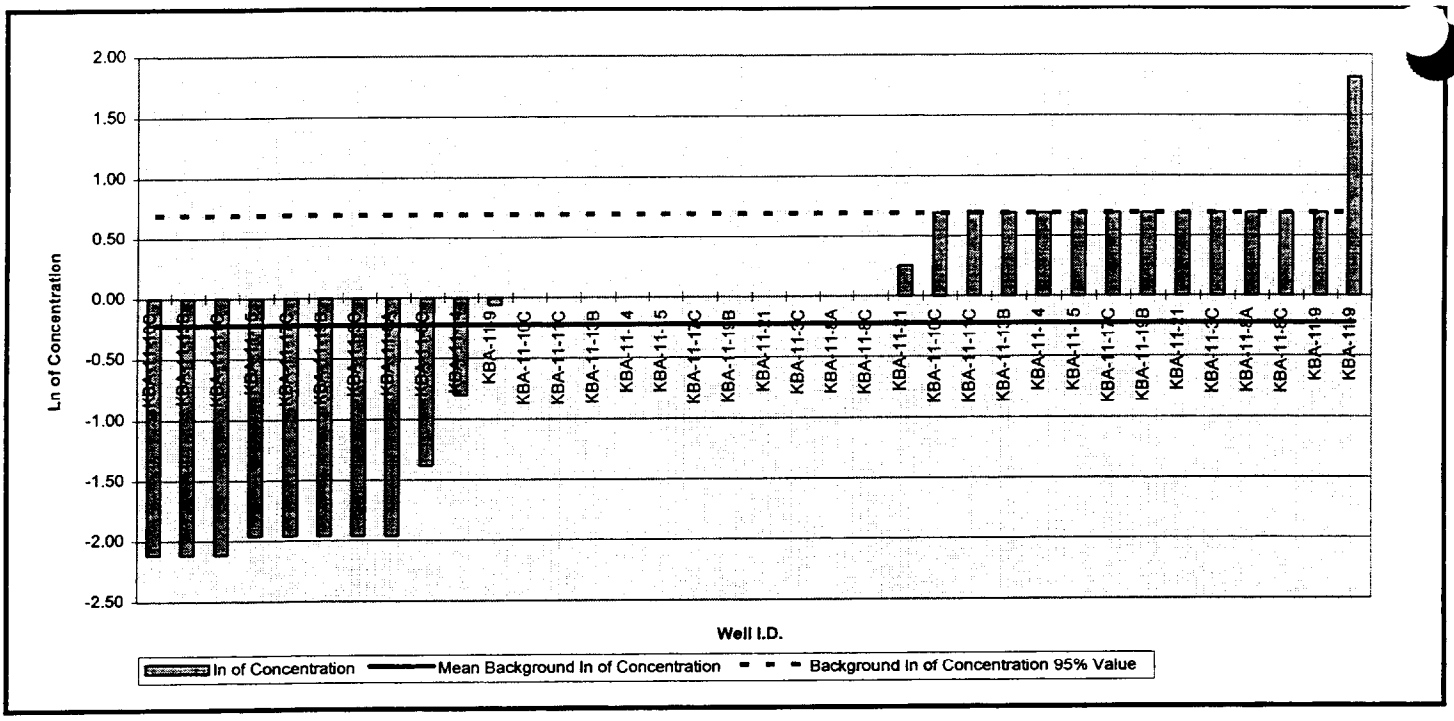
$z_{0.05} = 1.645$

Background data set has higher proportion of detects.

Background Log-Normal 95th Percentile Value = 0.69
Background Log-Normal Mean Value = -0.22

KINGS BAY - SITE 11

Beryllium Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Cadmium Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	APR	01	U	3	1.10
Background	SEP	01	U	3	1.10
Background	SEP	04	U	3	1.10
Background	SEP	07	U	3	1.10
Background	APR	11A	U	3	1.10
Background	SEP	11A	U	3	1.10
Background	SEP	11B	U	3	1.10
Background	APR	04	UJ	3	1.10
Background	APR	07	UJ	3	1.10
Background	APR	12	UJ	3	1.10
Background	APR	20	UJ	3	1.10
Background	JAN	01	U	3.1	1.13
Background	JAN	07	U	3.1	1.13
Background	JAN	12	U	3.1	1.13
Background	JAN	20	U	3.1	1.13
Background	JAN	11A	U	3.2	1.16
Background	JAN	11B	U	3.2	1.16
Background	JAN	04	J	3.5	1.25
Background	APR	11B	U	5	1.61
Background	SEP	12		8.95	2.19
Delineation	Apr	KBA-11-10C	UJ	3.0	1.10
Delineation	Apr	KBA-11-15	UJ	3.0	1.10
Delineation	Apr	KBA-11-17C	UJ	3.0	1.10
Delineation	Apr	KBA-11-19B	UJ	3.0	1.10
Delineation	Apr	KBA-11-21	UJ	3.0	1.10
Delineation	Apr	KBA-11-11C	U	3.0	1.10
Delineation	Apr	KBA-11-13B	U	3.0	1.10
Delineation	Apr	KBA-11-14	U	3.0	1.10
Delineation	Sep	KBA-11-14	U	3.0	1.10
Delineation	Sep	KBA-11-3C	U	3.0	1.10
Delineation	Sep	KBA-11-8A	U	3.0	1.10
Delineation	Sep	KBA-11-8C	U	3.0	1.10
Delineation	Apr	KBA-11-9	U	3.0	1.10
Delineation	Jan	KBA-11-14	U	3.1	1.13
Delineation	Jan	KBA-11-15	U	3.1	1.13
Delineation	Jan	KBA-11-17C	U	3.1	1.13
Delineation	Jan	KBA-11-19B	U	3.1	1.13
Delineation	Jan	KBA-11-21	U	3.1	1.13
Delineation	Jan	KBA-11-3C	U	3.1	1.13
Delineation	Jan	KBA-11-8A	U	3.1	1.13
Delineation	Jan	KBA-11-9	U	3.1	1.13
Delineation	Jan	KBA-11-10C	U	3.2	1.16
Delineation	Jan	KBA-11-11C	U	3.2	1.16
Delineation	Jan	KBA-11-13B	U	3.2	1.16
Delineation	Jan	KBA-11-8C	U	3.2	1.16
Delineation	Apr	KBA-11-3C	U	3.3	1.19
Delineation	Sep	KBA-11-13B	J	3.3	1.19
Delineation	Apr	KBA-11-8A	J	3.7	1.31
Delineation	Apr	KBA-11-8C	J	4.8	1.57
Delineation	Sep	KBA-11-19B		6.0	1.79
Delineation	Sep	KBA-11-9		7.4	2.00
Delineation	Sep	KBA-11-10C		8.3	2.12
Delineation	Sep	KBA-11-11C		9.4	2.24
Delineation	Sep	KBA-11-17C		13.6	2.61
Delineation	Sep	KBA-11-15		20.6	3.03
Delineation	Sep	KBA-11-21		25.8	3.25

Test for Proportions

$P = 0.21$

$n = 56$

$nP = 12.00$

$n(1-P) = 44.00$

$P_{cw} = 0.28$

$P_{bg} = 0.10$

$S_D = 0.11$

$z = 1.55$

$z_{0.5} = 1.645$

Do not reject H_o.

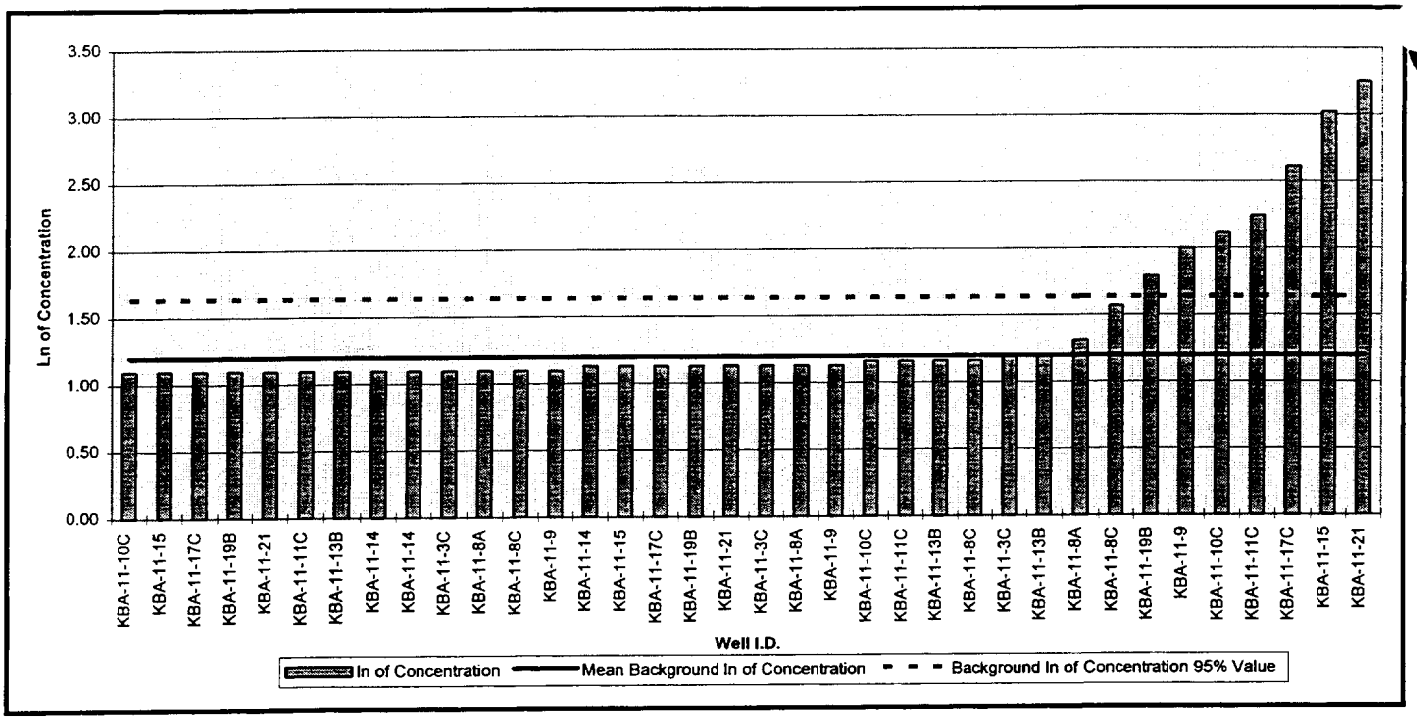
Percent Non-Detected: 79%

Background Log-Normal 95th Percentile Value = 1.64

Background Log-Normal Mean Value = 1.20

KINGS BAY - SITE 11

Cadmium Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Chromium Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	01	U	2.3	0.83	0.14	2.5	R_{cs}= 1035
Background	JAN	20	U	2.6	0.96	0.26	5.5	n_{cs}= 36
Background	APR	04	U	5	1.61	0.92	9	n_{bg}= 21
Background	SEP	11A	U	8	2.08	1.39	12.5	U_{cs}= 387
Background	JAN	04	J	5.7	1.74	1.74	16	z= 0.15
Background	JAN	11A	J	6.05	1.80	1.80	17	$z_{0.05}$= -1.645
Background	JAN	12	J	7	1.95	1.95	18	
Background	JAN	11B	J	9.7	2.27	2.27	22	Do not reject H_o.
Background	APR	07		10.4	2.34	2.34	23	
Background	SEP	11B		12	2.48	2.48	28.5	
Background	APR	12		14.1	2.65	2.65	31	
Background	SEP	12		15.75	2.76	2.76	34	
Background	SEP	20		16	2.77	2.77	35	
Background	SEP	07		17.2	2.84	2.84	38	
Background	APR	11A		18.1	2.90	2.90	40	
Background	APR	01		24.6	3.20	3.20	42	
Background	SEP	04		29.7	3.39	3.39	45	
Background	APR	20		40.6	3.70	3.70	48	
Background	SEP	07		41	3.71	3.71	49	
Background	APR	11B		41	3.71	3.71	50	
Background	SEP	01		45.5	3.82	3.82	52	
Delineation	Jan	KBA-11-17C	U	2.3	0.83	0.14	2.5	
Delineation	Jan	KBA-11-19B	U	2.3	0.83	0.14	2.5	
Delineation	Jan	KBA-11-8A	U	2.3	0.83	0.14	2.5	
Delineation	Jan	KBA-11-3C	U	2.6	0.96	0.26	5.5	
Delineation	Jan	KBA-11-13B	U	3.2	1.16	0.47	7	
Delineation	Apr	KBA-11-17C	U	5.0	1.61	0.92	9	
Delineation	Apr	KBA-11-19B	U	5.0	1.61	0.92	9	
Delineation	Sep	KBA-11-13B	U	8.0	2.08	1.39	12.5	
Delineation	Sep	KBA-11-14	U	8.0	2.08	1.39	12.5	
Delineation	Sep	KBA-11-21	U	8.0	2.08	1.39	12.5	
Delineation	Jan	KBA-11-10C	J	5.0	1.61	1.61	15	
Delineation	Sep	KBA-11-19B	J	8.2	2.10	2.10	19	
Delineation	Apr	KBA-11-3C	J	8.7	2.16	2.16	20	
Delineation	Sep	KBA-11-11C	J	9.0	2.20	2.20	21	
Delineation	Sep	KBA-11-3C		10.6	2.36	2.36	24	
Delineation	Sep	KBA-11-8C		10.8	2.38	2.38	25	
Delineation	Jan	KBA-11-8C		10.9	2.39	2.39	26	
Delineation	Sep	KBA-11-17C		11.2	2.42	2.42	27	
Delineation	Apr	KBA-11-13B		12.0	2.48	2.48	28.5	
Delineation	Jan	KBA-11-9		12.5	2.53	2.53	30	
Delineation	Jan	KBA-11-11C		15.0	2.71	2.71	32	
Delineation	Jan	KBA-11-21		15.4	2.73	2.73	33	
Delineation	Sep	KBA-11-10C		16.4	2.80	2.80	36	
Delineation	Apr	KBA-11-21		16.5	2.80	2.80	37	
Delineation	Apr	KBA-11-8C		17.8	2.88	2.88	39	
Delineation	Apr	KBA-11-11C		18.2	2.90	2.90	41	
Delineation	Jan	KBA-11-14		25.2	3.23	3.23	43	
Delineation	Sep	KBA-11-8A		27.2	3.30	3.30	44	
Delineation	Jan	KBA-11-15		30.7	3.42	3.42	46	
Delineation	Apr	KBA-11-15		40.3	3.70	3.70	47	
Delineation	Apr	KBA-11-8A		44.7	3.80	3.80	51	
Delineation	Apr	KBA-11-14		47.4	3.86	3.86	53	
Delineation	Apr	KBA-11-10C		48.2	3.88	3.88	54	
Delineation	Sep	KBA-11-15		51.6	3.94	3.94	55	
Delineation	Apr	KBA-11-9		53.9	3.99	3.99	56	
Delineation	Sep	KBA-11-9		252	5.53	5.53	57	

Percent Non-Detected: 24%

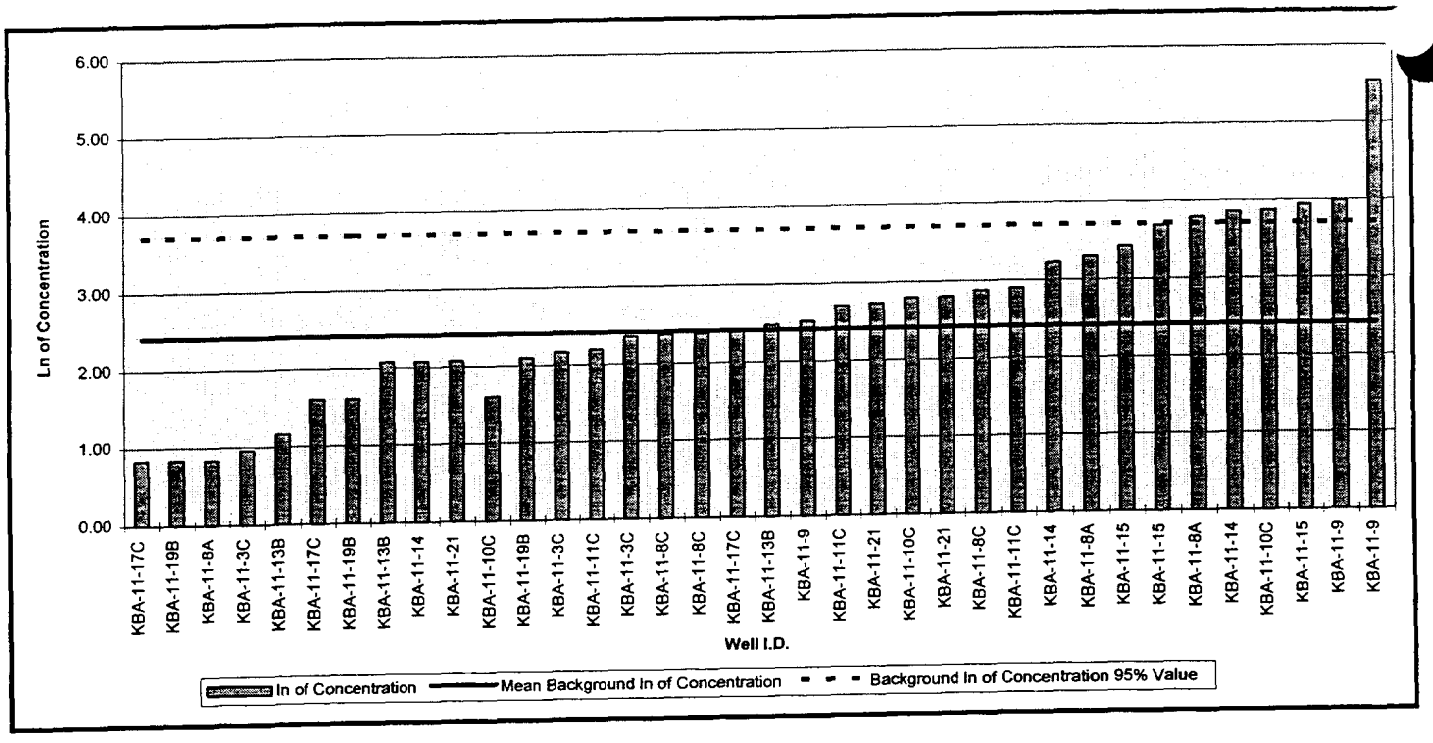
Background Log-Normal 95th Percentile Value = 3.71

Background Log-Normal Mean Value = 2.42

Half Detection Limit Used

KINGS BAY - SITE 11

Chromium Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Cobalt Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	1.6	0.47
Background	JAN	07	U	1.6	0.47
Background	JAN	20	U	1.6	0.47
Background	JAN	04	U	2.1	0.74
Background	JAN	11A	U	2.1	0.74
Background	JAN	11B	U	2.1	0.74
Background	JAN	12	J	2.5	0.92
Background	APR	01	U	9	2.20
Background	APR	04	U	9	2.20
Background	APR	07	U	9	2.20
Background	APR	11A	U	9	2.20
Background	APR	12	U	9	2.20
Background	APR	20	U	9	2.20
Background	SEP	01	U	14	2.64
Background	SEP	04	U	14	2.64
Background	SEP	07	U	14	2.64
Background	SEP	11A	U	14	2.64
Background	SEP	11B	U	14	2.64
Background	SEP	12	U	14	2.64
Background	SEP	20	U	14	2.64
Background	APR	11B	U	50	3.91
Delineation	Jan	KBA-11-15	U	1.6	0.47
Delineation	Jan	KBA-11-17C	U	1.6	0.47
Delineation	Jan	KBA-11-19B	U	1.6	0.47
Delineation	Jan	KBA-11-3C	U	1.6	0.47
Delineation	Jan	KBA-11-8A	U	1.6	0.47
Delineation	Jan	KBA-11-21	J	1.7	0.53
Delineation	Sep	KBA-11-10C	U	2.0	0.69
Delineation	Jan	KBA-11-10C	U	2.1	0.74
Delineation	Jan	KBA-11-11C	U	2.1	0.74
Delineation	Jan	KBA-11-13B	U	2.1	0.74
Delineation	Jan	KBA-11-8C	U	2.1	0.74
Delineation	Jan	KBA-11-9	J	2.2	0.79
Delineation	Jan	KBA-11-14	J	7.0	1.95
Delineation	Apr	KBA-11-13B	UJ	9.0	2.20
Delineation	Apr	KBA-11-10C	U	9.0	2.20
Delineation	Apr	KBA-11-11C	U	9.0	2.20
Delineation	Apr	KBA-11-14	U	9.0	2.20
Delineation	Apr	KBA-11-15	U	9.0	2.20
Delineation	Apr	KBA-11-17C	U	9.0	2.20
Delineation	Apr	KBA-11-19B	U	9.0	2.20
Delineation	Apr	KBA-11-21	U	9.0	2.20
Delineation	Apr	KBA-11-8A	U	9.0	2.20
Delineation	Apr	KBA-11-8C	U	9.0	2.20
Delineation	Apr	KBA-11-9	U	9.0	2.20
Delineation	Apr	KBA-11-3C	J	10.3	2.33
Delineation	Sep	KBA-11-11C	U	14.0	2.64
Delineation	Sep	KBA-11-13B	U	14.0	2.64
Delineation	Sep	KBA-11-14	U	14.0	2.64
Delineation	Sep	KBA-11-15	U	14.0	2.64
Delineation	Sep	KBA-11-17C	U	14.0	2.64
Delineation	Sep	KBA-11-19B	U	14.0	2.64
Delineation	Sep	KBA-11-21	U	14.0	2.64
Delineation	Sep	KBA-11-3C	U	14.0	2.64
Delineation	Sep	KBA-11-8A	U	14.0	2.64
Delineation	Sep	KBA-11-8C	U	14.0	2.64
Delineation	Sep	KBA-11-9	U	14.0	2.64

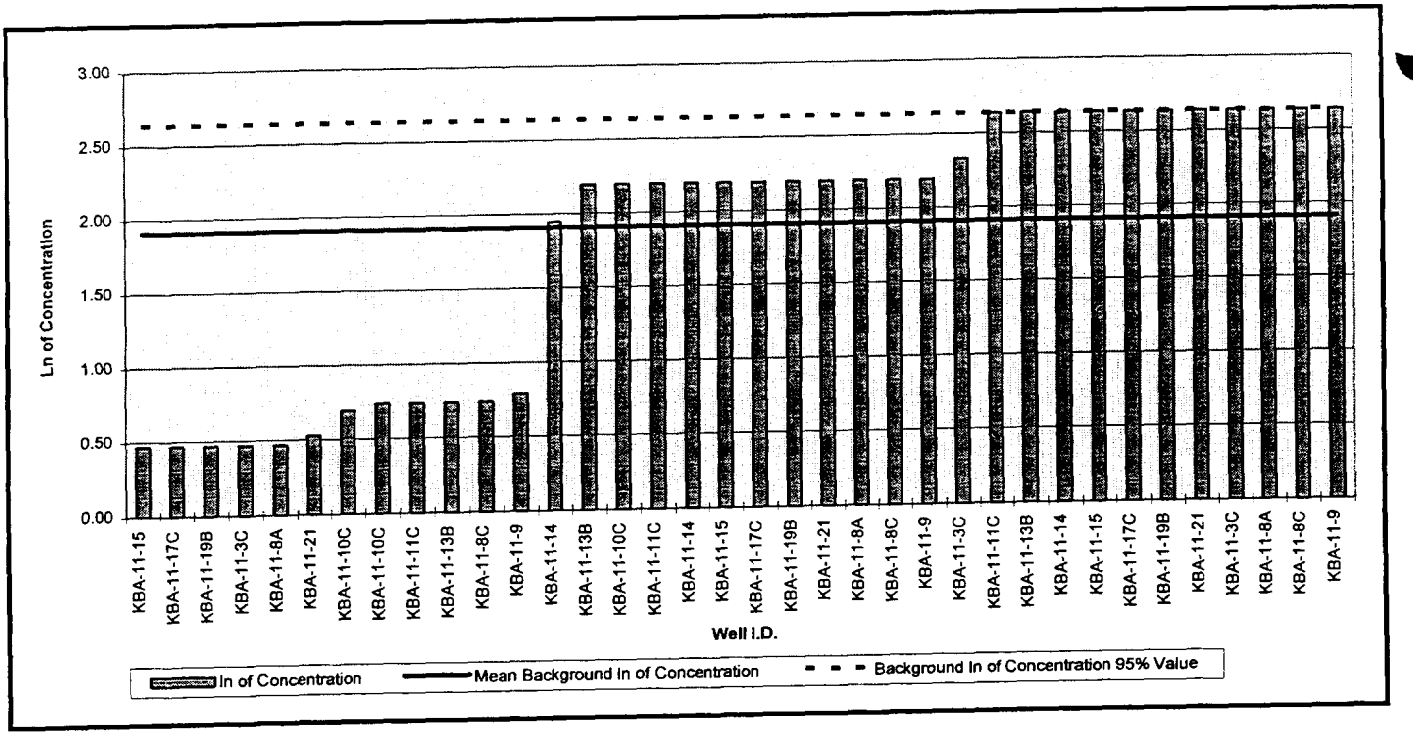
Percent Non-Detected: 91%

Background Log-Normal 95th Percentile Value = 2.64

Background Log-Normal Mean Value = 1.91

KINGS BAY - SITE 11

Cobalt Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Copper Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	01	U	1.7	0.53	-0.16	2	R_{cs}= 1129
Background	JAN	20	U	1.7	0.53	-0.16	2	n_{cs}= 36
Background	JAN	04	U	2.9	1.06	0.37	4	n_{bg}= 21
Background	JAN	07	J	2.3	0.83	0.83	7	U_{cs}= 293
Background	APR	04	UJ	6.6	1.89	1.19	12	z= -1.41
Background	JAN	12	J	3.45	1.24	1.24	13	$z_{0.05}$= -1.645
Background	SEP	11A	J	4.6	1.53	1.53	16	
Background	SEP	07	J	8.5	2.14	2.14	22	Do not reject H_o.
Background	SEP	11B	J	9.1	2.21	2.21	23	
Background	APR	12	J	9.4	2.24	2.24	24	
Background	SEP	04	J	9.7	2.27	2.27	25	
Background	APR	11A	J	10.7	2.37	2.37	26	
Background	JAN	11A	J	11.35	2.43	2.43	27	
Background	APR	01	J	11.9	2.48	2.48	30	
Background	SEP	01	J	14.2	2.65	2.65	33	
Background	SEP	12	J	15	2.71	2.71	35	
Background	APR	07	J	16.9	2.83	2.83	41	
Background	APR	11B		18	2.89	2.89	42	
Background	JAN	11B	J	19.1	2.95	2.95	44	
Background	APR	20	J	20.3	3.01	3.01	45	
Background	SEP	20		28	3.33	3.33	51	
Delineation	Jan	KBA-11-8A	U	1.7	0.53	-0.16	2	
Delineation	Sep	KBA-11-10C	U	3.4	1.22	0.53	5	
Delineation	Jan	KBA-11-8C	U	3.8	1.34	0.64	6	
Delineation	Sep	KBA-11-13B	U	4.7	1.55	0.85	8	
Delineation	Apr	KBA-11-21	UJ	5.7	1.74	1.05	9	
Delineation	Jan	KBA-11-19B	J	3.1	1.13	1.13	10	
Delineation	Apr	KBA-11-3C	J	3.2	1.16	1.16	11	
Delineation	Jan	KBA-11-21	J	4.4	1.48	1.48	14	
Delineation	Jan	KBA-11-3C	J	4.6	1.53	1.53	16	
Delineation	Jan	KBA-11-9	J	4.6	1.53	1.53	16	
Delineation	Jan	KBA-11-17C	J	5.2	1.65	1.65	18	
Delineation	Sep	KBA-11-11C	J	6.6	1.89	1.89	19	
Delineation	Jan	KBA-11-15	J	7.1	1.96	1.96	20	
Delineation	Sep	KBA-11-14	J	8.1	2.09	2.09	21	
Delineation	Sep	KBA-11-8C	J	11.4	2.43	2.43	28	
Delineation	Apr	KBA-11-8C	J	11.8	2.47	2.47	29	
Delineation	Sep	KBA-11-8A	J	13.0	2.56	2.56	31	
Delineation	Apr	KBA-11-15	J	13.6	2.61	2.61	32	
Delineation	Apr	KBA-11-9	J	14.3	2.66	2.66	34	
Delineation	Apr	KBA-11-10C	J	15.4	2.73	2.73	36	
Delineation	Sep	KBA-11-21	J	15.5	2.74	2.74	37	
Delineation	Apr	KBA-11-8A	J	15.9	2.77	2.77	38	
Delineation	Jan	KBA-11-10C	J	16.5	2.80	2.80	39	
Delineation	Sep	KBA-11-3C	J	16.6	2.81	2.81	40	
Delineation	Apr	KBA-11-19B	J	18.1	2.90	2.90	43	
Delineation	Jan	KBA-11-14	J	20.6	3.03	3.03	46	
Delineation	Sep	KBA-11-17C	J	21.1	3.05	3.05	47	
Delineation	Jan	KBA-11-11C	J	24.6	3.20	3.20	48	
Delineation	Apr	KBA-11-13B		26.2	3.27	3.27	49	
Delineation	Apr	KBA-11-11C		27.2	3.30	3.30	50	
Delineation	Apr	KBA-11-14		29.0	3.37	3.37	52	
Delineation	Apr	KBA-11-17C	J	34.7	3.55	3.55	53	
Delineation	Sep	KBA-11-19B		41.0	3.71	3.71	54	
Delineation	Jan	KBA-11-13B		45.4	3.82	3.82	55	
Delineation	Sep	KBA-11-9		50.5	3.92	3.92	56	
Delineation	Sep	KBA-11-15		61.5	4.12	4.12	57	

