

Chevron Environmental Management Company

BACKGROUND SOIL EVALUATION

Former Texaco Research Center Beacon
Glenham, New York Site

ID#314004 NYSDEC ID#3-1330-48/16-0

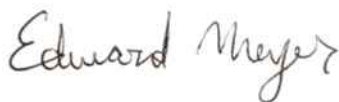
EPA ID#091894899

January 2020

A large orange geometric shape, consisting of a triangle and a rectangle, is positioned in the bottom right corner of the page. A thin white line runs diagonally across the triangle. A thin horizontal white line is located below the date 'January 2020'.



Kylie Kegerreis, P.E.
Environmental Engineer



Edward Meyer
Project Manager

BACKGROUND SOIL EVALUATION

Former Texaco Research Center
Beacon, Glenham, New York Site
ID#314004 NYSDEC ID#3-1330-48/16-0
EPA ID#091894899

Prepared for:

Chevron Environmental Management
Company
Mining and Specialty Portfolio Business Unit
1500 Louisiana St
Houston, Texas, 77002

Prepared by:

Arcadis U.S., Inc.
50 Millstone Road
Building 200
Suite 220
East Windsor
New Jersey 08520
Tel 609 860 0590
Fax 609 448 0890

Our Ref:

30043615

Date:

January 12, 2020

This document is intended only for the use of the individual or entity for which it was prepared and may contain information that is privileged, confidential and exempt from disclosure under applicable law. Any dissemination, distribution or copying of this document is strictly prohibited.

CONTENTS

Acronyms and Abbreviations	1
Qualified Environmental Professional Certification	3
1 Introduction and Purpose	4
1.1 Planned Uses of Background Data	4
1.2 Background Dataset Definition	4
1.3 Report Document Organization	5
2 Site Description and Setting	5
3 Dataset Definition	6
3.1 Background Locations	6
3.2 Constituents of Potential Concern	7
4 Data Conditioning	7
4.1 Field Duplicate Samples and Non-detect Results	7
4.2 Data Validation and Data Qualifiers	8
5 Statistical Analysis Methods	8
5.1 Kruskal-Wallis Test	8
5.2 Performing an Outlier Analysis	9
5.3 Determining the Distribution of the Data	10
5.4 Calculating Background Values	10
5.5 Selecting Background Values	11
5.6 Comparison of On-site Concentrations to Background Values	14
5.6.1 Operable Unit 1A (Main Facility Parcel)	15
5.6.1.1 Surface Soil	15
5.6.1.2 Near Surface Soil	16
5.6.2 Operable Unit 1B (Former Church Property)	16
5.6.2.1 Surface Soil	16
5.6.2.2 Near Surface Soil	17
5.6.3 Operable Unit 1C (Washington Avenue Tank Farm)	17
5.6.3.1 Surface Soil	17
5.6.3.2 Near Surface Soil	18

BACKGROUND SOIL EVALUATION

5.6.4	Operable Unit 1D (Residential Property and Rail Siding Area Property).....	18
5.6.4.1	Surface Soil	18
5.6.4.2	Near Surface Soil	18
5.6.5	Operable Unit 1E (Back 93 Acre Parcel).....	19
5.6.5.1	Surface Soil	19
5.6.5.2	Near Surface Soil	19
5.6.6	Operable Unit 3 (Residential Property Parcel).....	19
5.6.6.1	Surface Soil	20
5.6.6.2	Near Surface Soil	20
5.6.7	Operable Unit 4 (Hydroelectric Dam and Facilities).....	20
5.6.7.1	Surface Soil	20
5.6.7.2	Near Surface Soil	21
5.6.8	Pesticide Samples	21
5.6.8.1	Operable Unit 1A.....	21
5.6.8.2	Operable Unit 1B.....	21
5.6.8.3	Operable Unit 1C.....	22
5.6.8.4	Operable Unit 1D.....	22
5.6.8.5	Operable Unit 1E.....	22
5.6.8.6	Operable Unit 3	22
6	Results and Conclusions.....	22
7	References	25

TABLES (IN-TEXT)

Table 11a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG01, Surface Soil	11
Table 11b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG01, Near Surface Soil	11
Table 12a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG02, Surface Soil	12
Table 12b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG02, Near Surface Soil	12

BACKGROUND SOIL EVALUATION

Table 13a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG03, Surface Soil	12
Table 13b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG03, Near Surface Soil	12
Table 14a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG04, Surface Soil	13
Table 14b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG04, Near Surface Soil	13
Table 15a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG05, Surface Soil	13
Table 15b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG05, Near Surface Soil	13
Table 16. Pesticide COPCs with 95-95UTL Results Greater than the Applicable SCO	14
Table 17. Selected Background Parcel for Comparison to Operable Unit	15
Table 26. Refined Surface Soil COPC List and Applicable Operable Units	23
Table 27. Refined Near Surface Soil COPC List and Applicable Operable Units	24

TABLES (ATTACHED)

Table 1. Soil Constituents of Potential Concern	
Table 2. Summary of Elevated Non-Detect Results	
Table 3. Summary of Kruskal-Wallis Test Results	
Table 4a. Background Soil Potential Outliers – Surface Samples (0 – 0.17 feet bgs)	
Table 4b. Background Soil Potential Outliers – Near Surface Samples (0.17 – 2 feet bgs)	
Table 4c. Background Soil Potential Outliers – Pesticide Samples (0 – 2 feet bgs)	
Table 5a. Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG01	
Table 5b. Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG01	
Table 6a. Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG02	
Table 6b. Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG02	
Table 7a. Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG03	

BACKGROUND SOIL EVALUATION

Table 7b. Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG03

Table 8a. Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG04

Table 8b. Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG04

Table 9a. Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG05

Table 9b. Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG05

Table 10. Summary Statistics and 95-95UTLs for Pesticide COPCs in Soil (0 to 2 feet)

Table 18a. OU-1A Surface Soil Data Summary (0 to 0.17 feet)

Table 18b. OU-1A Near Surface Soil Data Summary (0.17 to 2 feet)

Table 19a. OU-1B Surface Soil Data Summary (0 to 0.17 feet)

Table 19b. OU-1B Near Surface Soil Data Summary (0.17 to 2 feet)

Table 20a. OU-1C Surface Soil Data Summary (0 to 0.17 feet)

Table 20b. OU-1C Near Surface Soil Data Summary (0.17 to 2 feet)

Table 21a. OU-1D Surface Soil Data Summary (0 to 0.17 feet)

Table 21b. OU-1D Near Surface Soil Data Summary (0.17 to 2 feet)

Table 22a. OU-1E Surface Soil Data Summary (0 to 0.17 feet)

Table 22b. OU-1E Near Surface Soil Data Summary (0.17 to 2 feet)

Table 23a. OU-3 Surface Soil Data Summary (0 to 0.17 feet)

Table 23b. OU-3 Near Surface Soil Data Summary (0.17 to 2 feet)

Table 24a. OU-4 Surface Soil Data Summary (0 to 0.17 feet)

Table 24b. OU-4 Near Surface Soil Data Summary (0.17 to 2 feet)

Table 25. Site Pesticide Soil Data Summary (0 to 2 feet)

FIGURES

Figure 1. Site Location Map

Figure 2. Site Layout

Figure 3. Background Soil Borings and Site Layout

Figure 3A. Soil Borings Exceedances Background Parcel No.1

BACKGROUND SOIL EVALUATION

Figure 3B. Soil Borings Exceedances Background Parcel No.1

Figure 3C. Soil Borings Exceedances Background Parcel No.1

Figure 3D. Soil Borings Exceedances Background Parcel No.1

Figure 3E. Soil Borings Exceedances Background Parcel No.1

APPENDICES

Appendix A. Box-and-Whisker Plots

ACRONYMS AND ABBREVIATIONS

4,4-DDD	4,4-Dichlorodiphenyldichloroethane
4,4-DDE	4,4-Dichlorodiphenyldichloroethylene
4,4-DDT	4,4-Dichlorodiphenyltrichloroethane
Arcadis	Arcadis U.S., Inc.
BeD	Bernardston silt loam, 15 to 25% slopes
bgs	below ground surface
BTV	background threshold value
CC	confidence coefficient
CEMC	Chevron Environmental Management Company
Chevron	Chevron U.S.A. Inc.
COPC	constituent of potential concern
CtC	Chatfield-Hollis Complex
EFGS	Eurofins-Frontier Global Sciences
ELLE	Eurofins-Lancaster Laboratories Environmental
FOD	frequency of detection
FS	Feasibility Study
HoF	Holyoke-Rock outcrop complex
IQR	interquartile range
KW	Kruskal-Wallis
MDL	method detection limit
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
PwC	Pittstown silt loam, 8 to 15% slopes
QAPP	Quality Assurance Project Plan
RIR	Remedial Investigation Report
ROS	regression on order statistics
SCO	Soil Cleanup Objective
Site	Texaco Research Center, Beacon Facility
SVOC	semi-volatile organic compound

BACKGROUND SOIL EVALUATION

TRCB	Texaco Research Center at Beacon
UCL	upper confidence limit
Ud	Udorthents
USEPA	United States Environmental Protection Agency
95% UPL	95% upper prediction limit
95-95UTL	95 percent upper tolerance limit with 95 percent coverage
%	percent

Qualified Environmental Professional Certification

I, Mark Lupo, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Background Soil Evaluation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plans and DER-approved modifications.

A handwritten signature in blue ink that reads "Mark J. Lupo". The signature is written in a cursive style with a horizontal line extending from the end of the name.

Mark Lupo, PG
TX PG License #: 4137
Arcadis Principal Scientist

1 INTRODUCTION AND PURPOSE

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) has prepared this Background Soil Evaluation for the former Texaco Research Center Beacon (TRCB) facility (the Site), located in the Hamlet of Glenham, New York, for submission to the New York State Department of Environmental Conservation (NYSDEC). This Background Soil Evaluation details the planned uses of background concentration data, available representative background datasets for soil, statistical evaluation approach, results, and recommended constituent of potential concern (COPC) background concentrations.

This Background Soil Evaluation has been completed in support of the Remedial Investigation phase corresponding to the NYSDEC's Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10).

This Background Soil Evaluation is based on methods detailed in guidance from the United States Environmental Protection Agency (USEPA [1995, 2006]). Arcadis prepared this Background Soil Evaluation to obtain agreement from the NYSDEC regarding the planned uses of background data, the statistical methodology for evaluating the background data, and the resulting statistically derived representative background threshold values (BTVs). The planned uses of background data are further described below.

1.1 Planned Uses of Background Data

As discussed in the Data Gap Investigation Report (Parsons 2019), the objectives of this Background Soil Evaluation are to determine the following:

- The local soil background concentrations of metals, semi-volatile organic compounds (SVOCs), and pesticides; and
- If COPC concentrations observed at the TRCB facility are indicative of background soil conditions.

This Background Soil Evaluation results with information from the Remedial Investigation Report (RIR; Arcadis 2020) will be used in the development of the upcoming Feasibility Studies (FSS) at the Site. The background soil data will refine the identification of and further clarify the nature and extent of site-related COPCs. The COPCs identified at on-site soil sampling locations are discussed further in Section 3.2.

1.2 Background Dataset Definition

Data representative of background were collected from reference areas surrounding the Site to develop a robust background dataset for each subject media. In accordance with the Revised Data Gap Investigation Work Plan (Parsons 2018), background sampling locations were established to evaluate whether COPC concentrations observed at the TRCB facility are indicative of background soil conditions. Background data include surface and near surface soils from locations surrounding the Site with native materials.

This Background Soil Evaluation includes development of background datasets and associated statistics comparable to relevant site exposure scenarios.

1.3 Report Document Organization

This Background Soil Evaluation is organized as follows:

- Section 1 – Introduction and Purpose – Summarizes the remedial program and primary methods for use of the background evaluation in follow-up Feasibility Study reporting.
- Section 2 – Site Description and Setting – Summarizes available site characterization information specifically related to the background data included in this Background Soil Evaluation.
- Section 3 – Dataset Definition – Presents the data evaluated in this Background Soil Evaluation and, where necessary, explains background data that were excluded from the analysis.
- Section 4 – Data Conditioning – Describes the methods used to process and prepare the background data for statistical evaluation.
- Section 5 – Statistical Analysis Methods – Describes the statistical methodology for developing upper-bound estimates of the background data (BTVs).
- Section 6 – Results and Conclusions – Provides statistics for the final background datasets, including results of the upper-bound statistics, and provides conclusions and recommended background concentrations for use at the Site.
- Section 7 – References – Lists the references for the documents cited in this Background Soil Evaluation. References cited in tables, figures, and attachments are provided in those documents and are not repeated in this section.

2 SITE DESCRIPTION AND SETTING

Texaco (a subsidiary of Chevron U.S.A. Inc. [Chevron]) operated the TRCB, located in the Hamlet of Glenham, Town of Fishkill, Dutchess County, New York (**Figure 1**) from 1931 until its closure in 2003. Glenham is a small residential community with churches, businesses, and a fire hall near the Site. The Site is currently owned by Chevron. CEMC manages environmental projects for Chevron and its affiliates.

The Site is divided into nine operable units (OUs): OU-1A, OU-1B, OU-1C, OU-1D, OU-1E, OU-1F, OU-2, OU-3, and OU-4 (Arcadis 2020) as shown on **Figure 2** and summarized below:

- *OU-1A (Main Facility Parcel)*: 33 acres of land including the former laboratory complex. Location of former laboratory buildings, aboveground storage tanks, underground storage tanks, and storage areas for petroleum and laboratory products.
- *OU-1B (Former Church Property)*: A 15-acre, undeveloped parcel formerly the site of a local church. No known activities took place on this parcel.
- *OU-1C (Washington Avenue Tank Farm)*: 5 acres of land south of the creek that formerly included approximately 30 aboveground storage tanks with associated facilities.
- *OU-1D (Residential Property and Rail Siding Area Property)*: A 2.06-acre, vacant parcel that was formerly used as the offload point for rail cars. Formerly the location of equipment for pumping from train cars to the tank farm and main facility.

BACKGROUND SOIL EVALUATION

- *OU-1E (Back 93 Acre Parcel)*: A 93-acre, mostly undeveloped parcel, and the former location of disposal facilities. Classified as Class 4 Hazardous Waste Site.
- *OU-1F (Fishkill Creek)*: Surface water body used as hydropower source for the Site. Receives stormwater and wastewater treatment plant discharges.
- *OU-2 (Road Parcel)*: A parcel along and underneath Washington Avenue that has been utilized by Dutchess County. This parcel is located outside the fence line of the main property and is maintained by the Town of Fishkill. Currently there is no data set available for OU-2 and as a result it has been excluded from analysis in this evaluation. Results of future sampling at OU-2 will have a background evaluation performed on them and provided to the NYSDEC.
- *OU-3 (Residential Property Parcel)*: A 0.67-acre vacant parcel on Washington Avenue. No TRCB activities were conducted on this property.
- *OU-4 (Hydroelectric Facility and Dam)*: A 4.96-acre parcel that includes the Texaco Research Center Dam, associated facilities, and undeveloped access route along the southern side of Fishkill Creek.

3 DATASET DEFINITION

This section describes the background locations and COPCs included in the background evaluation.

3.1 Background Locations

Background parcels selected for sampling activities met the qualifications for background sampling as defined in the NYSDEC Technical Guidance for Site Investigation and Remediation (NYSDEC 2010a), which includes the following:

- The background parcel must have similar soil type(s) as present on the Site;
- The background parcel must be unaffected by current and historical site activities; and
- The background parcel, whenever possible, should be located topographically upgradient and upwind of the Site.

The five offsite background parcels (BG01 through BG05) selected and approved by NYSDEC (Parsons 2017, 2018) are described below:

- *BG01 (Residential Parcel)*: Located north of the Site with a soil type comparable to portions of OU-1A (Chatfield-Hollis Complex [CtC]).
- *BG02 (Re-Community Center Parcel)*: Located southwest of the Site with a soil type comparable to OU-1C, portions of OU-1D, OU-2, and portions of OU-4 (Udorthents [Ud]).
- *BG03 (New York State Office of Parks, Recreation, and Historic Preservation Property)*: Located east of OU-1E with a comparable soil type to portions of OU-1E (Bernardston silt loam, 15 to 25 percent (%) slopes [BeD]).

BACKGROUND SOIL EVALUATION

- *BG04 (New York State Office of Parks, Recreation, and Historic Preservation Property)*: Located east of OU-1E and southwest of Background Parcel BG03 with a comparable soil type to OU-3 and portions of OU-1D, OU-1E, and OU-4 (Pittstown silt loam, 8 to 15% slopes [PwC]).
- *BG05 (New York State Office of Parks, Recreation, and Historic Preservation Property)*: Located southeast of OU-1E and south of Background Parcel BG04 with soil type Holyoke-Rock outcrop complex (HoF).

Fifty soil borings were completed at the background parcels described above based on the soil types encountered on the different OUs making up the former TRCB facility (**Figure 3**). Ten soil borings were taken from each background parcel corresponding to the same or similar soil type existing at the TRCB (**Figures 3A to 3E**). All samples were collected at depths of 0 to 2 inches below ground surface (bgs), 2 to 6 inches bgs, 6 inches bgs to 1-foot bgs and 1 to 2 feet bgs. Borings were completed on the Thompson's Residential Parcel, the Re-Community Recycling Center Parcel, and three New York State Office of Parks, Recreation, and Historic Preservation parcels.

3.2 Constituents of Potential Concern

Initially, all constituent data previously collected at the Site were screened to select which constituents should be evaluated. If background data for a constituent were collected and the constituent was identified in the RIR (Arcadis 2020) as a soil COPC¹ in any of the OUs at either the surface (0 to 2 inches bgs)² or near surface (2 to 24 inches bgs) intervals, the constituent data were included in the background evaluation. The COPC list is comprised of 29 constituents as shown in **Table 1**.

4 DATA CONDITIONING

This section describes the methods used to process and prepare data for statistical evaluation.

4.1 Field Duplicate Samples and Non-detect Results

Field duplicate samples collected for quality assurance and quality control purposes were not included in the statistical evaluation.

If a COPC was not detected, the method detection limit (MDL) was used (i.e., as the censoring limit) to represent the COPC concentration in the background dataset. Elevated non-detects greater than the maximum detected concentration were excluded from the background dataset (**Table 2**). For summary statistics (presented in Section 6), the mean and standard deviation were calculated by substituting the MDL for non-detects. For calculating the average and standard deviation values used in calculating BTVs (Section 5.4):

- For datasets with 100% frequency of detection (FOD), direct calculation was used.

¹ A soil COPC is defined as a constituent with a maximum concentration exceeding the applicable unrestricted use soil cleanup objective (NYSDEC 2010a, 2010b).

² For mercury, an additional sample interval of 0 to 6 inches was collected and included with the surface interval.

- For datasets with less than 100% FOD but greater than or equal to 75% FOD, the Kaplan-Meier method was used.
- For datasets with less than 75% FOD but greater than 50% FOD, the regression on order statistics (ROS) method was used.
- For datasets with less than or equal to 50% FOD, BTVs were not calculated.

4.2 Data Validation and Data Qualifiers

The samples were collected by Parsons and analyzed by Eurofins-Lancaster Laboratories Environmental (ELLE) in Lancaster, Pennsylvania, and Eurofins-Frontier Global Sciences (EFGS) in Bothell, Washington, following the procedures outlined in the Quality Assurance Project Plan (QAPP; Parsons 2016).

The usability of the COPC analytical background data was confirmed prior to statistically evaluating mean and upper-bound estimates. All analytical data used in this Background Soil Evaluation met QAPP (Parsons 2016) requirements as documented in the Data Usability Summary Report attached to the Parsons Data Gap Investigation Report (Parsons 2019).

Estimated concentrations (those results denoted with the “J” qualifier) were treated as quantified detected concentrations and are included in the datasets. No data rejected through the data validation process are included in the datasets.

5 STATISTICAL ANALYSIS METHODS

This section describes the statistical methods used to evaluate the analytical data to:

- Identify data that may not be representative of background conditions (i.e., outliers)
- Calculate the upper-bound estimates of the background concentrations.

First, the Kruskal-Wallis (KW) test (Section 5.1) was conducted to determine whether the data from the surface and near surface intervals should be pooled or evaluated separately. Then an outlier analysis, described in Section 5.2, was conducted to evaluate if any of the observations were unusually elevated or otherwise unrepresentative of background conditions. This section also describes the methods applied to the final background dataset, including determination of the distribution of the data (Section 5.3), calculation of statistics (Section 5.4), and selection of final background values (Section 5.5).

5.1 Kruskal-Wallis Test

The KW test is a non-parametric test that does not require an assumption of normality. To perform the test, the concentration data are ranked from smallest to largest. If non-detect values are present, they are assigned a rank of 1. When data are tied (i.e., samples with the same concentration), the average of their rank is assigned to each tied sample. The average rank is then calculated for each group and the overall dataset. If the average rank is similar for each group and to the average rank of the overall dataset, then the null hypothesis of no difference between groups is true. Conversely, if the average rank for some groups differ, then the alternative hypothesis is true (i.e., there is a statistical difference between groups).

A test statistic (H Statistic) is computed based on the average group rank and the average rank of the overall dataset. A test statistic of zero implies that all groups have identical average ranks, whereas a positive test statistic implies that the average group ranks are different (USEPA 2009).

The test statistic is compared to a critical value based on a chosen confidence level (1-alpha) in order to accept or reject the null hypothesis of no difference between groups. A 95 percent confidence level was chosen (alpha = 0.05); therefore, probability values (p-values) for the test statistic that are less than 0.05 indicate a statistically significant difference between groups.

Results of the KW test are summarized in **Table 3** and indicate a statistically significant difference between the surface and near surface soil data; therefore, BTVs will be calculated for each depth interval. Due to an insufficient sample size (i.e., less than 12 data points), the KW test was not performed for the COPC pesticides (4,4-dichlorodiphenyldichloroethane [4,4-DDD], 4,4-dichlorodiphenyldichloroethane [4,4-DDE], 4,4-dichlorodiphenyltrichloroethane [4,4-DDT], and endrin); therefore, pooled BTVs will be calculated for the pesticides.

5.2 Performing an Outlier Analysis

An outlier analysis can help identify potential outliers that may not be representative of the true background population. Including outliers in a background dataset could lead to Type I (false positive) or Type II (false negative) errors (USEPA 2002). Type I errors may also occur with the exclusion of data points from a background dataset; when extreme values are inappropriately eliminated from the background dataset, this tends to bias the mean and variance low.

Location-constituent pairs with a rate of detection less than 50% and a detection count less than or equal to five were not analyzed for outliers. An outlier analysis was conducted according to the steps outlined in the Data Quality Assessment: Statistical Methods for Practitioners (USEPA 2006) as follows:

1. Tukey's interquartile range (IQR; defined as the third quartile [75th percentile] minus the first quartile [25th percentile]; USEPA 2006, 2015) test (USEPA 2009; Tukey 1977) was used to identify potential outliers.
2. Box-and-whisker plots were inspected to identify potential outliers and isolated results that are separate from the majority of the data. Box-and-whisker plots present an overall picture of the distribution of a dataset by displaying several percentiles (10th, 25th, 50th, 75th, and 90th). They provide insight into the location, shape, and spread of the data. Data are commonly plotted together in side-by-side box-and-whisker plots to determine if concentrations are comparable across multiple datasets. Additionally, potential elevated or extreme values (i.e., outliers) are identified on box-and-whisker plots as either 1.5 or 3 times the IQR from either end of the box, respectively. Box-and-whisker plots were created using the RStudio computer program. **Appendix A** presents side-by-side box-and-whisker plots for each COPC and background parcel in the analytical dataset.
3. Potential outliers identified using Steps 1 and 2 are summarized in **Tables 4a, 4b, and 4c** for surface samples, near surface samples, and pesticide samples, respectively.