Percent Non-Detected: 16%

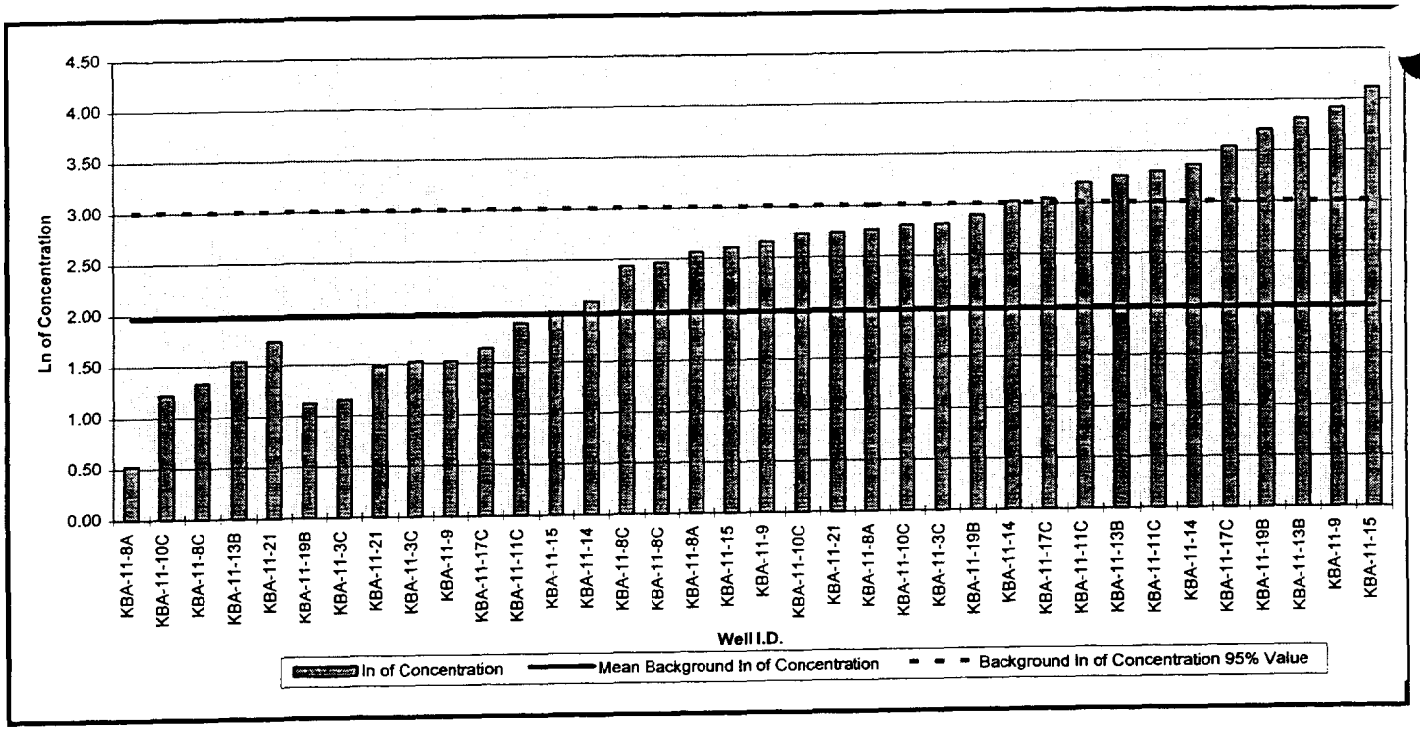
Background Log-Normal 95th Percentile Value = 3.01

Background Log-Normal Mean Value = 2.01

Half Detection Limit Used

KINGS BAY - SITE 11

Copper Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Cyanide Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier		Concentration (µg/L)	ln of Concentration
Background	All non-detected values.					
Delineation	All non-detected values.					

KINGS BAY - SITE 11

Lead Groundwater Concentrations for Delineation Wells vs. Background

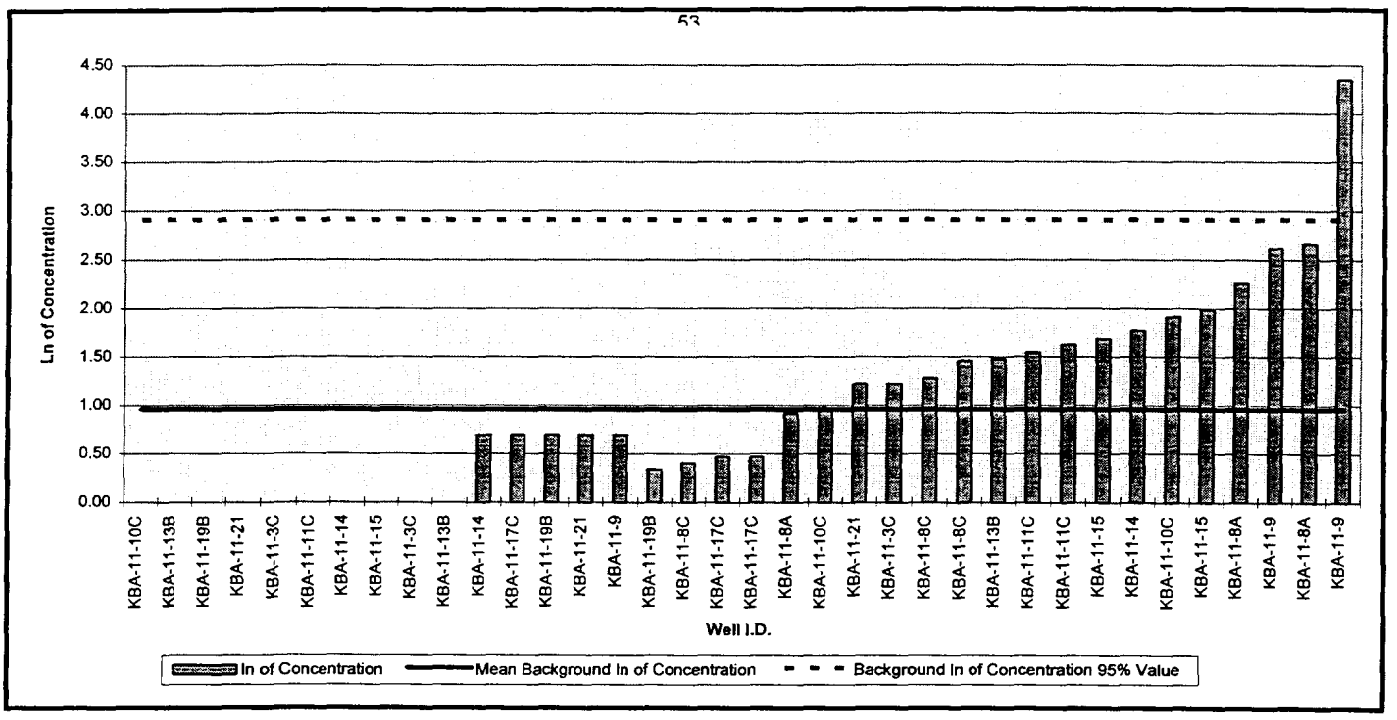
Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	APR	04	UJ	1	0.00	-0.69	8	R_{cs}= 1016
Background	APR	11A	U	1	0.00	-0.69	8	n_{cs}= 36
Background	SEP	11A	U	1	0.00	-0.69	8	n_{bg}= 21
Background	SEP	11B	U	1	0.00	-0.69	8	U_{cs}= 407
Background	SEP	12	U	1	0.00	-0.69	8	z= 0.47
Background	JAN	07	UJ	2	0.69	0.00	19.5	$z_{0.05}$= -1.65
Background	JAN	01	U	2	0.69	0.00	19.5	
Background	JAN	04	U	2	0.69	0.00	19.5	Do not reject H_o.
Background	JAN	12	U	2	0.69	0.00	19.5	
Background	JAN	20	J	2	0.69	0.69	29	
Background	JAN	11A	J	3.3	1.19	1.19	32	
Background	JAN	11B		3.4	1.22	1.22	34.5	
Background	SEP	20		3.4	1.22	1.22	34.5	
Background	APR	12	J	4.05	1.40	1.40	38	
Background	APR	07	J	5.3	1.67	1.67	43	
Background	APR	20	J	7.7	2.04	2.04	48	
Background	APR	11B	J	9.6	2.26	2.26	49.5	
Background	SEP	04		14.5	2.67	2.67	53	
Background	APR	01		16.3	2.79	2.79	54	
Background	SEP	07		18.3	2.91	2.91	55	
Background	SEP	01		34.4	3.54	3.54	56	
Delineation	Sep	KBA-11-10C	UJ	1.0	0.00	-0.69	8	
Delineation	Sep	KBA-11-13B	UJ	1.0	0.00	-0.69	8	
Delineation	Apr	KBA-11-19B	UJ	1.0	0.00	-0.69	8	
Delineation	Sep	KBA-11-21	UJ	1.0	0.00	-0.69	8	
Delineation	Sep	KBA-11-3C	UJ	1.0	0.00	-0.69	8	
Delineation	Sep	KBA-11-11C	U	1.0	0.00	-0.69	8	
Delineation	Sep	KBA-11-14	U	1.0	0.00	-0.69	8	
Delineation	Sep	KBA-11-15	U	1.0	0.00	-0.69	8	
Delineation	Apr	KBA-11-3C	U	1.0	0.00	-0.69	8	
Delineation	Apr	KBA-11-13B	J	1.0	0.00	0.00	19.5	
Delineation	Jan	KBA-11-14	U	2.0	0.69	0.00	19.5	
Delineation	Jan	KBA-11-17C	U	2.0	0.69	0.00	19.5	
Delineation	Jan	KBA-11-19B	U	2.0	0.69	0.00	19.5	
Delineation	Jan	KBA-11-21	U	2.0	0.69	0.00	19.5	
Delineation	Jan	KBA-11-9	U	2.0	0.69	0.00	19.5	
Delineation	Sep	KBA-11-19B	J	1.4	0.34	0.34	25	
Delineation	Sep	KBA-11-8C	J	1.5	0.41	0.41	26	
Delineation	Apr	KBA-11-17C	J	1.6	0.47	0.47	27.5	
Delineation	Sep	KBA-11-17C	J	1.6	0.47	0.47	27.5	
Delineation	Jan	KBA-11-8A	J	2.5	0.92	0.92	30	
Delineation	Apr	KBA-11-10C	J	2.6	0.96	0.96	31	
Delineation	Apr	KBA-11-21	J	3.4	1.22	1.22	34.5	
Delineation	Jan	KBA-11-3C		3.4	1.22	1.22	34.5	
Delineation	Apr	KBA-11-8C	J	3.6	1.28	1.28	37	
Delineation	Jan	KBA-11-8C	J	4.3	1.46	1.46	39	
Delineation	Jan	KBA-11-13B		4.4	1.48	1.48	40	
Delineation	Apr	KBA-11-11C	J	4.7	1.55	1.55	41	
Delineation	Jan	KBA-11-11C	J	5.1	1.63	1.63	42	
Delineation	Jan	KBA-11-15	J	5.4	1.69	1.69	44	
Delineation	Apr	KBA-11-14	J	5.9	1.77	1.77	45	
Delineation	Jan	KBA-11-10C		6.8	1.92	1.92	46	
Delineation	Apr	KBA-11-15	J	7.3	1.99	1.99	47	
Delineation	Apr	KBA-11-8A		9.6	2.26	2.26	49.5	
Delineation	Apr	KBA-11-9		13.7	2.62	2.62	51	
Delineation	Sep	KBA-11-8A		14.4	2.67	2.67	52	
Delineation	Sep	KBA-11-9		77.0	4.34	4.34	57	

Percent Non-Detected: 40%

Background Log-Normal 95th Percentile Value = 2.91

Background Log-Normal Mean Value = 1.19

KINGS BAY - SITE 11
Lead Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Iron Groundwater Concentrations for Delineation Wells vs Background

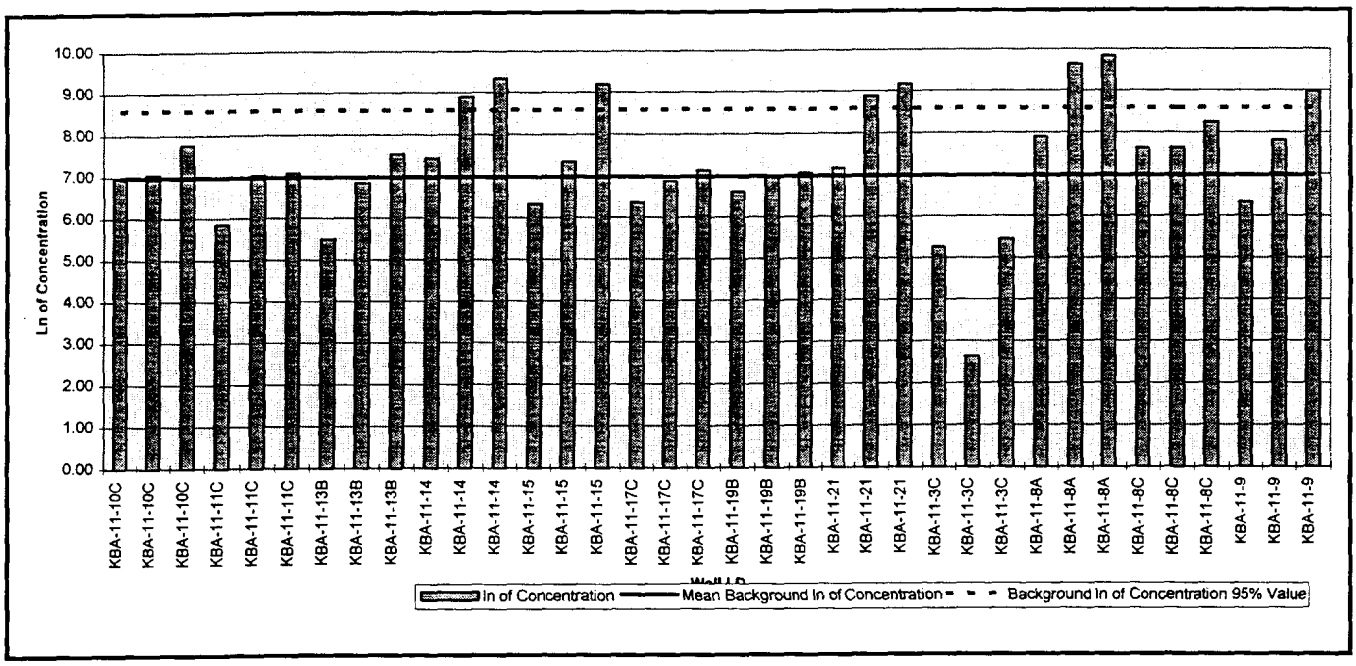
Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t test	
Background	Apr	12		5885	8.68	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 6.98	
Background	Jan	11A		5340	8.58	$f_{cs}=n_{cs}-1$ = 2		
Background	Jan	12		3805	8.24	f = 20	BG variance = 1.4309	
Background	Sep	04	J	3400	8.13	BG variance = 1.431		
Background	Apr	20		3120	8.05	degrees freedom = 1		
Background	Jan	20		2880	7.97	0.95 Percentile Value = 3.841		
Background	Sep	01		2630	7.87			
Background	Apr	11A		1880	7.54			
Background	Sep	07		1300	7.17			
Background	Apr	01		968	6.88			
Background	Sep	11B		749	6.62			
Background	Sep	12		679.5	6.52			
Background	Sep	11A		678	6.52			
Background	Sep	20		574	6.35			
Background	Apr	07		542	6.30			
Background	Apr	04		388	5.96			
Background	Jan	07		331	5.80			
Background	Jan	04	J	161	5.08			
Background	Jan	01	J	81.4	4.40			Reject H_o?
Delineation	Apr	KBA-11-10C		1080	6.98	Pooled Var. = 1.307	t statistic = 0.410	
Delineation	Sep	KBA-11-10C		1170	7.06	Char. variance = 0.187	d.f. = 20.00	
Delineation	Jan	KBA-11-10C	J	2370	7.77	Chi Square Statistic = 2.250	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-11C		356	5.87	Pooled Var. = 1.335	t statistic = -0.442	
Delineation	Jan	KBA-11-11C		1130	7.03	Char. variance = 0.469	d.f. = 20.00	
Delineation	Apr	KBA-11-11C		1200	7.09	Chi Square Statistic = 0.839	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-13B	J	246	5.51	Pooled Var. = 1.396	t statistic = -0.473	
Delineation	Jan	KBA-11-13B	J	944	6.85	Char. variance = 1.079	d.f. = 20.00	
Delineation	Apr	KBA-11-13B		1900	7.55	Chi Square Statistic = 0.066	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-14		1710	7.44	Pooled Var. = 1.387	t statistic = 2.166	
Delineation	Jan	KBA-11-14		7390	8.91	Char. variance = 0.995	d.f. = 20.00	
Delineation	Apr	KBA-11-14		11500	9.35	Chi Square Statistic = 0.108	$t_{0.05}$ = 1.725	YES
Delineation	Sep	KBA-11-15		568	6.34	Pooled Var. = 1.499	t statistic = 0.861	
Delineation	Jan	KBA-11-15		1570	7.36	Char. variance = 2.115	d.f. = 20.00	
Delineation	Apr	KBA-11-15		10000	9.21	Chi Square Statistic = 0.152	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-17C	J	587	6.38	Pooled Var. = 1.303	t statistic = -0.265	
Delineation	Apr	KBA-11-17C		970	6.88	Char. variance = 0.148	d.f. = 20.00	
Delineation	Jan	KBA-11-17C		1250	7.13	Chi Square Statistic = 2.659	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-19B	J	740	6.61	Pooled Var. = 1.294	t statistic = -0.335	
Delineation	Jan	KBA-11-19B		1060	6.97	Char. variance = 0.058	d.f. = 17.83	
Delineation	Apr	KBA-11-19B		1170	7.06	Chi Square Statistic = 4.390	$t_{0.05}$ = 1.735	NO
Delineation	Sep	KBA-11-21	J	1300	7.17	Pooled Var. = 1.405	t statistic = 1.938	
Delineation	Jan	KBA-11-21		7230	8.89	Char. variance = 1.171	d.f. = 20.00	
Delineation	Apr	KBA-11-21		9610	9.17	Chi Square Statistic = 0.034	$t_{0.05}$ = 1.725	YES
Delineation	Jan	KBA-11-3C		193	5.26	Pooled Var. = 1.536	t statistic = -3.287	
Delineation	Apr	KBA-11-3C	U	194	2.63	Char. variance = 2.485	d.f. = 20.00	
Delineation	Sep	KBA-11-3C	J	234	5.46	Chi Square Statistic = 0.317	$t_{0.05}$ = 1.725	NO
Delineation	Jan	KBA-11-8A		2700	7.90	Pooled Var. = 1.401	t statistic = 2.916	
Delineation	Sep	KBA-11-8A		15400	9.64	Char. variance = 1.136	d.f. = 20.00	
Delineation	Apr	KBA-11-8A		18700	9.84	Chi Square Statistic = 0.045	$t_{0.05}$ = 1.725	YES
Delineation	Jan	KBA-11-8C		2050	7.63	Pooled Var. = 1.301	t statistic = 1.202	
Delineation	Sep	KBA-11-8C		2060	7.63	Char. variance = 0.127	d.f. = 20.00	
Delineation	Apr	KBA-11-8C		3810	8.25	Chi Square Statistic = 2.932	$t_{0.05}$ = 1.725	NO
Delineation	Jan	KBA-11-9		563	6.33	Pooled Var. = 1.465	t statistic = 0.969	
Delineation	Apr	KBA-11-9		2470	7.81	Char. variance = 1.767	d.f. = 20.00	
Delineation	Sep	KBA-11-9		7990	8.99	Chi Square Statistic = 0.042	$t_{0.05}$ = 1.725	NO

Percent Non-Detected: 2%

Background Log-Normal 95th Percentile Value =8.59

Background Log-Normal Mean Value = 6.98

KINGS BAY - SITE 11
Iron Groundwater Concentrations for Delineation Wells vs Background



KINGS BAY - SITE 11

Manganese Groundwater Concentrations for Delineation Wells vs Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Bartlett's test	t test	
Background	Jan	11A		46.05	3.83	$f_{bg}=n_{bg}-1$ = 18	BG Mean = 2.76	
Background	Sep	04		42.6	3.75	$f_{cs}=n_{cs}-1$ = 2		
Background	Apr	04		39.7	3.68	f = 20	BG variance = 0.5515	
Background	Sep	20		32	3.47	BG variance = 0.551		
Background	Jan	20		31.2	3.44	degrees freedom = 1		
Background	Apr	20		29.2	3.37	0.95 Percentile Value = 3.841		
Background	Apr	12		26.55	3.28			
Background	Jan	04		25.5	3.24			
Background	Jan	12		20.2	3.01			
Background	Apr	11A	J	14.9	2.70			
Background	Sep	11B	J	13.2	2.58			
Background	Sep	01	J	9.8	2.28			
Background	Sep	07	J	9.6	2.26			
Background	Apr	07	J	8.9	2.19			
Background	Apr	01	J	8.2	2.10			
Background	Sep	11A	J	6.9	1.93			
Background	Sep	12	J	6	1.79			
Background	Jan	01	J	5.8	1.76			
Background	Jan	07	J	5.4	1.69			Reject H_o?
Delineation	Apr	KBA-11-10C		24.6	3.20	Pooled Var. = 0.515	t statistic = 1.918	
Delineation	Sep	KBA-11-10C		35.1	3.56	Char. variance = 0.190	d.f. = 20.00	
Delineation	Jan	KBA-11-10C		58.6	4.07	Chi Square Statistic = 0.773	$t_{0.05}$ = 1.725	YES
Delineation	Sep	KBA-11-11C		29.5	3.38	Pooled Var. = 0.539	t statistic = 2.698	
Delineation	Apr	KBA-11-11C		49.0	3.89	Char. variance = 0.428	d.f. = 20.00	
Delineation	Jan	KBA-11-11C		108	4.68	Chi Square Statistic = 0.054	$t_{0.05}$ = 1.725	YES
Delineation	Sep	KBA-11-13B	J	11.5	2.44	Pooled Var. = 0.552	t statistic = 0.973	
Delineation	Jan	KBA-11-13B		25.4	3.23	Char. variance = 0.558	d.f. = 20.00	
Delineation	Apr	KBA-11-13B		51.2	3.94	Chi Square Statistic = 0.0001	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-14	J	11.0	2.40	Pooled Var. = 0.539	t statistic = 0.814	
Delineation	Apr	KBA-11-14		28.1	3.34	Char. variance = 0.422	d.f. = 20.00	
Delineation	Jan	KBA-11-14		38.3	3.65	Chi Square Statistic = 0.060	$t_{0.05}$ = 1.725	NO
Delineation	Jan	KBA-11-15	J	12.7	2.54	Pooled Var. = 0.561	t statistic = 1.269	
Delineation	Sep	KBA-11-15		28.3	3.34	Char. variance = 0.649	d.f. = 20.00	
Delineation	Apr	KBA-11-15		63.6	4.15	Chi Square Statistic = 0.025	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-17C		20.2	3.01	Pooled Var. = 0.506	t statistic = 1.004	
Delineation	Apr	KBA-11-17C		20.7	3.03	Char. variance = 0.098	d.f. = 20.00	
Delineation	Jan	KBA-11-17C		35.2	3.56	Chi Square Statistic = 1.731	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-19B	J	13.6	2.61	Pooled Var. = 0.498	t statistic = 0.108	
Delineation	Jan	KBA-11-19B		16.9	2.83	Char. variance = 0.022	d.f. = 18.04	
Delineation	Apr	KBA-11-19B		18.0	2.89	Chi Square Statistic = 4.457	$t_{0.05}$ = 1.734	NO
Delineation	Sep	KBA-11-21	J	13.1	2.57	Pooled Var. = 0.566	t statistic = 1.377	
Delineation	Jan	KBA-11-21		29.5	3.38	Char. variance = 0.694	d.f. = 20.00	
Delineation	Apr	KBA-11-21		69.3	4.24	Chi Square Statistic = 0.051	$t_{0.05}$ = 1.725	NO
Delineation	Sep	KBA-11-3C	J	2.2	0.79	Pooled Var. = 0.577	t statistic = -2.087	
Delineation	Apr	KBA-11-3C	J	7.2	1.97	Char. variance = 0.806	d.f. = 20.00	
Delineation	Jan	KBA-11-3C	J	12.8	2.55	Chi Square Statistic = 0.144	$t_{0.05}$ = 1.725	NO
Delineation	Jan	KBA-11-8A		170	5.14	Pooled Var. = 0.498	t statistic = 13.705	
Delineation	Apr	KBA-11-8A		196	5.28	Char. variance = 0.013	d.f. = 19.80	
Delineation	Sep	KBA-11-8A		213	5.36	Chi Square Statistic = 5.440	$t_{0.05}$ = 1.726	YES
Delineation	Sep	KBA-11-8C	J	14.5	2.67	Pooled Var. = 0.499	t statistic = 0.535	
Delineation	Jan	KBA-11-8C		17.9	2.88	Char. variance = 0.031	d.f. = 15.40	
Delineation	Apr	KBA-11-8C		20.6	3.03	Chi Square Statistic = 3.760	$t_{0.05}$ = 1.75	NO
Delineation	Jan	KBA-11-9	J	1.5	0.41	Pooled Var. = 0.724	t statistic = -1.375	
Delineation	Apr	KBA-11-9	J	9.9	2.29	Char. variance = 2.276	d.f. = 20.00	
Delineation	Sep	KBA-11-9		29.6	3.39	Chi Square Statistic = 2.607	$t_{0.05}$ = 1.725	NO

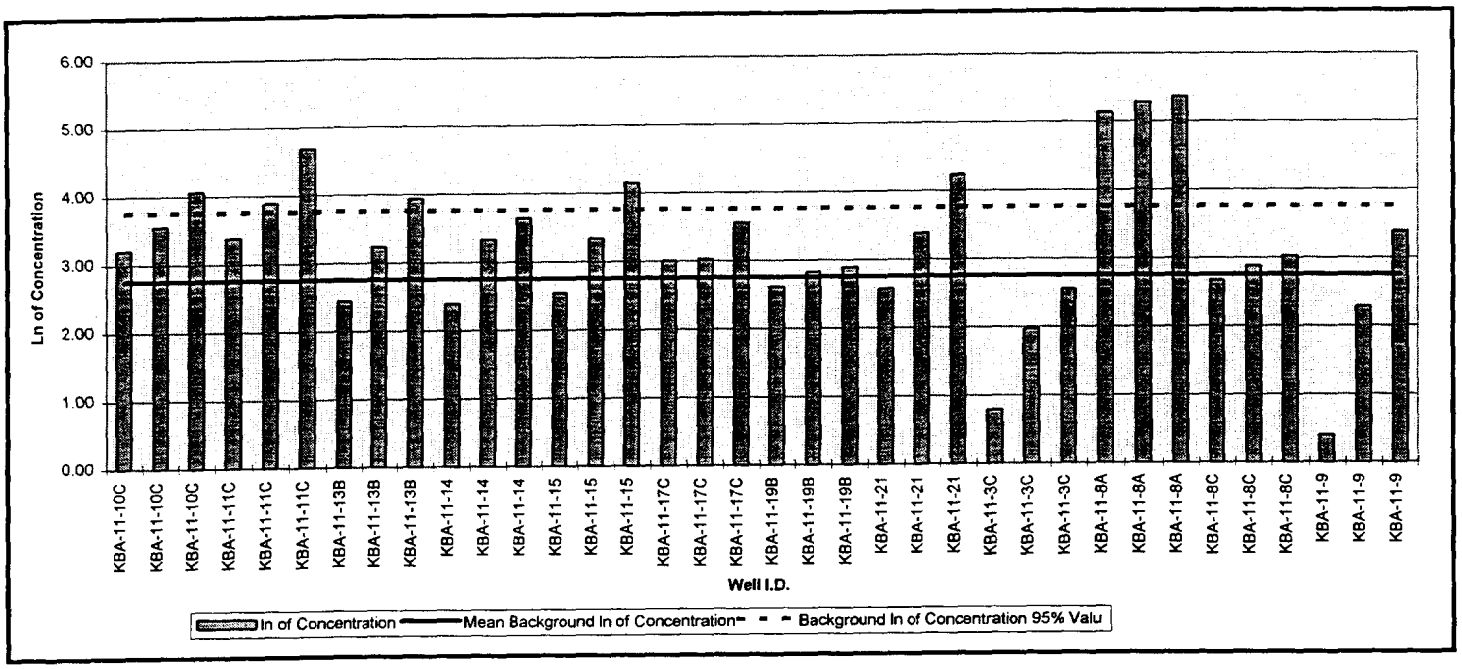
Percent Non-Detected: 0%

Background Log-Normal 95th Percentile Value =3.76

Background Log-Normal Mean Value = 2.76

KINGS BAY - SITE 11

Manganese Groundwater Concentrations for Delineation Wells vs Background



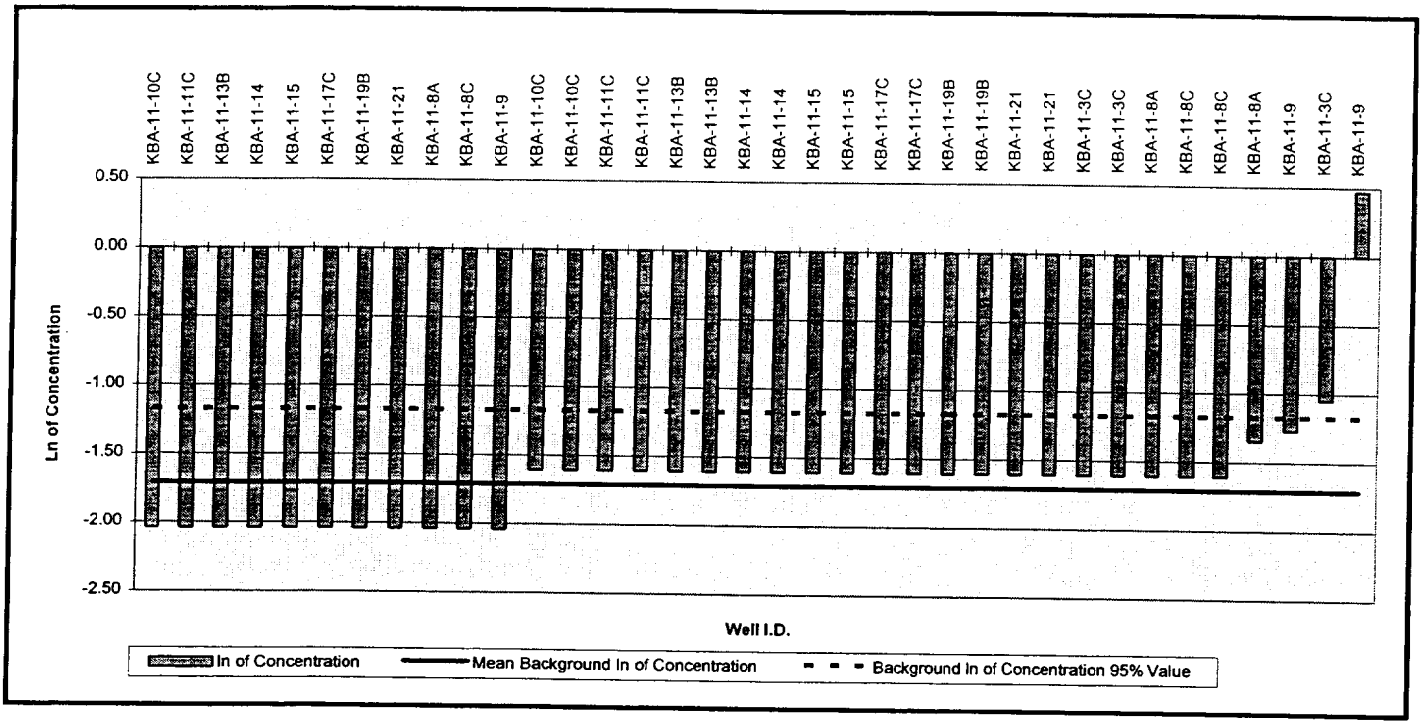
KINGS BAY - SITE 11

Mercury Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	U	0.13	-2.04	P= 0.11
Background	JAN	04	U	0.13	-2.04	n= 57
Background	JAN	07	U	0.13	-2.04	nP= 6.00
Background	JAN	11A	U	0.13	-2.04	n(1-P)= 51.00
Background	JAN	11B	U	0.13	-2.04	P_{cw}= 0.11
Background	JAN	12	U	0.13	-2.04	P_{bg}= 0.10
Background	JAN	20	U	0.13	-2.04	S_D= 0.08
Background	APR	01	U	0.2	-1.61	z= 0.19
Background	APR	04	U	0.2	-1.61	
Background	SEP	04	U	0.2	-1.61	$z_{0.5}$= 1.645
Background	APR	07	U	0.2	-1.61	
Background	APR	11A	U	0.2	-1.61	Do not reject H_o.
Background	SEP	11A	U	0.2	-1.61	
Background	APR	11B	U	0.2	-1.61	
Background	SEP	11B	U	0.2	-1.61	
Background	APR	12	U	0.2	-1.61	
Background	SEP	12	U	0.2	-1.61	
Background	APR	20	U	0.2	-1.61	
Background	SEP	20	U	0.2	-1.61	
Background	SEP	01		0.31	-1.17	
Background	SEP	07		0.33	-1.11	
Delineation	Jan	KBA-11-10C	U	0.13	-2.04	
Delineation	Jan	KBA-11-11C	U	0.13	-2.04	
Delineation	Jan	KBA-11-13B	U	0.13	-2.04	
Delineation	Jan	KBA-11-14	U	0.13	-2.04	
Delineation	Jan	KBA-11-15	U	0.13	-2.04	
Delineation	Jan	KBA-11-17C	U	0.13	-2.04	
Delineation	Jan	KBA-11-19B	U	0.13	-2.04	
Delineation	Jan	KBA-11-21	U	0.13	-2.04	
Delineation	Jan	KBA-11-8A	U	0.13	-2.04	
Delineation	Jan	KBA-11-8C	U	0.13	-2.04	
Delineation	Jan	KBA-11-9	U	0.13	-2.04	
Delineation	Apr	KBA-11-10C	U	0.20	-1.61	
Delineation	Sep	KBA-11-10C	U	0.20	-1.61	
Delineation	Apr	KBA-11-11C	U	0.20	-1.61	
Delineation	Sep	KBA-11-11C	U	0.20	-1.61	
Delineation	Apr	KBA-11-13B	U	0.20	-1.61	
Delineation	Sep	KBA-11-13B	U	0.20	-1.61	
Delineation	Apr	KBA-11-14	U	0.20	-1.61	
Delineation	Sep	KBA-11-14	U	0.20	-1.61	
Delineation	Apr	KBA-11-15	U	0.20	-1.61	
Delineation	Sep	KBA-11-15	U	0.20	-1.61	
Delineation	Apr	KBA-11-17C	U	0.20	-1.61	
Delineation	Sep	KBA-11-17C	U	0.20	-1.61	
Delineation	Apr	KBA-11-19B	U	0.20	-1.61	
Delineation	Sep	KBA-11-19B	U	0.20	-1.61	
Delineation	Apr	KBA-11-21	U	0.20	-1.61	
Delineation	Sep	KBA-11-21	U	0.20	-1.61	
Delineation	Apr	KBA-11-3C	U	0.20	-1.61	
Delineation	Sep	KBA-11-3C	U	0.20	-1.61	
Delineation	Sep	KBA-11-8A	U	0.20	-1.61	
Delineation	Apr	KBA-11-8C	U	0.20	-1.61	
Delineation	Sep	KBA-11-8C	U	0.20	-1.61	
Delineation	Apr	KBA-11-8A		0.26	-1.35	
Delineation	Apr	KBA-11-9		0.28	-1.27	
Delineation	Jan	KBA-11-3C		0.35	-1.05	
Delineation	Sep	KBA-11-9		1.6	0.47	
Percent Non-Detected:		89%		Background Log-Normal 95th Percentile Value = -1.17 Background Log-Normal Mean Value = -1.71		

KINGS BAY - SITE 11

Mercury Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Nickel Groundwater Concentrations for Delineation Wells vs. Background

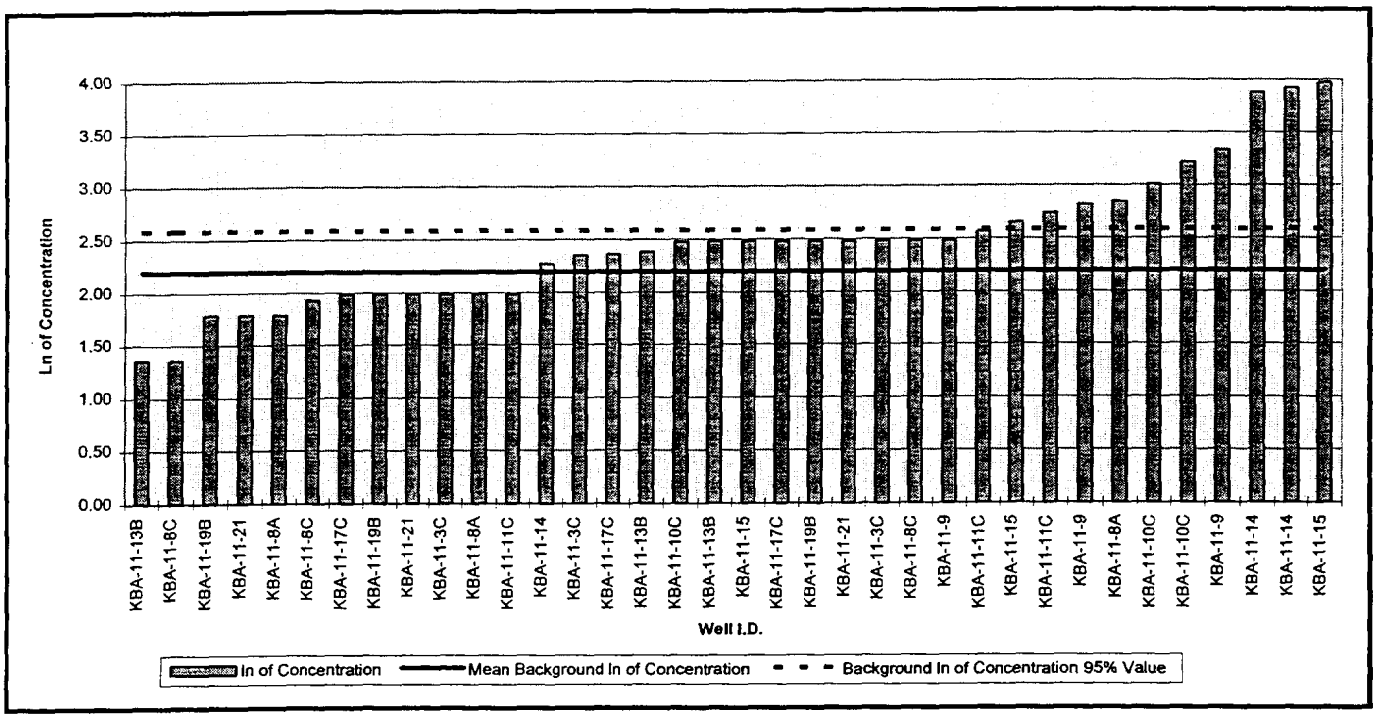
Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	04	U	3.9	1.36	P= 0.41
Background	SEP	07	U	6	1.79	n= 56
Background	SEP	11A	U	6	1.79	nP= 23.00
Background	SEP	20	U	6	1.79	n(1-P)= 33.00
Background	JAN	01	U	7.3	1.99	P_{cw}= 0.42
Background	JAN	07	U	7.3	1.99	P_{bg}= 0.40
Background	JAN	20	U	7.3	1.99	S_D= 0.14
Background	JAN	12	J	7.35	1.99	z= 0.12
Background	JAN	11A	J	8.1	2.09	
Background	JAN	11B	J	8.4	2.13	$z_{0.5}$= 1.645
Background	SEP	01	J	9.5	2.25	
Background	SEP	12	J	10.65	2.37	Do not reject H_o.
Background	SEP	04	J	10.8	2.38	
Background	SEP	11B	J	11.7	2.46	
Background	APR	04	U	12	2.48	
Background	APR	07	U	12	2.48	
Background	APR	12	U	12	2.48	
Background	APR	01	U	12.6	2.53	
Background	APR	20	J	13	2.56	
Background	APR	11A	U	19.8	2.99	
Delineation	Jan	KBA-11-13B	U	3.9	1.36	
Delineation	Jan	KBA-11-8C	U	3.9	1.36	
Delineation	Sep	KBA-11-19B	U	6.0	1.79	
Delineation	Sep	KBA-11-21	U	6.0	1.79	
Delineation	Sep	KBA-11-8A	U	6.0	1.79	
Delineation	Sep	KBA-11-8C	J	6.9	1.93	
Delineation	Jan	KBA-11-17C	U	7.3	1.99	
Delineation	Jan	KBA-11-19B	U	7.3	1.99	
Delineation	Jan	KBA-11-21	U	7.3	1.99	
Delineation	Jan	KBA-11-3C	U	7.3	1.99	
Delineation	Jan	KBA-11-8A	U	7.3	1.99	
Delineation	Sep	KBA-11-11C	J	7.3	1.99	
Delineation	Sep	KBA-11-14	J	9.7	2.27	
Delineation	Sep	KBA-11-3C	J	10.5	2.35	
Delineation	Sep	KBA-11-17C	J	10.6	2.36	
Delineation	Sep	KBA-11-13B	J	10.8	2.38	
Delineation	Sep	KBA-11-10C	J	11.9	2.48	
Delineation	Apr	KBA-11-13B	U	12.0	2.48	
Delineation	Apr	KBA-11-15	U	12.0	2.48	
Delineation	Apr	KBA-11-17C	U	12.0	2.48	
Delineation	Apr	KBA-11-19B	U	12.0	2.48	
Delineation	Apr	KBA-11-21	U	12.0	2.48	
Delineation	Apr	KBA-11-3C	U	12.0	2.48	
Delineation	Apr	KBA-11-8C	U	12.0	2.48	
Delineation	Apr	KBA-11-9	U	12.0	2.48	
Delineation	Jan	KBA-11-11C	J	13.0	2.56	
Delineation	Jan	KBA-11-15	J	14.2	2.65	
Delineation	Apr	KBA-11-11C	U	15.5	2.74	
Delineation	Jan	KBA-11-9	J	16.8	2.82	
Delineation	Apr	KBA-11-8A	U	17.2	2.84	
Delineation	Jan	KBA-11-10C	J	20.3	3.01	
Delineation	Apr	KBA-11-10C	J	25.0	3.22	
Delineation	Sep	KBA-11-9	J	28.1	3.34	
Delineation	Jan	KBA-11-14		48.4	3.88	
Delineation	Apr	KBA-11-14	U	50.4	3.92	
Delineation	Sep	KBA-11-15		53.2	3.97	

Percent Non-Detected: 59%

Background Log-Normal 95th Percentile Value = 2.58

Background Log-Normal Mean Value = 2.20

KINGS BAY - SITE 11
Nickel Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Selenium Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	01	U	1.5	0.41
Background	JAN	04	U	1.5	0.41
Background	JAN	07	U	1.5	0.41
Background	JAN	11A	U	1.5	0.41
Background	JAN	11B	U	1.5	0.41
Background	JAN	12	U	1.5	0.41
Background	APR	01	U	2	0.69
Background	APR	04	U	2	0.69
Background	APR	11A	U	2	0.69
Background	APR	12	U	2	0.69
Background	APR	20	U	2	0.69
Background	APR	07	J	2.5	0.92
Background	SEP	01	U	4	1.39
Background	SEP	04	U	4	1.39
Background	SEP	07	U	4	1.39
Background	SEP	11A	U	4	1.39
Background	SEP	11B	U	4	1.39
Background	SEP	12	U	4	1.39
Background	SEP	20	U	4	1.39
Background	APR	11B	UJ	5	1.61
Delineation	Jan	KBA-11-10C	UJ	1.5	0.41
Delineation	Jan	KBA-11-11C	UJ	1.5	0.41
Delineation	Jan	KBA-11-13B	UJ	1.5	0.41
Delineation	Jan	KBA-11-19B	UJ	1.5	0.41
Delineation	Jan	KBA-11-3C	UJ	1.5	0.41
Delineation	Jan	KBA-11-14	U	1.5	0.41
Delineation	Jan	KBA-11-15	U	1.5	0.41
Delineation	Jan	KBA-11-17C	U	1.5	0.41
Delineation	Jan	KBA-11-8A	U	1.5	0.41
Delineation	Jan	KBA-11-8C	U	1.5	0.41
Delineation	Jan	KBA-11-9	U	1.5	0.41
Delineation	Apr	KBA-11-17C	UJ	2.0	0.69
Delineation	Apr	KBA-11-19B	UJ	2.0	0.69
Delineation	Apr	KBA-11-3C	UJ	2.0	0.69
Delineation	Apr	KBA-11-10C	U	2.0	0.69
Delineation	Apr	KBA-11-11C	U	2.0	0.69
Delineation	Apr	KBA-11-13B	U	2.0	0.69
Delineation	Apr	KBA-11-14	U	2.0	0.69
Delineation	Apr	KBA-11-21	U	2.0	0.69
Delineation	Apr	KBA-11-8C	U	2.0	0.69
Delineation	Apr	KBA-11-8A	J	2.0	0.69
Delineation	Apr	KBA-11-9	J	2.1	0.74
Delineation	Sep	KBA-11-10C	U	4.0	1.39
Delineation	Sep	KBA-11-11C	U	4.0	1.39
Delineation	Sep	KBA-11-13B	U	4.0	1.39
Delineation	Sep	KBA-11-14	U	4.0	1.39
Delineation	Sep	KBA-11-15	U	4.0	1.39
Delineation	Sep	KBA-11-17C	U	4.0	1.39
Delineation	Sep	KBA-11-19B	U	4.0	1.39
Delineation	Sep	KBA-11-21	U	4.0	1.39
Delineation	Sep	KBA-11-3C	U	4.0	1.39
Delineation	Sep	KBA-11-8A	U	4.0	1.39
Delineation	Sep	KBA-11-8C	U	4	1.39
Delineation	Apr	KBA-11-15	J	11.9	2.48
Delineation	Jan	KBA-11-21	U	15.2	2.72
Delineation	Sep	KBA-11-9		23.4	3.15

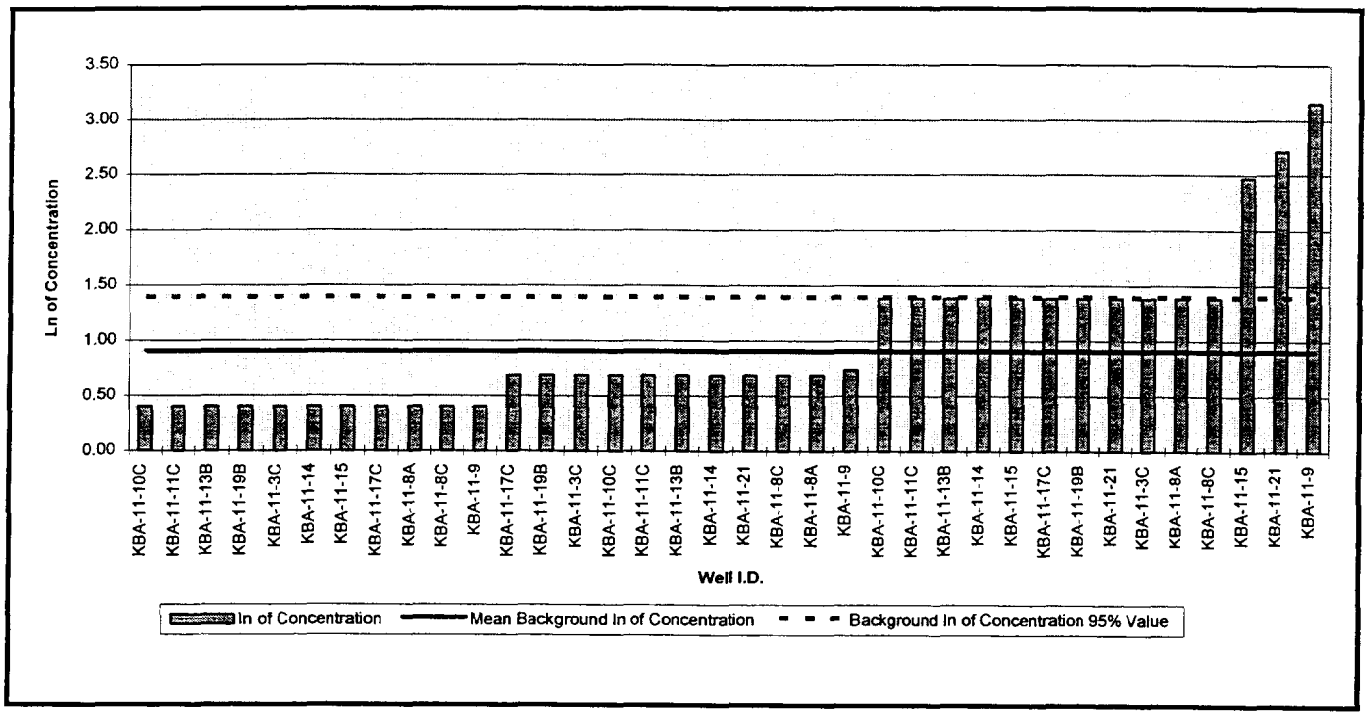
Percent Non-Detected: 91%

Background Log-Normal 95th Percentile Value = 1.40

Background Log-Normal Mean Value = 0.91

KINGS BAY - SITE 11

Selenium Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11
Silver Groundwater Concentrations for Delineation Wells vs. Background

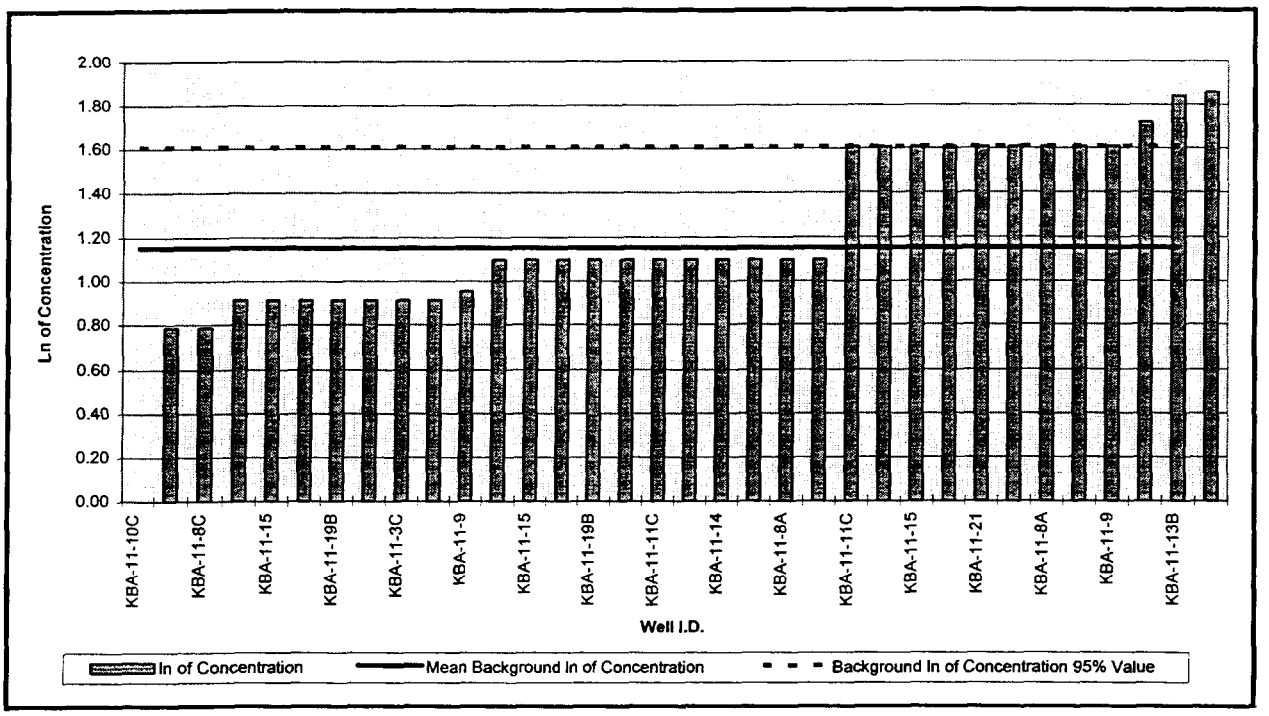
Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	JAN	11A	U	2.2	0.79
Background	JAN	11B	U	2.2	0.79
Background	JAN	01	UJ	2.5	0.92
Background	JAN	07	UJ	2.5	0.92
Background	JAN	12	UJ	2.5	0.92
Background	JAN	20	UJ	2.5	0.92
Background	APR	04	UJ	3	1.10
Background	APR	07	UJ	3	1.10
Background	APR	12	UJ	3	1.10
Background	APR	20	UJ	3	1.10
Background	APR	01	U	3	1.10
Background	APR	11A	U	3	1.10
Background	SEP	01	U	5	1.61
Background	SEP	04	U	5	1.61
Background	SEP	07	U	5	1.61
Background	SEP	11A	U	5	1.61
Background	SEP	11B	U	5	1.61
Background	SEP	12	U	5	1.61
Background	SEP	20	U	5	1.61
Delineation	Sep	KBA-11-10C	U	1.0	0.00
Delineation	Jan	KBA-11-11C	U	2.2	0.79
Delineation	Jan	KBA-11-8C	U	2.2	0.79
Delineation	Jan	KBA-11-14	UJ	2.5	0.92
Delineation	Jan	KBA-11-15	UJ	2.5	0.92
Delineation	Jan	KBA-11-17C	UJ	2.5	0.92
Delineation	Jan	KBA-11-19B	UJ	2.5	0.92
Delineation	Jan	KBA-11-21	UJ	2.5	0.92
Delineation	Jan	KBA-11-3C	UJ	2.5	0.92
Delineation	Jan	KBA-11-8A	UJ	2.5	0.92
Delineation	Jan	KBA-11-9	J	2.6	0.96
Delineation	Apr	KBA-11-10C	UJ	3.0	1.10
Delineation	Apr	KBA-11-15	UJ	3.0	1.10
Delineation	Apr	KBA-11-17C	UJ	3.0	1.10
Delineation	Apr	KBA-11-19B	UJ	3.0	1.10
Delineation	Apr	KBA-11-21	UJ	3.0	1.10
Delineation	Apr	KBA-11-11C	U	3.0	1.10
Delineation	Apr	KBA-11-13B	U	3.0	1.10
Delineation	Apr	KBA-11-14	U	3.0	1.10
Delineation	Apr	KBA-11-3C	U	3.0	1.10
Delineation	Apr	KBA-11-8A	U	3.0	1.10
Delineation	Apr	KBA-11-8C	U	3.0	1.10
Delineation	Sep	KBA-11-11C	U	5.0	1.61
Delineation	Sep	KBA-11-14	U	5.0	1.61
Delineation	Sep	KBA-11-15	U	5.0	1.61
Delineation	Sep	KBA-11-19B	U	5.0	1.61
Delineation	Sep	KBA-11-21	U	5.0	1.61
Delineation	Sep	KBA-11-3C	U	5.0	1.61
Delineation	Sep	KBA-11-8A	U	5.0	1.61
Delineation	Sep	KBA-11-8C	U	5.0	1.61
Delineation	Sep	KBA-11-9	U	5.0	1.61
Delineation	Sep	KBA-11-17C	J	5.6	1.72
Delineation	Sep	KBA-11-13B	J	6.3	1.84
Delineation	Apr	KBA-11-9	J	6.4	1.86