5.3 Determining the Distribution of the Data

Many statistical tests are predicated on the normality of the dataset; therefore, datasets were tested to demonstrate normality. The Shapiro-Wilk Test for Normality was used for datasets with sample sizes up to 50 (USEPA 2009; Shapiro and Wilk 1965). The test was run at the 5% critical level. For datasets with a sample size greater than 50, the Shapiro-Francia Test for Normality was used (USEPA 2009; Shapiro and Francia 1972).

If a dataset did pass a test of normality, data were transformed following the ladder of powers. The ladder of powers is a sequence of transformations: square root, square, cube root, cube, logarithmic transformation, x^4 , x^5 , and x^6 (Helsel and Hirsch 2002; Box and Cox 1964). All points in the untransformed dataset were changed by one of these operations and the new dataset was tested to determine if the transformed data meet the criterion of normality. If the test failed, the original data were transformed using the next transformation in the ladder. Transformations were attempted in the order of the ladder of powers until normality was achieved, or until all of the options were exhausted. In the latter case, non-parametric tests would be necessary. The distribution that was used to calculate statistics for each dataset is listed in the statistical summary tables for each COPC (see Section 6).

5.4 Calculating Background Values

Following the outlier analysis and determination of the data distribution, statistical methods were used to calculate the upper-bound limits of the background population. Several statistics are useful to describe the upper limits of a background distribution as described in the ProUCL Technical Guide (USEPA 2015):

- *95 percent upper prediction limit (95% UPL)*. The 95% UPL represents the statistic such that an independently collected new/future observation from the target population will be less than or equal to the 95% UPL with a confidence coefficient (CC) of 0.95 (i.e., 95 percent probability). A parametric upper prediction limit considers data variability.
- *95 percent upper tolerance limit with 95 percent coverage (95-95UTL)*. The 95-95UTL represents the statistic such that 95% of observations (current and future) from the target population will be less than or equal to the 95-95UTL with a CC of 0.95. A 95-95UTL represents a 95% upper confidence limit (UCL) of the 95th percentile of the data distribution (population). A 95-95UTL is designed to simultaneously provide coverage for 95% of the potential observations (current and future) from the background population (or comparable to background) with a CC of 0.95. A 95-95UTL can be used when many (unknown) current or future on-site observations need to be compared to a BTV. A parametric 95-95UTL considers data variability.

The 95-95UTL was selected as the proposed BTV because it represents the value such that 95% of the background observations are expected to be less than this value with 95% confidence (USEPA 2015). Therefore, while the majority of the data will be less than the 95-95UTL value, the potential exists that a background data point may exceed the 95-95UTL value. The 95-95UTL value is proposed as the background value to be used as needed in the remedial investigation and FS in addition to the screening values to help define the nature and extent of site-related COPCs and consider remedial efforts. The equation provided in ProUCL 5.1 (USEPA 2015) was used to calculate the BTV.

5.5 Selecting Background Values

The following procedure was used to select background statistics for each background parcel and COPC at the Site:

- If the dataset included five or more detected values, the 95-95UTL (selected to represent the BTV) was calculated.
- If the dataset included less than five detected values, the maximum detected value was used to represent the BTV.
- If all of the data were non-detect, the maximum detection limit was used to represent the BTV.

The BTV was then compared to the applicable Soil Cleanup Objective (SCO; NYSDEC 2010a, 2010b) and the greater of the BTV and the SCO was selected as the background value.

Summary statistics and background values were calculated for each constituent with elevated non-detect values excluded and are presented for each background parcel and depth interval in **Tables 5a** through **10**. COPCs with a 95-95UTL, which exceeded the applicable SCO, are summarized in **Tables 11a** through **16** below.

Table 11a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG01, Surface Soil

COPC	95-95UTL	SCO	SCO Type
Chromium	32.4	30.0	Unrestricted
Copper	98.2	50.0	Unrestricted
Iron	40724	2000	Residential
Lead	379	63	Unrestricted
Nickel	35.8	30.0	Unrestricted
Zinc	462	109	Unrestricted

Table 11b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG01, Near Surface Soil

COPC	95-95UTL	SCO	SCO Type
Iron	36236	2000	Residential
Lead	335	63	Unrestricted
Nickel	31.7	30.0	Unrestricted
Zinc	297	109	Unrestricted

BACKGROUND SOIL EVALUATION

Table 12a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG02, Surface Soil

COPC	95-95UTL	SCO	SCO Type
Iron	38036	2000	Residential
Nickel	31.2	30.0	Unrestricted
Zinc	122	109	Unrestricted

Table 12b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG02, Near Surface Soil

COPC	95-95UTL	SCO	SCO Type
Chromium	31.3	30.0	Unrestricted
Copper	53.7	50.0	Unrestricted
Iron	38036	2000	Residential
Manganese	1673	1600	Unrestricted
Nickel	31.2	30.0	Unrestricted

Table 13a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG03, Surface Soil

COPC	95-95UTL	SCO	SCO Type
Arsenic	14.7	13.0	Unrestricted
Iron	59000	2000	Residential
Lead	101	63.0	Unrestricted
Manganese	4530	1600	Unrestricted
Mercury	0.35	0.18	Unrestricted
Nickel	37.5	30.0	Unrestricted
Zinc	167	109	Unrestricted

Table 13b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG03, Near Surface Soil

COPC	95-95UTL	SCO	SCO Type
Iron	36397	2000	Residential
Mercury	0.19	0.18	Unrestricted

BACKGROUND SOIL EVALUATION

Table 14a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG04, Surface Soil

COPC	95-95UTL	SCO	SCO Type
Iron	31366	2000	Residential
Lead	100	63.0	Unrestricted
Mercury	0.31	0.18	Unrestricted
Zinc	132	109	Unrestricted

Table 14b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG04, Near Surface Soil

COPC	95-95UTL	SCO	SCO Type
Iron	36401	2000	Residential
Nickel	30.9	30.0	Unrestricted

Table 15a. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG05, Surface Soil

COPC	95-95UTL	SCO	SCO Type
4-Methylphenol (p-Cresol)	1.8	0.33	Unrestricted
Iron	49490	2000	Residential
Lead	136	63.0	Unrestricted
Manganese	2421	1600	Unrestricted
Mercury	0.45	0.18	Unrestricted
Nickel	30.9	30.0	Unrestricted

Table 15b. COPCs with 95-95UTL Results Greater than the Applicable SCO, Background Parcel BG05, Near Surface Soil

COPC	95-95UTL	SCO	SCO Type
Iron	78200	2000	Residential
Lead	200	63.0	Unrestricted
Mercury	0.24	0.18	Unrestricted
Nickel	38.7	30.0	Unrestricted
Zinc	169	109	Unrestricted

BACKGROUND SOIL EVALUATION

Table 16. Pesticide COPCs with 95-95UTL Results Greater than the Applicable SCO

COPC	95-95UTL	SCO	SCO Type
Background Parcel: BG01			
4,4-DDE	0.017	0.0033	Unrestricted
4,4-DDT	0.016	0.0033	Unrestricted
Background Parcel: BG02			
4,4-DDE	0.041	0.0033	Unrestricted
4,4-DDT	0.013	0.0033	Unrestricted
Background Parcel: BG03			
4,4-DDD	0.0038	0.0033	Unrestricted
4,4-DDE	0.0070	0.0033	Unrestricted
4,4-DDT	0.0065	0.0033	Unrestricted
Background Parcel: BG04			
4,4-DDT	0.0046	0.0033	Unrestricted
Background Parcel: BG05			
4,4-DDE	0.017	0.0033	Unrestricted
4,4-DDT	0.017	0.0033	Unrestricted

5.6 Comparison of On-site Concentrations to Background Values

On-site data for each operable unit were compared to background values calculated for the background parcel with a comparable soil type. **Table 17**, below, lists the applicable background parcel for each operable unit.

BACKGROUND SOIL EVALUATION

Table 17. Selected Background Parcel for Comparison to Operable Unit

Operable Unit	Major Soil Type	Background Parcel
OU-1A	Chatfield-Hollis Complex (CtC)	BG01
OU-1B	Holyoke-Rock outcrop complex (HoF)	BG05
OU-1C	Udorthents (Ud)	BG02
OU-1D	Pittstown silt loam, 8 to 15% slopes (PwC)	BG04
OU-1E	Bernardston silt loam, 15 to 25% slopes (BeD)	BG03
OU-3	Pittstown silt loam, 8 to 15% slopes (PwC)	BG04
OU-4	Udorthents (Ud)	BG02

Summary statistics including sample count, detection count, minimum detection, maximum detection, non-detection frequency, minimum non-detection, maximum non-detection, arithmetic mean, and background value exceedance frequency were calculated for soil collected from surface (0 and 0.17 feet bgs) and near surface (0.17 and 2 feet bgs) intervals from each OU³. The COPCs identified for each OU and depth interval (**Table 1**) were included in the statistical calculations. If a COPC met one of the following criteria, it was removed from the COPC list for the corresponding OU:

- The frequency of exceedance of the background value is less than or equal to 5%.
- A maximum detected concentration to background value ratio of less than 2.

Results are summarized below by OU and depth interval.

5.6.1 Operable Unit 1A (Main Facility Parcel)

Summary statistics and comparison of OU-1A data to Background Parcel BG01 data are presented in **Tables 18a and 18b** for surface and near surface soil, respectively. Results are discussed in the subsections below.

5.6.1.1 Surface Soil

Surface soil results for 11 constituents in OU-1A were compared to applicable background values from Background Parcel BG01. Two of these constituents (copper and iron) did not have an exceedance of the applicable background value. The remaining nine constituents had at least one exceedance of the applicable background value. Eight of these 11 constituents had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list. These constituents include:

³ For pesticide COPCs, summary statistics were calculated for soil collected between 0 and 2 feet bgs.

BACKGROUND SOIL EVALUATION

- *Metals*: Barium, copper, iron, lead, manganese, nickel, vanadium, and zinc.

One additional constituent (chromium) had a maximum detected concentration to background value ratio of less than two and was removed from the COPC list.

The remaining two constituents are considered COPCs for surface soil in OU-1A and include:

- Arsenic
- Mercury.

5.6.1.2 Near Surface Soil

Near surface soil results for 13 constituents in OU-1A were compared to applicable background values from Background Parcel BG01. All of these constituents had at least one exceedance of the applicable background value. Eight of these 13 constituents had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list. These constituents include:

- SVOCs: 4-Methylphenol (p-Cresol)
- *Metals*: Barium, cobalt, iron, manganese, nickel, vanadium, and zinc.

The remaining five constituents are considered COPCs for near surface soil in OU-1A and include:

- Arsenic
- Chromium
- Copper
- Lead
- Mercury.

5.6.2 Operable Unit 1B (Former Church Property)

Summary statistics and comparison of OU-1B data to Background Parcel BG05 data are presented in **Tables 19a and 19b** for surface and near surface soil, respectively. Results are discussed in the subsections below.

5.6.2.1 Surface Soil

Surface soil results for 10 constituents in OU-1B were compared to applicable background values from Background Parcel BG05. All of these constituents had at least one exceedance of the applicable background value, with the exception of iron. Iron had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

Eight additional constituents had a maximum detected concentration to background value ratio of less than or equal to 2.0 and were removed from the COPC list. These constituents include:

- SVOCs: benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene
- *Metals*: arsenic, lead, manganese, nickel, vanadium, and mercury.

BACKGROUND SOIL EVALUATION

The remaining constituent (zinc) is considered a COPC for surface soil in OU-1B.

5.6.2.2 Near Surface Soil

Near surface soil results for 19 constituents in OU-1B were compared to applicable background values from Background Parcel BG05. Six of these constituents (benzo[k]fluoranthene, dibenz[a,h]anthracene, iron, nickel, selenium, and silver) did not have an exceedance of the applicable background value. The remaining 13 constituents had at least one exceedance of the applicable background value. Twelve of these 19 constituents had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list. These constituents include:

- *SVOCs*: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.
- *Metals*: iron, nickel, selenium, silver, and vanadium.

Three additional constituents had a maximum detected concentration to background value ratio of less than or equal to 2.0 and were removed from the COPC list. These constituents include:

- *Metals*: arsenic, copper, and zinc.

The remaining four constituents are considered COPCs for near surface soil in OU-1B and include:

- *Metals*: chromium, lead, manganese, and mercury.

5.6.3 Operable Unit 1C (Washington Avenue Tank Farm)

Summary statistics and comparison of OU-1C data to Background Parcel BG02 data are presented in **Tables 20a and 20b** for surface and near surface soil, respectively. Results are discussed in the subsections below.

5.6.3.1 Surface Soil

Surface soil results for nine constituents in OU-1C were compared to applicable background values from Background Parcel BG02. All of these constituents had at least one exceedance of the applicable background value, with the exception of iron. Iron had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

Three additional constituents had a maximum detected concentration to background value ratio of less than or equal to two and were removed from the COPC list. These constituents include:

- *SVOCs*: phenol
- *Metals*: copper and nickel.

The remaining five constituents are considered COPCs for surface soil in OU-1C and include:

- *Metals*: arsenic, chromium, lead, zinc, and mercury.

5.6.3.2 Near Surface Soil

Near surface soil results for nine constituents in OU-1C were compared to applicable background values from Background Parcel BG02. All of these constituents had at least one exceedance of the applicable background value. Two of these constituents (manganese and selenium) had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list.

The remaining seven constituents are considered COPCs for near surface soil in OU-1C and include:

- *Metals*: arsenic, chromium, copper, lead, nickel, zinc, and mercury.

5.6.4 Operable Unit 1D (Residential Property and Rail Siding Area Property)

Summary statistics and comparison of OU-1D data to Background Parcel BG04 data are presented in **Tables 21a and 21b** for surface and near surface soil, respectively. Results are discussed in the subsections below.

5.6.4.1 Surface Soil

Surface soil results for 12 constituents in OU-1D were compared to applicable background values from Background Parcel BG04. All of these constituents had at least one exceedance of the applicable background value, with the exception of lead. Lead had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

Nine additional constituents had a maximum detected concentration to background value ratio of less than or equal to 2.0 and were removed from the COPC list. These constituents include:

- *SVOCs*: benzo(a)anthracene, benzo(b)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene
- *Metals*: chromium, copper, nickel, zinc, and mercury.

The remaining two constituents are considered COPCs for surface soil in OU-1D and include:

- *Metals*: arsenic and vanadium.

5.6.4.2 Near Surface Soil

Near surface soil results for 17 constituents in OU-1D were compared to applicable background values from Background Parcel BG04. All of these constituents had at least one exceedance of the applicable background value. Three of these 17 constituents had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list. These constituents include:

- *SVOCs*: 2-methylnaphthalene
- *Metals*: chromium and manganese.

Four additional constituents had a maximum detected concentration to background value ratio of less than or equal to 2.0 and were removed from the COPC list. These constituents include:

- *SVOCs*: benzo(k)fluoranthene, dibenz(a,h)anthracene
- *Metals*: iron, lead, and zinc.

BACKGROUND SOIL EVALUATION

The remaining 9 constituents are considered COPCs for near surface soil in OU-1D and include:

- *SVOCs*: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene
- *Metals*: arsenic, nickel, vanadium, and mercury.

5.6.5 Operable Unit 1E (Back 93 Acre Parcel)

Summary statistics and comparison of OU-1E data to Background Parcel BG03 data are presented in **Tables 22a and 22b** for surface and near surface soil, respectively. Results are discussed in the subsections below.

5.6.5.1 Surface Soil

Surface soil results for 16 constituents in OU-1E were compared to applicable background values from Background Parcel BG03. All of these constituents had at least one exceedance of the applicable background value, with the exception of iron, lead, and manganese. All 16 constituents had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list. These constituents include:

- *SVOCs*: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene
- *Metals*: arsenic, chromium, iron, lead, manganese, nickel, vanadium, zinc, and mercury.

There are no remaining COPCs for surface soil in OU-1E.

5.6.5.2 Near Surface Soil

Near surface soil results for 15 constituents in OU-1E were compared to applicable background values from Background Parcel BG03. All of these constituents had at least one exceedance of the applicable background value. Fourteen of these 15 constituents had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list. These constituents include:

- *SVOCs*: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and phenol
- *Metals*: arsenic, chromium, iron, manganese, zinc, and mercury.

One additional constituent (nickel) had a maximum detected concentration to background value ratio of less than or equal to 2.0 and were removed from the COPC list.

There are no remaining COPCs for near surface soil in OU-1E.

5.6.6 Operable Unit 3 (Residential Property Parcel)

Summary statistics and comparison of OU-3 data to Background Parcel BG04 data are presented in **Tables 23a and 23b** for surface and near surface soil, respectively. Results are discussed in the subsections below.

BACKGROUND SOIL EVALUATION

5.6.6.1 Surface Soil

Surface soil results for eight constituents in OU-3 were compared to applicable background values from Background Parcel BG04. All of these constituents had at least one exceedance of the applicable background value, with the exception of iron and mercury. Two of these eight constituents (iron and mercury) had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list.

Three additional constituents had a maximum detected concentration to background value ratio of less than or equal to two and were removed from the COPC list. These constituents include:

- SVOCs: benzo(a)pyrene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene.

The remaining three constituents are considered COPCs for surface soil in OU-3 and include:

- SVOCs: benzo(a)anthracene, benzo(b)fluoranthene, and chrysene.

5.6.6.2 Near Surface Soil

Near surface soil results for two constituents (iron and nickel) in OU-3 were compared to applicable background values from Background Parcel BG04. Nickel had at least one exceedance of the applicable background value. Iron had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

Nickel had a maximum detected concentration to background value ratio of less than or equal to 2.0 and was removed from the COPC list.

There are no remaining COPCs for near surface soil in OU-3.

5.6.7 Operable Unit 4 (Hydroelectric Dam and Facilities)

Summary statistics and comparison of OU-4 data to Background Parcel BG02 data are presented in **Tables 24a and 24b** for surface and near surface soil, respectively. Results are discussed in the subsections below.

5.6.7.1 Surface Soil

Surface soil results for 11 constituents in OU-4 were compared to applicable background values from Background Parcel BG02. All of these constituents had at least one exceedance of the applicable background value, with the exception of barium. Barium had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

Five additional constituents (arsenic, cadmium, iron, nickel, and selenium) had a maximum detected concentration to background value ratio of less than or equal to 2.0 and were removed from the COPC list.

The remaining five constituents are considered COPCs for surface soil in OU-4 and include:

- *Metals*: chromium, copper, lead, zinc, and mercury.

5.6.7.2 Near Surface Soil

Near surface soil results for 15 constituents in OU-4 were compared to applicable background values from Background Parcel BG02. All of these constituents had at least one exceedance of the applicable background value, with the exception of manganese. Eight of these 15 constituents had a frequency of background value exceedance of less than or equal to 5% and were removed from the COPC list. These constituents include:

- *SVOCs*: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene, and phenol
- *Metals*: arsenic and manganese.

Three additional constituents had a maximum detected concentration to background value ratio of less than or equal to 2.0 and were removed from the COPC list. These constituents include:

- *Metals*: iron, nickel, and zinc.

The remaining four constituents are considered COPCs for near surface soil in OU-4 and include:

- *Metals*: chromium, copper, lead, and mercury.

5.6.8 Pesticide Samples

Summary statistics and comparison of pesticide data to Background Parcel data are presented in **Table 25**. Results are discussed in the subsections below.

5.6.8.1 Operable Unit 1A

Soil results for four pesticides (4,4-DDD, 4,4-DDE, 4,4-DDT, and endrin) were compared to applicable background values from Background Parcel BG01. All of these constituents had at least one exceedance of the applicable background value. 4,4-DDD had a maximum detected concentration to background value ratio of less than or equal to two and was removed from the COPC list.

The remaining three constituents (4,4-DDE, 4,4-DDT, and endrin) are considered COPCs for soil in OU-1A.

5.6.8.2 Operable Unit 1B

Soil results for three pesticides (4,4-DDD, 4,4-DDE, and 4,4-DDT) were compared to applicable background values from Background Parcel BG05. All of these constituents had at least one exceedance of the applicable background value. 4,4-DDD had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

The remaining two constituents (4,4-DDE and 4,4-DDT) are considered COPCs for soil in OU-1B.

BACKGROUND SOIL EVALUATION

5.6.8.3 Operable Unit 1C

Soil results for 4,4-DDT were compared to the applicable background value from Background Parcel BG02. 4,4-DDT had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

Pesticides are not considered COPCs for soil in OU-1C.

5.6.8.4 Operable Unit 1D

Soil results for three pesticides (4,4-DDD, 4,4-DDE, and 4,4-DDT) were compared to applicable background values from Background Parcel BG04. All of these constituents had at least one exceedance of the applicable background value. 4,4-DDD had a maximum detected concentration to background value ratio of less than or equal to two and was removed from the COPC list.

The remaining two constituents (4,4-DDE and 4,4-DDT) are considered COPCs for soil in OU-1D.

5.6.8.5 Operable Unit 1E

Soil results for 4,4-DDE were compared to the applicable background value from Background Parcel BG03. 4,4-DDE had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

Pesticides are not considered COPCs for soil in OU-1E.

5.6.8.6 Operable Unit 3

Soil results for two constituents (4,4-DDE and 4,4-DDT) were compared to applicable background values from Background Parcel BG04. 4,4-DDT had a frequency of background value exceedance of less than or equal to 5% and was removed from the COPC list.

The remaining constituent (4,4-DDE) is considered a COPC for soil in OU-3.

6 RESULTS AND CONCLUSIONS

Background soil collected between 0 and 2 feet bgs was evaluated to estimate the local soil background concentrations of 29 COPCs (**Table 1**) and to evaluate whether the concentrations observed at the TRCB facility are indicative of background soil conditions. Thirteen elevated non-detect results were excluded from the evaluation (**Table 2**). The KW test indicated that results from the surface (0 to 0.17 feet bgs) and near surface (0.17 to 2 feet bgs) intervals should be evaluated separately (**Table 3**). Due to a limited background dataset, pesticide results were pooled for the 0 to 2 feet bgs interval. Background soil box-and-whisker plots are presented in **Appendix A**, and potential outliers are provided in **Tables 4a through 4c**.

Summary statistics and the selected background value for each COPC in each background parcel and depth interval are provided in **Tables 5a through 10**. COPCs with a 95-95UTL, which exceeded the applicable SCO, are summarized for each background parcel in **Tables 11a through 16** (Section 5.5).

BACKGROUND SOIL EVALUATION

Following comparison of on-site concentrations to applicable background values (Section 5.6), 11 of the 24 surface COPCs were removed from the surface COPC list, including:

- **SVOCs:** benzo(a)pyrene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and phenol
- **Metals:** barium, cadmium, iron, manganese, nickel, and selenium.

In addition, based on historic operations and site activities referenced in the RIR (Arcadis 2020) and detailed in Section 2 above, three SVOC COPCs (benzo(a)anthracene, benzo(b)fluoranthene and chrysene) observed in surface soils at OU-3 are not suspected to be related to historic site uses but the result of the neighboring property burn pit remnants observed onsite at the sample location. As a result, they have been left off of the refined surface soil COPC list in Table 26 below.

The remaining 10 COPCs and applicable OUs are summarized in **Table 26**, below.

Similarly, 10 of the 27 near surface constituents were removed as near surface COPCs, including:

- **SVOCs:** 2-methylnaphthalene, 4-methylphenol (p-cresol), dibenz(a,h)anthracene, and phenol
- **Pesticides:** 4,4-DDD
- **Metals:** barium, cobalt, iron, selenium, and silver.

The remaining 17 COPCs and applicable OUs are summarized in **Table 27**, below.

Table 26. Refined Surface Soil COPC List and Applicable Operable Units

Analyte	OU-1A	OU-1B	OU-1C	OU-1D	OU-1E	OU-3 ¹	OU-4
Pesticides							
4,4-DDE	X					X	
4,4-DDT	X						
Endrin	X						
Metals							
Arsenic	X		X	X			
Chromium			X				X
Copper							X
Lead			X				X
Vanadium				X			
Zinc		X	X				X
Mercury	X		X				X

Note:

X: Surface COPC

1: The dataset for surface soils from OU-3 only contains five samples.

BACKGROUND SOIL EVALUATION

Table 27. Refined Near Surface Soil COPC List and Applicable Operable Units

Analyte	OU-1A	OU-1B	OU-1C	OU-1D	OU-1E	OU-3	OU-4
Semi-volatile Organic Compounds							
Benzo(a)anthracene				X			
Benzo(a)pyrene				X			
Benzo(b)fluoranthene				X			
Benzo(k)fluoranthene				X			
Chrysene				X			
Indeno(1,2,3-cd)pyrene				X			
Pesticides							
4,4-DDE	X	X		X		X	
4,4-DDT	X	X		X			
Metals							
Arsenic	X		X	X			
Chromium	X	X	X				X
Copper	X		X				X
Lead	X	X	X				X
Manganese		X					
Nickel			X	X			
Vanadium				X			
Zinc			X				
Mercury	X	X	X	X			X

Note:

X: Near surface COPC

Site parcel OU-2 has not been sampled and thus no representative soil data exists. As a result, it was excluded from this evaluation. A background data evaluation will be performed on future soil samples collected from OU-2 and provided to NYSDEC.

7 REFERENCES

- Arcadis. 2020. Remedial Investigation Report. Former Texaco Research Center, Beacon, New York. June.
- Box GEP and Cox DR. 1964. An analysis of transformations (with discussion). Journal of Royal Statistical Society Series B, 26, 211-252.
- Helsel DR and Hirsch RM. 2002. Chapter A3: Statistical Methods in Water Resources: Techniques of Water-Resources Investigations of United States Geological Survey: B4, Hydrologic Analysis and Interpretation. United States Geological Survey.
- NYSDEC. 2010a. Division of Environmental Remediation, Draft DER – 10 Technical Guidance for Site Investigation and Remediation. May 3.
- NYSDEC. 2010b. CP-51/Soil Cleanup Guidance. DEC Policy. October 21.
- Parsons. 2016. Quality Assurance Project Plan, 2017 Data Gap Investigation. Former Chevron Research Center, Beacon, New York. April (Revised February 2017).
- Parsons. 2018. Revised Data Gap Investigation Work Plan. Former Texaco Research Center, Beacon, New York. October.
- Parsons. 2017. Revised Data Gap Investigation Work Plan. Former Texaco Research Center, Beacon, New York. February.
- Parsons. 2019. Data Gap Investigation Report. Former Texaco Research Center, Beacon (Glenham), New York. May.
- Shapiro SS and Francia RS. 1972. An approximate analysis of variance test for normality. J. Amer. Stat. Assn. 67(337), 215-216.
- Shapiro SS and Wilk MB. 1965. An analysis of variance test for normality (complete samples). Biometrika, 52, 591-611
- Tukey, J. 1977. Exploratory Data Analysis. Reading, MA: Addison-Wesley.
- USEPA. 1995. Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites. EPA/540/S-96/500. December.
- USEPA. 2002. Guidance on Choosing a Sampling Design for Environmental Data Collection for Use in Developing a Quality Assurance Project Plan. Office of Environmental Information. EPA QA/G-5S. EPA/240/R-02/005. December.
- USEPA. 2006. Data Quality Assessment: Statistical Methods for Practitioners. Office of Environmental Information. EPA/240/B-06/003. February.
- USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. U.S. Environmental Protection Agency, Washington, DC. March.
- USEPA. 2015. ProUCL Version 5.1 Technical Guide. EPA/600/R-07/041. October 2015. Available online at: http://www.epa.gov/osp/hstl/tsc/ProUCL_v5.1_tech.pdf.

TABLES



Table 1
Soil Constituents of Potential Concern
Chevron Environmental Management Company
Former Texaco Research Center Beacon
Glenham, NY

Analyte	OU-1A		OU-1B		OU-1C		OU-1D		OU-1E		OU-3		OU-4	
	Surface	Near Surface	Surface	Near Surface	Surface	Near Surface	Surface	Near Surface	Surface	Near Surface	Surface	Near Surface	Surface	Near Surface
Semivolatile Organic Compounds														
2-Methylnaphthalene								X						
4-Methylphenol (p-Cresol)		X												
Benzo(a)anthracene				X			X	X	X	X	X			X
Benzo(a)pyrene				X				X	X	X	X			X
Benzo(b)fluoranthene			X	X			X	X	X	X	X			X
Benzo(k)fluoranthene				X				X	X	X	X			
Chrysene				X			X	X	X	X	X			X
Dibenz(a,h)anthracene				X				X	X	X				
Indeno(1,2,3-cd)pyrene			X	X			X	X	X	X	X			X
Phenol					X					X				X
Pesticides														
4,4-DDD		X		X				X						
4,4-DDE	X	X		X				X	X	X	X	X		
4,4-DDT	X	X		X	X	X		X			X			
Endrin	X													
Metals														
Arsenic	X	X	X	X	X	X	X	X	X	X			X	X
Barium	X	X											X	
Cadmium													X	
Chromium	X	X		X	X	X	X	X	X	X			X	X
Cobalt		X												
Copper	X	X		X	X	X	X						X	X
Iron	X	X	X	X	X			X	X	X	X	X	X	X
Lead	X	X	X	X	X	X	X	X	X				X	X
Manganese	X	X	X	X		X		X	X	X				X
Nickel	X	X	X	X	X	X	X	X	X	X		X	X	X
Selenium				X		X							X	
Silver				X										
Vanadium	X	X	X	X			X	X	X					
Zinc	X	X	X	X	X	X	X	X	X	X			X	X
Mercury	X	X	X	X	X	X	X	X	X	X	X		X	X

Notes:

4,4-DDD - 4,4-Dichlorodiphenyldichloroethane

4,4-DDE - 4,4-Dichlorodiphenyldichloroethylene

4,4-DDT - 4,4-Dichlorodiphenyltrichloroethane

X - constituent of potential concern for indicated depth interval

Table 2
Background Elevated Non-Detects Removed From Evaluation
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Potential Outlier Identification							
Analyte	Parcel	Soil Boring	Depth Interval (feet bgs)	Sample Date	Analytical Result	Units	Potential Outlier Rationale
Semi-Volatile Organic Compounds							
2-Methyl-Naphthalene	BG04	SB05	0.17-0.5	6/2/2017	0.022 U	mg/kg	Elevated non-detect value
4-Methylphenol (p-Cresol)	BG02	SB05	0.5-1	6/15/2017	0.027 U	mg/kg	Elevated non-detect value
4-Methylphenol (p-Cresol)	BG03	SB01	1-2	6/12/2017	0.032 U	mg/kg	Elevated non-detect value
4-Methylphenol (p-Cresol)	BG04	SB05	0.17-0.5	6/2/2017	0.11 U	mg/kg	Elevated non-detect value
4-Methylphenol (p-Cresol)	BG05	SB10	0.17-0.5	6/13/2017	0.032 U	mg/kg	Elevated non-detect value
Benzo(a)anthracene	BG04	SB05	0.17-0.5	6/2/2017	0.022 U	mg/kg	Elevated non-detect value
Benzo(k)fluoranthene	BG04	SB05	0.17-0.5	6/2/2017	0.022 U	mg/kg	Elevated non-detect value
Dibenz(a,h)anthracene	BG04	SB05	0.17-0.5	6/2/2017	0.022 U	mg/kg	Elevated non-detect value
Indeno(1,2,3-cd)Pyrene	BG04	SB05	0.17-0.5	6/2/2017	0.022 U	mg/kg	Elevated non-detect value
Phenol	BG02	SB10	1-2	6/16/2017	0.027 U	mg/kg	Elevated non-detect value
Phenol	BG04	SB05	0.17-0.5	6/2/2017	0.11 U	mg/kg	Elevated non-detect value
Pesticides							
4,4-DDD	BG04	SB06	1-1.5	6/1/2017	0.0022 U	mg/kg	Elevated non-detect value
Endrin	BG04	SB06	1-1.5	6/1/2017	0.0022 U	mg/kg	Elevated non-detect value

Acronyms and Abbreviations:

4,4-DDD: dichlorodiphenyldichloroethane

bgs: below ground surface

ID: identification

IQR: interquartile range

mg/kg: milligram per kilogram

Qualifiers:

U = The analyte was analyzed for, but the result was not detected above the method detection limit.

Table 3
Summary of Kruskal-Wallis Test Results
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Location Identification	Constituent	Units	FOD	Analyze for Seasonality and Temporal Trend?	Kruskal-Wallis Test for Variability ¹					
					Count Per Interval		Kruskal-Wallis Test Statistic	Percentile of Chi-Square Distribution (USEPA 2009)	p-Value	Vertical Variability?
					Surface	Near Surface				
BG01	2-Methyl-Naphthalene	mg/kg	22 / 40 [55%]	yes	10	30	1.030	3.841	0.310	no
	4-Methylphenol (p-Cresol)	mg/kg	0 / 40 [0%]	no, FOD ≤ 25%	--	--	--	--	--	--
	Benzo(a)anthracene	mg/kg	39 / 40 [98%]	yes	10	30	4.250	3.841	0.039	yes
	Benzo(a)pyrene	mg/kg	39 / 40 [98%]	yes	10	30	3.872	3.841	0.049	yes
	Benzo(b)fluoranthene	mg/kg	40 / 40 [100%]	yes	10	30	4.511	3.841	0.034	yes
	Benzo(k)fluoranthene	mg/kg	38 / 40 [95%]	yes	10	30	4.250	3.841	0.039	yes
	Chrysene	mg/kg	39 / 40 [98%]	yes	10	30	5.128	3.841	0.024	yes
	Dibenz(a,h)anthracene	mg/kg	32 / 40 [80%]	yes	10	30	4.712	3.841	0.030	yes
	Indeno(1,2,3-cd)Pyrene	mg/kg	39 / 40 [98%]	yes	10	30	4.314	3.841	0.038	yes
	Phenol	mg/kg	0 / 40 [0%]	no, FOD ≤ 25%	--	--	--	--	--	--
	4,4-DDD	mg/kg	0 / 8 [0%]	no, n < 12	--	--	--	--	--	--
	4,4-DDE	mg/kg	8 / 8 [100%]	no, n < 12	--	--	--	--	--	--
	4,4-DDT	mg/kg	6 / 8 [75%]	no, n < 12	--	--	--	--	--	--
	Endrin	mg/kg	0 / 8 [0%]	no, n < 12	--	--	--	--	--	--
	Arsenic	mg/kg	40 / 40 [100%]	yes	10	30	0.035	3.841	0.851	no
	Barium	mg/kg	40 / 40 [100%]	yes	10	30	2.638	3.841	0.104	no
	Cadmium	mg/kg	40 / 40 [100%]	yes	10	30	4.380	3.841	0.036	yes
	Chromium	mg/kg	40 / 40 [100%]	yes	10	30	0.516	3.841	0.473	no
	Cobalt	mg/kg	40 / 40 [100%]	yes	10	30	0.999	3.841	0.318	no
	Copper	mg/kg	40 / 40 [100%]	yes	10	30	1.264	3.841	0.261	no
	Iron	mg/kg	40 / 40 [100%]	yes	10	30	0.220	3.841	0.639	no
	Lead	mg/kg	40 / 40 [100%]	yes	10	30	4.918	3.841	0.027	yes
	Manganese	mg/kg	40 / 40 [100%]	yes	10	30	2.064	3.841	0.151	no
	Mercury	mg/kg	43 / 43 [100%]	yes	13	30	4.702	3.841	0.030	yes
	Nickel	mg/kg	40 / 40 [100%]	yes	10	30	0.165	3.841	0.685	no
	Selenium	mg/kg	40 / 40 [100%]	yes	10	30	2.740	3.841	0.098	no
	Silver	mg/kg	38 / 40 [95%]	yes	10	30	3.060	3.841	0.080	no
	Vanadium	mg/kg	40 / 40 [100%]	yes	10	30	3.934	3.841	0.047	yes
	Zinc	mg/kg	40 / 40 [100%]	yes	10	30	2.951	3.841	0.086	no
BG02	2-Methyl-Naphthalene	mg/kg	27 / 38 [71%]	yes	10	28	2.427	3.841	0.119	no
	4-Methylphenol (p-Cresol)	mg/kg	5 / 38 [13%]	no, FOD ≤ 25%	--	--	--	--	--	--
	Benzo(a)anthracene	mg/kg	38 / 38 [100%]	yes	10	28	1.090	3.841	0.296	no
	Benzo(a)pyrene	mg/kg	38 / 38 [100%]	yes	10	28	2.376	3.841	0.123	no
	Benzo(b)fluoranthene	mg/kg	38 / 38 [100%]	yes	10	28	2.693	3.841	0.101	no
	Benzo(k)fluoranthene	mg/kg	38 / 38 [100%]	yes	10	28	2.376	3.841	0.123	no
	Chrysene	mg/kg	38 / 38 [100%]	yes	10	28	1.715	3.841	0.190	no
	Dibenz(a,h)anthracene	mg/kg	37 / 38 [97%]	yes	10	28	4.022	3.841	0.045	yes
	Indeno(1,2,3-cd)Pyrene	mg/kg	38 / 38 [100%]	yes	10	28	3.825	3.841	0.050	no
	Phenol	mg/kg	2 / 38 [5%]	no, FOD ≤ 25%	--	--	--	--	--	--
	4,4-DDD	mg/kg	2 / 8 [25%]	no, n < 12	--	--	--	--	--	--
	4,4-DDE	mg/kg	8 / 8 [100%]	no, n < 12	--	--	--	--	--	--
	4,4-DDT	mg/kg	8 / 8 [100%]	no, n < 12	--	--	--	--	--	--
	Endrin	mg/kg	0 / 8 [0%]	no, n < 12	--	--	--	--	--	--
	Arsenic	mg/kg	38 / 38 [100%]	yes	10	28	1.270	3.841	0.260	no
	Barium	mg/kg	38 / 38 [100%]	yes	10	28	4.501	3.841	0.034	yes
	Cadmium	mg/kg	38 / 38 [100%]	yes	10	28	6.600	3.841	0.010	yes

Table 3
Summary of Kruskal-Wallis Test Results
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Location Identification	Constituent	Units	FOD	Analyze for Seasonality and Temporal Trend?	Kruskal-Wallis Test for Variability ¹					
					Count Per Interval		Kruskal-Wallis Test Statistic	Percentile of Chi-Square Distribution (USEPA 2009)	p-Value	Vertical Variability?
					Surface	Near Surface				
BG03	Chromium	mg/kg	38 / 38 [100%]	yes	10	28	13.056	3.841	<0.001	yes
	Cobalt	mg/kg	38 / 38 [100%]	yes	10	28	1.270	3.841	0.260	no
	Copper	mg/kg	38 / 38 [100%]	yes	10	28	0.013	3.841	0.908	no
	Iron	mg/kg	38 / 38 [100%]	yes	10	28	0.418	3.841	0.518	no
	Lead	mg/kg	38 / 38 [100%]	yes	10	28	0.158	3.841	0.691	no
	Manganese	mg/kg	38 / 38 [100%]	yes	10	28	0.018	3.841	0.895	no
	Mercury	mg/kg	42 / 42 [100%]	yes	13	29	1.777	3.841	0.182	no
	Nickel	mg/kg	38 / 38 [100%]	yes	10	28	1.385	3.841	0.239	no
	Selenium	mg/kg	38 / 38 [100%]	yes	10	28	5.385	3.841	0.020	yes
	Silver	mg/kg	35 / 38 [92%]	yes	10	28	0.022	3.841	0.881	no
	Vanadium	mg/kg	38 / 38 [100%]	yes	10	28	7.754	3.841	0.005	yes
	Zinc	mg/kg	38 / 38 [100%]	yes	10	28	0.004	3.841	0.947	no
	2-Methyl-Naphthalene	mg/kg	10 / 40 [25%]	no, FOD ≤ 25%	--	--	--	--	--	--
	4-Methylphenol (p-Cresol)	mg/kg	4 / 40 [10%]	no, FOD ≤ 25%	--	--	--	--	--	--
	Benzo(a)anthracene	mg/kg	34 / 40 [85%]	yes	10	30	18.445	3.841	<0.001	yes
	Benzo(a)pyrene	mg/kg	33 / 40 [83%]	yes	10	30	19.122	3.841	<0.001	yes
	Benzo(b)fluoranthene	mg/kg	40 / 40 [100%]	yes	10	30	18.580	3.841	<0.001	yes
	Benzo(k)fluoranthene	mg/kg	31 / 40 [78%]	yes	10	30	19.259	3.841	<0.001	yes
	Chrysene	mg/kg	40 / 40 [100%]	yes	10	30	17.912	3.841	<0.001	yes
	Dibenz(a,h)anthracene	mg/kg	15 / 40 [38%]	yes	10	30	3.690	3.841	0.055	no
	Indeno(1,2,3-cd)Pyrene	mg/kg	34 / 40 [85%]	yes	10	30	17.912	3.841	<0.001	yes
	Phenol	mg/kg	0 / 40 [0%]	no, FOD ≤ 25%	--	--	--	--	--	--
	4,4-DDD	mg/kg	5 / 8 [63%]	no, n < 12	--	--	--	--	--	--
	4,4-DDE	mg/kg	8 / 8 [100%]	no, n < 12	--	--	--	--	--	--
	4,4-DDT	mg/kg	6 / 8 [75%]	no, n < 12	--	--	--	--	--	--
	Endrin	mg/kg	2 / 8 [25%]	no, n < 12	--	--	--	--	--	--
	Arsenic	mg/kg	40 / 40 [100%]	yes	10	30	10.552	3.841	0.001	yes
	Barium	mg/kg	40 / 40 [100%]	yes	10	30	0.494	3.841	0.482	no
	Cadmium	mg/kg	40 / 40 [100%]	yes	10	30	12.679	3.841	<0.001	yes
	Chromium	mg/kg	40 / 40 [100%]	yes	10	30	5.415	3.841	0.020	yes
	Cobalt	mg/kg	40 / 40 [100%]	yes	10	30	6.884	3.841	0.009	yes
	Copper	mg/kg	40 / 40 [100%]	yes	10	30	1.561	3.841	0.212	no
	Iron	mg/kg	40 / 40 [100%]	yes	10	30	4.445	3.841	0.035	yes
	Lead	mg/kg	40 / 40 [100%]	yes	10	30	20.230	3.841	<0.001	yes
	Manganese	mg/kg	40 / 40 [100%]	yes	10	30	3.996	3.841	0.046	yes
	Mercury	mg/kg	43 / 43 [100%]	yes	13	30	13.903	3.841	<0.001	yes
	Nickel	mg/kg	40 / 40 [100%]	yes	10	30	0.451	3.841	0.502	no
	Selenium	mg/kg	40 / 40 [100%]	yes	10	30	13.584	3.841	<0.001	yes
	Silver	mg/kg	33 / 40 [83%]	yes	10	30	18.714	3.841	<0.001	yes
	Vanadium	mg/kg	40 / 40 [100%]	yes	10	30	10.962	3.841	<0.001	yes
	Zinc	mg/kg	40 / 40 [100%]	yes	10	30	0.001	3.841	0.975	no
BG04	2-Methyl-Naphthalene	mg/kg	13 / 40 [33%]	yes	10	29	8.756	3.841	0.003	yes
	4-Methylphenol (p-Cresol)	mg/kg	13 / 40 [33%]	yes	10	29	5.897	3.841	0.015	yes
	Benzo(a)anthracene	mg/kg	22 / 40 [55%]	yes	10	30	14.402	3.841	<0.001	yes
	Benzo(a)pyrene	mg/kg	22 / 40 [55%]	yes	10	30	12.238	3.841	<0.001	yes
	Benzo(b)fluoranthene	mg/kg	30 / 40 [75%]	yes	10	30	15.860	3.841	<0.001	yes

Table 3
Summary of Kruskal-Wallis Test Results
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Location Identification	Constituent	Units	FOD	Analyze for Seasonality and Temporal Trend?	Kruskal-Wallis Test for Variability ¹					
					Count Per Interval		Kruskal-Wallis Test Statistic	Percentile of Chi-Square Distribution (USEPA 2009)	p-Value	Vertical Variability?
					Surface	Near Surface				
	Benzo(k)fluoranthene	mg/kg	18 / 40 [45%]	yes	10	30	11.805	3.841	<0.001	yes
	Chrysene	mg/kg	25 / 40 [63%]	yes	10	30	16.361	3.841	<0.001	yes
	Dibenz(a,h)anthracene	mg/kg	5 / 40 [13%]	no, FOD ≤ 25%	--	--	--	--	--	--
	Indeno(1,2,3-cd)Pyrene	mg/kg	21 / 40 [53%]	yes	10	30	13.700	3.841	<0.001	yes
	Phenol	mg/kg	2 / 40 [5%]	no, FOD ≤ 25%	--	--	--	--	--	--
	4,4-DDD	mg/kg	1 / 8 [13%]	no, n < 12	--	--	--	--	--	--
	4,4-DDE	mg/kg	4 / 8 [50%]	no, n < 12	--	--	--	--	--	--
	4,4-DDT	mg/kg	4 / 8 [50%]	no, n < 12	--	--	--	--	--	--
	Endrin	mg/kg	3 / 8 [38%]	no, n < 12	--	--	--	--	--	--
	Arsenic	mg/kg	40 / 40 [100%]	yes	10	30	4.918	3.841	0.027	yes
	Barium	mg/kg	40 / 40 [100%]	yes	10	30	1.195	3.841	0.274	no
	Cadmium	mg/kg	40 / 40 [100%]	yes	10	30	10.756	3.841	0.001	yes
	Chromium	mg/kg	40 / 40 [100%]	yes	10	30	2.689	3.841	0.101	no
	Cobalt	mg/kg	40 / 40 [100%]	yes	10	30	2.248	3.841	0.134	no
	Copper	mg/kg	40 / 40 [100%]	yes	10	30	2.488	3.841	0.115	no
	Iron	mg/kg	40 / 40 [100%]	yes	10	30	1.128	3.841	0.288	no
	Lead	mg/kg	40 / 40 [100%]	yes	10	30	7.902	3.841	0.005	yes
	Manganese	mg/kg	40 / 40 [100%]	yes	10	30	4.511	3.841	0.034	yes
	Mercury	mg/kg	43 / 43 [100%]	yes	13	30	12.185	3.841	<0.001	yes
	Nickel	mg/kg	40 / 40 [100%]	yes	10	30	0.020	3.841	0.888	no
	Selenium	mg/kg	40 / 40 [100%]	yes	10	30	3.690	3.841	0.055	no
	Silver	mg/kg	35 / 40 [88%]	yes	10	30	7.216	3.841	0.007	yes
	Vanadium	mg/kg	40 / 40 [100%]	yes	10	30	7.641	3.841	0.006	yes
	Zinc	mg/kg	40 / 40 [100%]	yes	10	30	2.155	3.841	0.142	no
BG05	2-Methyl-Naphthalene	mg/kg	10 / 36 [28%]	yes	9	26	2.821	3.841	0.093	no
	4-Methylphenol (p-Cresol)	mg/kg	6 / 36 [17%]	no, FOD ≤ 25%	--	--	--	--	--	--
	Benzo(a)anthracene	mg/kg	26 / 36 [72%]	yes	10	26	16.069	3.841	<0.001	yes
	Benzo(a)pyrene	mg/kg	28 / 36 [78%]	yes	10	26	15.647	3.841	<0.001	yes
	Benzo(b)fluoranthene	mg/kg	34 / 36 [94%]	yes	10	26	15.508	3.841	<0.001	yes
	Benzo(k)fluoranthene	mg/kg	20 / 36 [56%]	yes	10	26	4.196	3.841	0.041	yes
	Chrysene	mg/kg	32 / 36 [89%]	yes	10	26	11.140	3.841	<0.001	yes
	Dibenz(a,h)anthracene	mg/kg	6 / 36 [17%]	no, FOD ≤ 25%	--	--	--	--	--	--
	Indeno(1,2,3-cd)Pyrene	mg/kg	26 / 36 [72%]	yes	10	26	14.550	3.841	<0.001	yes
	Phenol	mg/kg	0 / 36 [0%]	no, FOD ≤ 25%	--	--	--	--	--	--
	4,4-DDD	mg/kg	3 / 8 [38%]	no, n < 12	--	--	--	--	--	--
	4,4-DDE	mg/kg	8 / 8 [100%]	no, n < 12	--	--	--	--	--	--
	4,4-DDT	mg/kg	3 / 8 [38%]	no, n < 12	--	--	--	--	--	--
	Endrin	mg/kg	0 / 8 [0%]	no, n < 12	--	--	--	--	--	--
	Arsenic	mg/kg	36 / 36 [100%]	yes	10	26	1.708	3.841	0.191	no
	Barium	mg/kg	36 / 36 [100%]	yes	10	26	0.843	3.841	0.358	no
	Cadmium	mg/kg	36 / 36 [100%]	yes	10	26	11.858	3.841	<0.001	yes
	Chromium	mg/kg	36 / 36 [100%]	yes	10	26	4.416	3.841	0.036	yes
	Cobalt	mg/kg	36 / 36 [100%]	yes	10	26	1.996	3.841	0.158	no
	Copper	mg/kg	36 / 36 [100%]	yes	10	26	0.000	3.841	0.986	no
	Iron	mg/kg	36 / 36 [100%]	yes	10	26	1.400	3.841	0.237	no
	Lead	mg/kg	36 / 36 [100%]	yes	10	26	14.281	3.841	<0.001	yes

Table 3
Summary of Kruskal-Wallis Test Results
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Location Identification	Constituent	Units	FOD	Analyze for Seasonality and Temporal Trend?	Kruskal-Wallis Test for Variability ¹					
					Count Per Interval		Kruskal-Wallis Test Statistic	Percentile of Chi-Square Distribution (USEPA 2009)	p-Value	Vertical Variability?
					Surface	Near Surface				
	Manganese	mg/kg	36 / 36 [100%]	yes	10	26	1.358	3.841	0.244	no
	Mercury	mg/kg	39 / 39 [100%]	yes	13	26	13.211	3.841	<0.001	yes
	Nickel	mg/kg	36 / 36 [100%]	yes	10	26	3.912	3.841	0.048	yes
	Selenium	mg/kg	36 / 36 [100%]	yes	10	26	9.333	3.841	0.002	yes
	Silver	mg/kg	36 / 36 [100%]	yes	10	26	14.550	3.841	<0.001	yes
	Vanadium	mg/kg	36 / 36 [100%]	yes	10	26	5.939	3.841	0.015	yes
	Zinc	mg/kg	36 / 36 [100%]	yes	10	26	1.849	3.841	0.174	no

Table 3
Summary of Kruskal-Wallis Test Results
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Notes:

¹ The Kruskal-Wallis test was performed when the sample size for the full dataset was greater than or equal to 12 and the FOD for each dataset was greater than 25%.