Percent Non-Detected: 92%

Background Log-Normal 95th Percentile Value = 1.61
Background Log-Normal Mean Value = 1.15

KINGS BAY - SITE 11

Silver Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11
Sulfide Groundwater Concentrations for Delineation Wells vs. Background

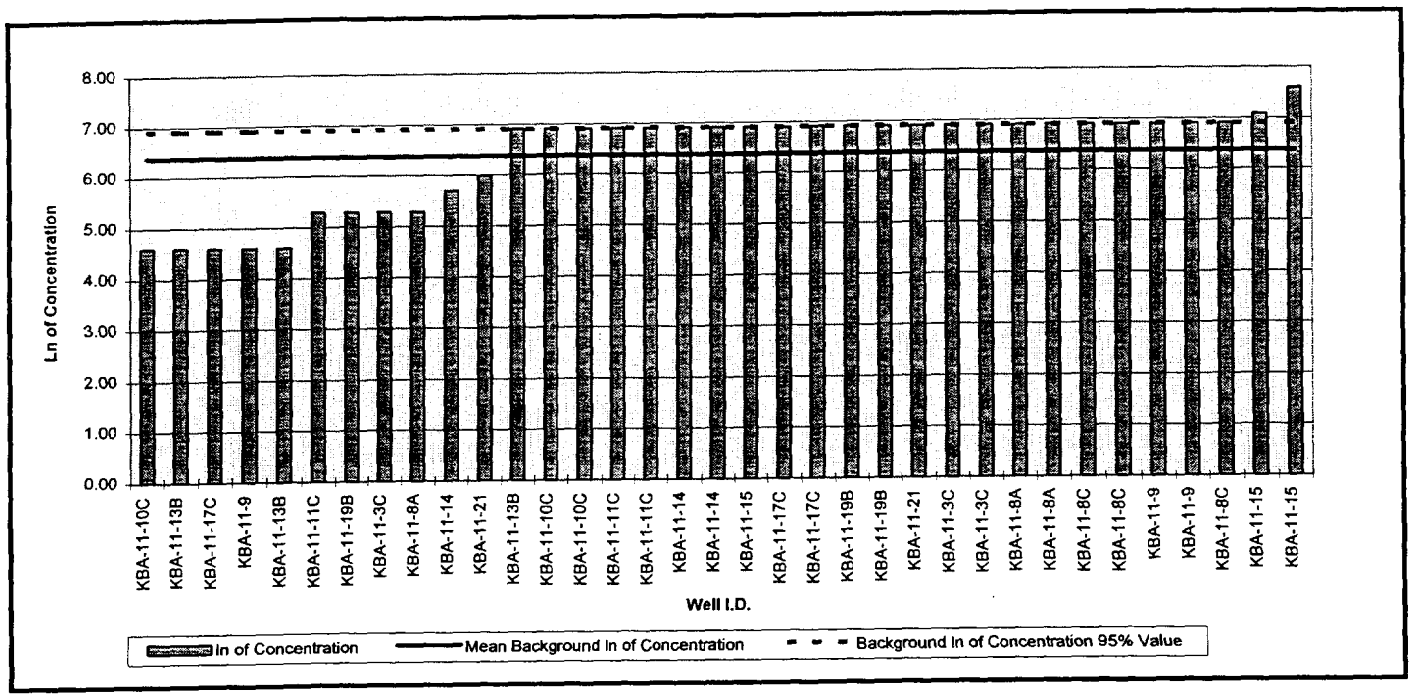
Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	01	UJ	100	4.61	P= 0.26
Background	JAN	04	UJ	100	4.61	n= 57
Background	JAN	07	J	200	5.30	nP= 15.00
Background	JAN	11B	J	200	5.30	n(1-P)= 42.00
Background	JAN	20	J	200	5.30	P_{cw}= 0.28
Background	JAN	12	J	300	5.70	P_{bg}= 0.24
Background	APR	01	U	1000	6.91	S_D= 0.12
Background	SEP	01	U	1000	6.91	z= 0.33
Background	APR	04	U	1000	6.91	
Background	SEP	04	U	1000	6.91	$z_{0.5}$= 1.645
Background	APR	07	U	1000	6.91	
Background	SEP	07	U	1000	6.91	Do not reject H_o.
Background	APR	11A	U	1000	6.91	
Background	SEP	11A	U	1000	6.91	
Background	APR	11B	U	1000	6.91	
Background	SEP	11B	U	1000	6.91	
Background	APR	12	U	1000	6.91	
Background	SEP	12	U	1000	6.91	
Background	APR	20	U	1000	6.91	
Background	SEP	20	U	1000	6.91	
Background	JAN	11A	J	1550	7.35	
Delineation	Jan	KBA-11-10C	UJ	100	4.61	
Delineation	Jan	KBA-11-13B	UJ	100	4.61	
Delineation	Jan	KBA-11-17C	UJ	100	4.61	
Delineation	Jan	KBA-11-9	UJ	100	4.61	
Delineation	Apr	KBA-11-13B	U	100	4.61	
Delineation	Jan	KBA-11-11C	J	200	5.30	
Delineation	Jan	KBA-11-19B	J	200	5.30	
Delineation	Jan	KBA-11-3C	J	200	5.30	
Delineation	Jan	KBA-11-8A	J	200	5.30	
Delineation	Jan	KBA-11-14	J	300	5.70	
Delineation	Jan	KBA-11-21	J	400	5.99	
Delineation	Sep	KBA-11-13B	U	1000	6.91	
Delineation	Apr	KBA-11-10C	U	1000	6.91	
Delineation	Sep	KBA-11-10C	U	1000	6.91	
Delineation	Apr	KBA-11-11C	U	1000	6.91	
Delineation	Sep	KBA-11-11C	U	1000	6.91	
Delineation	Apr	KBA-11-14	U	1000	6.91	
Delineation	Sep	KBA-11-14	U	1000	6.91	
Delineation	Sep	KBA-11-15	U	1000	6.91	
Delineation	Apr	KBA-11-17C	U	1000	6.91	
Delineation	Sep	KBA-11-17C	U	1000	6.91	
Delineation	Apr	KBA-11-19B	U	1000	6.91	
Delineation	Sep	KBA-11-19B	U	1000	6.91	
Delineation	Sep	KBA-11-21	U	1000	6.91	
Delineation	Apr	KBA-11-3C	U	1000	6.91	
Delineation	Sep	KBA-11-3C	U	1000	6.91	
Delineation	Apr	KBA-11-8A	U	1000	6.91	
Delineation	Sep	KBA-11-8A	U	1000	6.91	
Delineation	Apr	KBA-11-8C	U	1000	6.91	
Delineation	Sep	KBA-11-8C	U	1000	6.91	
Delineation	Apr	KBA-11-9	U	1000	6.91	
Delineation	Sep	KBA-11-9	U	1000	6.91	
Delineation	Jan	KBA-11-8C	J	1000	6.91	
Delineation	Jan	KBA-11-15	J	1200	7.09	
Delineation	Apr	KBA-11-15		2000	7.60	
Delineation	Apr	KBA-11-21		3000	8.01	

Percent Non-Detected: 74%

Background Log-Normal 95th Percentile Value = 6.91
Background Log-Normal Mean Value = 6.38

KINGS BAY - SITE 11

Sulfide Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11
Thallium Groundwater Concentrations for Delineation Wells vs. Background

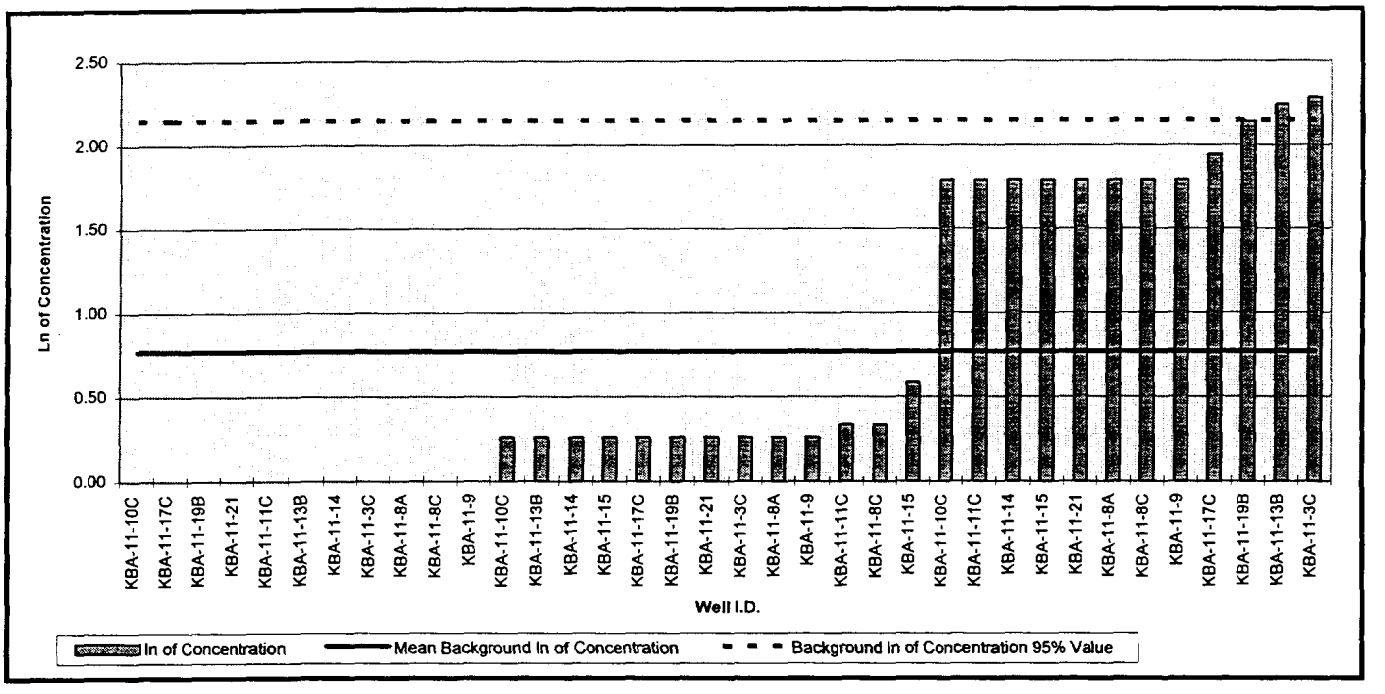
Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration
Background	APR	04	UJ	1	0.00
Background	APR	07	UJ	1	0.00
Background	APR	12	UJ	1	0.00
Background	APR	20	UJ	1	0.00
Background	APR	01	U	1	0.00
Background	APR	11A	U	1	0.00
Background	JAN	01	UJ	1.3	0.26
Background	JAN	07	UJ	1.3	0.26
Background	JAN	12	UJ	1.3	0.26
Background	JAN	20	UJ	1.3	0.26
Background	JAN	04	U	1.3	0.26
Background	JAN	11A	U	1.4	0.34
Background	JAN	11B	U	1.4	0.34
Background	SEP	01	U	6	1.79
Background	SEP	07	U	6	1.79
Background	SEP	11A	U	6	1.79
Background	SEP	11B	U	6	1.79
Background	SEP	12	U	6	1.79
Background	SEP	04	U	8.5	2.14
Background	APR	11B	U	10	2.30
Background	SEP	20	U	6	1.79
Delineation	Apr	KBA-11-10C	UJ	1.0	0.00
Delineation	Apr	KBA-11-17C	UJ	1.0	0.00
Delineation	Apr	KBA-11-19B	UJ	1.0	0.00
Delineation	Apr	KBA-11-21	UJ	1.0	0.00
Delineation	Apr	KBA-11-11C	U	1.0	0.00
Delineation	Apr	KBA-11-13B	U	1.0	0.00
Delineation	Apr	KBA-11-14	U	1.0	0.00
Delineation	Apr	KBA-11-3C	U	1.0	0.00
Delineation	Apr	KBA-11-8A	U	1.0	0.00
Delineation	Apr	KBA-11-8C	U	1.0	0.00
Delineation	Apr	KBA-11-9	U	1.0	0.00
Delineation	Jan	KBA-11-10C	UJ	1.3	0.26
Delineation	Jan	KBA-11-13B	UJ	1.3	0.26
Delineation	Jan	KBA-11-14	UJ	1.3	0.26
Delineation	Jan	KBA-11-15	UJ	1.3	0.26
Delineation	Jan	KBA-11-17C	UJ	1.3	0.26
Delineation	Jan	KBA-11-19B	UJ	1.3	0.26
Delineation	Jan	KBA-11-21	UJ	1.3	0.26
Delineation	Jan	KBA-11-3C	UJ	1.3	0.26
Delineation	Jan	KBA-11-8A	UJ	1.3	0.26
Delineation	Jan	KBA-11-9	UJ	1.3	0.26
Delineation	Jan	KBA-11-11C	U	1.4	0.34
Delineation	Jan	KBA-11-8C	U	1.4	0.34
Delineation	Apr	KBA-11-15	J	1.8	0.59
Delineation	Sep	KBA-11-10C	U	6.0	1.79
Delineation	Sep	KBA-11-11C	U	6.0	1.79
Delineation	Sep	KBA-11-14	U	6.0	1.79
Delineation	Sep	KBA-11-15	U	6.0	1.79
Delineation	Sep	KBA-11-21	U	6.0	1.79
Delineation	Sep	KBA-11-8A	U	6.0	1.79
Delineation	Sep	KBA-11-8C	U	6.0	1.79
Delineation	Sep	KBA-11-9	U	6.0	1.79
Delineation	Sep	KBA-11-17C	U	7.0	1.95
Delineation	Sep	KBA-11-19B	U	8.5	2.14
Delineation	Sep	KBA-11-13B	U	9.4	2.24
Delineation	Sep	KBA-11-3C	U	9.8	2.28

Percent Non-Detected: 98%

Background Log-Normal 95th Percentile Value = 2.15
Background Log-Normal Mean Value = 0.77

KINGS BAY - SITE 11

Thallium Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

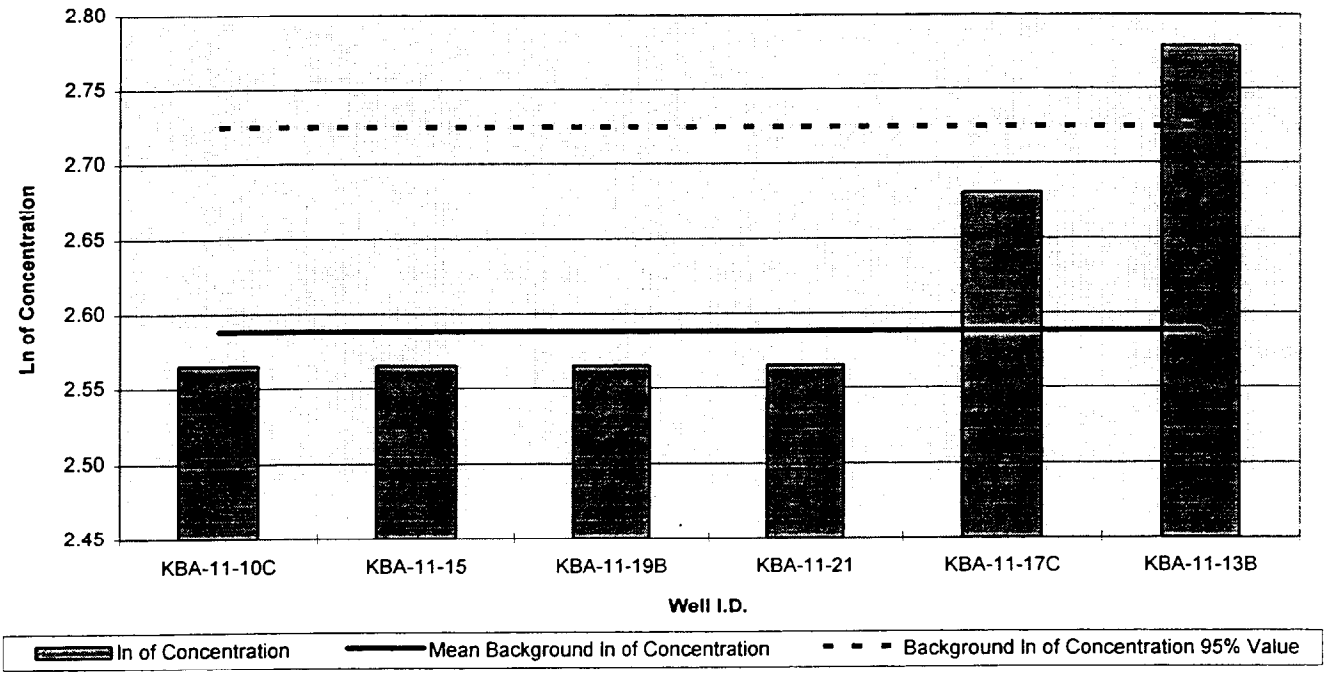
Tin Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Test for Proportions
Background	JAN	11B	U	12.4	2.52	P= 0.17
Background	APR	04	U	13	2.56	n= 12
Background	APR	07	U	13	2.56	nP= 2.00
Background	APR	11A	U	13	2.56	n(1-P)= 10.00
Background	APR	12	U	13	2.56	
Background	APR	20	U	13	2.56	Cannot perform test.
Delineation	Apr	KBA-11-10C	U	13.0	2.56	nP<5
Delineation	Apr	KBA-11-15	U	13.0	2.56	
Delineation	Apr	KBA-11-19B	U	13.0	2.56	
Delineation	Apr	KBA-11-21	U	13.0	2.56	
Delineation	Apr	KBA-11-17C	J	14.6	2.68	
Delineation	Apr	KBA-11-13B	J	16.1	2.78	

Percent Non-Detected: 83%

Background Log-Normal 95th Percentile Value = 2.72

Background Log-Normal Mean Value =2.59



KINGS BAY - SITE 11

Vanadium Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (μg/L)	ln of Concentration	Test for Proportions
Background	JAN	11A	U	1.5	0.41	P= 0.38
Background	JAN	11B	J	1.9	0.64	n= 56
Background	JAN	01	U	2.3	0.83	nP= 21.13
Background	JAN	20	U	2.3	0.83	n(1-P)= 34.87
Background	JAN	12	J	3.05	1.12	P_{cw}= 0.36
Background	JAN	04	J	3.1	1.13	P_{bg}= 0.40
Background	APR	04	UJ	5	1.61	S_D= 0.14
Background	APR	07	UJ	5	1.61	z= 0.29
Background	APR	20	UJ	5	1.61	
Background	APR	01	U	5	1.61	$z_{0.5}$= 1.645
Background	APR	11A	U	5	1.61	
Background	JAN	07	J	5.6	1.72	Do not reject H_o.
Background	APR	12	J	6.2	1.82	
Background	SEP	11A	U	7	1.95	
Background	SEP	11B	U	7	1.95	
Background	SEP	12	U	7	1.95	
Background	SEP	20	U	7	1.95	
Background	SEP	07	J	12	2.48	
Background	SEP	01	J	13.7	2.62	
Background	SEP	04	J	16	2.77	
Delineation	Sep	KBA-11-10C	U	1.0	0.00	
Delineation	Jan	KBA-11-10C	U	1.5	0.41	
Delineation	Jan	KBA-11-11C	J	1.6	0.47	
Delineation	Jan	KBA-11-8C	J	2.1	0.74	
Delineation	Jan	KBA-11-15	U	2.3	0.83	
Delineation	Jan	KBA-11-17C	U	2.3	0.83	
Delineation	Jan	KBA-11-19B	U	2.3	0.83	
Delineation	Jan	KBA-11-3C	U	2.3	0.83	
Delineation	Jan	KBA-11-8A	U	2.3	0.83	
Delineation	Jan	KBA-11-13B	J	2.8	1.03	
Delineation	Apr	KBA-11-10C	UJ	5.0	1.61	
Delineation	Apr	KBA-11-17C	UJ	5.0	1.61	
Delineation	Apr	KBA-11-19B	UJ	5.0	1.61	
Delineation	Apr	KBA-11-21	UJ	5.0	1.61	
Delineation	Apr	KBA-11-11C	U	5.0	1.61	
Delineation	Apr	KBA-11-13B	U	5.0	1.61	
Delineation	Apr	KBA-11-3C	U	5.0	1.61	
Delineation	Apr	KBA-11-8C	J	6.6	1.89	
Delineation	Sep	KBA-11-11C	U	7.0	1.95	
Delineation	Sep	KBA-11-13B	U	7.0	1.95	
Delineation	Sep	KBA-11-14	U	7.0	1.95	
Delineation	Sep	KBA-11-15	U	7.0	1.95	
Delineation	Sep	KBA-11-17C	U	7.0	1.95	
Delineation	Sep	KBA-11-19B	U	7.0	1.95	
Delineation	Sep	KBA-11-21	U	7.0	1.95	
Delineation	Sep	KBA-11-3C	U	7.0	1.95	
Delineation	Sep	KBA-11-8C	U	7.0	1.95	
Delineation	Jan	KBA-11-21	J	7.4	2.00	
Delineation	Jan	KBA-11-14	J	9.8	2.28	
Delineation	Sep	KBA-11-8A	J	16.1	2.78	
Delineation	Apr	KBA-11-14	J	16.8	2.82	
Delineation	Jan	KBA-11-9	J	17.4	2.86	
Delineation	Apr	KBA-11-8A	J	19.1	2.95	
Delineation	Apr	KBA-11-15	J	19.6	2.98	
Delineation	Apr	KBA-11-9	J	25.3	3.23	
Delineation	Sep	KBA-11-9		135	4.91	

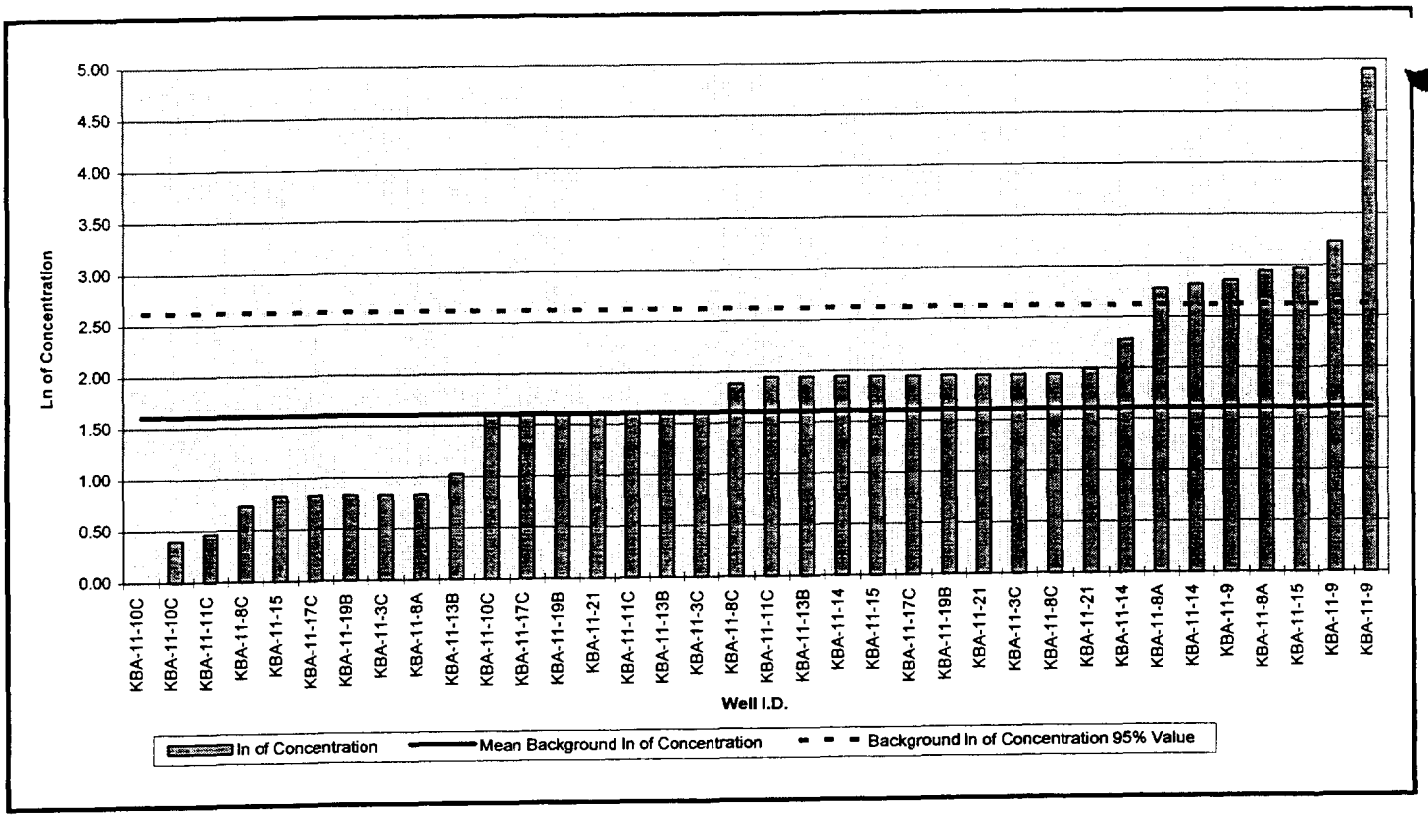
Percent Non-Detected: 62%

Background Log-Normal 95th Percentile Value = 2.62

Background Log-Normal Mean Value = 1.61

KINGS BAY - SITE 11

Vanadium Groundwater Concentrations for Delineation Wells vs. Background



KINGS BAY - SITE 11

Zinc Groundwater Concentrations for Delineation Wells vs. Background

Sample Type	Sample Event	Well I.D. (KBA-11-)	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	JAN	04	U	4.3	1.46	0.77	1	R_{cs}= 1075
Background	JAN	01	J	3.8	1.34	1.34	2	n_{cs}= 36
Background	APR	11A	U	25.5	3.24	2.55	11	n_{bg}= 21
Background	JAN	12	J	13.5	2.60	2.60	12	U_{cs}= 347
Background	JAN	11B	U	28.4	3.35	2.65	13	z= -0.51
Background	SEP	11A	J	14.45	2.67	2.67	14	$z_{0.05}$= -1.645
Background	JAN	20	J	14.8	2.69	2.69	15	
Background	APR	01	U	34.2	3.53	2.84	19	Do not reject H_o.
Background	APR	07	U	34.6	3.54	2.85	20	
Background	APR	12	U	35.2	3.56	2.87	21	
Background	APR	20	U	38.4	3.65	2.95	24	
Background	APR	04	U	64.7	4.17	3.48	34	
Background	JAN	07		34	3.53	3.53	36	
Background	SEP	04		36	3.58	3.58	37	
Background	SEP	01		39	3.66	3.66	38	
Background	SEP	07		41.9	3.74	3.74	40	
Background	SEP	12		45.1	3.81	3.81	43	
Background	JAN	11A	J	47.55	3.86	3.86	44	
Background	APR	11B	J	59	4.08	4.08	48	
Background	SEP	20		73	4.29	4.29	50	
Background	SEP	11B		88	4.48	4.48	56	
Delineation	Jan	KBA-11-8C	UJ	11.0	2.40	1.70	3	
Delineation	Apr	KBA-11-3C	U	11.4	2.43	1.74	4	
Delineation	Jan	KBA-11-8A	J	5.9	1.77	1.77	5	
Delineation	Jan	KBA-11-19B	J	7.0	1.95	1.95	6	
Delineation	Jan	KBA-11-11C	UJ	16.4	2.80	2.10	7	
Delineation	Sep	KBA-11-13B	J	9.1	2.21	2.21	8.5	
Delineation	Apr	KBA-11-9	U	18.3	2.91	2.21	8.5	
Delineation	Jan	KBA-11-15	J	9.4	2.24	2.24	10	
Delineation	Apr	KBA-11-8A	U	30.5	3.42	2.72	16	
Delineation	Jan	KBA-11-9	J	16.0	2.77	2.77	17	
Delineation	Apr	KBA-11-11C	U	33.6	3.51	2.82	18	
Delineation	Jan	KBA-11-3C	J	18.0	2.89	2.89	22	
Delineation	Apr	KBA-11-15	U	36.8	3.61	2.91	23	
Delineation	Apr	KBA-11-19B	U	42.3	3.74	3.05	25	
Delineation	Apr	KBA-11-10C	U	42.5	3.75	3.06	26	
Delineation	Apr	KBA-11-21	U	43.8	3.78	3.09	27	
Delineation	Jan	KBA-11-13B		23.9	3.17	3.17	28	
Delineation	Apr	KBA-11-17C	U	50.5	3.92	3.23	29	
Delineation	Sep	KBA-11-8A		28.8	3.36	3.36	30	
Delineation	Jan	KBA-11-17C		29.6	3.39	3.39	31	
Delineation	Sep	KBA-11-14		31.2	3.44	3.44	32	
Delineation	Jan	KBA-11-21		31.7	3.46	3.46	33	
Delineation	Sep	KBA-11-3C		33.5	3.51	3.51	35	
Delineation	Sep	KBA-11-11C		41.4	3.72	3.72	39	
Delineation	Sep	KBA-11-10C		43.1	3.76	3.76	41	
Delineation	Jan	KBA-11-10C		44.8	3.80	3.80	42	
Delineation	Sep	KBA-11-8C		53.3	3.98	3.98	45	
Delineation	Sep	KBA-11-9		55.4	4.01	4.01	46	
Delineation	Apr	KBA-11-14		56.8	4.04	4.04	47	
Delineation	Apr	KBA-11-8C		68.1	4.22	4.22	49	
Delineation	Jan	KBA-11-14		75.0	4.32	4.32	51	
Delineation	Sep	KBA-11-21		77.4	4.35	4.35	52	
Delineation	Sep	KBA-11-17C		79.2	4.37	4.37	53	
Delineation	Sep	KBA-11-15		79.6	4.38	4.38	54	
Delineation	Apr	KBA-11-13B	J	83.7	4.43	4.43	55	
Delineation	Sep	KBA-11-19B		94.9	4.55	4.55	57	

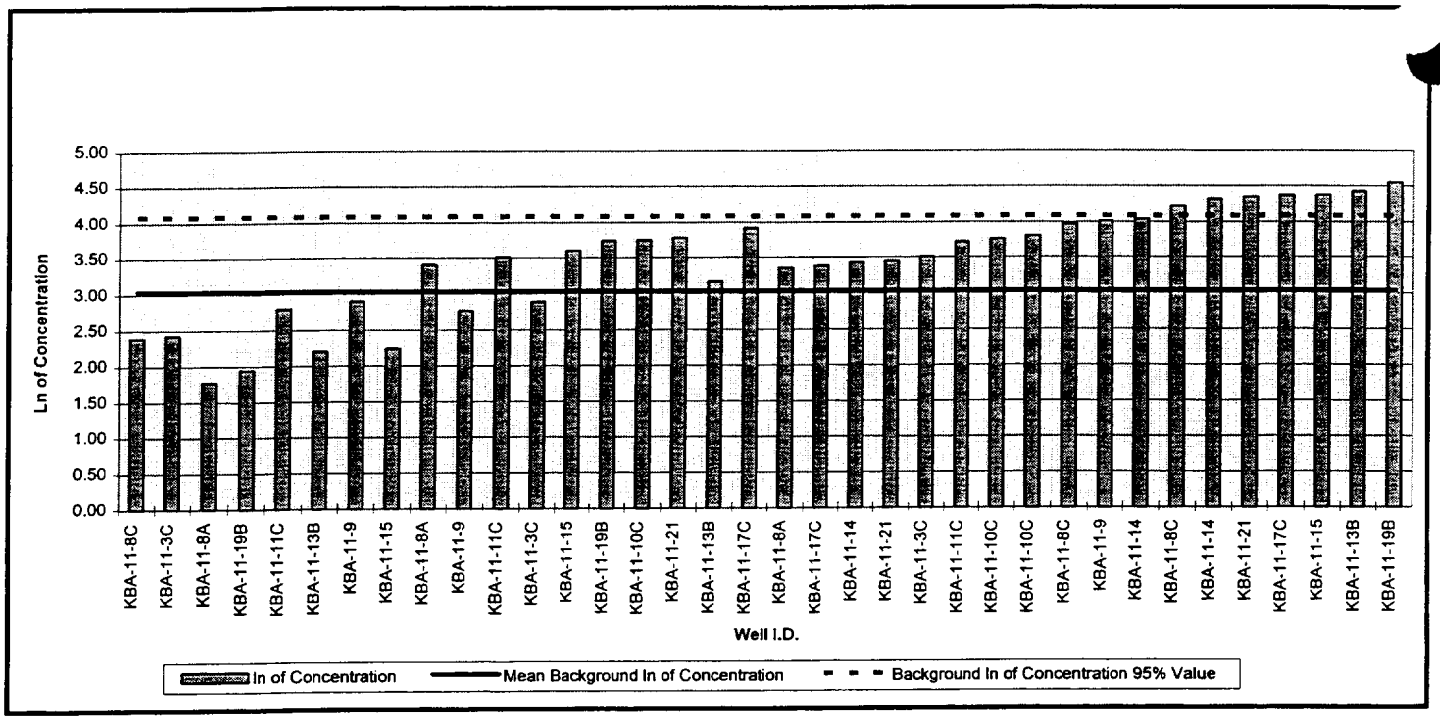
Percent Non-Detected: 32%

Background Log-Normal 95th Percentile Value = 4.09

Background Log-Normal Mean Value =2.65

Half Detection Limit Used

KINGS BAY - SITE 11
Zinc Groundwater Concentrations for Delineation Wells vs. Background



Subsurface Soil Versus Background

KINGS BAY - SITE 11

Aluminum Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration
Background	Sep	11SB20603		1600	7.38
Background	Sep	11SB20503		1700	7.44
Background	Sep	11SB20203		1890	7.54
Background	Sep	11SB20703		2110	7.65
Background	Sep	11SB20103		2470	7.81
Background	Sep	11SB20903		2770	7.93
Background	Sep	11SB20403		3190	8.07
Background	Sep	11SB20303		3370	8.12
Background	Sep	11SB21003		3850	8.26
Background	Sep	11SB20803		5040	8.53
Characterization	23-Oct-93	SB10175		896	6.80
Characterization	18-Nov-93	SB10840		953	6.86
Characterization	03-Nov-93	SBPS925		1310	7.18
Characterization	20-Nov-93	SB10440		1330	7.19
Characterization	18-Nov-93	SB11220		1550	7.35
Characterization	20-Nov-93	SB10425		1805	7.50
Characterization	03-Nov-93	SBPS915		1690	7.43
Characterization	19-Nov-93	SBPS1015		1880	7.54
Characterization	23-Oct-93	SB10145		2030	7.62
Characterization	17-Nov-93	SB11512	J	2070	7.64
Characterization	19-Nov-93	SBPS1025		2840	7.95
Characterization	06-Nov-93	SB11412		3030	8.02
Characterization	23-Oct-93	SB10125		3495	8.16

Bartlett's test

$f_{bg}=n_{bg}-1$ = 9
$f_{cs}=n_{cs}-1$ = 12
BG variance = 0.141
Char. variance = 0.172
f = 21
Pooled Var. = 0.1586
Chi Square Statistic = 0.100
degrees freedom = 1
Critical Value = 3.841
Do not reject H_o.

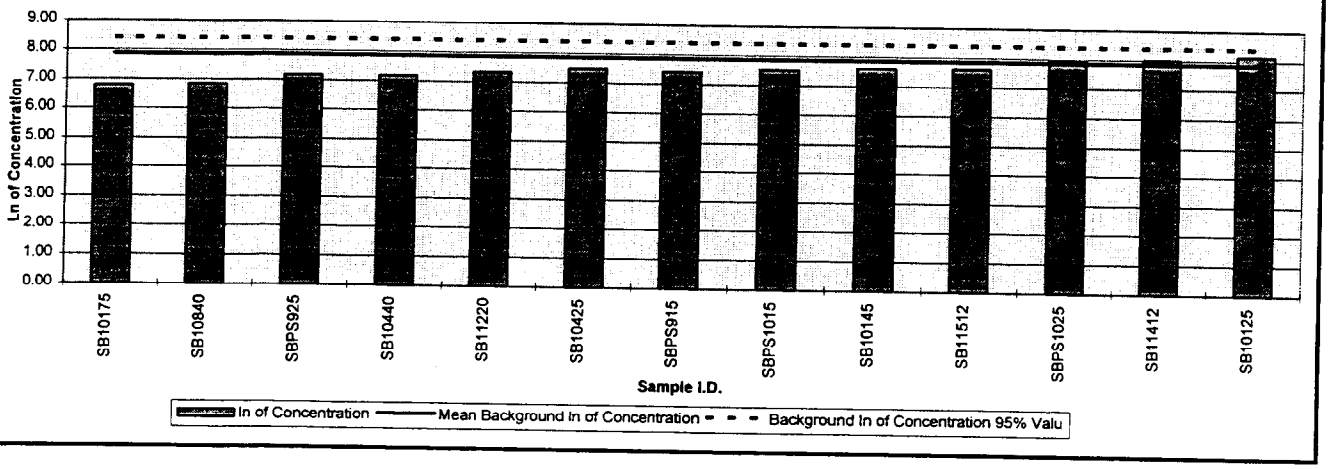
t test (equal var.)

BG Mean = 7.87
CS Mean = 7.48
BG variance = 0.141
CS variance = 0.172
t statistic = -2.3514
d.f. = 21.000
$t_{0.05}$ = 1.721

Do not reject H_o.

Percent Non-Detected: 0%

Background Log-normal 95th Percentile Value = 8.40
Background Log-normal Mean Value = 7.13

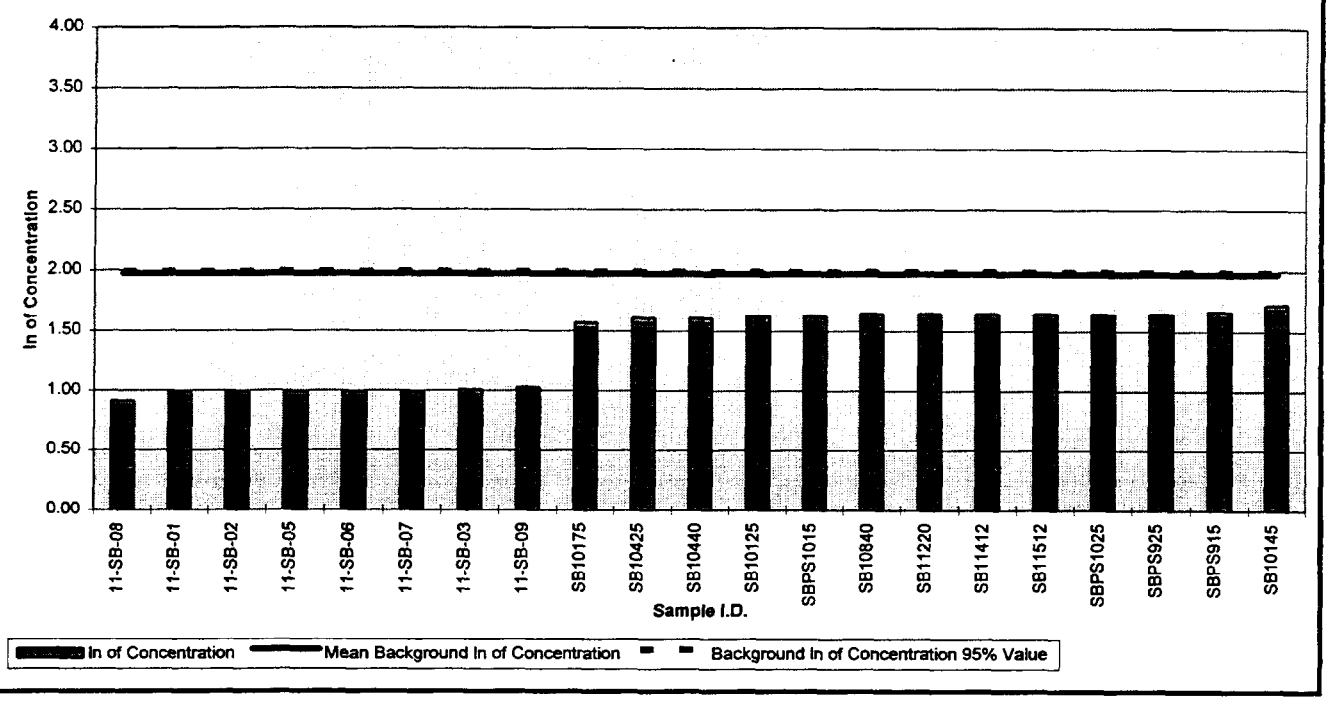


KINGS BAY - SITE 11
Antimony Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration
Background	12-Sep-95	11SB20403	U	6.8	1.92
Background	12-Sep-95	11SB20203	U	7.2	1.97
Background	12-Sep-95	11SB20503	U	7.2	1.97
Background	12-Sep-95	11SB20603	U	7.2	1.97
Background	12-Sep-95	11SB20703	U	7.2	1.97
Background	12-Sep-95	11SB20803	U	7.2	1.97
Background	12-Sep-95	11SB21003	U	7.2	1.97
Background	12-Sep-95	11SB20103	U	7.3	1.99
Background	12-Sep-95	11SB20303	U	7.3	1.99
Background	12-Sep-95	11SB20903	U	7.3	1.99
Characterization	09-Feb-92	11-SB-08	U	2.5	0.92
Characterization	09-Feb-92	11-SB-01	U	2.7	0.99
Characterization	10-Feb-92	11-SB-02	U	2.7	0.99
Characterization	10-Feb-92	11-SB-05	U	2.7	0.99
Characterization	10-Feb-92	11-SB-06	U	2.7	0.99
Characterization	10-Feb-92	11-SB-07	U	2.7	0.99
Characterization	10-Feb-92	11-SB-03	U	2.75	1.01
Characterization	09-Feb-92	11-SB-09	U	2.8	1.03
Characterization	23-Oct-93	SB10175	U	4.8	1.57
Characterization	20-Nov-93	SB10425	U	5	1.61
Characterization	20-Nov-93	SB10440	U	5	1.61
Characterization	23-Oct-93	SB10125	U	5.1	1.63
Characterization	19-Nov-93	SBPS1015	U	5.1	1.63
Characterization	18-Nov-93	SB10840	U	5.2	1.65
Characterization	18-Nov-93	SB11220	U	5.2	1.65
Characterization	06-Nov-93	SB11412	U	5.2	1.65
Characterization	17-Nov-93	SB11512	U	5.2	1.65
Characterization	19-Nov-93	SBPS1025	U	5.2	1.65
Characterization	03-Nov-93	SBPS925	U	5.2	1.65
Characterization	03-Nov-93	SBPS915	U	5.3	1.67
Characterization	23-Oct-93	SB10145	U	5.6	1.72

Percent Non-Detected: 100%

Background Log-normal 95th Percentile Value = 1.99
Background Log-normal Mean Value = 1.97



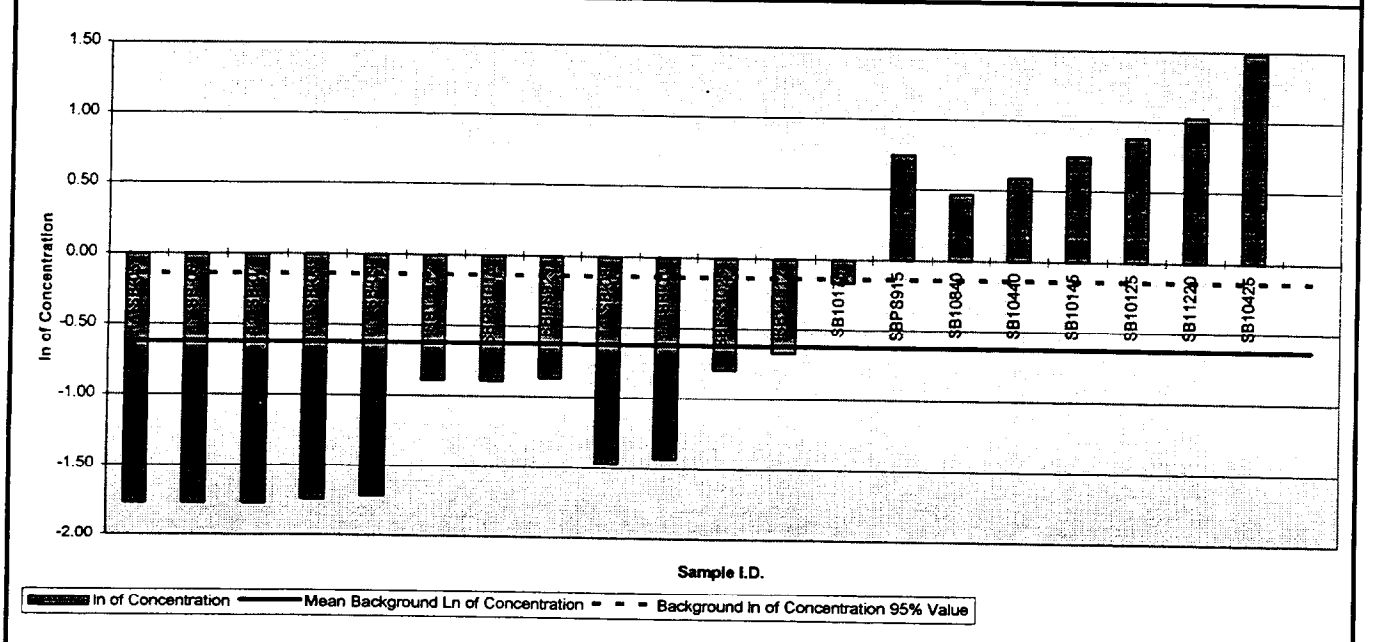
KINGS BAY - SITE 11

Arsenic Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	12-Sep-95	11SB20603	U	0.36	-1.02	-1.71	7	R_{cs}= 328.5
Background	12-Sep-95	11SB20503	U	0.37	-0.99	-1.69	8	n_{cs}= 21
Background	12-Sep-95	11SB20403	J	0.36	-1.02	-1.02	14	n_{bg}= 10
Background	12-Sep-95	11SB20903	J	0.4	-0.92	-0.92	15	U_{cs}= 112.5
Background	12-Sep-95	11SB20103	J	0.48	-0.73	-0.73	17	z= 0.3169
Background	12-Sep-95	11SB20203	J	0.57	-0.56	-0.56	19	$z_{0.05}$= -1.645
Background	12-Sep-95	11SB20803	J	0.64	-0.45	-0.45	20	
Background	12-Sep-95	11SB20703	J	0.77	-0.26	-0.26	21	Do not reject H_o.
Background	12-Sep-95	11SB21003	J	0.84	-0.17	-0.17	22.5	
Background	12-Sep-95	11SB20303	J	0.89	-0.12	-0.12	24	
Characterization	10-Feb-92	11-SB-02	U	0.17	-1.77	-2.47	2.5	
Characterization	10-Feb-92	11-SB-05	U	0.17	-1.77	-2.47	2.5	
Characterization	10-Feb-92	11-SB-06	U	0.17	-1.77	-2.47	2.5	
Characterization	10-Feb-92	11-SB-07	U	0.17	-1.77	-2.47	2.5	
Characterization	10-Feb-92	11-SB-03	U	0.175	-1.74	-2.44	5	
Characterization	09-Feb-92	11-SB-09	U	0.18	-1.71	-2.41	6	
Characterization	06-Nov-93	SB11412	U	0.41	-0.89	-1.58	9.5	
Characterization	19-Nov-93	SBPS1015	U	0.41	-0.89	-1.58	9.5	
Characterization	03-Nov-93	SBPS925	U	0.42	-0.87	-1.56	11	
Characterization	09-Feb-92	11-SB-08	J	0.23	-1.47	-1.47	12	
Characterization	09-Feb-92	11-SB-01	J	0.24	-1.43	-1.43	13	
Characterization	19-Nov-93	SBPS1025	J	0.45	-0.80	-0.80	16	
Characterization	17-Nov-93	SB11512	J	0.51	-0.67	-0.67	18	
Characterization	23-Oct-93	SB10175	J	0.84	-0.17	-0.17	22.5	
Characterization	03-Nov-93	SBPS915	U	2.1	0.74	0.05	25	
Characterization	18-Nov-93	SB10840	J	1.6	0.47	0.47	26	
Characterization	20-Nov-93	SB10440	J	1.8	0.59	0.59	27	
Characterization	23-Oct-93	SB10145	J	2.1	0.74	0.74	28	
Characterization	23-Oct-93	SB10125	J	2.4	0.88	0.88	29	
Characterization	18-Nov-93	SB11220		2.8	1.03	1.03	30	
Characterization	20-Nov-93	SB10425		4.4	1.48	1.48	31	

Percent Non-Detected: 39%

Background Log-Normal 95th Percentile Value = -0.14
Background Log-Normal Mean Value =-0.62



KINGS BAY - SITE 11
Barium Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Using Half of Detection Limit
Background	12-Sep-95	11SB20303	J	2.5	0.92	0.92
Background	12-Sep-95	11SB20403	J	2.7	0.99	0.99
Background	12-Sep-95	11SB20103	J	3.05	1.12	1.12
Background	12-Sep-95	11SB20503	J	3.1	1.13	1.13
Background	12-Sep-95	11SB20703	J	3.3	1.19	1.19
Background	12-Sep-95	11SB20203	J	3.4	1.22	1.22
Background	12-Sep-95	11SB20603	J	3.4	1.22	1.22
Background	12-Sep-95	11SB20903	J	3.7	1.31	1.31
Background	12-Sep-95	11SB20803	J	3.9	1.36	1.36
Background	12-Sep-95	11SB21003	J	4	1.39	1.39
Characterization	09-Feb-92	11-SB-09	U	0.78	-0.25	-0.94
Characterization	09-Feb-92	11-SB-01	J	1.1	0.10	0.10
Characterization	10-Feb-92	11-SB-05	J	1.5	0.41	0.41
Characterization	10-Feb-92	11-SB-06	J	1.8	0.59	0.59
Characterization	10-Feb-92	11-SB-07	J	2.4	0.88	0.88
Characterization	17-Nov-93	SB11512	J	2.5	0.92	0.92
Characterization	03-Nov-93	SBPS925	J	2.8	1.03	1.03
Characterization	10-Feb-92	11-SB-03	J	2.85	1.05	1.05
Characterization	09-Feb-92	11-SB-08	J	3.1	1.13	1.13
Characterization	23-Oct-93	SB10175	J	3.5	1.25	1.25
Characterization	19-Nov-93	SBPS1015	J	3.6	1.28	1.28
Characterization	06-Nov-93	SB11412	J	3.9	1.36	1.36
Characterization	18-Nov-93	SB10840	J	4.2	1.44	1.44
Characterization	03-Nov-93	SBPS915	J	4.2	1.44	1.44
Characterization	10-Feb-92	11-SB-02	J	4.5	1.50	1.50
Characterization	20-Nov-93	SB10440	J	6	1.79	1.79
Characterization	18-Nov-93	SB11220	J	7.5	2.01	2.01
Characterization	23-Oct-93	SB10145	J	9.1	2.21	2.21
Characterization	20-Nov-93	SB10425	J	9.4	2.24	2.24
Characterization	23-Oct-93	SB10125	J	14.75	2.69	2.69
Characterization	19-Nov-93	SBPS1025	J	17.1	2.84	2.84

Bartlett's test

$f_{bg}=n_{bg}-1$ = 9
$f_{cs}=n_{cs}-1$ = 20
BG variance = 0.023
Char. variance = 0.756
f = 29
Pooled Var. = 0.5288
Chi Square Statistic = 21.077
degrees freedom = 1
Critical Value = 3.841
Reject H_o.

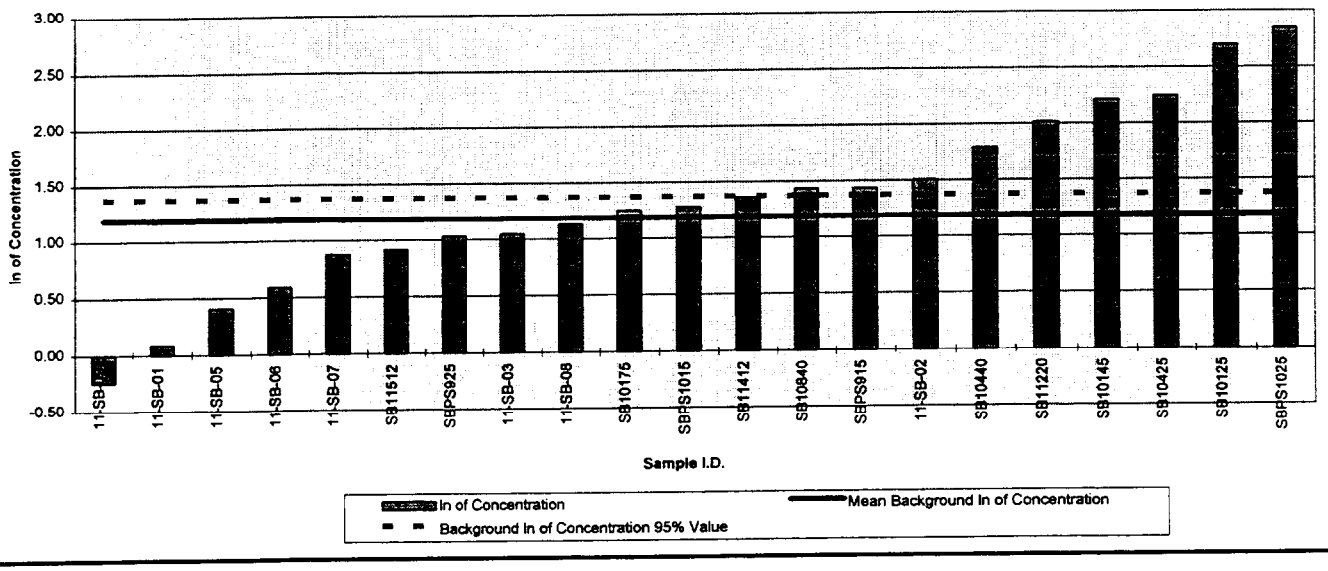
t test (unequal var.)

BG Mean = 1.19
CS Mean = 1.30
BG variance = 0.023
CS variance = 0.756
t statistic = 0.562
d.f. = 22.427
$t_{0.05}$ = 1.716

Do not reject H_o.