Acronyms and Abbreviations:

4,4'-DDD - dichlorodiphenyldichloroethane	mg/kg - milligram per kilogram	-- = insufficient data for calculating statistics or
4,4'-DDE - dichlorodiphenyldichloroethene	n = sample size	< = less than
4,4'-DDT - dichlorodiphenyltrichloroethane	p-value = probability value	≤ = less than or equal to
FOD - frequency of detection (# detects / # samples)	USEPA = United States Environmental Protection Agency	% = percent

References:

USEPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Unified Guidance. EPA/530/R-09/007, 2009.

Table 4a
Background Soil Potential Outliers - Surface Samples (0 - 0.17 feet bgs)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Potential Outlier Identification							
Analyte	Parcel	Soil Boring	Depth Interval (feet bgs)	Sample Date	Analytical Result	Units	Potential Outlier Rationale
Semi-volatile Organic Compounds							
2-Methyl-Naphthalene	BG01	SB10	0-0.17	5/31/2017	0.013 J	mg/kg	Greater than 75th + 1.5xIQR
2-Methyl-Naphthalene	BG03	SB03	0-0.17	6/12/2017	0.014 J	mg/kg	Greater than 75th + 3xIQR
2-Methyl-Naphthalene	BG04	SB04	0-0.17	6/2/2017	0.005 U	mg/kg	Less than 25th - 1.5xIQR
2-Methyl-Naphthalene	BG04	SB03	0-0.17	6/1/2017	0.012 J	mg/kg	Greater than 75th + 1.5xIQR
4-Methylphenol (p-Cresol)	BG02	SB04	0-0.17	6/15/2017	0.095	mg/kg	Greater than 75th + 3xIQR
4-Methylphenol (p-Cresol)	BG02	SB08	0-0.17	6/16/2017	0.13	mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG04	SB05	0-0.17	6/2/2017	0.24	mg/kg	Greater than 75th + 1.5xIQR
4-Methylphenol (p-Cresol)	BG04	SB10	0-0.17	6/2/2017	0.32	mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG05	SB06	0-0.17	6/13/2017	0.22	mg/kg	Greater than 75th + 3xIQR
4-Methylphenol (p-Cresol)	BG05	SB07	0-0.17	6/13/2017	1.8	mg/kg	Greater than first potential outlier
Benzo(a)anthracene	BG01	SB10	0-0.17	5/31/2017	0.35	mg/kg	Greater than 75th + 3xIQR
Benzo(a)anthracene	BG02	SB05	0-0.17	6/15/2017	0.2	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)anthracene	BG03	SB02	0-0.17	6/12/2017	0.012 J	mg/kg	Less than 25th - 1.5xIQR
Benzo(a)anthracene	BG03	SB01	0-0.17	6/12/2017	0.062	mg/kg	Greater than 75th + 3xIQR
Benzo(a)anthracene	BG03	SB03	0-0.17	6/12/2017	0.076	mg/kg	Greater than first potential outlier
Benzo(a)anthracene	BG04	SB01	0-0.17	6/1/2017	0.005 U	mg/kg	Less than 25th - 1.5xIQR
Benzo(a)anthracene	BG05	SB10	0-0.17	6/13/2017	0.095	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)pyrene	BG01	SB04	0-0.17	5/30/2017	0.062	mg/kg	Less than 25th - 1.5xIQR
Benzo(a)pyrene	BG01	SB10	0-0.17	5/31/2017	0.39	mg/kg	Greater than 75th + 3xIQR
Benzo(a)pyrene	BG03	SB03	0-0.17	6/12/2017	0.088	mg/kg	Greater than 75th + 3xIQR
Benzo(a)pyrene	BG04	SB06	0-0.17	6/1/2017	0.079	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)pyrene	BG05	SB10	0-0.17	6/13/2017	0.12	mg/kg	Greater than 75th + 1.5xIQR
Benzo(b)fluoranthene	BG01	SB10	0-0.17	5/31/2017	0.48	mg/kg	Greater than 75th + 3xIQR
Benzo(b)fluoranthene	BG03	SB02	0-0.17	6/12/2017	0.03 J	mg/kg	Less than 25th - 1.5xIQR
Benzo(b)fluoranthene	BG03	SB01	0-0.17	6/12/2017	0.12	mg/kg	Greater than 75th + 1.5xIQR
Benzo(b)fluoranthene	BG03	SB03	0-0.17	6/12/2017	0.18	mg/kg	Greater than first potential outlier
Benzo(b)fluoranthene	BG04	SB01	0-0.17	6/1/2017	0.011 J	mg/kg	Less than 25th - 1.5xIQR
Benzo(b)fluoranthene	BG05	SB10	0-0.17	6/13/2017	0.21	mg/kg	Greater than 75th + 1.5xIQR
Benzo(k)fluoranthene	BG01	SB10	0-0.17	5/31/2017	0.22	mg/kg	Greater than 75th + 3xIQR
Benzo(k)fluoranthene	BG02	SB05	0-0.17	6/15/2017	0.13	mg/kg	Greater than 75th + 1.5xIQR
Benzo(k)fluoranthene	BG03	SB03	0-0.17	6/12/2017	0.056	mg/kg	Greater than 75th + 1.5xIQR
Benzo(k)fluoranthene	BG04	SB01	0-0.17	6/1/2017	0.005 U	mg/kg	Less than 25th - 1.5xIQR
Chrysene	BG01	SB10	0-0.17	5/31/2017	0.39	mg/kg	Greater than 75th + 3xIQR
Chrysene	BG03	SB02	0-0.17	6/12/2017	0.019 J	mg/kg	Less than 25th - 1.5xIQR
Chrysene	BG03	SB01	0-0.17	6/12/2017	0.096	mg/kg	Greater than 75th + 3xIQR
Chrysene	BG03	SB03	0-0.17	6/12/2017	0.12	mg/kg	Greater than first potential outlier
Chrysene	BG04	SB01	0-0.17	6/1/2017	0.01 J	mg/kg	Less than 25th - 1.5xIQR
Chrysene	BG05	SB10	0-0.17	6/13/2017	0.2	mg/kg	Greater than 75th + 1.5xIQR
Dibenz(a,h)anthracene	BG01	SB10	0-0.17	5/31/2017	0.056	mg/kg	Greater than 75th + 3xIQR
Dibenz(a,h)anthracene	BG02	SB05	0-0.17	6/15/2017	0.042	mg/kg	Greater than 75th + 3xIQR
Dibenz(a,h)anthracene	BG03	SB06	0-0.17	6/12/2017	0.015 J	mg/kg	Greater than 75th + 1.5xIQR
Dibenz(a,h)anthracene	BG03	SB03	0-0.17	6/12/2017	0.018 J	mg/kg	Greater than first potential outlier
Dibenz(a,h)anthracene	BG04	SB08	0-0.17	6/12/2017	0.012 J	mg/kg	Greater than 75th + 3xIQR
Dibenz(a,h)anthracene	BG04	SB05	0-0.17	6/2/2017	0.021 J	mg/kg	Greater than first potential outlier
Dibenz(a,h)anthracene	BG05	SB09	0-0.17	6/13/2017	0.073	mg/kg	Greater than 75th + 3xIQR
Indeno(1,2,3-cd)Pyrene	BG01	SB10	0-0.17	5/31/2017	0.25	mg/kg	Greater than 75th + 3xIQR
Indeno(1,2,3-cd)Pyrene	BG02	SB05	0-0.17	6/15/2017	0.14	mg/kg	Greater than 75th + 1.5xIQR
Indeno(1,2,3-cd)Pyrene	BG03	SB03	0-0.17	6/12/2017	0.075	mg/kg	Greater than 75th + 3xIQR
Indeno(1,2,3-cd)Pyrene	BG05	SB10	0-0.17	6/13/2017	0.09	mg/kg	Greater than 75th + 1.5xIQR
Phenol	BG02	SB01	0-0.17	6/15/2017	0.075	mg/kg	Greater than 75th + 3xIQR

Table 4a
Background Soil Potential Outliers - Surface Samples (0 - 0.17 feet bgs)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Potential Outlier Identification							
Analyte	Parcel	Soil Boring	Depth Interval (feet bgs)	Sample Date	Analytical Result	Units	Potential Outlier Rationale
Metals							
Arsenic	BG01	SB04	0-0.17	5/30/2017	6.38	mg/kg	Less than first potential outlier
Arsenic	BG01	SB06	0-0.17	5/31/2017	7.41	mg/kg	Less than 25th - 1.5xIQR
Arsenic	BG01	SB10	0-0.17	5/31/2017	12.1	mg/kg	Greater than 75th + 3xIQR
Arsenic	BG03	SB05	0-0.17	6/12/2017	13.6	mg/kg	Greater than 75th + 3xIQR
Barium	BG01	SB02	0-0.17	5/30/2017	211	mg/kg	Greater than 75th + 1.5xIQR
Barium	BG01	SB10	0-0.17	5/31/2017	247	mg/kg	Greater than first potential outlier
Barium	BG03	SB01	0-0.17	6/12/2017	305	mg/kg	Greater than 75th + 3xIQR
Barium	BG05	SB03	0-0.17	6/12/2017	104	mg/kg	Greater than 75th + 1.5xIQR
Cadmium	BG01	SB10	0-0.17	5/31/2017	0.898	mg/kg	Greater than 75th + 3xIQR
Cadmium	BG03	SB01	0-0.17	6/12/2017	0.942	mg/kg	Greater than 75th + 3xIQR
Chromium	BG01	SB04	0-0.17	5/30/2017	12.4	mg/kg	Less than 25th - 1.5xIQR
Chromium	BG01	SB02	0-0.17	5/30/2017	25.1	mg/kg	Greater than 75th + 1.5xIQR
Chromium	BG01	SB10	0-0.17	5/31/2017	28.2	mg/kg	Greater than first potential outlier
Chromium	BG02	SB01	0-0.17	6/15/2017	11.9	mg/kg	Less than first potential outlier
Chromium	BG02	SB06	0-0.17	6/16/2017	14.4	mg/kg	Less than 25th - 1.5xIQR
Chromium	BG02	SB02	0-0.17	6/15/2017	15.9	mg/kg	Greater than 75th + 1.5xIQR
Chromium	BG02	SB04	0-0.17	6/15/2017	17.1	mg/kg	Greater than first potential outlier
Chromium	BG03	SB05	0-0.17	6/12/2017	21.5	mg/kg	Greater than 75th + 1.5xIQR
Cobalt	BG01	SB04	0-0.17	5/30/2017	6.92	mg/kg	Less than 25th - 1.5xIQR
Cobalt	BG01	SB10	0-0.17	5/31/2017	13.5	mg/kg	Greater than 75th + 1.5xIQR
Copper	BG01	SB10	0-0.17	5/31/2017	89.7	mg/kg	Greater than 75th + 3xIQR
Copper	BG03	SB01	0-0.17	6/12/2017	22.6	mg/kg	Greater than 75th + 1.5xIQR
Copper	BG03	SB05	0-0.17	6/12/2017	41.7	mg/kg	Greater than first potential outlier
Iron	BG02	SB01	0-0.17	6/15/2017	21900	mg/kg	Less than 25th - 1.5xIQR
Iron	BG02	SB04	0-0.17	6/15/2017	34300	mg/kg	Greater than 75th + 1.5xIQR
Iron	BG03	SB04	0-0.17	6/12/2017	39900	mg/kg	Greater than 75th + 3xIQR
Iron	BG03	SB05	0-0.17	6/12/2017	59000	mg/kg	Greater than first potential outlier
Manganese	BG01	SB04	0-0.17	5/30/2017	395	mg/kg	Less than 25th - 1.5xIQR
Manganese	BG02	SB03	0-0.17	6/15/2017	1580	mg/kg	Greater than 75th + 3xIQR
Manganese	BG03	SB01	0-0.17	6/12/2017	4530	mg/kg	Greater than 75th + 3xIQR
Manganese	BG05	SB03	0-0.17	6/12/2017	2120 E	mg/kg	Greater than 75th + 1.5xIQR
Mercury	BG02	SB01	0-0.17	6/15/2017	0.0205 J	mg/kg	Less than 25th - 1.5xIQR
Mercury	BG03	SB01	0-0.17	6/12/2017	0.295	mg/kg	Greater than 75th + 1.5xIQR
Mercury	BG05	SB10	0-0.17	6/13/2017	0.456	mg/kg	Greater than 75th + 1.5xIQR
Nickel	BG01	SB04	0-0.17	5/30/2017	14.6	mg/kg	Less than 25th - 1.5xIQR
Nickel	BG01	SB10	0-0.17	5/31/2017	30.5	mg/kg	Greater than 75th + 1.5xIQR
Nickel	BG02	SB01	0-0.17	6/15/2017	17.1	mg/kg	Less than 25th - 1.5xIQR
Nickel	BG03	SB05	0-0.17	6/12/2017	35.1	mg/kg	Greater than 75th + 3xIQR
Selenium	BG02	SB08	0-0.17	6/16/2017	0.288 J	mg/kg	Greater than 75th + 1.5xIQR
Selenium	BG02	SB02	0-0.17	6/15/2017	0.302 J	mg/kg	Greater than first potential outlier
Selenium	BG03	SB03	0-0.17	6/12/2017	1.2	mg/kg	Greater than 75th + 1.5xIQR
Selenium	BG03	SB01	0-0.17	6/12/2017	1.21 J	mg/kg	Greater than first potential outlier
Selenium	BG05	SB10	0-0.17	6/13/2017	1.5 J	mg/kg	Greater than 75th + 1.5xIQR
Silver	BG01	SB04	0-0.17	5/30/2017	0.0421 J	mg/kg	Less than 25th - 1.5xIQR
Silver	BG01	SB10	0-0.17	5/31/2017	0.608	mg/kg	Greater than 75th + 3xIQR
Vanadium	BG01	SB04	0-0.17	5/30/2017	24.3	mg/kg	Less than 25th - 1.5xIQR
Vanadium	BG04	SB04	0-0.17	6/2/2017	22.4	mg/kg	Less than first potential outlier
Vanadium	BG04	SB01	0-0.17	6/1/2017	25.5	mg/kg	Less than 25th - 1.5xIQR
Vanadium	BG05	SB03	0-0.17	6/12/2017	53.8	mg/kg	Greater than 75th + 1.5xIQR
Zinc	BG01	SB10	0-0.17	5/31/2017	379	mg/kg	Greater than 75th + 1.5xIQR
Zinc	BG02	SB01	0-0.17	6/15/2017	65.5	mg/kg	Less than 25th - 1.5xIQR
Zinc	BG02	SB10	0-0.17	6/16/2017	101	mg/kg	Greater than 75th + 1.5xIQR
Zinc	BG02	SB08	0-0.17	6/16/2017	110	mg/kg	Greater than first potential outlier
Zinc	BG05	SB03	0-0.17	6/12/2017	82.9	mg/kg	Greater than 75th + 1.5xIQR
Zinc	BG05	SB10	0-0.17	6/13/2017	109	mg/kg	Greater than first potential outlier
Acronyms and Abbreviations:							
bgs: below ground surface				IQR: interquartile range			
ID: identification				mg/kg: milligram per kilogram			
Qualifiers:							
E = Concentrations exceeds the calibration range							
J = The analyte was positively identified; however, the associated numerical value is an estimated concentration only.							
U = The analyte was analyzed for, but the result was not detected above the method detection limit.							

Table 4b
Background Soil Potential Outliers - Near Surface Samples (0.17 - 2 feet bgs)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Potential Outlier Identification							
Analyte	Parcel	Soil Boring	Depth Interval (feet bgs)	Sample Date	Analytical Result	Units	Potential Outlier Rationale
Semi-volatile Organic Compounds							
2-Methyl-Naphthalene	BG01	SB10	0.17-0.5	5/31/2017	0.015	J mg/kg	Greater than 75th + 1.5xIQR
2-Methyl-Naphthalene	BG01	SB03	0.17-0.5	5/30/2017	0.017	J mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG01	SB02	0.5-1	5/30/2017	0.048	mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG03	SB05	0.17-0.5	6/12/2017	0.008	J mg/kg	Greater than 75th + 3xIQR
2-Methyl-Naphthalene	BG03	SB01	0.17-0.5	6/12/2017	0.011	J mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG04	SB06	0.17-0.5	6/1/2017	0.008	J mg/kg	Greater than 75th + 3xIQR
2-Methyl-Naphthalene	BG04	SB08	0.17-0.5	6/12/2017	0.008	J mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG04	SB09	1-2	6/12/2017	0.008	J mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG04	SB08	0.5-1	6/12/2017	0.04	mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG05	SB05	0.17-0.5	6/13/2017	0.007	J mg/kg	Greater than 75th + 1.5xIQR
2-Methyl-Naphthalene	BG05	SB05	0.5-1	6/13/2017	0.009	J mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG05	SB06	1-2	6/13/2017	0.014	J mg/kg	Greater than first potential outlier
2-Methyl-Naphthalene	BG05	SB03	1-2	6/12/2017	0.023	mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG02	SB09	0.5-1	6/16/2017	0.044	J mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG02	SB10	1-2	6/16/2017	0.068	mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG03	SB10	0.5-1	6/12/2017	0.034	J mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG04	SB02	0.17-0.5	6/1/2017	0.045	J mg/kg	Greater than 75th + 1.5xIQR
4-Methylphenol (p-Cresol)	BG04	SB09	0.17-0.5	6/12/2017	0.045	J mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG04	SB10	0.17-0.5	6/2/2017	0.048	mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG04	SB06	0.17-0.5	6/1/2017	0.065	mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG04	SB08	0.5-1	6/12/2017	0.22	mg/kg	Greater than first potential outlier
4-Methylphenol (p-Cresol)	BG05	SB05	0.5-1	6/13/2017	0.038	J mg/kg	Greater than 75th + 1.5xIQR
4-Methylphenol (p-Cresol)	BG05	SB09	0.17-0.5	6/13/2017	0.047	J mg/kg	Greater than 75th + 3xIQR
4-Methylphenol (p-Cresol)	BG05	SB05	0.17-0.5	6/13/2017	0.11	mg/kg	Greater than first potential outlier
Benzo(a)anthracene	BG01	SB10	0.17-0.5	5/31/2017	0.32	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)anthracene	BG03	SB05	0.17-0.5	6/12/2017	0.03	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)anthracene	BG04	SB06	0.17-0.5	6/1/2017	0.02	J mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)anthracene	BG04	SB08	0.5-1	6/12/2017	0.027	J mg/kg	Greater than first potential outlier
Benzo(a)anthracene	BG04	SB08	0.17-0.5	6/12/2017	0.028	J mg/kg	Greater than first potential outlier
Benzo(a)anthracene	BG05	SB05	0.5-1	6/13/2017	0.027	J mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)anthracene	BG05	SB10	0.17-0.5	6/13/2017	0.029	J mg/kg	Greater than first potential outlier
Benzo(a)anthracene	BG05	SB05	0.17-0.5	6/13/2017	0.044	mg/kg	Greater than first potential outlier
Benzo(a)pyrene	BG01	SB10	0.17-0.5	5/31/2017	0.38	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)pyrene	BG02	SB03	0.5-1	6/15/2017	0.28	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)pyrene	BG03	SB05	0.17-0.5	6/12/2017	0.04	mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)pyrene	BG04	SB06	0.17-0.5	6/1/2017	0.029	mg/kg	Greater than first potential outlier
Benzo(a)pyrene	BG04	SB05	0.17-0.5	6/2/2017	0.033	J mg/kg	Greater than first potential outlier
Benzo(a)pyrene	BG04	SB08	0.5-1	6/12/2017	0.034	mg/kg	Greater than first potential outlier
Benzo(a)pyrene	BG04	SB08	0.17-0.5	6/12/2017	0.036	mg/kg	Greater than first potential outlier
Benzo(a)pyrene	BG05	SB10	0.17-0.5	6/13/2017	0.029	J mg/kg	Greater than 75th + 1.5xIQR
Benzo(a)pyrene	BG05	SB05	0.5-1	6/13/2017	0.036	mg/kg	Greater than first potential outlier
Benzo(a)pyrene	BG05	SB05	0.17-0.5	6/13/2017	0.049	mg/kg	Greater than first potential outlier
Benzo(b)fluoranthene	BG02	SB03	0.5-1	6/15/2017	0.39	mg/kg	Greater than 75th + 1.5xIQR
Benzo(b)fluoranthene	BG03	SB01	0.17-0.5	6/12/2017	0.05	mg/kg	Greater than 75th + 1.5xIQR
Benzo(b)fluoranthene	BG03	SB05	0.17-0.5	6/12/2017	0.067	mg/kg	Greater than first potential outlier
Benzo(b)fluoranthene	BG04	SB08	0.5-1	6/12/2017	0.06	mg/kg	Greater than 75th + 1.5xIQR
Benzo(b)fluoranthene	BG04	SB08	0.17-0.5	6/12/2017	0.062	mg/kg	Greater than first potential outlier
Benzo(b)fluoranthene	BG05	SB10	0.17-0.5	6/13/2017	0.05	mg/kg	Greater than 75th + 1.5xIQR
Benzo(b)fluoranthene	BG05	SB05	0.5-1	6/13/2017	0.064	mg/kg	Greater than first potential outlier
Benzo(b)fluoranthene	BG05	SB05	0.17-0.5	6/13/2017	0.08	mg/kg	Greater than first potential outlier
Benzo(k)fluoranthene	BG01	SB10	0.17-0.5	5/31/2017	0.19	mg/kg	Greater than 75th + 1.5xIQR
Benzo(k)fluoranthene	BG02	SB03	0.5-1	6/15/2017	0.18	mg/kg	Greater than 75th + 1.5xIQR
Benzo(k)fluoranthene	BG03	SB05	0.17-0.5	6/12/2017	0.028	mg/kg	Greater than 75th + 3xIQR
Benzo(k)fluoranthene	BG04	SB08	0.5-1	6/12/2017	0.02	J mg/kg	Greater than 75th + 3xIQR
Benzo(k)fluoranthene	BG04	SB08	0.17-0.5	6/12/2017	0.021	J mg/kg	Greater than first potential outlier
Benzo(k)fluoranthene	BG05	SB10	0.17-0.5	6/13/2017	0.024	J mg/kg	Greater than 75th + 1.5xIQR
Benzo(k)fluoranthene	BG05	SB05	0.5-1	6/13/2017	0.03	mg/kg	Greater than first potential outlier
Benzo(k)fluoranthene	BG05	SB05	0.17-0.5	6/13/2017	0.04	mg/kg	Greater than first potential outlier
Chrysene	BG01	SB10	0.17-0.5	5/31/2017	0.36	mg/kg	Greater than 75th + 1.5xIQR
Chrysene	BG03	SB05	0.17-0.5	6/12/2017	0.051	mg/kg	Greater than 75th + 1.5xIQR
Chrysene	BG04	SB08	0.17-0.5	6/12/2017	0.043	mg/kg	Greater than 75th + 1.5xIQR
Chrysene	BG04	SB08	0.5-1	6/12/2017	0.048	mg/kg	Greater than first potential outlier
Chrysene	BG05	SB05	0.5-1	6/13/2017	0.04	mg/kg	Greater than 75th + 1.5xIQR