Percent Non-Detected: 3%

Background Log-Normal 95th Percentile Value = 3.45
Background Log-Normal Mean Value = 2.80



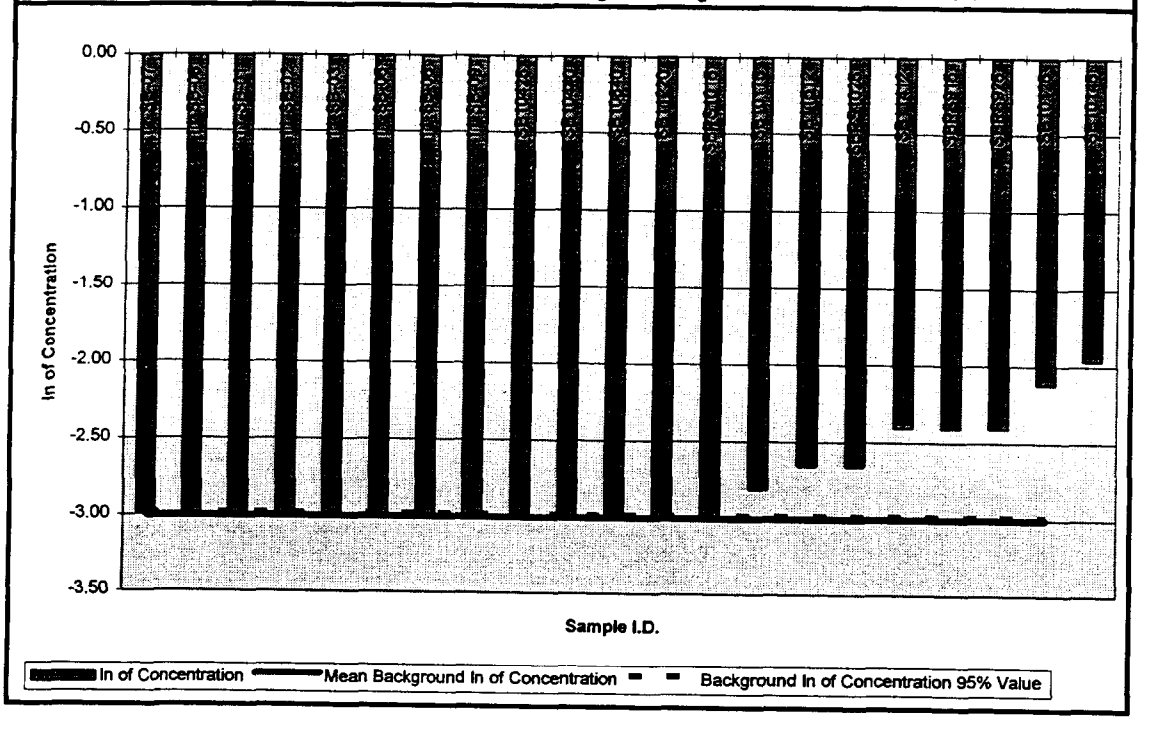
KINGS BAY - SITE 11

Beryllium Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Test for Proportions
Background	12-Sep-9	11SB20403	U	0.047	-3.06	P= 0.23
Background	12-Sep-9	11SB20603	U	0.049	-3.02	n= 31
Background	12-Sep-9	11SB20703	U	0.05	-3.00	nP= 7.00
Background	12-Sep-9	11SB20103	U	0.05	-3.00	n(1-P)= 24.00
Background	12-Sep-9	11SB20203	U	0.05	-3.00	P_{cw}= 0.33
Background	12-Sep-9	11SB20303	U	0.05	-3.00	P_{bg}= 0.00
Background	12-Sep-9	11SB20503	U	0.05	-3.00	S_D= 0.16
Background	12-Sep-9	11SB20803	U	0.05	-3.00	z= 2.07
Background	12-Sep-9	11SB21003	U	0.05	-3.00	
Background	12-Sep-9	11SB20903	U	0.051	-2.98	$z_{0.05}$= 1.645
Characterization	10-Feb-9	11-SB-07	J	0.05	-3.00	Reject H_o.
Characterization	09-Feb-9	11-SB-08	J	0.05	-3.00	
Characterization	09-Feb-9	11-SB-01	U	0.05	-3.00	
Characterization	10-Feb-9	11-SB-02	U	0.05	-3.00	
Characterization	10-Feb-9	11-SB-03	U	0.05	-3.00	
Characterization	10-Feb-9	11-SB-05	U	0.05	-3.00	
Characterization	10-Feb-9	11-SB-06	U	0.05	-3.00	
Characterization	09-Feb-9	11-SB-09	U	0.05	-3.00	
Characterization	20-Nov-9	SB10425	U	0.05	-3.00	
Characterization	20-Nov-9	SB10440	U	0.05	-3.00	
Characterization	18-Nov-9	SB10840	U	0.05	-3.00	
Characterization	18-Nov-9	SB11220	U	0.05	-3.00	
Characterization	19-Nov-9	SBPS1015	U	0.05	-3.00	
Characterization	23-Oct-93	SB10175	J	0.06	-2.81	
Characterization	17-Nov-9	SB11512	J	0.07	-2.66	
Characterization	19-Nov-9	SBPS1025	J	0.07	-2.66	
Characterization	06-Nov-9	SB11412	U	0.09	-2.41	
Characterization	03-Nov-9	SBPS915	U	0.09	-2.41	
Characterization	03-Nov-9	SBPS925	U	0.09	-2.41	
Characterization	23-Oct-93	SB10125	J	0.12	-2.12	
Characterization	23-Oct-93	SB10145	J	0.14	-1.97	

Percent Non-Detected: 77%

Background Log-Normal 95th Percentile Value = -2.98
Background Log-Normal Mean Value = -3.00



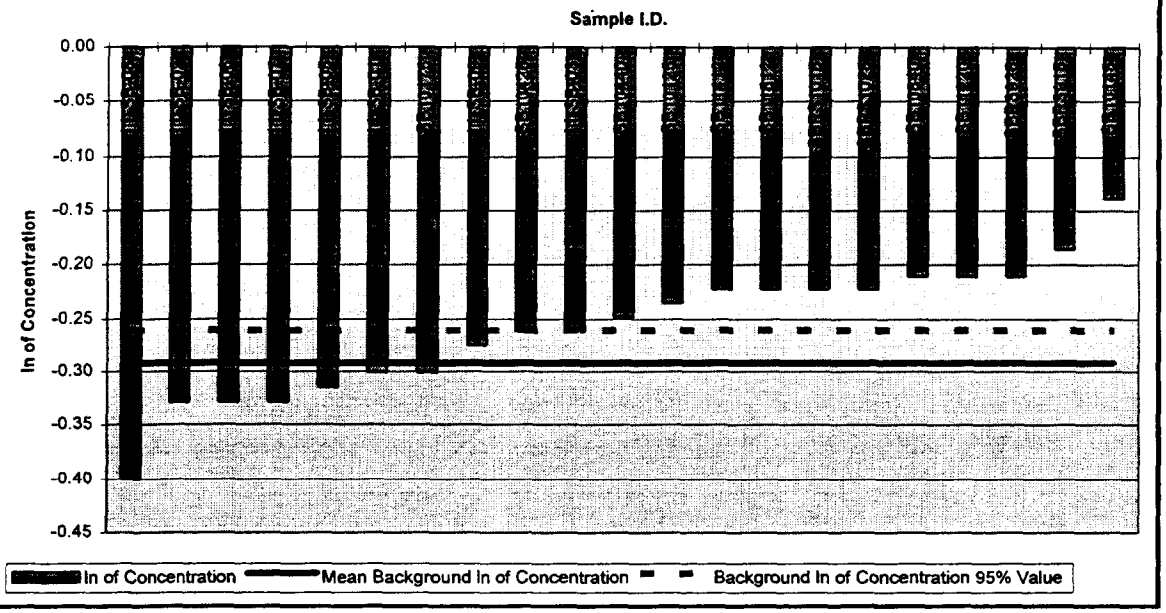
KINGS BAY - SITE 11

Cadmium Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Test for Proportions
Background	12-Sep-95	11SB20403	U	0.7	-0.36	P= 0.10
Background	12-Sep-95	11SB20203	U	0.74	-0.30	n= 31
Background	12-Sep-95	11SB20603	U	0.74	-0.30	nP= 3.00
Background	12-Sep-95	11SB20703	U	0.74	-0.30	
Background	12-Sep-95	11SB20503	J	0.75	-0.29	Cannot perform test.
Background	12-Sep-95	11SB20103	U	0.75	-0.29	nP < 5
Background	12-Sep-95	11SB20803	U	0.75	-0.29	
Background	12-Sep-95	11SB20303	U	0.76	-0.27	
Background	12-Sep-95	11SB20903	U	0.76	-0.27	
Background	12-Sep-95	11SB21003	J	0.78	-0.25	
Characterization	09-Feb-92	11-SB-08	U	0.67	-0.40	
Characterization	10-Feb-92	11-SB-02	U	0.72	-0.33	
Characterization	10-Feb-92	11-SB-06	U	0.72	-0.33	
Characterization	10-Feb-92	11-SB-07	U	0.72	-0.33	
Characterization	10-Feb-92	11-SB-05	U	0.73	-0.31	
Characterization	09-Feb-92	11-SB-01	U	0.74	-0.30	
Characterization	23-Oct-93	SB10175	U	0.74	-0.30	
Characterization	09-Feb-92	11-SB-09	U	0.76	-0.27	
Characterization	20-Nov-93	SB10425	U	0.77	-0.26	
Characterization	10-Feb-92	11-SB-03	J	0.77	-0.26	
Characterization	20-Nov-93	SB10440	U	0.78	-0.25	
Characterization	23-Oct-93	SB10125	U	0.79	-0.24	
Characterization	06-Nov-93	SB11412	U	0.8	-0.22	
Characterization	17-Nov-93	SB11512	U	0.8	-0.22	
Characterization	19-Nov-93	SBPS1015	U	0.8	-0.22	
Characterization	19-Nov-93	SBPS1025	U	0.8	-0.22	
Characterization	18-Nov-93	SB10840	U	0.81	-0.21	
Characterization	18-Nov-93	SB11220	U	0.81	-0.21	
Characterization	03-Nov-93	SBPS925	U	0.81	-0.21	
Characterization	03-Nov-93	SBPS915	U	0.83	-0.19	
Characterization	23-Oct-93	SB10145	U	0.87	-0.14	

Percent Non-Detected: 90%

Background Log-Normal 95th Percentile Value = -0.26
Background Log-Normal Mean Value = -0.29

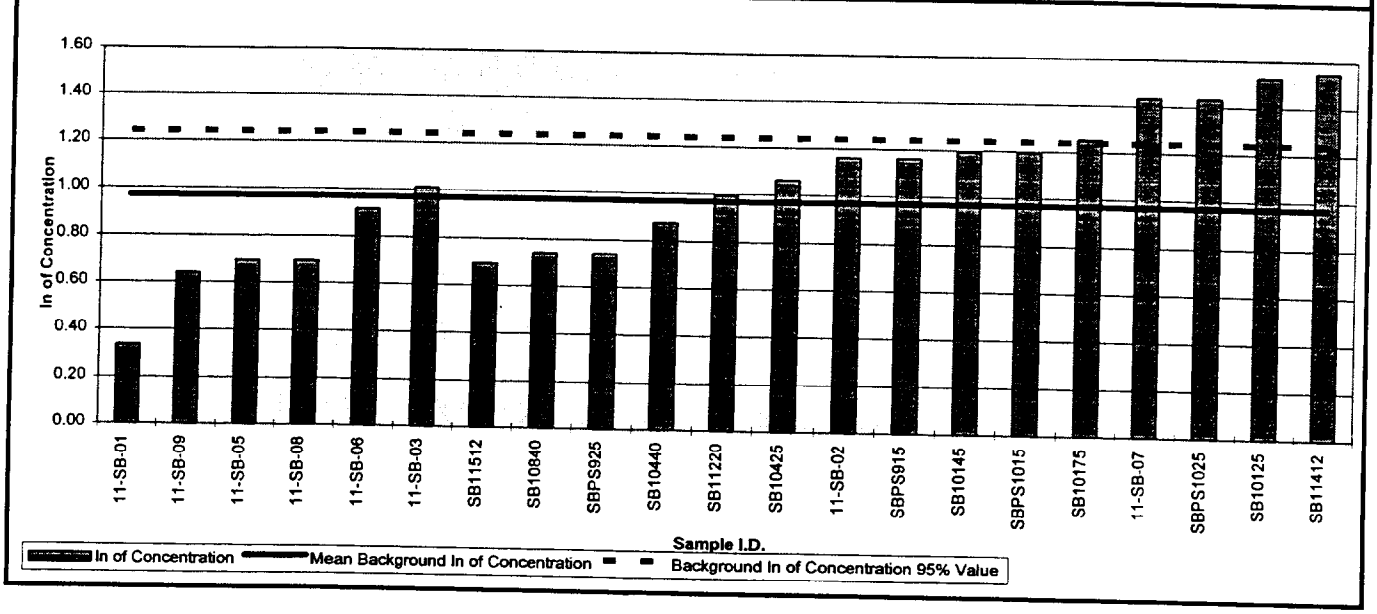


KINGS BAY - SITE 11
Chromium Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Using Half of Detection Limit	Rank	U test
Background	12-Sep-95	11SB20203	J	2	0.69	0.69	8	R_{cs}= 329.5
Background	12-Sep-95	11SB20603		2	0.69	0.69	8	n_{cs}= 21
Background	12-Sep-95	11SB20503	J	2.2	0.79	0.79	12	n_{bg}= 10
Background	12-Sep-95	11SB20403	J	2.3	0.83	0.83	13	U_{cs}= 111.5
Background	12-Sep-95	11SB20703		2.5	0.92	0.92	15	z= 0.2747
Background	12-Sep-95	11SB20103	J	2.65	0.97	0.97	16	$z_{0.05}$= -1.645
Background	12-Sep-95	11SB20303		3	1.10	1.10	19	
Background	12-Sep-95	11SB20903		3.4	1.22	1.22	24.5	Do not reject H_o.
Background	12-Sep-95	11SB21003		3.4	1.22	1.22	24.5	
Background	12-Sep-95	11SB20803		3.5	1.25	1.25	26.5	
Characterization	09-Feb-92	11-SB-01	U	1.4	0.34	-0.36	1	
Characterization	09-Feb-92	11-SB-09	U	1.9	0.64	-0.05	2	
Characterization	10-Feb-92	11-SB-05	U	2	0.69	0.00	3.5	
Characterization	09-Feb-92	11-SB-08	U	2	0.69	0.00	3.5	
Characterization	10-Feb-92	11-SB-06	U	2.5	0.92	0.22	5	
Characterization	10-Feb-92	11-SB-03	U	2.75	1.01	0.32	6	
Characterization	17-Nov-93	SB11512	J	2	0.69	0.69	8	
Characterization	18-Nov-93	SB10840	J	2.1	0.74	0.74	10.5	
Characterization	03-Nov-93	SBPS925	J	2.1	0.74	0.74	10.5	
Characterization	20-Nov-93	SB10440		2.4	0.88	0.88	14	
Characterization	18-Nov-93	SB11220		2.7	0.99	0.99	17	
Characterization	20-Nov-93	SB10425		2.9	1.06	1.06	18	
Characterization	10-Feb-92	11-SB-02		3.2	1.16	1.16	20.5	
Characterization	03-Nov-93	SBPS915		3.2	1.16	1.16	20.5	
Characterization	23-Oct-93	SB10145		3.3	1.19	1.19	22.5	
Characterization	19-Nov-93	SBPS1015		3.3	1.19	1.19	22.5	
Characterization	23-Oct-93	SB10175		3.5	1.25	1.25	26.5	
Characterization	10-Feb-92	11-SB-07		4.2	1.44	1.44	28.5	
Characterization	19-Nov-93	SBPS1025		4.2	1.44	1.44	28.5	
Characterization	23-Oct-93	SB10125		4.6	1.53	1.53	30	
Characterization	06-Nov-93	SB11412		4.7	1.55	1.55	31	

Percent Non-Detected: 19%

Background Log-Normal 95th Percentile Value = 1.24
Background Log-Normal Mean Value = 0.97



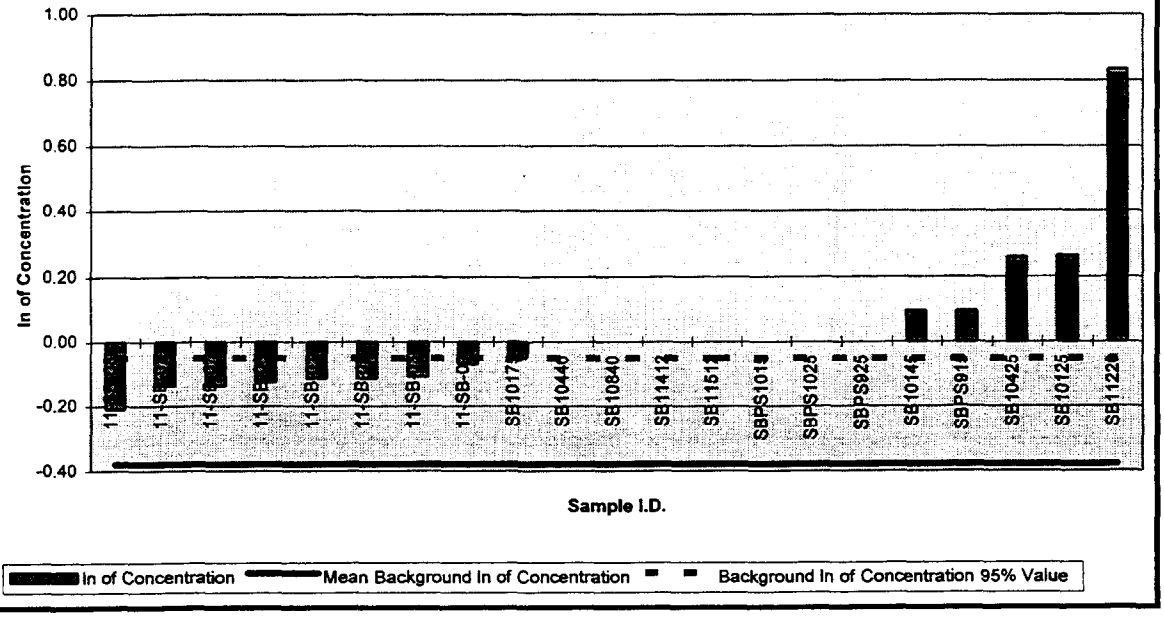
KINGS BAY - SITE 11

Cobalt Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Test for Proportion
Background	12-Sep-95	11SB20803	U	0.47	-0.76	P= 0.39
Background	12-Sep-95	11SB20403	J	0.47	-0.76	n= 31
Background	12-Sep-95	11SB20303	J	0.57	-0.56	nP= 12.00
Background	12-Sep-95	11SB20903	J	0.58	-0.54	n(1-P)= 19.00
Background	12-Sep-95	11SB20103	J	0.65	-0.43	P_{cw}= 0.14
Background	12-Sep-95	11SB20603	J	0.67	-0.40	P_{bg}= 0.90
Background	12-Sep-95	11SB21003	J	0.86	-0.15	S_D= 0.19
Background	12-Sep-95	11SB20703	J	0.92	-0.08	z= 4.05
Background	12-Sep-95	11SB20203	J	0.95	-0.05	
Background	12-Sep-95	11SB20503	J	0.95	-0.05	$z_{0.05}$= 1.645
Characterization	09-Feb-92	11-SB-08	U	0.81	-0.21	Reject H_o.
Characterization	10-Feb-92	11-SB-02	U	0.87	-0.14	
Characterization	10-Feb-92	11-SB-07	U	0.87	-0.14	
Characterization	10-Feb-92	11-SB-06	U	0.88	-0.13	
Characterization	09-Feb-92	11-SB-01	U	0.89	-0.12	
Characterization	10-Feb-92	11-SB-05	U	0.89	-0.12	
Characterization	10-Feb-92	11-SB-03	U	0.895	-0.11	
Characterization	09-Feb-92	11-SB-09	U	0.93	-0.07	
Characterization	23-Oct-93	SB10175	U	0.95	-0.05	
Characterization	20-Nov-93	SB10440	U	1	0.00	
Characterization	18-Nov-93	SB10840	U	1	0.00	
Characterization	06-Nov-93	SB11412	U	1	0.00	
Characterization	17-Nov-93	SB11512	U	1	0.00	
Characterization	19-Nov-93	SBPS1015	U	1	0.00	
Characterization	19-Nov-93	SBPS1025	U	1	0.00	
Characterization	03-Nov-93	SBPS925	U	1	0.00	
Characterization	23-Oct-93	SB10145	U	1.1	0.10	
Characterization	03-Nov-93	SBPS915	U	1.1	0.10	
Characterization	20-Nov-93	SB10425	J	1.295	0.26	
Characterization	23-Oct-93	SB10125	J	1.3	0.26	
Characterization	18-Nov-93	SB11220	J	2.3	0.83	

Percent Non-Detected: 61%

Background Log-Normal 95th Percentile Value = -0.05
Background Log-Normal Mean Value = -0.38



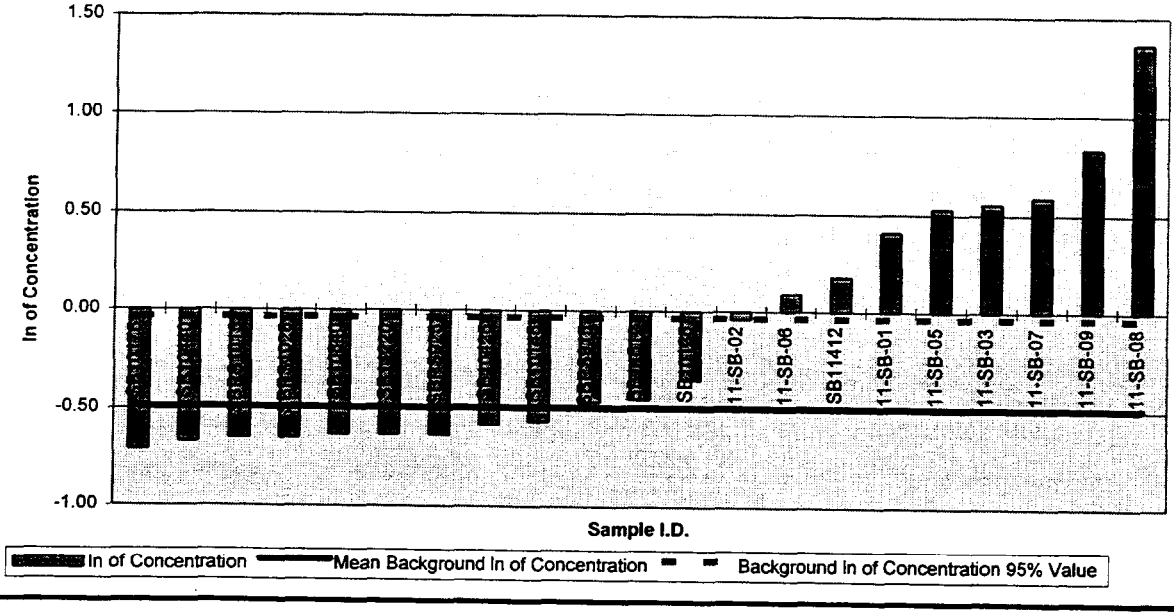
KINGS BAY - SITE 11

Copper Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Test for Proportions
Background	12-Sep-95	11SB20403	U	0.42	-0.87	P= 0.39
Background	12-Sep-95	11SB20803	U	0.45	-0.80	n= 31
Background	12-Sep-95	11SB21003	U	0.45	-0.80	nP= 12.00
Background	12-Sep-95	11SB20303	J	0.49	-0.71	n(1-P)= 19.00
Background	12-Sep-95	11SB20103	J	0.5	-0.69	P_{cw}= 0.24
Background	12-Sep-95	11SB20203	J	0.68	-0.39	P_{bg}= 0.70
Background	12-Sep-95	11SB20703	J	0.72	-0.33	S_D= 0.19
Background	12-Sep-95	11SB20503	J	0.8	-0.22	z= 2.47
Background	12-Sep-95	11SB20903	J	0.93	-0.07	
Background	12-Sep-95	11SB20603	J	1	0.00	$z_{0.05}$= 1.645
Characterization	23-Oct-93	SB10175	U	0.49	-0.71	Reject H_o.
Characterization	20-Nov-93	SB10440	U	0.51	-0.67	
Characterization	19-Nov-93	SBPS1015	U	0.52	-0.65	
Characterization	19-Nov-93	SBPS1025	U	0.52	-0.65	
Characterization	18-Nov-93	SB10840	U	0.53	-0.63	
Characterization	18-Nov-93	SB11220	U	0.53	-0.63	
Characterization	03-Nov-93	SBPS925	U	0.53	-0.63	
Characterization	20-Nov-93	SB10425	J	0.56	-0.58	
Characterization	23-Oct-93	SB10145	U	0.57	-0.56	
Characterization	03-Nov-93	SBPS915	J	0.63	-0.46	
Characterization	17-Nov-93	SB11512	J	0.64	-0.45	
Characterization	23-Oct-93	SB10125	J	0.705	-0.35	
Characterization	10-Feb-92	11-SB-02	U	0.96	-0.04	
Characterization	10-Feb-92	11-SB-06	U	1.1	0.10	
Characterization	06-Nov-93	SB11412	J	1.2	0.18	
Characterization	09-Feb-92	11-SB-01	U	1.5	0.41	
Characterization	10-Feb-92	11-SB-05	U	1.7	0.53	
Characterization	10-Feb-92	11-SB-03	U	1.74	0.55	
Characterization	10-Feb-92	11-SB-07	U	1.8	0.59	
Characterization	09-Feb-92	11-SB-09	U	2.3	0.83	
Characterization	09-Feb-92	11-SB-08	U	3.9	1.36	

Percent Non-Detected: 61%

Background Log-Normal 95th Percentile = -0.03
Background Log-Normal Mean = -0.49



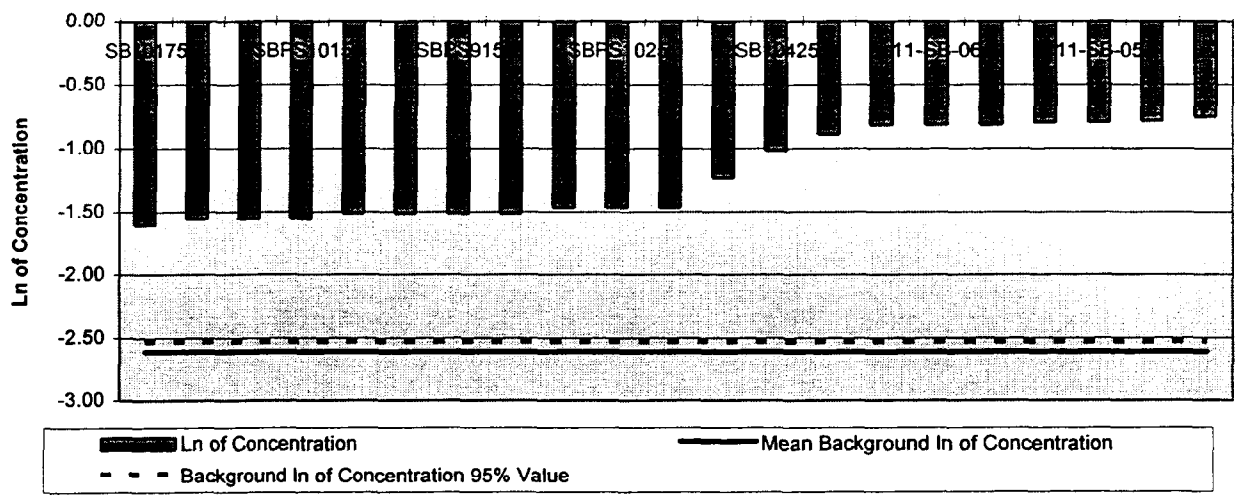
KINGS BAY - SITE 11

Cyanide Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Test for Proportions
Background	12-Sep-95	11SB20203	U	0.07	-2.66	P= 0.13
Background	12-Sep-95	11SB20403	U	0.07	-2.66	n= 30
Background	12-Sep-95	11SB20503	U	0.07	-2.66	nP= 4.00
Background	12-Sep-95	11SB20603	U	0.07	-2.66	
Background	12-Sep-95	11SB20703	U	0.07	-2.66	Cannot perform test.
Background	12-Sep-95	11SB20803	U	0.07	-2.66	nP < 5
Background	12-Sep-95	11SB20103	U	0.08	-2.53	
Background	12-Sep-95	11SB20303	U	0.08	-2.53	
Background	12-Sep-95	11SB20903	U	0.08	-2.53	
Characterization	23-Oct-93	SB10175	U	0.2	-1.61	
Characterization	23-Oct-93	SB10125	U	0.21	-1.56	
Characterization	06-Nov-93	SB11412	U	0.21	-1.56	
Characterization	19-Nov-93	SBPS1015	U	0.21	-1.56	
Characterization	18-Nov-93	SB10840	U	0.22	-1.51	
Characterization	18-Nov-93	SB11220	U	0.22	-1.51	
Characterization	03-Nov-93	SBPS915	U	0.22	-1.51	
Characterization	03-Nov-93	SBPS925	U	0.22	-1.51	
Characterization	17-Nov-93	SB11512	J	0.23	-1.47	
Characterization	19-Nov-93	SBPS1025	J	0.23	-1.47	
Characterization	23-Oct-93	SB10145	U	0.23	-1.47	
Characterization	20-Nov-93	SB10440	J	0.29	-1.24	
Characterization	20-Nov-93	SB10425	J	0.36	-1.02	
Characterization	09-Feb-92	11-SB-08	U	0.41	-0.89	
Characterization	10-Feb-92	11-SB-02	U	0.44	-0.82	
Characterization	10-Feb-92	11-SB-06	U	0.44	-0.82	
Characterization	10-Feb-92	11-SB-07	U	0.44	-0.82	
Characterization	09-Feb-92	11-SB-01	U	0.45	-0.80	
Characterization	10-Feb-92	11-SB-05	U	0.45	-0.80	
Characterization	10-Feb-92	11-SB-03	U	0.455	-0.79	
Characterization	09-Feb-92	11-SB-09	U	0.47	-0.76	

Percent Non-Detected: 87%

Background Log-Normal 95th Percentile Value = -2.53
Background Log-Normal Mean Value = -2.61

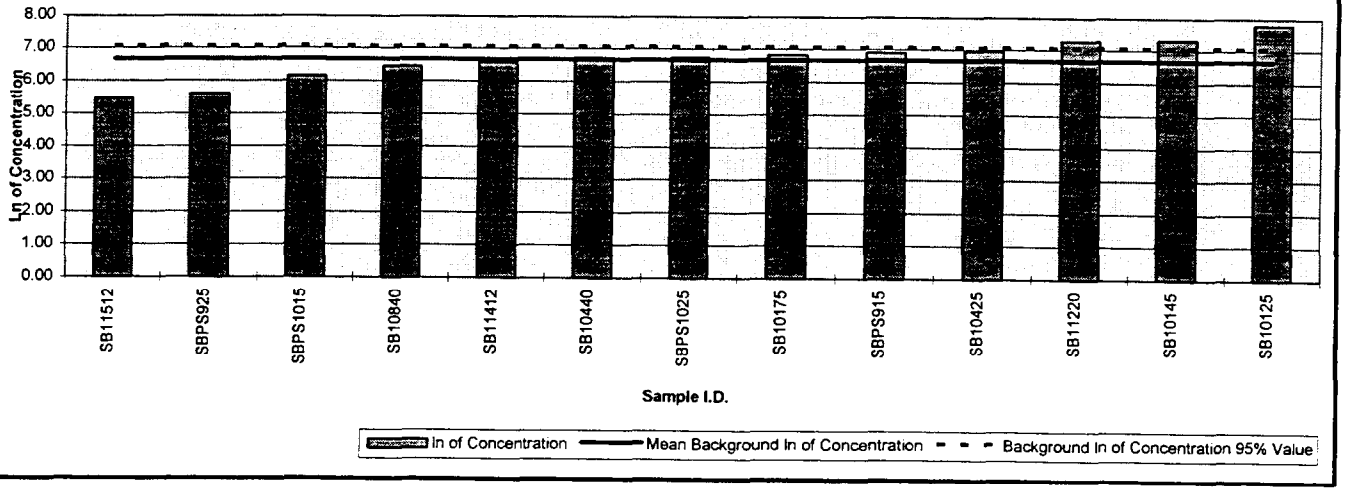


KINGS BAY - SITE 11
Iron Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Bartlett's test	t test (unequal var.)
Background	12-Sep-95	11SB20703		540	6.29	$f_{bg}=n_{bg}-1$ = 9	BG Mean = 6.66
Background	12-Sep-95	11SB20303		608	6.41	$f_{cs}=n_{cs}-1$ = 12	CS Mean = 6.68
Background	12-Sep-95	11SB20203		625	6.44	BG variance = 0.076	BG variance = 0.076
Background	12-Sep-95	11SB20603		656	6.49	CS variance = 0.429	CS variance = 0.429
Background	12-Sep-95	11SB20503		679	6.52	f = 21	t statistic = 0.070
Background	12-Sep-95	11SB20903		873	6.77	Pooled Var. = 0.2778	d.f. = 16.958
Background	12-Sep-95	11SB20103		882.5	6.78	Chi Square Statistic = 6.454	$t_{0.05}$ = 1.740
Background	12-Sep-95	11SB20403		951	6.86	degrees freedom = 1	
Background	12-Sep-95	11SB21003		996	6.90	Critical Value = 3.841	Do not reject H_o.
Background	12-Sep-95	11SB20803		1300	7.17	Reject H_o.	
Characterization	17-Nov-93	SB11512	J	236	5.46		
Characterization	03-Nov-93	SBPS925	J	273	5.61		
Characterization	19-Nov-93	SBPS1015	J	469	6.15		
Characterization	18-Nov-93	SB10840	J	629	6.44		
Characterization	06-Nov-93	SB11412	J	718	6.58		
Characterization	20-Nov-93	SB10440	J	834	6.73		
Characterization	19-Nov-93	SBPS1025	J	848	6.74		
Characterization	23-Oct-93	SB10175	J	927	6.83		
Characterization	03-Nov-93	SBPS915	J	998	6.91		
Characterization	20-Nov-93	SB10425	J	1062	6.97		
Characterization	18-Nov-93	SB11220	J	1440	7.27		
Characterization	23-Oct-93	SB10145	J	1490	7.31		
Characteriation	23-Oct-93	SB10125	J	2460	7.81		

Percent Non-Detected: 0%

Background Log-Normal 95th Percentile = 7.05
Background Log-Normal Mean = 6.66



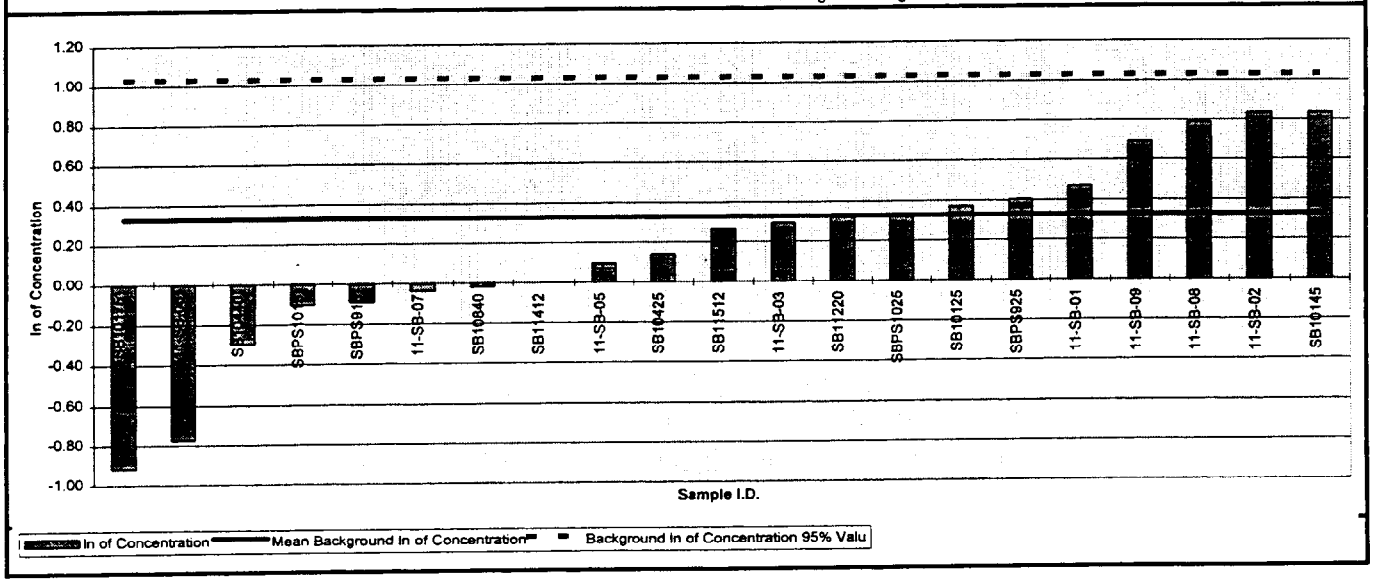
KINGS BAY - SITE 11

Lead Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (µg/L)	ln of Concentration	Using Half of Detection Limit	Bartlett's test	t test (unequal var.)
Background	12-Sep-9	11SB20503		1.9	0.64	0.64	$f_{bg}=n_{bg}-1$ = 9	BG Mean = 0.86
Background	12-Sep-9	11SB20603		1.9	0.64	0.64	$f_{cs}=n_{cs}-1$ = 20	CS Mean = 0.07
Background	12-Sep-9	11SB21003		2.2	0.79	0.79	BG variance = 0.028	BG variance = 0.028
Background	12-Sep-9	11SB20103		2.3	0.83	0.83	Char. variance = 0.289	CS variance = 0.289
Background	12-Sep-9	11SB20703		2.3	0.83	0.83	f = 29	t statistic = -6.135
Background	12-Sep-9	11SB20803		2.3	0.83	0.83	Pooled Var. = 0.2083	d.f. = 26.521
Background	12-Sep-9	11SB20203		2.4	0.88	0.88	Chi Square Statistic = 11.479	$t_{0.05}$ = 1.701
Background	12-Sep-9	11SB20903		2.6	0.96	0.96	degrees freedom = 1.000	
Background	12-Sep-9	11SB20303		2.8	1.03	1.03	Critical Value = 3.841	Do not reject H_o.
Background	12-Sep-9	11SB20403		3.3	1.19	1.19	Reject H_o.	
Characterization	23-Oct-93	SB10175	J	0.4	-0.92	-0.92		
Characterization	10-Feb-92	11-SB-06	J	0.46	-0.78	-0.78		
Characterization	20-Nov-9	SB10440		0.74	-0.30	-0.30		
Characterization	19-Nov-9	SBPS1015		0.9	-0.11	-0.11		
Characterization	03-Nov-9	SBPS915	U	0.91	-0.09	-0.79		
Characterization	10-Feb-92	11-SB-07		0.96	-0.04	-0.04		
Characterization	18-Nov-9	SB10840		0.98	-0.02	-0.02		
Characterization	06-Nov-9	SB11412	U	1	0.00	-0.69		
Characterization	10-Feb-92	11-SB-05		1.1	0.10	0.10		
Characterization	20-Nov-9	SB10425		1.15	0.14	0.14		
Characterization	17-Nov-9	SB11512		1.3	0.26	0.26		
Characterization	10-Feb-92	11-SB-03		1.34	0.29	0.29		
Characterization	18-Nov-9	SB11220		1.4	0.34	0.34		
Characterization	19-Nov-9	SBPS1025		1.4	0.34	0.34		
Characterization	23-Oct-93	SB10125		1.45	0.37	0.37		
Characterization	03-Nov-9	SBPS925		1.5	0.41	0.41		
Characterization	09-Feb-92	11-SB-01	U	1.6	0.47	-0.22		
Characterization	09-Feb-92	11-SB-09		2	0.69	0.69		
Characterization	09-Feb-92	11-SB-08		2.2	0.79	0.79		
Characterization	10-Feb-92	11-SB-02		2.3	0.83	0.83		
Characterization	23-Oct-93	SB10145		2.3	0.83	0.83		

Percent Non-Detected: 10%

Background Log-Normal 95th Percentile Value = 1.03
Background Log-Normal Mean Value = 0.33



KINGS BAY - SITE 11

Manganese Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentrations (mg/kg)	ln of Concentration
Background	12-Sep-95	11SB20403	J	3	1.10
Background	12-Sep-95	11SB20203	J	3.3	1.19
Background	12-Sep-95	11SB20703	J	3.4	1.22
Background	12-Sep-95	11SB20603	J	3.5	1.25
Background	12-Sep-95	11SB20303	J	3.7	1.31
Background	12-Sep-95	11SB20503	J	3.7	1.31
Background	12-Sep-95	11SB20103	J	4.5	1.50
Background	12-Sep-95	11SB20903		4.9	1.59
Background	12-Sep-95	11SB20803		5.9	1.77
Characterization	17-Nov-93	SB11512	J	1.5	0.20
Characterization	03-Nov-93	SBPS925	J	1.6	0.47
Characterization	19-Nov-93	SBPS1015	J	2.4	0.88
Characterization	18-Nov-93	SB10840		4.4	1.48
Characterization	18-Nov-93	SB11220		4.5	1.50
Characterization	20-Nov-93	SB10425		5.7	1.74
Characterization	06-Nov-93	SB11412	J	5.4	1.69
Characterization	20-Nov-93	SB10440		5.7	1.74
Characterization	03-Nov-93	SBPS915	J	6	1.79
Characterization	19-Nov-93	SBPS1025		6.8	1.92
Characterization	23-Oct-93	SB10125	J	15.35	2.73
Characterization	23-Oct-93	SB10145	J	16.3	2.79
Characterization	23-Oct-93	SB10175	J	35.5	3.57

Bartlett's test

$f_{bg}=n_{bg}-1$ = 8
$f_{cs}=n_{cs}-1$ = 12
BG variance = 0.0471
Char. variance = 0.8597
f = 20
Pooled Var. = 0.5346
Chi Square Statistic = 13.736
degrees freedom = 1
Critical Value = 3.841
Reject H_o.

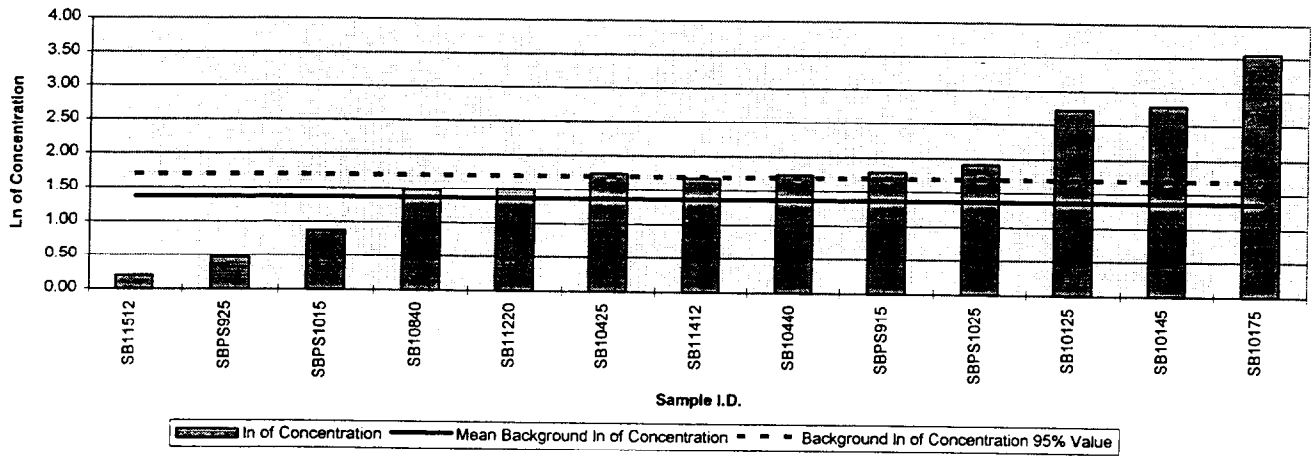
t test (unequal var.)

BG Mean = 1.36
CS Mean = 1.73
BG variance = 0.0471
CS variance = 0.8597
t statistic = 1.3826
d.f. = 13.844
$t_{0.05}$ = 1.762

Do not reject H_o.

Percent Non-Detected: 0%

Background Log-Normal 95th Percentile Value = 1.70
Background Log-Normal Mean Value = 1.36



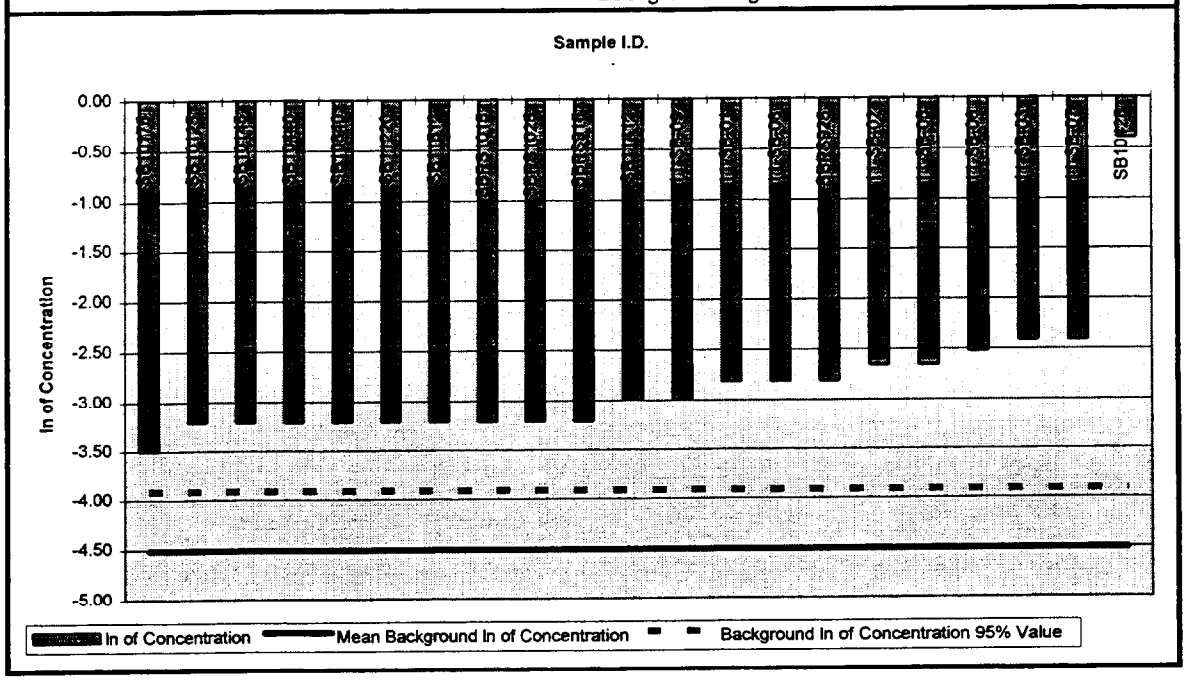
KINGS BAY - SITE 11

Mercury Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Test for Proportions
Background	12-Sep-95	11SB20603	U	0.008	-4.83	P= 0.23
Background	12-Sep-95	11SB20903	U	0.008	-4.83	n= 31
Background	12-Sep-95	11SB20203	U	0.01	-4.61	nP= 7.00
Background	12-Sep-95	11SB20503	U	0.01	-4.61	n(1-P)= 24.00
Background	12-Sep-95	11SB20703	U	0.01	-4.61	P_{cw}= 0.10
Background	12-Sep-95	11SB20103	J	0.01	-4.61	P_{bg}= 0.50
Background	12-Sep-95	11SB20403	J	0.01	-4.61	S_D= 0.16
Background	12-Sep-95	11SB20803	J	0.01	-4.61	z= 2.52
Background	12-Sep-95	11SB20303	J	0.02	-3.91	
Background	12-Sep-95	11SB21003	J	0.02	-3.91	$z_{0.05}$= 1.645
Characterization	23-Oct-93	SB10175	U	0.03	-3.51	Reject H_o.
Characterization	23-Oct-93	SB10125	U	0.04	-3.22	
Characterization	23-Oct-93	SB10145	U	0.04	-3.22	
Characterization	20-Nov-93	SB10440	U	0.04	-3.22	
Characterization	18-Nov-93	SB10840	U	0.04	-3.22	
Characterization	18-Nov-93	SB11220	U	0.04	-3.22	
Characterization	17-Nov-93	SB11512	U	0.04	-3.22	
Characterization	19-Nov-93	SBPS1015	U	0.04	-3.22	
Characterization	19-Nov-93	SBPS1025	U	0.04	-3.22	
Characterization	03-Nov-93	SBPS915	U	0.04	-3.22	
Characterization	06-Nov-93	SB11412		0.05	-3.00	
Characterization	09-Feb-92	11-SB-09	U	0.05	-3.00	
Characterization	09-Feb-92	11-SB-01	U	0.06	-2.81	
Characterization	09-Feb-92	11-SB-08	U	0.06	-2.81	
Characterization	03-Nov-93	SBPS925	U	0.06	-2.81	
Characterization	10-Feb-92	11-SB-02	U	0.07	-2.66	
Characterization	10-Feb-92	11-SB-05	U	0.07	-2.66	
Characterization	10-Feb-92	11-SB-06	U	0.08	-2.53	
Characterization	10-Feb-92	11-SB-03	U	0.09	-2.41	
Characterization	10-Feb-92	11-SB-07	U	0.09	-2.41	
Characterization	20-Nov-93	SB10425		0.67	-0.40	

Percent Non-Detected: 77%

Background Log-Normal 95th Percentile Value = -3.91
Background Log-Normal Mean Value = -4.51



KINGS BAY - SITE 11

Nickel Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration
Background	12-Sep-95	11SB20403	U	2.4	0.88
Background	12-Sep-95	11SB20503	U	2.5	0.92
Background	12-Sep-95	11SB20603	U	2.5	0.92
Background	12-Sep-95	11SB20703	U	2.5	0.92
Background	12-Sep-95	11SB20803	U	2.5	0.92
Background	12-Sep-95	11SB20103	U	2.6	0.96
Background	12-Sep-95	11SB20303	U	2.6	0.96
Background	12-Sep-95	11SB20903	U	2.6	0.96
Background	12-Sep-95	11SB20203	J	3	1.10
Characterization	10-Feb-92	11-SB-05	U	0.94	-0.06
Characterization	09-Feb-92	11-SB-01	J	1	0.00
Characterization	09-Feb-92	11-SB-09	J	1.3	0.26
Characterization	10-Feb-92	11-SB-07	U	1.5	0.41
Characterization	10-Feb-92	11-SB-03	U	1.65	0.50
Characterization	10-Feb-92	11-SB-02	U	2	0.69
Characterization	23-Oct-93	SB10175	U	2.1	0.74
Characterization	20-Nov-93	SB10440	U	2.2	0.79
Characterization	19-Nov-93	SBPS1015	U	2.2	0.79
Characterization	18-Nov-93	SB10840	U	2.3	0.83
Characterization	06-Nov-93	SB11412	U	2.3	0.83
Characterization	17-Nov-93	SB11512	U	2.3	0.83
Characterization	03-Nov-93	SBPS915	U	2.3	0.83
Characterization	03-Nov-93	SBPS925	U	2.3	0.83
Characterization	10-Feb-92	11-SB-06	U	2.4	0.88
Characterization	18-Nov-93	SB11220	U	2.4	0.88
Characterization	19-Nov-93	SBPS1025	U	2.4	0.88
Characterization	20-Nov-93	SB10425	U	2.4	0.88
Characterization	23-Oct-93	SB10145	J	2.6	0.96
Characterization	09-Feb-92	11-SB-08	J	2.7	0.99
Characterization	23-Oct-93	SB10125	J	3.1	1.13

Test for Proportions

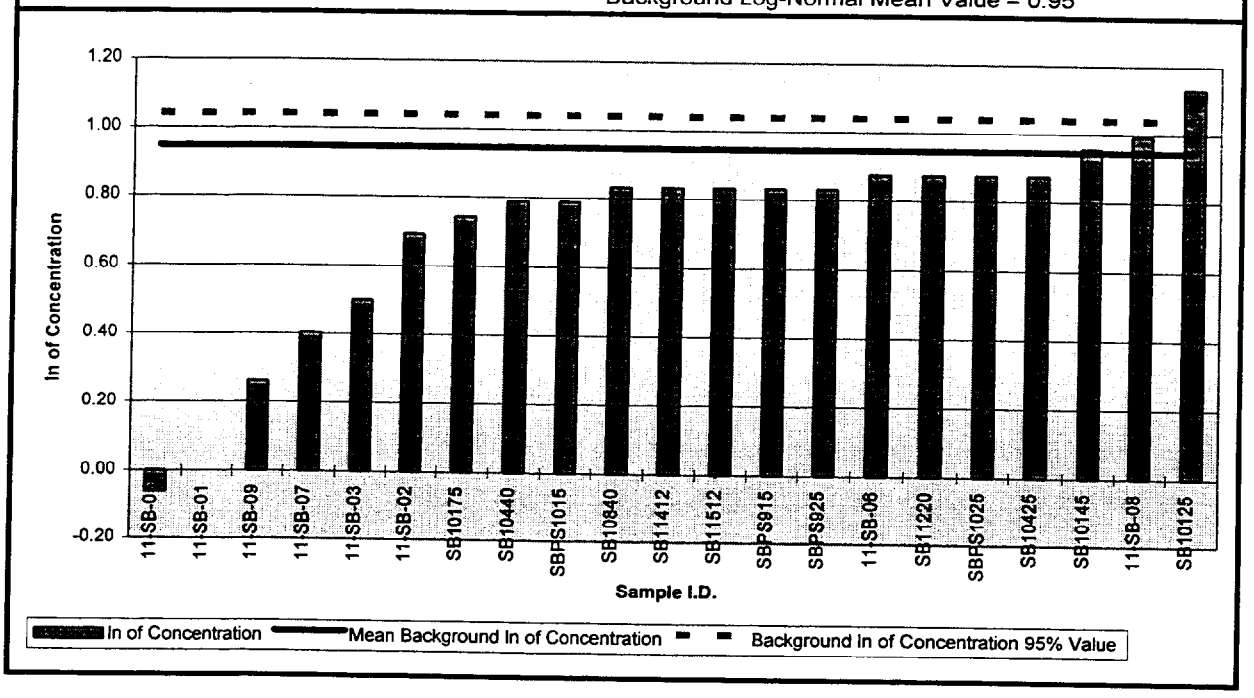
P= 0.20
n= 30
nP= 6.00
n(1-P)= 24.00
P_{cw}= 0.24
P_{bg}= 0.11
S_D= 0.16
z= 0.80

$z_{0.05}$ = 1.645

Do not reject H_o.