Table 4b
Background Soil Potential Outliers - Near Surface Samples (0.17 - 2 feet bgs)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Potential Outlier Identification							
Analyte	Parcel	Soil Boring	Depth Interval (feet bgs)	Sample Date	Analytical Result	Units	Potential Outlier Rationale
Chrysene	BG05	SB10	0.17-0.5	6/13/2017	0.044	mg/kg	Greater than first potential outlier
Chrysene	BG05	SB05	0.17-0.5	6/13/2017	0.065	mg/kg	Greater than first potential outlier
Dibenz(a,h)anthracene	BG01	SB02	0.17-0.5	5/30/2017	0.046	mg/kg	Greater than 75th + 1.5xIQR
Dibenz(a,h)anthracene	BG01	SB10	0.17-0.5	5/31/2017	0.065	mg/kg	Greater than first potential outlier
Dibenz(a,h)anthracene	BG02	SB03	0.5-1	6/15/2017	0.059	mg/kg	Greater than 75th + 3xIQR
Dibenz(a,h)anthracene	BG03	SB05	0.5-1	6/12/2017	0.007	J mg/kg	Greater than 75th + 1.5xIQR
Dibenz(a,h)anthracene	BG03	SB06	0.5-1	6/12/2017	0.008	J mg/kg	Greater than first potential outlier
Dibenz(a,h)anthracene	BG03	SB07	0.17-0.5	6/12/2017	0.009	J mg/kg	Greater than 75th + 1.5xIQR
Dibenz(a,h)anthracene	BG03	SB04	1-2	6/12/2017	0.014	J mg/kg	Greater than first potential outlier
Dibenz(a,h)anthracene	BG04	SB08	0.5-1	6/12/2017	0.007	J mg/kg	Greater than 75th + 1.5xIQR
Dibenz(a,h)anthracene	BG05	SB08	0.17-0.5	6/13/2017	0.008	J mg/kg	Greater than 75th + 3xIQR
Dibenz(a,h)anthracene	BG05	SB05	0.17-0.5	6/13/2017	0.01	J mg/kg	Greater than first potential outlier
Indeno(1,2,3-cd)Pyrene	BG01	SB10	0.17-0.5	5/31/2017	0.28	mg/kg	Greater than 75th + 1.5xIQR
Indeno(1,2,3-cd)Pyrene	BG02	SB03	0.5-1	6/15/2017	0.22	mg/kg	Greater than 75th + 1.5xIQR
Indeno(1,2,3-cd)Pyrene	BG03	SB05	0.17-0.5	6/12/2017	0.033	mg/kg	Greater than 75th + 1.5xIQR
Indeno(1,2,3-cd)Pyrene	BG04	SB08	0.5-1	6/12/2017	0.029	J mg/kg	Greater than first potential outlier
Indeno(1,2,3-cd)Pyrene	BG04	SB08	0.17-0.5	6/12/2017	0.03	mg/kg	Greater than first potential outlier
Indeno(1,2,3-cd)Pyrene	BG05	SB10	0.17-0.5	6/13/2017	0.025	J mg/kg	Greater than 75th + 1.5xIQR
Indeno(1,2,3-cd)Pyrene	BG05	SB05	0.5-1	6/13/2017	0.032	mg/kg	Greater than first potential outlier
Indeno(1,2,3-cd)Pyrene	BG05	SB05	0.17-0.5	6/13/2017	0.035	mg/kg	Greater than first potential outlier
Phenol	BG02	SB05	0.5-1	6/15/2017	0.029	J mg/kg	Greater than first potential outlier
Phenol	BG04	SB03	0.17-0.5	6/1/2017	0.04	J mg/kg	Greater than 75th + 3xIQR
Phenol	BG04	SB08	0.5-1	6/12/2017	0.054	J mg/kg	Greater than first potential outlier
Metals							
Arsenic	BG02	SB02	0.17-0.5	6/15/2017	13.4	mg/kg	Greater than 75th + 1.5xIQR
Arsenic	BG04	SB08	0.17-0.5	6/12/2017	9.84	mg/kg	Greater than 75th + 1.5xIQR
Arsenic	BG05	SB10	0.17-0.5	6/13/2017	10.6	mg/kg	Greater than 75th + 1.5xIQR
Barium	BG01	SB10	0.17-0.5	5/31/2017	237	mg/kg	Greater than 75th + 1.5xIQR
Barium	BG02	SB10	1-2	6/16/2017	114	mg/kg	Greater than 75th + 1.5xIQR
Barium	BG03	SB01	1-2	6/12/2017	123	mg/kg	Greater than 75th + 1.5xIQR
Barium	BG03	SB01	0.5-1	6/12/2017	199	mg/kg	Greater than first potential outlier
Barium	BG03	SB01	0.17-0.5	6/12/2017	273	mg/kg	Greater than first potential outlier
Barium	BG04	SB07	0.17-0.5	6/1/2017	104	mg/kg	Greater than 75th + 1.5xIQR
Barium	BG04	SB09	1-2	6/12/2017	150	mg/kg	Greater than first potential outlier
Barium	BG05	SB09	1-2	6/13/2017	121	mg/kg	Greater than 75th + 1.5xIQR
Cadmium	BG01	SB03	0.5-1	5/30/2017	0.696	mg/kg	Greater than 75th + 1.5xIQR
Cadmium	BG01	SB10	0.17-0.5	5/31/2017	0.954	mg/kg	Greater than first potential outlier
Cadmium	BG01	SB03	0.17-0.5	5/30/2017	1.02	mg/kg	Greater than first potential outlier
Cadmium	BG02	SB09	0.17-0.5	6/16/2017	0.296	mg/kg	Greater than 75th + 1.5xIQR
Cadmium	BG03	SB01	1-2	6/12/2017	0.315	J mg/kg	Greater than 75th + 1.5xIQR
Cadmium	BG03	SB01	0.5-1	6/12/2017	0.419	mg/kg	Greater than first potential outlier
Cadmium	BG03	SB01	0.17-0.5	6/12/2017	0.797	mg/kg	Greater than first potential outlier
Cadmium	BG04	SB04	0.17-0.5	6/2/2017	0.326	mg/kg	Greater than 75th + 1.5xIQR
Cadmium	BG04	SB08	0.17-0.5	6/12/2017	0.359	mg/kg	Greater than first potential outlier
Cadmium	BG05	SB05	0.17-0.5	6/13/2017	0.202	J mg/kg	Greater than 75th + 1.5xIQR
Cadmium	BG05	SB10	0.17-0.5	6/13/2017	0.247	J mg/kg	Greater than first potential outlier
Chromium	BG02	SB01	0.5-1	6/15/2017	33.1	mg/kg	Greater than 75th + 1.5xIQR
Chromium	BG03	SB09	1-2	6/12/2017	26.7	mg/kg	Greater than 75th + 1.5xIQR
Chromium	BG04	SB01	1-2	6/1/2017	30.7	mg/kg	Greater than 75th + 1.5xIQR
Chromium	BG05	SB05	0.5-1	6/13/2017	13.9	mg/kg	Less than first potential outlier
Chromium	BG05	SB10	0.17-0.5	6/13/2017	14.3	mg/kg	Less than 75th - 1.5xIQR
Chromium	BG05	SB09	1-2	6/13/2017	30.2	mg/kg	Greater than 75th + 3xIQR
Cobalt	BG04	SB01	0.17-0.5	6/1/2017	19.1	mg/kg	Greater than 75th + 1.5xIQR
Cobalt	BG05	SB09	0.5-1	6/13/2017	29.5	mg/kg	Greater than 75th + 3xIQR
Copper	BG01	SB10	0.17-0.5	5/31/2017	106	mg/kg	Greater than 75th + 3xIQR
Copper	BG02	SB10	0.5-1	6/16/2017	72.9	mg/kg	Greater than 75th + 3xIQR
Copper	BG04	SB01	0.17-0.5	6/1/2017	28	mg/kg	Greater than 75th + 1.5xIQR
Copper	BG04	SB03	1-1.5	6/1/2017	28.8	mg/kg	Greater than first potential outlier
Copper	BG04	SB01	0.5-1	6/1/2017	34.6	mg/kg	Greater than first potential outlier
Copper	BG04	SB01	1-2	6/1/2017	38.1	mg/kg	Greater than first potential outlier
Copper	BG05	SB09	1-2	6/13/2017	35.4	mg/kg	Greater than 75th + 3xIQR
Iron	BG03	SB01	1-2	6/12/2017	13900	mg/kg	Less than 75th - 1.5xIQR
Iron	BG03	SB07	1-2	6/12/2017	38900	mg/kg	Greater than 75th + 1.5xIQR
Iron	BG05	SB09	0.5-1	6/13/2017	78200	mg/kg	Greater than 75th + 3xIQR
Lead	BG01	SB10	0.17-0.5	5/31/2017	301	mg/kg	Greater than 75th + 1.5xIQR
Lead	BG01	SB03	0.17-0.5	5/30/2017	383	mg/kg	Greater than first potential outlier

Table 4b
Background Soil Potential Outliers - Near Surface Samples (0.17 - 2 feet bgs)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Potential Outlier Identification							
Analyte	Parcel	Soil Boring	Depth Interval (feet bgs)	Sample Date	Analytical Result	Units	Potential Outlier Rationale
Lead	BG01	SB03	0.5-1	5/30/2017	445	E mg/kg	Greater than first potential outlier
Lead	BG03	SB01	0.17-0.5	6/12/2017	41.3	mg/kg	Greater than 75th + 1.5xIQR
Lead	BG03	SB05	0.17-0.5	6/12/2017	44.6	mg/kg	Greater than first potential outlier
Lead	BG04	SB01	0.17-0.5	6/1/2017	45.3	mg/kg	Greater than 75th + 1.5xIQR
Lead	BG04	SB08	0.5-1	6/12/2017	50.8	mg/kg	Greater than first potential outlier
Lead	BG04	SB08	0.17-0.5	6/12/2017	56.7	mg/kg	Greater than first potential outlier
Lead	BG05	SB04	0.17-0.5	6/13/2017	51.4	mg/kg	Greater than 75th + 1.5xIQR
Lead	BG05	SB05	0.5-1	6/13/2017	52.4	mg/kg	Greater than first potential outlier
Lead	BG05	SB05	0.17-0.5	6/13/2017	80.9	mg/kg	Greater than first potential outlier
Lead	BG05	SB10	0.17-0.5	6/13/2017	200	mg/kg	Greater than first potential outlier
Manganese	BG02	SB10	0.5-1	6/16/2017	1300	mg/kg	Greater than 75th + 1.5xIQR
Manganese	BG02	SB07	1-2	6/16/2017	1720	mg/kg	Greater than first potential outlier
Manganese	BG02	SB08	1-2	6/16/2017	2150	mg/kg	Greater than first potential outlier
Manganese	BG03	SB01	0.5-1	6/12/2017	2850	mg/kg	Greater than 75th + 3xIQR
Manganese	BG03	SB01	0.17-0.5	6/12/2017	4600	mg/kg	Greater than first potential outlier
Manganese	BG04	SB06	0.5-1	6/1/2017	1400	E mg/kg	Greater than 75th + 1.5xIQR
Manganese	BG04	SB01	0.17-0.5	6/1/2017	1540	E mg/kg	Greater than first potential outlier
Manganese	BG04	SB09	1-2	6/12/2017	1690	mg/kg	Greater than first potential outlier
Manganese	BG05	SB05	0.5-1	6/13/2017	1520	mg/kg	Greater than 75th + 1.5xIQR
Mercury	BG02	SB01	0.5-1	6/15/2017	0.0872	J mg/kg	Greater than 75th + 1.5xIQR
Mercury	BG03	SB01	0.17-0.5	6/12/2017	0.191	mg/kg	Greater than 75th + 1.5xIQR
Mercury	BG04	SB06	0.17-0.5	6/1/2017	0.12	J mg/kg	Greater than 75th + 1.5xIQR
Mercury	BG04	SB08	0.5-1	6/12/2017	0.151	J mg/kg	Greater than first potential outlier
Mercury	BG04	SB08	0.17-0.5	6/12/2017	0.186	mg/kg	Greater than first potential outlier
Mercury	BG05	SB05	0.17-0.5	6/13/2017	0.234	mg/kg	Greater than 75th + 3xIQR
Mercury	BG05	SB05	0.5-1	6/13/2017	0.238	mg/kg	Greater than first potential outlier
Nickel	BG01	SB10	0.17-0.5	5/31/2017	33.7	mg/kg	Greater than 75th + 1.5xIQR
Nickel	BG04	SB01	1-2	6/1/2017	31.3	mg/kg	Greater than 75th + 1.5xIQR
Nickel	BG05	SB10	0.17-0.5	6/13/2017	12.3	mg/kg	Less than first potential outlier
Nickel	BG05	SB03	1-2	6/12/2017	13.6	mg/kg	Less than 25th - 1.5xIQR
Nickel	BG05	SB09	1-2	6/13/2017	31	mg/kg	Greater than 75th + 1.5xIQR
Nickel	BG05	SB08	1-2	6/13/2017	32.4	mg/kg	Greater than first potential outlier
Nickel	BG05	SB09	0.5-1	6/13/2017	47.9	mg/kg	Greater than first potential outlier
Selenium	BG01	SB10	0.17-0.5	5/31/2017	1.03	mg/kg	Greater than 75th + 1.5xIQR
Selenium	BG03	SB05	0.17-0.5	6/12/2017	0.701	J mg/kg	Greater than 75th + 1.5xIQR
Selenium	BG03	SB06	0.17-0.5	6/12/2017	0.724	J mg/kg	Greater than first potential outlier
Selenium	BG03	SB03	0.17-0.5	6/12/2017	0.847	J mg/kg	Greater than first potential outlier
Selenium	BG03	SB01	0.17-0.5	6/12/2017	0.878	J mg/kg	Greater than first potential outlier
Selenium	BG04	SB08	0.5-1	6/12/2017	0.875	J mg/kg	Greater than 75th + 1.5xIQR
Selenium	BG04	SB08	0.17-0.5	6/12/2017	1.04	J mg/kg	Greater than first potential outlier
Selenium	BG05	SB05	0.17-0.5	6/13/2017	1.02	J mg/kg	Greater than 75th + 1.5xIQR
Selenium	BG05	SB10	0.17-0.5	6/13/2017	1.73	mg/kg	Greater than first potential outlier
Silver	BG01	SB10	0.17-0.5	5/31/2017	0.43	mg/kg	Greater than 75th + 3xIQR
Silver	BG02	SB09	0.17-0.5	6/16/2017	0.0807	J mg/kg	Greater than 75th + 1.5xIQR
Silver	BG02	SB09	0.5-1	6/16/2017	0.0853	J mg/kg	Greater than first potential outlier
Silver	BG03	SB01	0.17-0.5	6/12/2017	0.171	J mg/kg	Greater than 75th + 1.5xIQR
Silver	BG04	SB08	0.5-1	6/12/2017	0.2	J mg/kg	Greater than 75th + 1.5xIQR
Silver	BG04	SB08	0.17-0.5	6/12/2017	0.213	J mg/kg	Greater than first potential outlier
Silver	BG05	SB10	0.17-0.5	6/13/2017	0.157	J mg/kg	Greater than 75th + 1.5xIQR
Silver	BG05	SB05	0.17-0.5	6/13/2017	0.193	J mg/kg	Greater than first potential outlier
Vanadium	BG01	SB03	0.17-0.5	5/30/2017	51.4	mg/kg	Greater than 75th + 1.5xIQR
Zinc	BG01	SB10	0.17-0.5	5/31/2017	409	mg/kg	Greater than 75th + 1.5xIQR
Zinc	BG02	SB09	0.5-1	6/16/2017	160	mg/kg	Greater than 75th + 3xIQR
Zinc	BG02	SB09	0.17-0.5	6/16/2017	169	mg/kg	Greater than first potential outlier
Zinc	BG03	SB01	0.17-0.5	6/12/2017	116	mg/kg	Greater than 75th + 1.5xIQR
Zinc	BG05	SB09	0.5-1	6/13/2017	169	mg/kg	Greater than 75th + 3xIQR

Acronyms and Abbreviations:

bgs: below ground surface

ID: identification

IQR: interquartile range

mg/kg: milligram per kilogram

Qualifiers:

E = Concentrations exceeds the calibration range

J = The analyte was positively identified; however, the associated numerical value is an estimated concentration only.

U = The analyte was analyzed for, but the result was not detected above the method detection limit.

Table 4c
Background Soil Potential Outliers - Pesticide Samples (0 - 2 feet bgs)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Potential Outlier Identification							
Analyte	Parcel	Soil Boring	Depth Interval (feet bgs)	Sample Date	Analytical Result	Units	Potential Outlier Rationale
Pesticides							
4,4-DDD	BG02	SB09	0.5-1	6/16/2017	0.0012 J	mg/kg	Greater than 75th + 1.5xIQR
4,4-DDD	BG05	SB09	0-0.17	6/13/2017	0.0029 P	mg/kg	Greater than 75th + 3xIQR
4,4-DDE	BG03	SB06	0-0.17	6/12/2017	0.0054	mg/kg	Greater than 75th + 1.5xIQR
4,4-DDE	BG05	SB09	0-0.17	6/13/2017	0.017	mg/kg	Greater than 75th + 3xIQR
4,4-DDT	BG04	SB06	0-0.17	6/1/2017	0.0046 P	mg/kg	Greater than 75th + 1.5xIQR
4,4-DDT	BG05	SB09	0-0.17	6/13/2017	0.017	mg/kg	Greater than 75th + 3xIQR
Acronyms and Abbreviations:							
4,4-DDD: dichlorodiphenyldichloroethane				ID: identification			
4,4-DDE: dichlorodiphenyldichloroethene				IQR: interquartile range			
4,4-DDT: dichlorodiphenyltrichloroethane				mg/kg: milligram per kilogram			
bgs: below ground surface							
Qualifiers:							
J = The analyte was positively identified; however, the associated numerical value is an estimated concentration only.							
P = Concentration difference between the primary and confirmation column >40%. The lower result is reported.							
U = The analyte was analyzed for, but the result was not detected above the method detection limit.							

Table 5a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG01
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG01 - Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	10	8	80%	0.0040	0.013	0.004	0.005
4-Methylphenol (p-Cresol)	mg/kg	10	0	0%	--	--	0.02	0.027
Benzo(a)anthracene	mg/kg	10	10	100%	0.0490	0.35	--	--
Benzo(a)pyrene	mg/kg	10	10	100%	0.0620	0.39	--	--
Benzo(b)fluoranthene	mg/kg	10	10	100%	0.1000	0.48	--	--
Benzo(k)fluoranthene	mg/kg	10	10	100%	0.0330	0.22	--	--
Chrysene	mg/kg	10	10	100%	0.0620	0.39	--	--
Dibenz(a,h)anthracene	mg/kg	10	10	100%	0.0120	0.056	--	--
Indeno(1,2,3-cd)Pyrene	mg/kg	10	10	100%	0.0440	0.25	--	--
Phenol	mg/kg	10	0	0%	--	--	0.02	0.027
Arsenic	mg/kg	10	10	100%	6.38	12.1	--	--
Barium	mg/kg	10	10	100%	55.4	247	--	--
Cadmium	mg/kg	10	10	100%	0.134	0.898	--	--
Chromium	mg/kg	10	10	100%	12.4	28.2	--	--
Cobalt	mg/kg	10	10	100%	6.92	13.5	--	--
Copper	mg/kg	10	10	100%	14.2	89.7	--	--
Iron	mg/kg	10	10	100%	17400	34300	--	--
Lead	mg/kg	10	10	100%	37.2	292	--	--
Manganese	mg/kg	10	10	100%	395	1160	--	--
Mercury	mg/kg	13	13	100%	0.046	0.159	--	--
Nickel	mg/kg	10	10	100%	14.6	30.5	--	--
Selenium	mg/kg	10	10	100%	0.293	1.13	--	--
Silver	mg/kg	10	10	100%	0.0421	0.608	--	--
Vanadium	mg/kg	10	10	100%	24.3	43.7	--	--
Zinc	mg/kg	10	10	100%	59.8	379	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 5a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG01
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG01 - Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Normal	Kaplan Meier	0.0063	0.0032	2.911	0.015	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	All non-detect	--	--	--	--	0.027	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Nonparametric	--	--	--	--	0.35	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Log normal	Direct Calculation	0.14	0.091	2.911	0.41	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Log normal	Direct Calculation	0.21	0.11	2.911	0.52	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Log normal	Direct Calculation	0.086	0.051	2.911	0.23	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Log normal	Direct Calculation	0.15	0.090	2.911	0.41	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	Log normal	Direct Calculation	0.024	0.012	2.911	0.061	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Log normal	Direct Calculation	0.097	0.058	2.911	0.27	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	All non-detect	--	--	--	--	0.027	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Log normal	Direct Calculation	8.7	1.5	2.911	12.9	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Log normal	Direct Calculation	126	59	2.911	297	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Log normal	Direct Calculation	0.38	0.22	2.911	1.0	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	19.6	4.4	2.911	32.4	30.0	Unrestricted	32.4	95-95UTL
Cobalt	mg/kg	Normal	Direct Calculation	10.4	2.0	2.911	16.3	30.0	Residential	30.0	Residential
Copper	mg/kg	Log normal	Direct Calculation	35.6	21.5	2.911	98.2	50.0	Unrestricted	98.2	95-95UTL
Iron	mg/kg	Normal	Direct Calculation	26540	4872	2.911	40724	2000	Residential	40724	95-95UTL
Lead	mg/kg	Normal	Direct Calculation	136	83	2.911	379	63.0	Unrestricted	379	95-95UTL
Manganese	mg/kg	Normal	Direct Calculation	831	214	2.911	1455	1600	Unrestricted	1600	Unrestricted
Mercury	mg/kg	Normal	Direct Calculation	0.10	0.028	2.671	0.18	0.18	Unrestricted	0.18	Unrestricted
Nickel	mg/kg	Normal	Direct Calculation	23.0	4.4	2.911	35.8	30.0	Unrestricted	35.8	95-95UTL
Selenium	mg/kg	Normal	Direct Calculation	0.61	0.25	2.911	1.34	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Nonparametric	--	--	--	--	0.61	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	34.7	6.3	2.911	53.0	100	Residential	100	Residential
Zinc	mg/kg	Normal	Direct Calculation	183	96.0	2.911	462	109	Unrestricted	462	95-95UTL

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 5b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG01
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG01 - Near Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	30	14	47%	0.0040	0.048	0.004	0.004
4-Methylphenol (p-Cresol)	mg/kg	30	0	0%	--	--	0.019	0.026
Benzo(a)anthracene	mg/kg	30	29	97%	0.0040	0.32	0.004	0.004
Benzo(a)pyrene	mg/kg	30	29	97%	0.0040	0.38	0.004	0.004
Benzo(b)fluoranthene	mg/kg	30	30	100%	0.0060	0.43	--	--
Benzo(k)fluoranthene	mg/kg	30	28	93%	0.0040	0.19	0.004	0.004
Chrysene	mg/kg	30	29	97%	0.0040	0.36	0.004	0.004
Dibenz(a,h)anthracene	mg/kg	30	22	73%	0.0040	0.065	0.004	0.004
Indeno(1,2,3-cd)Pyrene	mg/kg	30	29	97%	0.0040	0.28	0.004	0.004
Phenol	mg/kg	30	0	0%	--	--	0.019	0.026
Arsenic	mg/kg	30	30	100%	5.6	11.9	--	--
Barium	mg/kg	30	30	100%	38.6	237	--	--
Cadmium	mg/kg	30	30	100%	0.043	1.02	--	--
Chromium	mg/kg	30	30	100%	13.7	28.1	--	--
Cobalt	mg/kg	30	30	100%	7.21	13.6	--	--
Copper	mg/kg	30	30	100%	12.3	106	--	--
Iron	mg/kg	30	30	100%	18700	34900	--	--
Lead	mg/kg	30	30	100%	13.4	445	--	--
Manganese	mg/kg	30	30	100%	320	1190	--	--
Mercury	mg/kg	36	36	100%	0.0292	0.191	--	--
Nickel	mg/kg	30	30	100%	14.3	33.7	--	--
Selenium	mg/kg	30	30	100%	0.15	1.0	--	--
Silver	mg/kg	30	28	93%	0.021	0.43	0.0206	0.0229
Vanadium	mg/kg	30	30	100%	17.8	51.4	--	--
Zinc	mg/kg	30	30	100%	58.2	409	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 5b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG01
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG01 - Near Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Too many non-detects	--	--	--	--	0.048	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	All non-detect	--	--	--	--	0.026	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Normal	Kaplan Meier	0.23	0.13	2.220	0.28	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Normal	Kaplan Meier	0.26	0.14	2.220	0.34	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Log normal	Direct Calculation	0.12	0.11	2.220	0.37	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Normal	Kaplan Meier	0.20	0.11	2.220	0.20	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Normal	Kaplan Meier	0.26	0.14	2.220	0.32	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	Nonparametric	--	--	--	--	0.065	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Normal	Kaplan Meier	0.22	0.12	2.220	0.23	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	All non-detect	--	--	--	--	0.026	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	8.7	1.6	2.220	12.3	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Log normal	Direct Calculation	101	46.2	2.220	203	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Log normal	Direct Calculation	0.26	0.25	2.220	0.81	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	20.1	3.2	2.220	27.2	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Normal	Direct Calculation	11.1	1.8	2.220	15.1	30.0	Residential	30.0	Residential
Copper	mg/kg	Log normal	Direct Calculation	3.3	0.42	2.220	29.8	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Normal	Direct Calculation	27523	3925	2.220	36236	2000	Residential	36236	95-95UTL
Lead	mg/kg	Log normal	Direct Calculation	93.1	109	2.220	335	63.0	Unrestricted	335	95-95UTL
Manganese	mg/kg	Normal	Direct Calculation	731	243	2.220	1271	1600	Unrestricted	1600	Unrestricted
Mercury	mg/kg	Log normal	Direct Calculation	0.077	0.043	2.159	0.17	0.18	Unrestricted	0.18	Unrestricted
Nickel	mg/kg	Normal	Direct Calculation	22.5	4.1	2.220	31.7	30.0	Unrestricted	31.7	95-95UTL
Selenium	mg/kg	Normal	Direct Calculation	0.46	0.18	2.220	0.87	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Nonparametric	--	--	--	--	0.43	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	30.2	7.0	2.220	45.6	100	Residential	100	Residential
Zinc	mg/kg	Log normal	Direct Calculation	128	76.2	2.220	297	109	Unrestricted	297	95-95UTL

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 6a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG02
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG02 - Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	10	5	50%	0.0040	0.024	0.004	0.005
4-Methylphenol (p-Cresol)	mg/kg	10	3	30%	0.018	0.13	0.018	0.023
Benzo(a)anthracene	mg/kg	10	10	100%	0.029	0.20	--	--
Benzo(a)pyrene	mg/kg	10	10	100%	0.050	0.19	--	--
Benzo(b)fluoranthene	mg/kg	10	10	100%	0.084	0.28	--	--
Benzo(k)fluoranthene	mg/kg	10	10	100%	0.031	0.13	--	--
Chrysene	mg/kg	10	10	100%	0.041	0.21	--	--
Dibenz(a,h)anthracene	mg/kg	10	10	100%	0.013	0.042	--	--
Indeno(1,2,3-cd)Pyrene	mg/kg	10	10	100%	0.046	0.14	--	--
Phenol	mg/kg	10	1	10%	0.018	0.075	0.018	0.026
Arsenic	mg/kg	10	10	100%	6.7	9.9	--	--
Barium	mg/kg	10	10	100%	58.1	84.1	--	--
Cadmium	mg/kg	10	10	100%	0.15	0.22	--	--
Chromium	mg/kg	10	10	100%	11.9	17.1	--	--
Cobalt	mg/kg	10	10	100%	8.5	12.1	--	--
Copper	mg/kg	10	10	100%	25.0	34.2	--	--
Iron	mg/kg	10	10	100%	21900	34300	--	--
Lead	mg/kg	10	10	100%	22.8	31.2	--	--
Manganese	mg/kg	10	10	100%	580	1580	--	--
Mercury	mg/kg	13	13	100%	0.021	0.055	--	--
Nickel	mg/kg	10	10	100%	17.1	27.0	--	--
Selenium	mg/kg	10	10	100%	0.17	0.30	--	--
Silver	mg/kg	10	8	80%	0.025	0.078	0.0251	0.0333
Vanadium	mg/kg	10	10	100%	18.6	29.9	--	--
Zinc	mg/kg	10	10	100%	65.5	110	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 6a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG02
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG02 - Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Too many non-detects	--	--	--	--	0.024	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	<5 Detects	--	--	--	--	0.13	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Log normal	Direct Calculation	0.076	0.055	2.911	0.24	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Normal	Direct Calculation	0.094	0.047	2.911	0.23	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Normal	Direct Calculation	0.15	0.061	2.911	0.32	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Log normal	Direct Calculation	0.058	0.031	2.911	0.15	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Log normal	Direct Calculation	0.10	0.053	2.911	0.25	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	Log normal	Direct Calculation	0.022	0.0086	2.911	0.047	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Normal	Direct Calculation	0.076	0.030	2.911	0.16	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	<5 Detects	--	--	--	--	0.075	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	8.2	1.0	2.911	11.2	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Normal	Direct Calculation	70	8	2.911	93	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Nonparametric	--	--	--	--	0.2	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	226.5	37.6	2.911	18.3	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Normal	Direct Calculation	10.5	1.1	2.911	13.7	30.0	Residential	30.0	Residential
Copper	mg/kg	Normal	Direct Calculation	29.0	3.4	2.911	38.8	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Normal	Direct Calculation	28720	3200	2.911	38036	2000	Residential	38036	95-95UTL
Lead	mg/kg	Normal	Direct Calculation	27	2.4	2.911	33.5	63.0	Unrestricted	63.0	Unrestricted
Manganese	mg/kg	Nonparametric	--	--	--	--	1580	1600	Unrestricted	1600	Unrestricted
Mercury	mg/kg	Normal	Direct Calculation	0.041	0.010	2.671	0.067	0.18	Unrestricted	0.18	Unrestricted
Nickel	mg/kg	Normal	Direct Calculation	23.2	2.8	2.911	31.2	30.0	Unrestricted	31.2	95-95UTL
Selenium	mg/kg	Normal	Direct Calculation	0.23	0.041	2.911	0.35	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Normal	Kaplan Meier	0.045	0.020	2.911	0.10	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	22.9	4.2	2.911	35.0	100	Residential	100	Residential
Zinc	mg/kg	Normal	Direct Calculation	86.1	12.4	2.911	122	109	Unrestricted	122	95-95UTL

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 6b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG02
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG02 - Near Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	28	22	79%	0.0040	0.037	0.004	0.004
4-Methylphenol (p-Cresol)	mg/kg	27	2	7%	0.018	0.068	0.018	0.024
Benzo(a)anthracene	mg/kg	28	28	100%	0.011	0.19	--	--
Benzo(a)pyrene	mg/kg	28	28	100%	0.013	0.28	--	--
Benzo(b)fluoranthene	mg/kg	28	28	100%	0.017	0.39	--	--
Benzo(k)fluoranthene	mg/kg	28	28	100%	0.010	0.18	--	--
Chrysene	mg/kg	28	28	100%	0.019	0.22	--	--
Dibenz(a,h)anthracene	mg/kg	28	27	96%	0.0040	0.059	0.004	0.004
Indeno(1,2,3-cd)Pyrene	mg/kg	28	28	100%	0.0090	0.22	--	--
Phenol	mg/kg	27	1	4%	0.018	0.029	0.018	0.024
Arsenic	mg/kg	28	28	100%	6.1	13.4	--	--
Barium	mg/kg	28	28	100%	51.4	114	--	--
Cadmium	mg/kg	28	28	100%	0.087	0.30	--	--
Chromium	mg/kg	28	28	100%	14.7	33.1	--	--
Cobalt	mg/kg	28	28	100%	7.0	17.2	--	--
Copper	mg/kg	28	28	100%	17.7	72.9	--	--
Iron	mg/kg	28	28	100%	19700	37300	--	--
Lead	mg/kg	28	28	100%	17.4	39.8	--	--
Manganese	mg/kg	28	28	100%	417	2150	--	--
Mercury	mg/kg	34	34	100%	0.022	0.087	--	--
Nickel	mg/kg	28	28	100%	17.2	34.4	--	--
Selenium	mg/kg	28	28	100%	0.19	0.51	--	--
Silver	mg/kg	28	27	96%	0.029	0.085	0.0319	0.0319
Vanadium	mg/kg	28	28	100%	18.7	42.3	--	--
Zinc	mg/kg	28	28	100%	56.2	169	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 6b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG02
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG02 - Near Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Normal	Kaplan Meier	0.015	0.012	2.246	0.041	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	<5 Detects	--	--	--	--	0.068	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Log normal	Direct Calculation	0.064	0.050	2.246	0.18	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Log normal	Direct Calculation	0.077	0.062	2.246	0.22	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Log normal	Direct Calculation	0.11	0.087	2.246	0.31	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Log normal	Direct Calculation	0.047	0.039	2.246	0.13	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Log normal	Direct Calculation	0.080	0.056	2.246	0.21	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	Normal	Kaplan Meier	0.12	0.045	2.246	0.050	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Log normal	Direct Calculation	0.057	0.045	2.246	0.16	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	<5 Detects	--	--	--	--	0.029	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	8.8	1.6	2.246	12.4	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Normal	Direct Calculation	79	14	2.246	111	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Normal	Direct Calculation	0.16	0.046	2.246	0.26	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	20.7	4.7	2.246	31.3	30.0	Unrestricted	31.3	95-95UTL
Cobalt	mg/kg	Normal	Direct Calculation	11.4	2.7	2.246	17.4	30.0	Residential	30.0	Residential
Copper	mg/kg	Log normal	Direct Calculation	30.3	10.4	2.246	53.7	50.0	Unrestricted	53.7	95-95UTL
Iron	mg/kg	Normal	Direct Calculation	29393	4470	2.246	39432	2000	Residential	39432	95-95UTL
Lead	mg/kg	Normal	Direct Calculation	28	6.4	2.246	42.0	63.0	Unrestricted	63.0	Unrestricted
Manganese	mg/kg	Log normal	Direct Calculation	847	368	2.246	1673	1600	Unrestricted	1673	95-95UTL
Mercury	mg/kg	Normal	Direct Calculation	0.048	0.015	2.178	0.081	0.18	Unrestricted	0.18	Unrestricted
Nickel	mg/kg	Normal	Direct Calculation	25.0	4.4	2.246	34.9	30.0	Unrestricted	34.9	95-95UTL
Selenium	mg/kg	Normal	Direct Calculation	0.29	0.085	2.246	0.49	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Normal	Kaplan Meier	0.36	0.032	2.246	0.079	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	30.3	7.7	2.246	47.5	100	Residential	100	Residential
Zinc	mg/kg	Log normal	Direct Calculation	4.5	0.24	2.246	89.7	109	Unrestricted	109	Unrestricted

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 7a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG03
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG03 - Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	10	6	60%	0.0060	0.014	0.006	0.008
4-Methylphenol (p-Cresol)	mg/kg	8	3	38%	0.020	0.049	0.02	0.03
Benzo(a)anthracene	mg/kg	10	10	100%	0.012	0.076	--	--
Benzo(a)pyrene	mg/kg	10	10	100%	0.017	0.088	--	--
Benzo(b)fluoranthene	mg/kg	10	10	100%	0.030	0.18	--	--
Benzo(k)fluoranthene	mg/kg	10	10	100%	0.012	0.056	--	--
Chrysene	mg/kg	10	10	100%	0.019	0.12	--	--
Dibenz(a,h)anthracene	mg/kg	10	6	60%	0.0040	0.018	0.004	0.007
Indeno(1,2,3-cd)Pyrene	mg/kg	10	10	100%	0.012	0.075	--	--
Phenol	mg/kg	10	0	0%	--	--	0.02	0.039
Arsenic	mg/kg	10	10	100%	4.63	13.6	--	--
Barium	mg/kg	10	10	100%	47.8	305	--	--
Cadmium	mg/kg	10	10	100%	0.149	0.942	--	--
Chromium	mg/kg	10	10	100%	9.1	21.5	--	--
Cobalt	mg/kg	10	10	100%	3.0	7.5	--	--
Copper	mg/kg	10	10	100%	8.7	41.7	--	--
Iron	mg/kg	10	10	100%	11300	59000	--	--
Lead	mg/kg	10	10	100%	33.2	74.4	--	--
Manganese	mg/kg	10	10	100%	418	4530	--	--
Mercury	mg/kg	13	13	100%	0.042	0.30	--	--
Nickel	mg/kg	10	10	100%	10.1	35.1	--	--
Selenium	mg/kg	10	10	100%	0.46	1.2	--	--
Silver	mg/kg	10	10	100%	0.082	0.26	--	--
Vanadium	mg/kg	10	10	100%	23.2	45.7	--	--
Zinc	mg/kg	10	10	100%	57.1	146	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 7a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG03
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG03 - Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Normal	rROS Substitution	0.0062	0.0039	2.911	0.017	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	<5 Detects	--	--	--	--	0.049	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Log normal	Direct Calculation	0.036	0.019	2.911	0.091	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Log normal	Direct Calculation	0.042	0.020	2.911	0.10	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Log normal	Direct Calculation	0.078	0.043	2.911	0.20	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Log normal	Direct Calculation	0.028	0.012	2.911	0.064	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Log normal	Direct Calculation	0.058	0.029	2.911	0.14	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	Normal	rROS Substitution	0.0066	0.0065	2.911	0.026	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Log normal	Direct Calculation	0.033	0.018	2.911	0.086	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	All non-detect	--	--	--	--	0.039	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Log normal	Direct Calculation	7.1	2.6	2.911	14.7	13.0	Unrestricted	14.7	95-95UTL
Barium	mg/kg	Log normal	Direct Calculation	105	77	2.911	328	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Nonparametric	--	--	--	--	0.94	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	14.0	3.4	2.911	23.8	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Normal	Direct Calculation	5.6	1.5	2.911	10.0	30.0	Residential	30.0	Residential
Copper	mg/kg	Nonparametric	--	--	--	--	41.7	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Nonparametric	--	--	--	--	59000	2000	Residential	59000	95-95UTL
Lead	mg/kg	Normal	Direct Calculation	55.3	15.6	2.911	101	63.0	Unrestricted	101	95-95UTL
Manganese	mg/kg	Nonparametric	--	--	--	--	4530	1600	Unrestricted	4530	95-95UTL
Mercury	mg/kg	Normal	Direct Calculation	0.15	0.075	2.671	0.35	0.18	Unrestricted	0.35	95-95UTL
Nickel	mg/kg	Log normal	Direct Calculation	17.6	6.8	2.911	37.5	30.0	Unrestricted	37.5	95-95UTL
Selenium	mg/kg	Normal	Direct Calculation	0.76	0.26	2.911	1.5	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Normal	Direct Calculation	0.17	0.059	2.911	0.34	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	33.6	7.1	2.911	54.3	100	Residential	100	Residential
Zinc	mg/kg	Log normal	Direct Calculation	84	28.8	2.911	167	109	Unrestricted	167	95-95UTL

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 7b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG03
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG03 - Near Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	30	4	13%	0.0040	0.011	0.004	0.006
4-Methylphenol (p-Cresol)	mg/kg	29	1	3%	0.019	0.034	0.019	0.027
Benzo(a)anthracene	mg/kg	30	24	80%	0.0040	0.030	0.004	0.006
Benzo(a)pyrene	mg/kg	30	23	77%	0.0040	0.040	0.004	0.006
Benzo(b)fluoranthene	mg/kg	30	30	100%	0.0040	0.067	--	--
Benzo(k)fluoranthene	mg/kg	30	21	70%	0.0040	0.028	0.004	0.006
Chrysene	mg/kg	30	30	100%	0.0040	0.051	--	--
Dibenz(a,h)anthracene	mg/kg	30	9	30%	0.0040	0.014	0.004	0.006
Indeno(1,2,3-cd)Pyrene	mg/kg	30	24	80%	0.0040	0.033	0.004	0.006
Phenol	mg/kg	30	0	0%	--	--	0.019	0.032
Arsenic	mg/kg	30	30	100%	3.0	6.7	--	--
Barium	mg/kg	30	30	100%	41.9	273	--	--
Cadmium	mg/kg	30	30	100%	0.065	0.80	--	--
Chromium	mg/kg	30	30	100%	10.4	26.7	--	--
Cobalt	mg/kg	30	30	100%	5.0	10.3	--	--
Copper	mg/kg	30	30	100%	6.0	19.0	--	--
Iron	mg/kg	30	30	100%	13900	38900	--	--
Lead	mg/kg	30	30	100%	9.66	44.6	--	--
Manganese	mg/kg	30	30	100%	211	4600	--	--
Mercury	mg/kg	36	36	100%	0.026	0.19	--	--
Nickel	mg/kg	30	30	100%	12.2	26.1	--	--
Selenium	mg/kg	30	30	100%	0.17	0.88	--	--
Silver	mg/kg	30	23	77%	0.021	0.17	0.0208	0.0351
Vanadium	mg/kg	30	30	100%	17.4	32.0	--	--
Zinc	mg/kg	30	30	100%	55.7	116	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 7b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG03
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG03 - Near Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	<5 Detects	--	--	--	--	0.011	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	<5 Detects	--	--	--	--	0.034	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Nonparametric	--	--	--	--	0.030	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Normal	Kaplan Meier	0.21	0.055	2.22	0.037	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Log normal	Direct Calculation	0.018	0.014	2.22	0.050	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Nonparametric	--	--	--	--	0.028	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Log normal	Direct Calculation	0.016	0.011	2.22	0.041	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	Too many non-detects	--	--	--	--	0.014	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Nonparametric	--	--	--	--	0.033	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	All non-detect	--	--	--	--	0.032	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	5.0	0.93	2.22	7.0	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Nonparametric	--	--	--	--	273	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Nonparametric	--	--	--	--	0.80	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	16.8	3.2	2.22	24.0	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Normal	Direct Calculation	7.5	1.7	2.22	11.3	30.0	Residential	30.0	Residential
Copper	mg/kg	Normal	Direct Calculation	11.5	3.4	2.22	19.0	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Normal	Direct Calculation	25217	5036	2.22	36397	2000	Residential	36397	95-95UTL
Lead	mg/kg	Log normal	Direct Calculation	19.4	8.7	2.22	38.6	63.0	Unrestricted	63.0	Unrestricted
Manganese	mg/kg	Log normal	Direct Calculation	6.4	0.71	2.22	588	1600	Unrestricted	1600	Unrestricted
Mercury	mg/kg	Nonparametric	--	--	--	--	0.19	0.18	Unrestricted	0.191	95-95UTL
Nickel	mg/kg	Normal	Direct Calculation	17.7	3.8	2.22	26.1	30.0	Unrestricted	30.0	Unrestricted
Selenium	mg/kg	Log normal	Direct Calculation	0.44	0.17	2.22	0.80	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Normal	Kaplan Meier	0.056	0.042	2.22	0.15	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	25.5	3.7	2.22	33.8	100	Residential	100	Residential
Zinc	mg/kg	Log normal	Direct Calculation	75.4	13.6	2.22	106	109	Unrestricted	109	Unrestricted

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 8a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG04
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG04 - Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	10	8	80%	0.0050	0.012	0.005	0.008
4-Methylphenol (p-Cresol)	mg/kg	10	7	70%	0.024	0.32	0.024	0.031
Benzo(a)anthracene	mg/kg	10	9	90%	0.0050	0.053	0.005	0.005
Benzo(a)pyrene	mg/kg	10	9	90%	0.0060	0.079	0.006	0.006
Benzo(b)fluoranthene	mg/kg	10	10	100%	0.011	0.11	--	--
Benzo(k)fluoranthene	mg/kg	10	8	80%	0.0050	0.041	0.005	0.006
Chrysene	mg/kg	10	10	100%	0.010	0.082	--	--
Dibenz(a,h)anthracene	mg/kg	10	3	30%	0.0050	0.021	0.005	0.007
Indeno(1,2,3-cd)Pyrene	mg/kg	10	9	90%	0.0050	0.048	0.005	0.005
Phenol	mg/kg	9	0	0%	--	--	0.024	0.035
Arsenic	mg/kg	10	10	100%	6.0	9.6	--	--
Barium	mg/kg	10	10	100%	54.9	97.1	--	--
Cadmium	mg/kg	10	10	100%	0.12	0.45	--	--
Chromium	mg/kg	10	10	100%	15.0	21.4	--	--
Cobalt	mg/kg	10	10	100%	6.2	11.5	--	--
Copper	mg/kg	10	10	100%	14.9	21.9	--	--
Iron	mg/kg	10	10	100%	19100	26600	--	--
Lead	mg/kg	10	10	100%	14.2	68.1	--	--
Manganese	mg/kg	10	10	100%	558	1340	--	--
Mercury	mg/kg	13	13	100%	0.029	0.23	--	--
Nickel	mg/kg	10	10	100%	17.9	25.7	--	--
Selenium	mg/kg	10	10	100%	0.21	1.3	--	--
Silver	mg/kg	10	10	100%	0.050	0.35	--	--
Vanadium	mg/kg	10	10	100%	22.4	43.7	--	--
Zinc	mg/kg	10	10	100%	66.8	117	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 8a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG04
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG04 - Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Normal	Kaplan Meier	0.0078	0.0023	2.911	0.014	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	Nonparametric	--	--	--	--	0.32	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Normal	Kaplan Meier	0.031	0.014	2.911	0.07	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Normal	Kaplan Meier	0.037	0.023	2.911	0.10	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Normal	Direct Calculation	0.066	0.030	2.911	0.15	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Normal	Kaplan Meier	0.025	0.010	2.911	0.05	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Normal	Direct Calculation	0.049	0.022	2.911	0.11	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	<5 Detects	--	--	--	--	0.021	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Normal	Kaplan Meier	0.028	0.013	2.911	0.07	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	All non-detect	--	--	--	--	0.035	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	7.9	1.1	2.911	11.1	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Normal	Direct Calculation	74	15	2.911	117	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Normal	Direct Calculation	0.27	0.12	2.911	0.6	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	18.5	2.5	2.911	25.8	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Normal	Direct Calculation	9.3	1.7	2.911	14.2	30.0	Residential	30.0	Residential
Copper	mg/kg	Normal	Direct Calculation	18.3	2.3	2.911	24.9	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Normal	Direct Calculation	23140	2826	2.911	31366	2000	Residential	31366	95-95UTL
Lead	mg/kg	Normal	Direct Calculation	43.2	19.6	2.911	100	63.0	Unrestricted	100	95-95UTL
Manganese	mg/kg	Normal	Direct Calculation	878	238	2.911	1570	1600	Unrestricted	1600	Unrestricted
Mercury	mg/kg	Normal	Direct Calculation	0.13	0.067	2.671	0.31	0.18	Unrestricted	0.31	95-95UTL
Nickel	mg/kg	Normal	Direct Calculation	21.6	2.4	2.911	28.7	30.0	Unrestricted	30.0	Unrestricted
Selenium	mg/kg	Normal	Direct Calculation	0.69	0.33	2.911	1.67	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Normal	Direct Calculation	0.17	0.10	2.911	0.46	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	34.5	6.6	2.911	53.8	100	Residential	100	Residential
Zinc	mg/kg	Normal	Direct Calculation	86	15.7	2.911	132	109	Unrestricted	132	95-95UTL