Percent Non-Detected: 80%

Background Log-Normal 95th Percentile Value = 1.04
Background Log-Normal Mean Value = 0.95



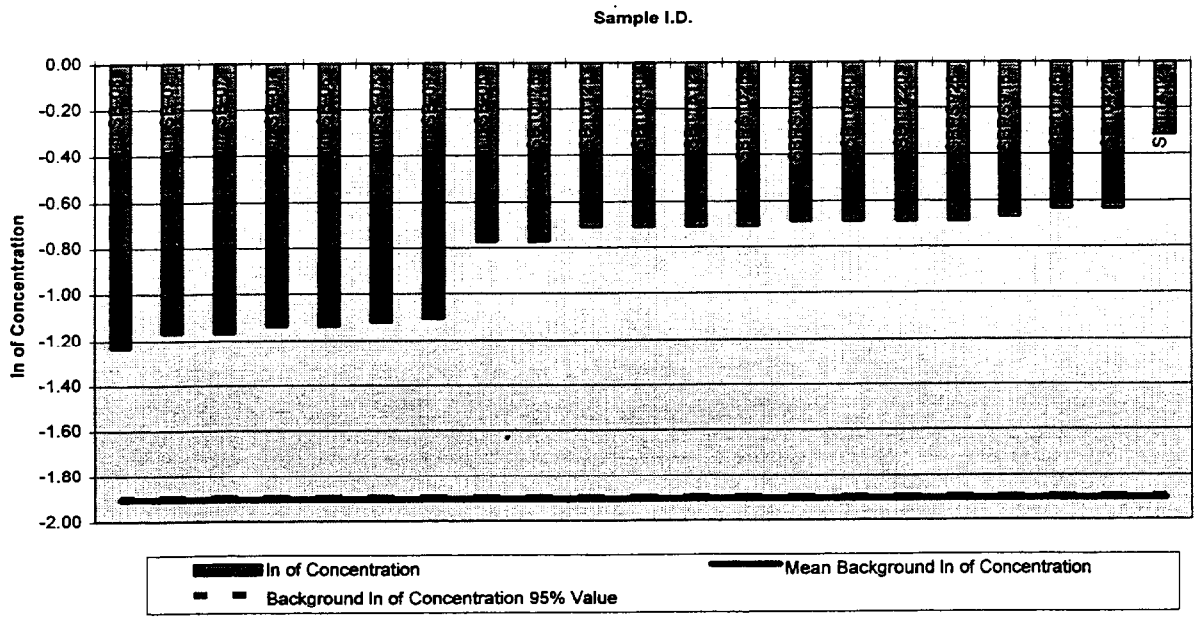
KINGS BAY - SITE 11

Selenium Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Test for Proportion
Background	12-Sep-95	11SB20403	U	0.14	-1.97	P= 0.10
Background	12-Sep-95	11SB20103	U	0.15	-1.90	n= 31
Background	12-Sep-95	11SB20203	U	0.15	-1.90	nP= 3.10
Background	12-Sep-95	11SB20303	U	0.15	-1.90	
Background	12-Sep-95	11SB20503	U	0.15	-1.90	Cannot perform test.
Background	12-Sep-95	11SB20603	U	0.15	-1.90	nP < 5
Background	12-Sep-95	11SB20703	U	0.15	-1.90	
Background	12-Sep-95	11SB20803	U	0.15	-1.90	
Background	12-Sep-95	11SB20903	U	0.15	-1.90	
Background	12-Sep-95	11SB21003	U	0.15	-1.90	
Characterization	09-Feb-92	11-SB-08	U	0.29	-1.24	
Characterization	10-Feb-92	11-SB-02	U	0.31	-1.17	
Characterization	10-Feb-92	11-SB-07	U	0.31	-1.17	
Characterization	09-Feb-92	11-SB-01	U	0.32	-1.14	
Characterization	10-Feb-92	11-SB-06	U	0.32	-1.14	
Characterization	10-Feb-92	11-SB-03	U	0.325	-1.12	
Characterization	09-Feb-92	11-SB-09	U	0.33	-1.11	
Characterization	10-Feb-92	11-SB-05	J	0.46	-0.78	
Characterization	23-Oct-93	SB10175	UJ	0.46	-0.78	
Characterization	23-Oct-93	SB10125	U	0.49	-0.71	
Characterization	20-Nov-93	SB10440	U	0.49	-0.71	
Characterization	17-Nov-93	SB11512	U	0.49	-0.71	
Characterization	19-Nov-93	SBPS1025	U	0.49	-0.71	
Characterization	19-Nov-93	SBPS1015	J	0.5	-0.69	
Characterization	18-Nov-93	SB10840	U	0.5	-0.69	
Characterization	18-Nov-93	SB11220	U	0.5	-0.69	
Characterization	03-Nov-93	SBPS925	U	0.5	-0.69	
Characterization	03-Nov-93	SBPS915	U	0.51	-0.67	
Characterization	23-Oct-93	SB10145	U	0.53	-0.63	
Characterization	20-Nov-93	SB10425	UJ	0.53	-0.63	
Characterization	06-Nov-93	SB11412	J	0.73	-0.31	

Percent NonDetected: 90%

Background Log-Normal 95th Percentile Value = -1.90
Background Log-Normal Mean Value = -1.90



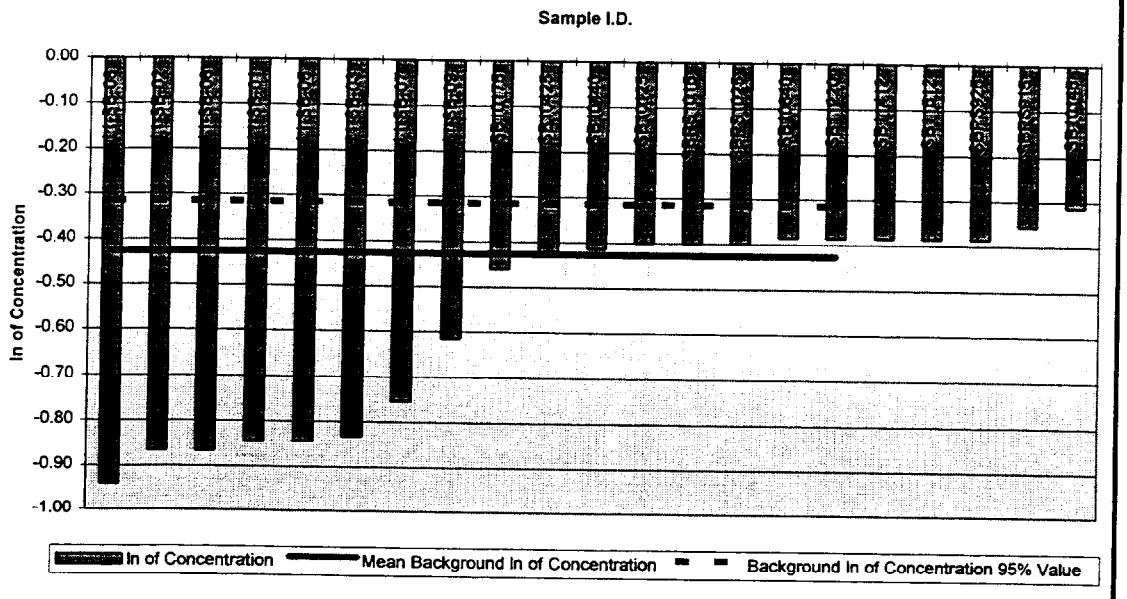
KINGS BAY - SITE 11

Silver Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration
Background	12-Sep-95	11SB20403	U	0.68	-0.39
Background	12-Sep-95	11SB20603	U	0.71	-0.34
Background	12-Sep-95	11SB20203	U	0.72	-0.33
Background	12-Sep-95	11SB20503	U	0.72	-0.33
Background	12-Sep-95	11SB20703	U	0.72	-0.33
Background	12-Sep-95	11SB20803	U	0.72	-0.33
Background	12-Sep-95	11SB21003	U	0.72	-0.33
Background	12-Sep-95	11SB20103	U	0.73	-0.31
Background	12-Sep-95	11SB20303	U	0.73	-0.31
Background	12-Sep-95	11SB20903	U	0.73	-0.31
Characterization	09-Feb-92	11-SB-08	U	0.39	-0.94
Characterization	10-Feb-92	11-SB-02	U	0.42	-0.87
Characterization	10-Feb-92	11-SB-06	U	0.42	-0.87
Characterization	09-Feb-92	11-SB-01	U	0.43	-0.84
Characterization	10-Feb-92	11-SB-05	U	0.43	-0.84
Characterization	10-Feb-92	11-SB-03	U	0.435	-0.83
Characterization	10-Feb-92	11-SB-07	J	0.47	-0.76
Characterization	09-Feb-92	11-SB-09	U	0.54	-0.62
Characterization	23-Oct-93	SB10175	U	0.63	-0.46
Characterization	20-Nov-93	SB10425	U	0.65	-0.43
Characterization	20-Nov-93	SB10440	U	0.66	-0.42
Characterization	23-Oct-93	SB10125	U	0.67	-0.40
Characterization	19-Nov-93	SBPS1015	U	0.67	-0.40
Characterization	19-Nov-93	SBPS1025	U	0.67	-0.40
Characterization	18-Nov-93	SB10840	U	0.68	-0.39
Characterization	18-Nov-93	SB11220	U	0.68	-0.39
Characterization	06-Nov-93	SB11412	U	0.68	-0.39
Characterization	17-Nov-93	SB11512	U	0.68	-0.39
Characterization	03-Nov-93	SBPS925	U	0.68	-0.39
Characterization	03-Nov-93	SBPS915	U	0.7	-0.36
Characterization	23-Oct-93	SB10145	U	0.73	-0.31

Percent Non-Detected: 97%

Background Log-Normal 95th Percentile Value = -0.31
Background Log-Normal Mean Value = -0.43



KINGS BAY - SITE 11
Sulfide Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (µg/L)	ln of Concentration
Background	12-Sep-95	11SB20603	J	23.2	3.14
Background	12-Sep-95	11SB20403	J	23.5	3.16
Background	12-Sep-95	11SB20503	J	31.8	3.46
Background	12-Sep-95	11SB21003	J	31.9	3.46
Background	12-Sep-95	11SB20103	J	46.5	3.84
Background	12-Sep-95	11SB20303	J	64	4.16
Background	12-Sep-95	11SB20903	J	68.2	4.22
Background	12-Sep-95	11SB20703	J	71.2	4.27
Background	12-Sep-95	11SB20803	J	75.7	4.33
Background	12-Sep-95	11SB20203	J	90.2	4.50
Characterization	18-Nov-93	SB11220		30	3.40
Characterization	19-Nov-93	SBPS1015		31.1	3.44
Characterization	23-Oct-93	SB10145		34.4	3.54
Characterization	23-Oct-93	SB10175		39.9	3.69
Characterization	18-Nov-93	SB10840		54	3.99
Characterization	23-Oct-93	SB10125		56	4.03
Characterization	20-Nov-93	SB10425		59.5	4.09
Characterization	17-Nov-93	SB11512		59.8	4.09
Characterization	20-Nov-93	SB10440		68	4.22
Characterization	03-Nov-93	SBPS925		90	4.50
Characterization	19-Nov-93	SBPS1025		90.3	4.50
Characterization	06-Nov-93	SB11412		115	4.74
Characterization	03-Nov-93	SBPS915		180	5.19
Characterization	09-Feb-92	11-SB-08	U	4500	8.41
Characterization	10-Feb-92	11-SB-02	U	4900	8.50
Characterization	10-Feb-92	11-SB-05	U	4900	8.50
Characterization	10-Feb-92	11-SB-07	U	4900	8.50
Characterization	10-Feb-92	11-SB-06	U	5000	8.52
Characterization	10-Feb-92	11-SB-03	U	5050	8.53
Characterization	09-Feb-92	11-SB-01	U	5100	8.54
Characteriation	09-Feb-92	11-SB-09	U	5200	8.56

Bartlett's test

$f_{bg}=n_{bg}-1 = 9$
$f_{cs}=n_{cs}-1 = 12$
BG variance = 0.260
Char. variance = 0.282
f = 21
Pooled Var. = 0.2723
Chi Square Statistic = 0.016
degrees freedom = 1
Critical Value = 3.841
Do not reject H_o.

t test (equal var.)

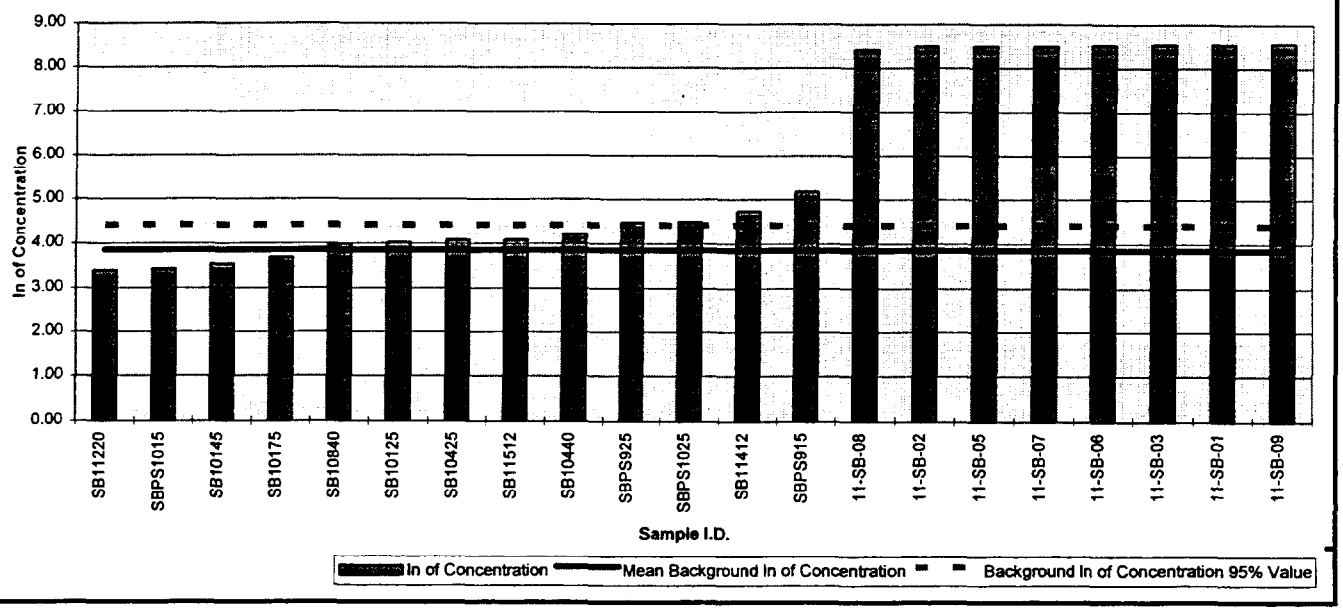
BG Mean = 3.85
CS Mean = 4.11
BG variance = 0.260
CS variance = 0.282
t statistic = 1.1616
d.f. = 21.000
$t_{0.05}$ = 1.721

Do not reject H_o.

These 8 samples not used in comparison because detection limits are much larger than for all other samples.

Percent Non-Detected: 0%

Background Log-Normal 95th Percentile = 4.42
Background Log-Normal Mean Value = 3.85

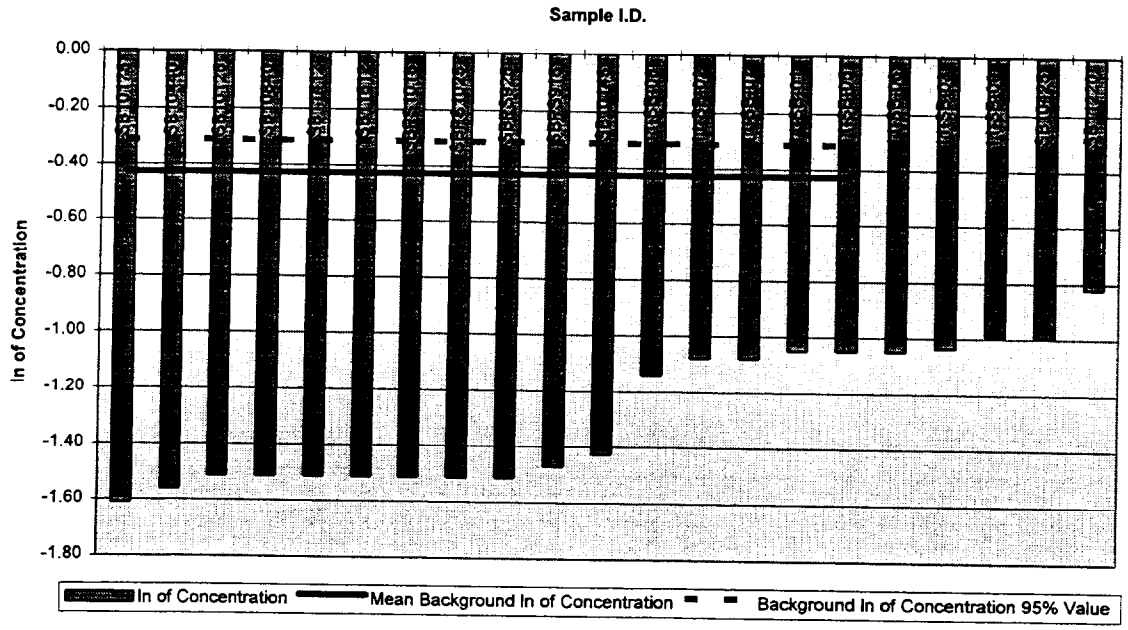


KINGS BAY - SITE 11
Thallium Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration
Background	12-Sep-95	11SB20403	U	0.18	-1.71
Background	12-Sep-95	11SB20603	U	0.19	-1.66
Background	12-Sep-95	11SB20703	U	0.19	-1.66
Background	12-Sep-95	11SB20103	U	0.2	-1.61
Background	12-Sep-95	11SB20203	U	0.2	-1.61
Background	12-Sep-95	11SB20303	U	0.2	-1.61
Background	12-Sep-95	11SB20503	U	0.2	-1.61
Background	12-Sep-95	11SB20803	U	0.2	-1.61
Background	12-Sep-95	11SB20903	U	0.2	-1.61
Background	12-Sep-95	11SB21003	U	0.2	-1.61
Characterization	23-Oct-93	SB10175	U	0.2	-1.61
Characterization	20-Nov-93	SB10440	U	0.21	-1.56
Characterization	23-Oct-93	SB10125	U	0.22	-1.51
Characterization	18-Nov-93	SB10840	U	0.22	-1.51
Characterization	06-Nov-93	SB11412	U	0.22	-1.51
Characterization	17-Nov-93	SB11512	U	0.22	-1.51
Characterization	19-Nov-93	SBPS1015	U	0.22	-1.51
Characterization	19-Nov-93	SBPS1025	U	0.22	-1.51
Characterization	03-Nov-93	SBPS925	U	0.22	-1.51
Characterization	03-Nov-93	SBPS915	U	0.23	-1.47
Characterization	23-Oct-93	SB10145	U	0.24	-1.43
Characterization	09-Feb-92	11-SB-08	U	0.32	-1.14
Characterization	10-Feb-92	11-SB-02	U	0.34	-1.08
Characterization	10-Feb-92	11-SB-07	U	0.34	-1.08
Characterization	09-Feb-92	11-SB-01	U	0.35	-1.05
Characterization	10-Feb-92	11-SB-05	U	0.35	-1.05
Characterization	10-Feb-92	11-SB-06	U	0.35	-1.05
Characterization	10-Feb-92	11-SB-03	U	0.355	-1.04
Characterization	09-Feb-92	11-SB-09	U	0.37	-0.99
Characterization	20-Nov-93	SB10425	J	0.37	-0.99
Characterization	18-Nov-93	SB11220	J	0.44	-0.82

Percent Non-Detected: 94%

Background Log-Normal 95th Percentile Value = -1.61
Background Log-Normal Mean Value = -1.63

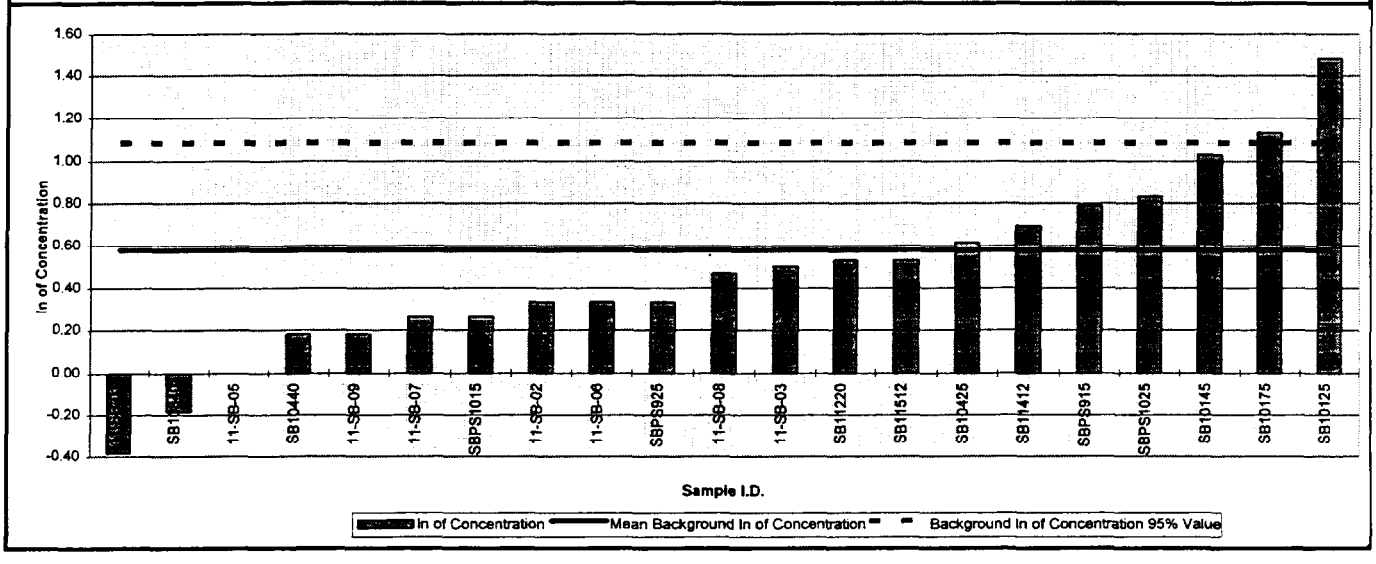


KINGS BAY - SITE 11
Vanadium Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Using Half of Detection Limit	Bartlett's test	t test (unequal var.)
Background	12-Sep-95	11SB20603	J	0.9	-0.11	-0.11	$f_{bg}=n_{bg}-1$ = 9	BG Mean = 0.68
Background	12-Sep-95	11SB20203	J	1.3	0.26	0.26	$f_{cs}=n_{cs}-1$ = 20	CS Mean = 0.37
Background	12-Sep-95	11SB20503	J	1.8	0.59	0.59	BG variance = 0.138	BG variance = 0.1379
Background	12-Sep-95	11SB20103	J	2	0.69	0.69	Char. variance = 0.330	CS variance = 0.3304
Background	12-Sep-95	11SB20303	J	2.1	0.74	0.74	f = 29	t statistic = -1.5088
Background	12-Sep-95	11SB20703	J	2.1	0.74	0.74	Pooled Var. = 0.2707	d.f. = 29
Background	12-Sep-95	11SB20903	J	2.2	0.79	0.79	Chi Square Statistic = 2.079	$t_{0.05}$ = 1.699
Background	12-Sep-95	11SB21003	J	2.4	0.88	0.88	degrees freedom = 1	
Background	12-Sep-95	11SB20403	J	2.5	0.92	0.92	Critical Value = 3.841	Do not reject H_o.
Background	12-Sep-95	11SB20803	J	3.5	1.25	1.25	Do not reject H_o.	
Characterization	09-Feb-92	11-SB-01	U	0.68	-0.39	-1.08		
Characterization	18-Nov-93	SB10840	J	0.83	-0.19	-0.19		
Characterization	10-Feb-92	11-SB-05	J	1	0.00	0.00		
Characterization	20-Nov-93	SB10440	J	1.2	0.18	0.18		
Characterization	09-Feb-92	11-SB-09	U	1.2	0.18	-0.51		
Characterization	10-Feb-92	11-SB-07	J	1.3	0.26	0.26		
Characterization	19-Nov-93	SBPS1015	J	1.3	0.26	0.26		
Characterization	10-Feb-92	11-SB-02	J	1.4	0.34	0.34		
Characterization	10-Feb-92	11-SB-06	J	1.4	0.34	0.34		
Characterization	03-Nov-93	SBPS925	J	1.4	0.34	0.34		
Characterization	09-Feb-92	11-SB-08	U	1.6	0.47	-0.22		
Characterization	10-Feb-92	11-SB-03	J	1.65	0.50	0.50		
Characterization	18-Nov-93	SB11220	J	1.7	0.53	0.53		
Characterization	17-Nov-93	SB11512	J	1.7	0.53	0.53		
Characterization	20-Nov-93	SB10425	J	1.85	0.62	0.62		
Characterization	06-Nov-93	SB11412	J	2	0.69	0.69		
Characterization	03-Nov-93	SBPS915	J	2.2	0.79	0.79		
Characterization	19-Nov-93	SBPS1025	J	2.3	0.83	0.83		
Characterization	23-Oct-93	SB10145	J	2.8	1.03	1.03		
Characterization	23-Oct-93	SB10175	J	3.1	1.13	1.13		
Characterization	23-Oct-93	SB10125	J	4.4	1.48	1.48		

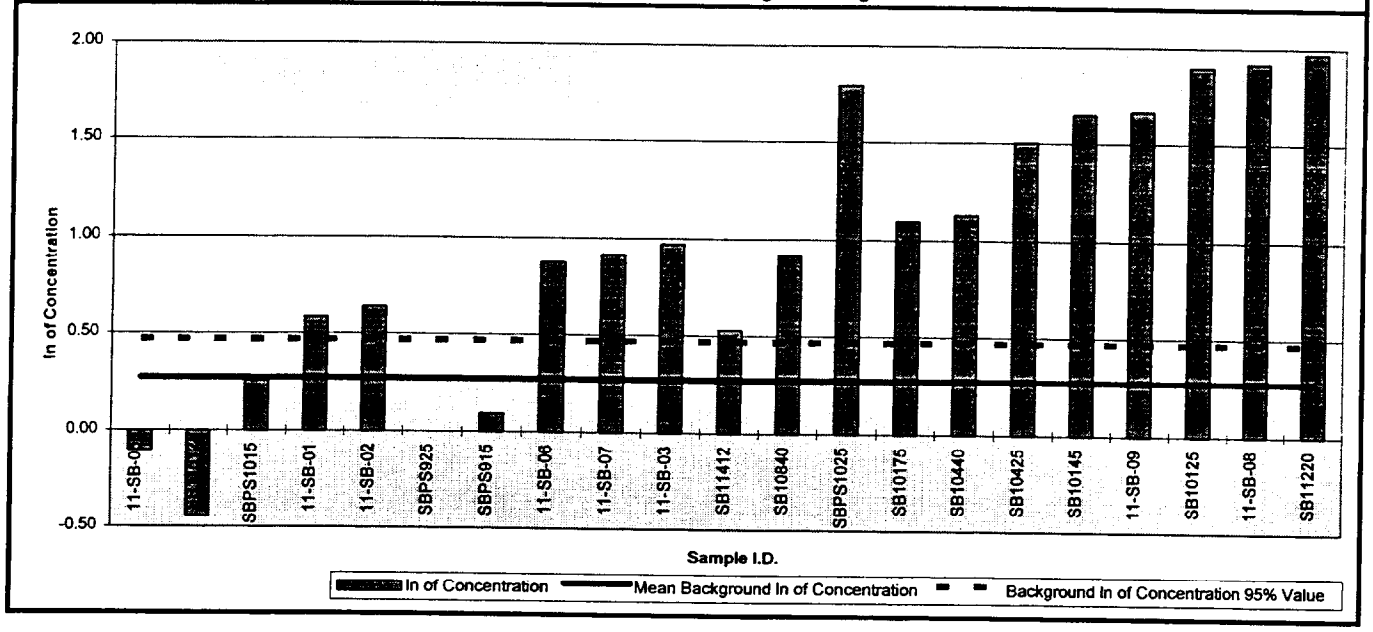
Percent Non-Detected: 10%

Background Log-Normal 95th Percentile Value = 1.08
Background Log-Normal Mean Value = 0.58



KINGS BAY - SITE 11
Zinc Concentrations for Characterization Subsurface Soil Samples vs Background

Sample Type	Sample Date	Sample I.D.	Qualifier	Concentration (mg/kg)	ln of Concentration	Using Half of Detection Limit	rank	U test
Background	12-Sep-95	11SB20403	J	0.94	-0.06	-0.06	5	R_{cs}= 355
Background	12-Sep-95	11SB20903	J	1.1	0.10	0.10	8.5	n_{cs}= 21
Background	12-Sep-95	11SB20503	J	1.2	0.18	0.18	10.5	n_{bg}= 10
Background	12-Sep-95	11SB20303	J	1.3	0.26	0.26	13.5	U_{cs}= 86
Background	12-Sep-95	11SB20703	J	1.3	0.26	0.26	13.5	z= -0.8029
Background	12-Sep-95	11SB20203	J	1.4	0.34	0.34	16.5	$z_{0.05}$= -1.645
Background	12-Sep-95	11SB20603	J	1.4	0.34	0.34	16.5	
Background	12-Sep-95	11SB20803	J	1.5	0.41	0.41	18	Do not reject H_o.
Background	12-Sep-95	11SB20103	J	1.6	0.47	0.47	19.5	
Background	12-Sep-95	11SB21003	J	1.6	0.47	0.47	19.5	
Characterization	10-Feb-92	11-SB-05	U	0.9	-0.11	-0.80	1	
Characterization	17-Nov-93	SB11512	J	0.64	-0.45	-0.45	2	
Characterization	19-Nov-93	SBPS1015	U	1.3	0.26	-0.43	3	
Characterization	09-Feb-92	11-SB-01	U	1.8	0.59	-0.11	4	
Characterization	10-Feb-92	11-SB-02	U	1.9	0.64	-0.05	6	
Characterization	03-Nov-93	SBPS925	J	1	0.00	0.00	7	
Characterization	03-Nov-93	SBPS915	J	1.1	0.10	0.10	8.5	
Characterization	10-Feb-92	11-SB-06	U	2.4	0.88	0.18	10.5	
Characterization	10-Feb-92	11-SB-07	U	2.5	0.92	0.22	12	
Characterization	10-Feb-92	11-SB-03	U	2.65	0.97	0.28	15	
Characterization	06-Nov-93	SB11412	J	1.7	0.53	0.53	21	
Characterization	18-Nov-93	SB10840	J	2.5	0.92	0.92	22	
Characterization	19-Nov-93	SBPS1025	U	6	1.79	1.10	23	
Characterization	23-Oct-93	SB10175	J	3	1.10	1.10	24	
Characterization	20-Nov-93	SB10440	J	3.1	1.13	1.13	25	
Characterization	20-Nov-93	SB10425	J	4.5	1.50	1.50	26	
Characterization	23-Oct-93	SB10145	J	5.2	1.65	1.65	27	
Characterization	09-Feb-92	11-SB-09		5.3	1.67	1.67	28	
Characterization	23-Oct-93	SB10125		6.65	1.89	1.89	29	
Characterization	09-Feb-92	11-SB-08		6.8	1.92	1.92	30	
Characterization	18-Nov-93	SB11220		7.2	1.97	1.97	31	

Percent Non-Detected: 26%

Background Log-Normal 95th Percentile = 0.47
Background Log-Normal Mean =0.28