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 8b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG04
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG04 - Near Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	29	5	17%	0.0040	0.04	0.004	0.005
4-Methylphenol (p-Cresol)	mg/kg	29	6	21%	0.019	0.22	0.019	0.029
Benzo(a)anthracene	mg/kg	29	13	45%	0.0040	0.028	0.004	0.005
Benzo(a)pyrene	mg/kg	30	13	43%	0.0040	0.036	0.004	0.005
Benzo(b)fluoranthene	mg/kg	30	20	67%	0.0040	0.062	0.004	0.005
Benzo(k)fluoranthene	mg/kg	29	10	34%	0.0040	0.021	0.004	0.006
Chrysene	mg/kg	30	15	50%	0.0040	0.048	0.004	0.005
Dibenz(a,h)anthracene	mg/kg	29	2	7%	0.0040	0.0070	0.004	0.006
Indeno(1,2,3-cd)Pyrene	mg/kg	29	12	41%	0.0040	0.030	0.004	0.005
Phenol	mg/kg	29	2	7%	0.019	0.054	0.019	0.029
Arsenic	mg/kg	30	30	100%	5.1	9.8	--	--
Barium	mg/kg	30	30	100%	53.4	150	--	--
Cadmium	mg/kg	30	30	100%	0.047	0.36	--	--
Chromium	mg/kg	30	30	100%	13.5	30.7	--	--
Cobalt	mg/kg	30	30	100%	6.3	19.1	--	--
Copper	mg/kg	30	30	100%	10.4	38.1	--	--
Iron	mg/kg	30	30	100%	16200	35800	--	--
Lead	mg/kg	30	30	100%	10.5	56.7	--	--
Manganese	mg/kg	30	30	100%	266	1690	--	--
Mercury	mg/kg	36	36	100%	0.020	0.19	--	--
Nickel	mg/kg	30	30	100%	13.4	31.3	--	--
Selenium	mg/kg	30	30	100%	0.27	1.0	--	--
Silver	mg/kg	30	25	83%	0.023	0.21	0.0228	0.0292
Vanadium	mg/kg	30	30	100%	22.4	35.9	--	--
Zinc	mg/kg	30	30	100%	51.7	107	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 8b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG04
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG04 - Near Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Too many non-detects	--	--	--	--	0.040	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	Too many non-detects	--	--	--	--	0.22	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Too many non-detects	--	--	--	--	0.028	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Too many non-detects	--	--	--	--	0.036	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Nonparametric	--	--	--	--	0.062	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Too many non-detects	--	--	--	--	0.021	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Too many non-detects	--	--	--	--	0.048	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	<5 Detects	--	--	--	--	0.0070	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Too many non-detects	--	--	--	--	0.030	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	<5 Detects	--	--	--	--	0.054	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	7.0	1.1	2.220	9.4	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Nonparametric	--	--	--	--	150	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Log normal	Direct Calculation	0.13	0.09	2.220	0.32	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	20.7	3.7	2.220	28.9	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Normal	Direct Calculation	11.0	3.1	2.220	17.9	30.0	Residential	30.0	Residential
Copper	mg/kg	Log normal	Direct Calculation	17.7	6.9	2.220	33.0	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Normal	Direct Calculation	25203	5044	2.220	36401	2000	Residential	36401	95-95UTL
Lead	mg/kg	Log normal	Direct Calculation	22.2	11.5	2.220	47.8	63.0	Unrestricted	63.0	Unrestricted
Manganese	mg/kg	Log normal	Direct Calculation	718	340	2.220	1472	1600	Unrestricted	1600	Unrestricted
Mercury	mg/kg	Log normal	Direct Calculation	0.057	0.037	2.159	0.14	0.18	Unrestricted	0.18	Unrestricted
Nickel	mg/kg	Normal	Direct Calculation	22.2	3.9	2.220	30.9	30.0	Unrestricted	30.9	95-95UTL
Selenium	mg/kg	Log normal	Direct Calculation	0.48	0.19	2.220	0.90	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Normal	Kaplan Meier	0.073	0.057	2.220	0.20	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	28.7	3.1	2.220	35.6	100	Residential	100	Residential
Zinc	mg/kg	Normal	Direct Calculation	77.7	12.9	2.220	106	109	Unrestricted	109	Unrestricted

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 9a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG05
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG05 - Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	9	5	56%	0.0040	0.018	0.004	0.006
4-Methylphenol (p-Cresol)	mg/kg	9	3	33%	0.021	1.8	0.021	0.032
Benzo(a)anthracene	mg/kg	10	10	100%	0.015	0.095	--	--
Benzo(a)pyrene	mg/kg	10	10	100%	0.018	0.12	--	--
Benzo(b)fluoranthene	mg/kg	10	10	100%	0.028	0.21	--	--
Benzo(k)fluoranthene	mg/kg	10	7	70%	0.0050	0.049	0.005	0.015
Chrysene	mg/kg	10	9	90%	0.0060	0.20	0.006	0.006
Dibenz(a,h)anthracene	mg/kg	8	3	38%	0.0040	0.073	0.004	0.006
Indeno(1,2,3-cd)Pyrene	mg/kg	10	10	100%	0.010	0.090	--	--
Phenol	mg/kg	10	0	0%	--	--	0.021	0.073
Arsenic	mg/kg	10	10	100%	5.2	10.2	--	--
Barium	mg/kg	10	10	100%	46.8	104	--	--
Cadmium	mg/kg	10	10	100%	0.12	0.32	--	--
Chromium	mg/kg	10	10	100%	11.3	22.9	--	--
Cobalt	mg/kg	10	10	100%	2.2	16.4	--	--
Copper	mg/kg	10	10	100%	10.9	24.8	--	--
Iron	mg/kg	10	10	100%	7770	32700	--	--
Lead	mg/kg	10	10	100%	39.8	111	--	--
Manganese	mg/kg	10	10	100%	311	2120	--	--
Mercury	mg/kg	13	13	100%	0.048	0.46	--	--
Nickel	mg/kg	10	10	100%	11.3	23.1	--	--
Selenium	mg/kg	10	10	100%	0.46	1.5	--	--
Silver	mg/kg	10	10	100%	0.071	0.37	--	--
Vanadium	mg/kg	10	10	100%	27.6	53.8	--	--
Zinc	mg/kg	10	10	100%	55.7	109	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 9a
Summary Statistics and 95-95UTLs for COPCs in Surface Soil (0 to 0.17 feet), Background Parcel BG05
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG05 - Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Normal	rROS Substitution	0.0066	0.0067	3.031	0.027	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	<5 Detects	--	--	--	--	1.8	0.33	Unrestricted	1.8	95-95UTL
Benzo(a)anthracene	mg/kg	Log normal	Direct Calculation	0.037	0.025	2.911	0.11	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Log normal	Direct Calculation	0.047	0.033	2.911	0.14	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Log normal	Direct Calculation	0.082	0.058	2.911	0.25	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Normal	rROS Substitution	0.023	0.015	2.911	0.07	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Nonparametric	--	--	--	--	0.20	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	<5 Detects	--	--	--	--	0.073	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Log normal	Direct Calculation	0.035	0.025	2.911	0.11	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	All non-detect	--	--	--	--	0.073	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	7.5	1.8	2.911	12.6	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Log normal	Direct Calculation	64	18	2.911	116	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Normal	Direct Calculation	0.20	0.06	2.911	0.4	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Normal	Direct Calculation	16.9	3.8	2.911	28.1	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Normal	Direct Calculation	7.8	4.5	2.911	21.0	30.0	Residential	30.0	Residential
Copper	mg/kg	Normal	Direct Calculation	17.7	4.7	2.911	31.3	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Normal	Direct Calculation	23627	8885	2.911	49490	2000	Residential	49490	95-95UTL
Lead	mg/kg	Normal	Direct Calculation	69.8	22.9	2.911	136	63.0	Unrestricted	136	95-95UTL
Manganese	mg/kg	Log normal	Direct Calculation	810	553	2.911	2421	1600	Unrestricted	2421	95-95UTL
Mercury	mg/kg	Log normal	Direct Calculation	0.16	0.11	2.671	0.45	0.18	Unrestricted	0.45	95-95UTL
Nickel	mg/kg	Normal	Direct Calculation	18.4	4.3	2.911	30.9	30.0	Unrestricted	30.9	95-95UTL
Selenium	mg/kg	Log normal	Direct Calculation	0.79	0.30	2.911	1.67	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Normal	Direct Calculation	0.18	0.10	2.911	0.47	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	37.4	8.9	2.911	63.3	100	Residential	100	Residential
Zinc	mg/kg	Nonparametric	--	--	--	--	109	109	Unrestricted	109	Unrestricted

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 9b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG05
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG05 - Near Surface Soil						
		Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
2-Methyl-Naphthalene	mg/kg	26	5	19%	0.0040	0.023	0.004	0.006
4-Methylphenol (p-Cresol)	mg/kg	25	3	12%	0.019	0.11	0.019	0.025
Benzo(a)anthracene	mg/kg	26	16	62%	0.0040	0.044	0.004	0.005
Benzo(a)pyrene	mg/kg	26	18	69%	0.0040	0.049	0.004	0.005
Benzo(b)fluoranthene	mg/kg	26	24	92%	0.0040	0.080	0.004	0.005
Benzo(k)fluoranthene	mg/kg	26	13	50%	0.0040	0.040	0.004	0.005
Chrysene	mg/kg	26	23	88%	0.0040	0.065	0.004	0.005
Dibenz(a,h)anthracene	mg/kg	26	3	12%	0.0040	0.010	0.004	0.006
Indeno(1,2,3-cd)Pyrene	mg/kg	26	16	62%	0.0040	0.035	0.004	0.005
Phenol	mg/kg	26	0	0%	--	--	0.019	0.032
Arsenic	mg/kg	26	26	100%	4.0	10.6	--	--
Barium	mg/kg	26	26	100%	43.2	121	--	--
Cadmium	mg/kg	26	26	100%	0.062	0.25	--	--
Chromium	mg/kg	26	26	100%	13.9	30.2	--	--
Cobalt	mg/kg	26	26	100%	4.7	29.5	--	--
Copper	mg/kg	26	26	100%	11.3	35.4	--	--
Iron	mg/kg	26	26	100%	19500	78200	--	--
Lead	mg/kg	26	26	100%	11.8	200	--	--
Manganese	mg/kg	26	26	100%	210	1520	--	--
Mercury	mg/kg	31	31	100%	0.024	0.24	--	--
Nickel	mg/kg	26	26	100%	12.3	47.9	--	--
Selenium	mg/kg	26	26	100%	0.27	1.73	--	--
Silver	mg/kg	26	26	100%	0.029	0.19	--	--
Vanadium	mg/kg	26	26	100%	24.9	39.1	--	--
Zinc	mg/kg	26	26	100%	49.5	169	--	--

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 9b
Summary Statistics and 95-95UTLs for COPCs in Near Surface Soil (0.17 to 2 feet), Background Parcel BG05
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Background Parcel BG05 - Near Surface Soil						Soil Cleanup Objective (SCO)	SCO Type	Selected Background Value	Background Value Type
		Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL				
2-Methyl-Naphthalene	mg/kg	Too many non-detects	--	--	--	--	0.023	0.41	Residential	0.41	Residential
4-Methylphenol (p-Cresol)	mg/kg	<5 Detects	--	--	--	--	0.11	0.33	Unrestricted	0.33	Unrestricted
Benzo(a)anthracene	mg/kg	Nonparametric	--	--	--	--	0.04	1.0	Unrestricted	1.0	Unrestricted
Benzo(a)pyrene	mg/kg	Nonparametric	--	--	--	--	0.05	1.0	Unrestricted	1.0	Unrestricted
Benzo(b)fluoranthene	mg/kg	Nonparametric	--	--	--	--	0.08	1.0	Unrestricted	1.0	Unrestricted
Benzo(k)fluoranthene	mg/kg	Too many non-detects	--	--	--	--	0.04	0.80	Unrestricted	0.80	Unrestricted
Chrysene	mg/kg	Nonparametric	--	--	--	--	0.07	1.0	Unrestricted	1.0	Unrestricted
Dibenz(a,h)anthracene	mg/kg	<5 Detects	--	--	--	--	0.010	0.33	Unrestricted	0.33	Unrestricted
Indeno(1,2,3-cd)Pyrene	mg/kg	Nonparametric	--	--	--	--	0.04	0.50	Unrestricted	0.50	Unrestricted
Phenol	mg/kg	All non-detect	--	--	--	--	0.032	0.33	Unrestricted	0.33	Unrestricted
Arsenic	mg/kg	Normal	Direct Calculation	6.6	1.5	2.275	10.1	13.0	Unrestricted	13.0	Unrestricted
Barium	mg/kg	Log normal	Direct Calculation	67	15	2.275	102	350	Unrestricted	350	Unrestricted
Cadmium	mg/kg	Log normal	Direct Calculation	0.12	0.05	2.275	0.2	2.5	Unrestricted	2.5	Unrestricted
Chromium	mg/kg	Log normal	Direct Calculation	19.9	3.1	2.275	26.9	30.0	Unrestricted	30.0	Unrestricted
Cobalt	mg/kg	Log normal	Direct Calculation	10.7	5.0	2.275	22.1	30.0	Residential	30.0	Residential
Copper	mg/kg	Log normal	Direct Calculation	17.9	5.0	2.275	29.2	50.0	Unrestricted	50.0	Unrestricted
Iron	mg/kg	Nonparametric	--	--	--	--	78200	2000	Residential	78200	95-95UTL
Lead	mg/kg	Nonparametric	--	--	--	--	200	63.0	Unrestricted	200	95-95UTL
Manganese	mg/kg	Log normal	Direct Calculation	624	371	2.275	1468	1600	Unrestricted	1600	Unrestricted
Mercury	mg/kg	Nonparametric	--	--	--	--	0.24	0.18	Unrestricted	0.238	95-95UTL
Nickel	mg/kg	Log normal	Direct Calculation	23.1	6.8	2.275	38.7	30.0	Unrestricted	38.7	95-95UTL
Selenium	mg/kg	Nonparametric	--	--	--	--	1.73	3.9	Unrestricted	3.9	Unrestricted
Silver	mg/kg	Log normal	Direct Calculation	0.07	0.04	2.275	0.16	2.0	Unrestricted	2.0	Unrestricted
Vanadium	mg/kg	Normal	Direct Calculation	30.5	3.6	2.275	38.7	100	Residential	100	Residential
Zinc	mg/kg	Nonparametric	--	--	--	--	169	109	Unrestricted	169	95-95UTL

Notes:

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 10
Summary Statistics and 95-95UTLs for Pesticide COPCs in Soil (0 to 2 feet)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Number of Samples	Number of Detects	Detection Frequency	Minimum Detect	Maximum Detect	Minimum Non-Detect	Maximum Non-Detect
Background Parcel: BG01								
4,4-DDD	mg/kg	8	0	0%	--	--	0.00039	0.0011
4,4-DDE	mg/kg	8	8	100%	0.00042	0.011	--	--
4,4-DDT	mg/kg	8	6	75%	0.00041	0.0093	0.00041	0.00042
Endrin	mg/kg	8	0	0%	--	--	0.00039	0.00077
Background Parcel: BG02								
4,4-DDD	mg/kg	8	2	25%	0.00037	0.0012	0.00037	0.00053
4,4-DDE	mg/kg	8	8	100%	0.0013	0.027	--	--
4,4-DDT	mg/kg	8	8	100%	0.00074	0.0085	--	--
Endrin	mg/kg	8	0	0%	--	--	0.00036	0.00053
Background Parcel: BG03								
4,4-DDD	mg/kg	8	5	63%	0.00039	0.0024	0.00039	0.00076
4,4-DDE	mg/kg	8	8	100%	0.00079	0.0054	--	--
4,4-DDT	mg/kg	8	6	75%	0.00041	0.0043	0.00041	0.00041
Endrin	mg/kg	8	2	25%	0.00039	0.0018	0.00039	0.00076
Background Parcel: BG04								
4,4-DDD	mg/kg	7	1	14%	0.00042	0.0013	0.00042	0.0011
4,4-DDE	mg/kg	8	4	50%	0.00042	0.0032	0.00042	0.0022
4,4-DDT	mg/kg	8	4	50%	0.00044	0.0046	0.00044	0.0023
Endrin	mg/kg	7	3	43%	0.00042	0.00067	0.00042	0.00059
Background Parcel: BG05								
4,4-DDD	mg/kg	8	3	38%	0.00039	0.0029	0.00039	0.00043
4,4-DDE	mg/kg	8	8	100%	0.00079	0.017	--	--
4,4-DDT	mg/kg	8	3	38%	0.00042	0.017	0.00042	0.00045
Endrin	mg/kg	8	0	0%	--	--	0.00039	0.00058

Notes:

4,4-DDD: dichlorodiphenyldichloroethane

4,4-DDE: dichlorodiphenyldichloroethylene

4,4-DDT: dichlorodiphenyltrichloroethane

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 10
Summary Statistics and 95-95UTLs for Pesticide COPCs in Soil (0 to 2 feet)
Background Soil Evaluation
Former Texaco Research Center Beacon
Glenham, New York

Constituent	Units	Distribution	Substitution Method	Mean	Standard Deviation	K Value	95-95UTL	Soil Cleanup Objective	SCO Type	Selected Background Value	Background Value Type
Background Parcel: BG01											
4,4-DDD	mg/kg	All non-detect	--	--	--	--	0.0011	0.0033	Unrestricted	0.0033	Unrestricted
4,4-DDE	mg/kg	Normal	Direct Calculation	0.0046	0.0040	3.187	0.017	0.0033	Unrestricted	0.017	95-95UTL
4,4-DDT	mg/kg	Normal	Kaplan Meier	0.0041	0.0038	3.187	0.016	0.0033	Unrestricted	0.016	95-95UTL
Endrin	mg/kg	All non-detect	--	--	--	--	0.00077	0.014	Unrestricted	0.014	Unrestricted
Background Parcel: BG02											
4,4-DDD	mg/kg	<5 Detects	--	--	--	--	0.0012	0.0033	Unrestricted	0.0033	Unrestricted
4,4-DDE	mg/kg	Log normal	Direct Calculation	0.0089	0.010	3.187	0.041	0.0033	Unrestricted	0.041	95-95UTL
4,4-DDT	mg/kg	Log normal	Direct Calculation	0.0034	0.0029	3.187	0.013	0.0033	Unrestricted	0.013	95-95UTL
Endrin	mg/kg	All non-detect	--	--	--	--	0.00053	0.014	Unrestricted	0.014	Unrestricted
Background Parcel: BG03											
4,4-DDD	mg/kg	Normal	rROS Substitution	0.0011	0.00087	3.187	0.0038	0.0033	Unrestricted	0.0038	95-95UTL
4,4-DDE	mg/kg	Log normal	Direct Calculation	0.0023	0.0015	3.187	0.0070	0.0033	Unrestricted	0.0070	95-95UTL
4,4-DDT	mg/kg	Normal	Kaplan Meier	0.0020	0.0014	3.187	0.0065	0.0033	Unrestricted	0.0065	95-95UTL
Endrin	mg/kg	<5 Detects	--	--	--	--	0.0018	0.014	Unrestricted	0.014	Unrestricted
Background Parcel: BG04											
4,4-DDD	mg/kg	<5 Detects	--	--	--	--	0.0013	0.0033	Unrestricted	0.0033	Unrestricted
4,4-DDE	mg/kg	<5 Detects	--	--	--	--	0.0032	0.0033	Unrestricted	0.0033	Unrestricted
4,4-DDT	mg/kg	<5 Detects	--	--	--	--	0.0046	0.0033	Unrestricted	0.0046	95-95UTL
Endrin	mg/kg	<5 Detects	--	--	--	--	0.00067	0.014	Unrestricted	0.014	Unrestricted
Background Parcel: BG05											
4,4-DDD	mg/kg	<5 Detects	--	--	--	--	0.0029	0.0033	Unrestricted	0.0033	Unrestricted
4,4-DDE	mg/kg	Nonparametric	--	--	--	--	0.017	0.0033	Unrestricted	0.017	95-95UTL
4,4-DDT	mg/kg	<5 Detects	--	--	--	--	0.017	0.0033	Unrestricted	0.017	95-95UTL
Endrin	mg/kg	All non-detect	--	--	--	--	0.00058	0.014	Unrestricted	0.014	Unrestricted

Notes:

4,4-DDD: dichlorodiphenyldichloroethane

4,4-DDE: dichlorodiphenyldichloroethylene

4,4-DDT: dichlorodiphenyltrichloroethane

mg/kg: milligrams per kilogram

%: percent

-- : not available

< : less than

95-95UTL: 95% upper tolerance limit with 95% coverage

Table 18a
OU-1A Surface Soil Data Summary (0 to 0.17 feet)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Metals													
Arsenic	7440-38-2	13	Unrestricted	43	42	5.37	218	2.3%	0.96	0.96	25	20/43 [47%]	16.8
Barium	7440-39-3	350	Unrestricted	43	43	3.31	410	0%	--	--	81	1/43 [2%]	1.2
Chromium	7440-47-3	32.4	95-95UTL	43	43	2.89	52.1	0%	--	--	19	3/43 [7%]	1.6
Copper	7440-50-8	98.2	95-95UTL	43	43	1.86	77.6	0%	--	--	29	0/43 [0%]	0.8
Iron	7439-89-6	40724	95-95UTL	43	43	3020	30800	0%	--	--	21807	0/43 [0%]	0.8
Lead	7439-92-1	379	95-95UTL	43	42	6.45	1300	2.3%	0.606	0.606	130	2/43 [4.7%]	3.4
Manganese	7439-96-5	1600	Unrestricted	43	43	125	2380	0%	--	--	676	1/43 [2%]	1.5
Nickel	7440-02-0	35.8	95-95UTL	43	43	1.63	143	0%	--	--	24	1/43 [2%]	4.0
Vanadium	7440-62-2	100	Residential	43	43	4.16	222	0%	--	--	35	1/43 [2%]	2.2
Zinc	7440-66-6	462	95-95UTL	43	43	2.06	597	0%	--	--	129	1/43 [2%]	1.3
Mercury	7439-97-6	0.18	Unrestricted	43	35	0.0392	18.2	19%	0.0109	0.0327	0.80	17/43 [40%]	101

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG01, which has a similar soil type to OU-1A.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

^d Data set includes data points having non detected result reported above standard or criteria

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 18b
OU-1A Near Surface Soil Data Summary (0.17 to 2 feet)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
4-Methylphenol (p-Cresol)	106-44-5	0.33	Unrestricted	140	9	0.024	0.47	94%	0.018	0.74	0.054	4/140 [3%]	1.4
Metals													
Arsenic	7440-38-2	13	Unrestricted	141	141	1.87	527	0	--	--	25	49/141 [35%]	40.5
Barium	7440-39-3	350	Unrestricted	141	141	13.2	423	0	--	--	77	1/141 [1%]	1.2
Chromium	7440-47-3	30	Unrestricted	141	141	5.72	440	0	--	--	27	17/141 [12%]	14.7
Cobalt	7440-48-4	30	Residential	141	141	2.24	37.6	0	--	--	9.6	1/141 [1%]	1.3
Copper	7440-50-8	50	Unrestricted	141	141	4.11	171	0%	--	--	31	12/141 [9%]	3.4
Iron	7439-89-6	36236	95-95UTL	141	141	5490	103000	0%	--	--	24559	2/141 [1%]	2.8
Lead	7439-92-1	335	95-95UTL	141	140	3.79	1100	1%	2.78	2.78	104	8/141 [6%]	3.3
Manganese	7439-96-5	1600	Unrestricted	141	141	180	4630	0%	--	--	640	3/141 [2%]	2.9
Nickel	7440-02-0	31.7	95-95UTL	141	141	1.97	49.8	0%	--	--	19	1/141 [1%]	1.6
Vanadium	7440-62-2	100	Residential	141	141	8.49	134	0%	--	--	25	1/141 [1%]	1.3
Zinc	7440-66-6	297	95-95UTL	141	141	21.7	481	0%	--	--	111	3/141 [2%]	1.6
Mercury	7439-97-6	0.18	Unrestricted	141	126	0.0144	7.98	11%	0.0122	0.0347	0.48	63/141 [45%]	44

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG01, which has a similar soil type to OU-1A.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

^d Data set includes data points having non detected result reported above standard or criteria

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 19a
OU-1B Surface Soil Data Summary (0 to 0.17 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non-Detection Frequency (%)	Minimum Non-Detection	Maximum Non-Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	13	13	0.0730	1.5	0%	--	--	0.39	1/13 [8%]	1.5
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	13	13	0.0310	0.59	0%	--	--	0.16	1/13 [8%]	1.2
Metals													
Arsenic	7440-38-2	13	Unrestricted	13	13	7.91	21.8	0%	--	--	12	5/13 [38%]	1.7
Iron	7439-89-6	49490	95-95UTL	13	13	13300	47700	0%	--	--	26762	0/13 [0%]	1.0
Lead	7439-92-1	136	95-95UTL	13	13	57.5	263	0%	--	--	132	4/13 [31%]	1.9
Manganese	7439-96-5	2421	95-95UTL	13	13	111	3170	0%	--	--	1152	1/13 [8%]	1.3
Nickel	7440-02-0	30.9	95-95UTL	13	13	17.4	32.6	0%	--	--	23	2/13 [15%]	1.1
Vanadium	7440-62-2	100	Residential	13	13	41.5	145	0%	--	--	86	6/13 [46%]	1.5
Zinc	7440-66-6	109	Unrestricted	13	13	40.8	236	0%	--	--	97	3/13 [23%]	2.2
Mercury	7439-97-6	0.45	95-95UTL	13	13	0.123	0.544	0%	--	--	0.27	1/13 [8%]	1.2

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG05, which has a similar soil type to OU-1B.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 19b
OU-1B Near Surface Soil Data Summary (0.17 to 2 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non-Detection Frequency (%)	Minimum Non-Detection	Maximum Non-Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
Benzo(a)anthracene	56-55-3	1	Unrestricted	55	43	0.0040	1.4	22%	0.0040	0.042	0.12	1/55 [2%]	1.4
Benzo(a)pyrene	50-32-8	1	Unrestricted	55	43	0.0040	1.3	22%	0.0040	0.042	0.12	1/55 [2%]	1.3
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	55	44	0.0050	1.8	20%	0.0040	0.042	0.17	2/55 [4%]	1.8
Benzo(k)fluoranthene	207-08-9	0.8	Unrestricted	55	38	0.0040	0.73	31%	0.0040	0.042	0.08	0/55 [0%]	0.9
Chrysene	218-01-9	1	Unrestricted	55	44	0.0040	1.4	20%	0.021	0.042	0.14	1/55 [2%]	1.4
Dibenz(a,h)anthracene	53-70-3	0.33	Unrestricted	55	31	0.0050	0.27	44%	0.0040	0.042	0.033	0/55 [0%]	0.8
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	55	39	0.0040	0.85	29%	0.0040	0.042	0.08	2/55 [4%]	1.7
Metals													
Arsenic	7440-38-2	13	Unrestricted	55	55	4.46	21.2	0%	--	--	10	8/55 [15%]	1.6
Chromium	7440-47-3	30	Unrestricted	55	55	12.8	61.5	0%	--	--	21	3/55 [5.5%]	2.1
Copper	7440-50-8	50	Unrestricted	55	55	11.3	67.9	0%	--	--	28	7/55 [13%]	1.4
Iron	7439-89-6	78200	95-95UTL	55	55	13500	53200	0%	--	--	29176	0/55 [0%]	0.7
Lead	7439-92-1	200	95-95UTL	55	55	13.1	534	0%	--	--	79	5/55 [9%]	2.7
Manganese	7439-96-5	1600	Unrestricted	55	55	121	5270	0%	--	--	1065	8/55 [15%]	3.3
Nickel	7440-02-0	38.7	95-95UTL	55	55	13.7	38.2	0%	--	--	21	0/55 [0%]	1.0
Selenium	7782-49-2	3.9	Unrestricted	55	40	0.291	1.38	27%	1.08	1.25	0.81	0/55 [0%]	0.4
Silver	7440-22-4	2	Unrestricted	55	45	0.0305	0.466	18%	0.020	0.212	0.14	0/55 [0%]	0.2
Vanadium	7440-62-2	100	Residential	55	55	14	127	0%	--	--	41	1/55 [2%]	1.3
Zinc	7440-66-6	169	95-95UTL	55	55	32.9	236	0%	--	--	85	4/55 [7%]	1.4
Mercury	7439-97-6	0.24	95-95UTL	66	66	0.0293	0.734	0%	--	--	0.16	14/66 [21%]	3.1

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG05, which has a similar soil type to OU-1B.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 20a
OU-1C Surface Soil Data Summary (0 to 0.17 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number Code	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
Phenol	108-95-2	0.33	Unrestricted	16	1	0.4	0.4	94%	0.018	0.028	0.045	1/16 [6%]	1.2
Metals													
Arsenic	7440-38-2	13	Unrestricted	16	16	7.67	426	0%	--	--	90	12/16 [75%]	32.8
Chromium	7440-47-3	30	Unrestricted	16	16	12.3	89.4	0%	--	--	31	5/16 [31%]	3.0
Copper	7440-50-8	50	Unrestricted	16	16	21.1	73.3	0%	--	--	39	3/16 [19%]	1.5
Iron	7439-89-6	38036	95-95UTL	16	16	15900	33800	0%	--	--	27138	0/16 [0%]	0.89
Lead	7439-92-1	63	Unrestricted	16	16	37.7	645	0%	--	--	122	9/16 [56%]	10.2
Nickel	7440-02-0	31.2	95-95UTL	16	16	14.7	40.3	0%	--	--	27	5/16 [31%]	1.3
Zinc	7440-66-6	122	95-95UTL	16	16	82.3	437	0%	--	--	207	11/16 [69%]	3.6
Mercury	7439-97-6	0.18	Unrestricted	16	16	0.1	1.23	0%	--	--	0.27	11/16 [69%]	6.8

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG02, which has a similar soil type to OU-1C.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 20b
OU-1C Near Surface Soil Data Summary (0.17 to 2 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number Code	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Metals													
Arsenic	7440-38-2	13	Unrestricted	48	48	3.3	506	0%	--	--	101	34/48 [71%]	38.9
Chromium	7440-47-3	31.3	95-95UTL	48	48	14.6	189	0%	--	--	27	8/48 [17%]	6.0
Copper	7440-50-8	53.7	95-95UTL	48	48	13	137	0%	--	--	37	7/48 [15%]	2.6
Lead	7439-92-1	63	Unrestricted	48	48	13.6	665	0%	--	--	87	18/48 [38%]	10.6
Manganese	7439-96-5	1673	95-95UTL	48	48	280	2730	0%	--	--	778	1/48 [2%]	1.6
Nickel	7440-02-0	34.9	95-95UTL	48	48	12.7	70.4	0%	--	--	27	7/48 [15%]	2.0
Selenium	7782-49-2	3.9	Unrestricted	48	47	0.131	30.9	2%	0.112	0.112	1.01	1/48 [2%]	7.9
Zinc	7440-66-6	109	Unrestricted	48	48	43.8	659	0%	--	--	163	26/48 [54%]	6.0
Mercury	7439-97-6	0.18	Unrestricted	48	48	0.0261	1.47	0%	--	--	0.22	20/48 [42%]	8.2

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG02, which has a similar soil type to OU-1C.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 21a
OU-1D Surface Soil Data Summary (0 to 0.17 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
Benzo(a)anthracene	56-55-3	1	Unrestricted	11	11	0.0250	1.3	0%	--	--	0.41	1/11 [9%]	1.3
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	11	11	0.0360	1.9	0%	--	--	0.56	2/11 [18%]	1.9
Chrysene	218-01-9	1	Unrestricted	11	11	0.0370	1.2	0%	--	--	0.45	2/11 [18%]	1.2
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	11	11	0.0160	0.75	0%	--	--	0.25	2/11 [18%]	1.5
Metals													
Arsenic	7440-38-2	13	Unrestricted	11	11	5.99	96.4	0%	--	--	34	7/11 [64%]	7.4
Chromium	7440-47-3	30	Unrestricted	11	11	14.8	54.6	0%	--	--	22	1/11 [9%]	1.8
Copper	7440-50-8	50	Unrestricted	11	11	23.4	51.6	0%	--	--	32	1/11 [9%]	1.0
Lead	7439-92-1	100	95-95UTL	11	11	17.9	86.7	0%	--	--	49	0/11 [0%]	0.9
Nickel	7440-02-0	30	Unrestricted	11	11	19.4	53.6	0%	--	--	27	3/11 [27%]	1.8
Vanadium	7440-62-2	100	Residential	11	11	21.5	237	0%	--	--	46	1/11 [9%]	2.4
Zinc	7440-66-6	132	95-95UTL	11	11	78.3	165	0%	--	--	104	2/11 [18%]	1.3
Mercury	7439-97-6	0.31	95-95UTL	11	11	0.0572	0.592	0%	--	--	0.30	6/11 [55%]	1.9

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG04, which has a similar soil type to OU-1D.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 21b
OU-1D Near Surface Soil Data Summary (0.17 to 2 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
2-Methyl-Naphthalene	91-57-6	0.41	Residential	33	27	0.0040	3.3	18%	0.0040	0.020	0.13	1/33 [3%]	8.0
Benzo(a)anthracene	56-55-3	1	Unrestricted	33	31	0.0060	3.0	6%	0.0040	0.0040	0.45	3/33 [9%]	3.0
Benzo(a)pyrene	50-32-8	1	Unrestricted	33	31	0.0070	2.4	6%	0.0040	0.0040	0.40	3/33 [9%]	2.4
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	33	32	0.0050	3.5	3%	0.0040	0.0040	0.56	5/33 [15%]	3.5
Benzo(k)fluoranthene	207-08-9	0.8	Unrestricted	33	30	0.0050	1.6	9%	0.0040	0.0040	0.23	3/33 [9%]	2.0
Chrysene	218-01-9	1	Unrestricted	33	31	0.0080	3.3	6%	0.0040	0.0040	0.48	3/33 [9%]	3.3
Dibenz(a,h)anthracene	53-70-3	0.33	Unrestricted	33	26	0.0070	0.40	21%	0.0040	0.021	0.075	3/33 [9%]	1.2
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	33	30	0.0070	1.3	9%	0.0040	0.0040	0.25	5/33 [15%]	2.6
Metals													
Arsenic	7440-38-2	13	Unrestricted	33	33	4.68	149	0%	--	--	41	20/33 [61%]	11.5
Chromium	7440-47-3	30	Unrestricted	33	33	10.9	33.4	0%	--	--	18	1/33 [3%]	1.1
Iron	7439-89-6	36401	95-95UTL	33	33	19000	47100	0%	--	--	27694	2/33 [6%]	1.3
Lead	7439-92-1	63	Unrestricted	33	33	9.48	107	0%	--	--	41	7/33 [21%]	1.7
Manganese	7439-96-5	1600	Unrestricted	33	33	385	2790	0%	--	--	721	1/33 [3%]	1.7
Nickel	7440-02-0	30.9	95-95UTL	33	33	12.8	62.1	0%	--	--	25	3/33 [9%]	2.0
Vanadium	7440-62-2	100	Residential	33	33	14.1	508	0%	--	--	50	3/33 [9%]	5.1
Zinc	7440-66-6	109	Unrestricted	33	33	52.1	173	0%	--	--	88	3/33 [9%]	1.6
Mercury	7439-97-6	0.18	Unrestricted	33	33	0.027	2.66	0%	--	--	0.47	17/33 [52%]	14.8

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background value is from background parcel BG04, which has a similar soil type to OU-1D.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
Benzo(a)anthracene	56-55-3	1	Unrestricted	81	77	0.0040	6.1	5%	0.0050	0.025	0.145	2/81 [2%]	6.1
Benzo(a)pyrene	50-32-8	1	Unrestricted	81	78	0.0060	7.3	4%	0.0080	0.028	0.171	2/81 [2%]	7.3
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	81	79	0.0080	9.8	2%	0.0060	0.0080	0.25	2/81 [2%]	9.8
Benzo(k)fluoranthene	207-08-9	0.8	Unrestricted	81	72	0.0040	4.5	11%	0.0040	0.028	0.105	2/81 [2%]	5.6
Chrysene	218-01-9	1	Unrestricted	81	79	0.0060	6.8	2%	0.0080	0.025	0.173	2/81 [2%]	6.8
Dibenz(a,h)anthracene	53-70-3	0.33	Unrestricted	81	41	0.0050	1.3	49%	0.0040	0.028	0.033	2/81 [2%]	3.9
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	81	74	0.0050	4.3	9%	0.0040	0.028	0.108	2/81 [2%]	8.6
Metals													
Arsenic	7440-38-2	14.7	95-95UTL	81	81	4.56	84.4	0%	--	--	8.4	3/81 [4%]	5.7
Chromium	7440-47-3	30	Unrestricted	81	81	9.65	34.7	0%	--	--	19	3/81 [4%]	1.2
Iron	7439-89-6	59000	95-95UTL	81	81	13500	37900	0%	--	--	22949	0/81 [0%]	0.64
Lead	7439-92-1	101	95-95UTL	81	81	11.4	65.2	0%	--	--	37	0/81 [0%]	0.65
Manganese	7439-96-5	4530	95-95UTL	81	81	219	2620	0%	--	--	865	0/81 [0%]	0.58
Nickel	7440-02-0	37.5	95-95UTL	81	81	12.9	52.2	0%	--	--	22	1/81 [1%]	1.4
Vanadium	7440-62-2	100	Residential	81	81	13.7	126	0%	--	--	35	1/81 [1%]	1.3
Zinc	7440-66-6	167	95-95UTL	81	81	55.9	196	0%	--	--	87	1/81 [1%]	1.2
Mercury	7439-97-6	0.35	95-95UTL	81	81	0.028	1.28	0%	--	--	0.134	2/81 [2%]	3.7

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background values are from background parcel BG03, which has a similar soil type to OU-1E.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 22b
OU-1E Near Surface Soil Data Summary (0.17 to 2 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
Benzo(a)anthracene	56-55-3	1	Unrestricted	243	130	0.0040	6.2	47%	0.0040	0.005	0.054	3/243 [1%]	6.2
Benzo(a)pyrene	50-32-8	1	Unrestricted	243	140	0.0040	7	42%	0.0040	0.005	0.062	3/243 [1%]	7.0
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	243	169	0.0040	9.4	30%	0.0040	0.0050	0.09	3/243 [1%]	9.4
Benzo(k)fluoranthene	207-08-9	0.8	Unrestricted	243	102	0.0040	4	58%	0.0040	0.005	0.037	3/243 [1%]	5.0
Chrysene	218-01-9	1	Unrestricted	243	156	0.0040	6.6	36%	0.0040	0.005	0.061	3/243 [1%]	6.6
Dibenz(a,h)anthracene	53-70-3	0.33	Unrestricted	243	40	0.0040	1.1	84%	0.0040	0.005	0.013	3/243 [1%]	3.3
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	243	119	0.0040	4	51%	0.0040	0.005	0.039	3/243 [1%]	8.0
Phenol	108-95-2	0.33	Unrestricted	243	3	0.034	0.65	99%	0.018	0.12	0.025	1/243 [0.4%]	2.0
Metals													
Arsenic	7440-38-2	13	Unrestricted	243	243	3.62	88.5	0%	--	--	7.4	6/243 [2%]	6.8
Chromium	7440-47-3	30	Unrestricted	243	243	8.85	101	0%	--	--	20	8/243 [3%]	3.4
Iron	7439-89-6	36397	95-95UTL	243	243	13800	43600	0%	--	--	26212	10/243 [4%]	1.2
Manganese	7439-96-5	1600	Unrestricted	243	243	193	4060	0%	--	--	719	2/243 [0.8%]	2.5
Nickel	7440-02-0	30	Unrestricted	243	243	10.2	53.1	0%	--	--	22	14/243 [6%]	1.8
Zinc	7440-66-6	109	Unrestricted	243	243	38.6	161	0%	--	--	75	7/243 [3%]	1.5
Mercury	7439-97-6	0.19	95-95UTL	243	243	0.0207	0.886	0%	--	--	0.060	4/243 [2%]	4.7

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background values are from background parcel BG03, which has a similar soil type to OU-1E.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 23a
OU-3 Surface Soil Data Summary (0 to 0.17 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semivolatile Organic Compounds													
Benzo(a)anthracene	56-55-3	1	Unrestricted	5	5	0.0630	2.7	0%	--	--	0.60	1/5 [20%]	2.7
Benzo(a)pyrene	50-32-8	1	Unrestricted	5	5	0.0710	1.9	0%	--	--	0.44	1/5 [20%]	1.9
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	5	5	0.1000	2.6	0%	--	--	0.61	1/5 [20%]	2.6
Benzo(k)fluoranthene	207-08-9	0.8	Unrestricted	5	5	0.0370	1.1	0%	--	--	0.256	1/5 [20%]	1.4
Chrysene	218-01-9	1	Unrestricted	5	5	0.0880	2.4	0%	--	--	0.55	1/5 [20%]	2.4
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	5	5	0.0470	0.87	0%	--	--	0.215	1/5 [20%]	1.74
Metals													
Iron	7439-89-6	31366	95-95UTL	5	5	19300	24000	0%	--	--	22260	0/5 [0%]	0.8
Mercury	7439-97-6	0.31	95-95UTL	5	5	0.113	0.217	0%	--	--	0.143	0/5 [0%]	0.70

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background values are from background parcel BG04, which has a similar soil type to OU-3.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

^d Data set includes data point having non detected result reported above standard or criteria

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 23b
OU-3 Near Surface Soil Data Summary (0.17 to 2 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detection Count	Minimum Detection	Maximum Detection	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Metals													
Iron	7439-89-6	36401	95-95UTL	15	15	17500	34900	0%	--	--	28487	0/15 [0%]	1.0
Nickel	7440-02-0	30.9	95-95UTL	15	15	14.9	32.8	0%	--	--	24.56	2/15 [13%]	1.1

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background values are from background parcel BG04, which has a similar soil type to OU-3.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

^d Data set includes data point having non detected result reported above standard or criteria

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 24a
OU-4 Surface Soil Data Summary (0 to 0.17 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detect Count	Minimum Detect	Maximum Detect	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Metals													
Arsenic	7440-38-2	13	Unrestricted	16	16	4.74	21	0%	--	--	9.2	1/16 [6%]	1.6
Barium	7440-39-3	350	Unrestricted	16	16	66.2	200	0%	--	--	97	0/16 [0%]	0.57
Cadmium	7440-43-9	2.5	Unrestricted	16	15	0.16	3.36	6%	0.686	0.686	0.65	1/16 [6%]	1.3
Chromium	7440-47-3	30	Unrestricted	16	16	10.3	5410	0%	--	--	359	3/16 [19%]	180
Copper	7440-50-8	50	Unrestricted	16	16	14.7	1340	0%	--	--	112	2/16 [13%]	26.8
Iron	7439-89-6	38036	95-95UTL	16	16	15800	60000	0%	--	--	31731	3/16 [19%]	1.6
Lead	7439-92-1	63	Unrestricted	16	16	25.3	514	0%	--	--	84	3/16 [19%]	8.2
Nickel	7440-02-0	31.2	95-95UTL	16	16	11.1	50.4	0%	--	--	29	7/16 [44%]	1.6
Selenium	7782-49-2	3.9	Unrestricted	16	8	1.12	4.19	50%	0.817	1.38	1.4	1/16 [6%]	1.1
Zinc	7440-66-6	122	95-95UTL	16	16	73.7	331	0%	--	--	120	3/16 [19%]	2.7
Mercury	7439-97-6	0.18	Unrestricted	16	16	0.132	1.72	0%	--	--	0.48	13/16 [81%]	9.6

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background values are from background parcel BG02, which has a similar soil type to OU-4.

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

--: Not Applicable

Table 24b
OU-4 Near Surface Soil Data Summary (0.17 to 2 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY



Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detect Count	Minimum Detect	Maximum Detect	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Semi Volatile Organic Compounds													
Benzo(a)anthracene	56-55-3	1	Unrestricted	32	24	0.0060	1.5	25%	0.0040	0.0050	0.090	1/32 [3%]	1.5
Benzo(a)pyrene	50-32-8	1	Unrestricted	32	24	0.0080	1.3	25%	0.0040	0.0050	0.083	1/32 [3%]	1.3
Benzo(b)fluoranthene	205-99-2	1	Unrestricted	32	25	0.0050	1.4	22%	0.0040	0.0050	0.10	1/32 [3%]	1.4
Chrysene	218-01-9	1	Unrestricted	32	24	0.0080	1.4	25%	0.0040	0.0050	0.09	1/32 [3%]	1.4
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	Unrestricted	32	22	0.0050	0.67	31%	0.0040	0.0050	0.048	1/32 [3%]	1.34
Phenol	108-95-2	0.33	Unrestricted	32	2	0.039	0.60	94%	0.019	0.054	0.041	1/32 [3%]	1.818
Metals													
Arsenic	7440-38-2	13	Unrestricted	32	32	1.5	15.4	0%	--	--	6.4	1/32 [3%]	1.2
Chromium	7440-47-3	31.3	95-95UTL	32	32	14.7	413	0%	--	--	40	2/32 [6%]	13.2
Copper	7440-50-8	53.7	95-95UTL	32	32	12.7	212	0%	--	--	39	2/32 [6%]	3.9
Iron	7439-89-6	39432	95-95UTL	32	32	17800	57300	0%	--	--	32159	3/32 [9%]	1.5
Lead	7439-92-1	63	Unrestricted	32	32	11.9	373	0%	--	--	40	3/32 [9%]	5.9
Manganese	7439-96-5	1673	95-95UTL	32	32	266	1140	0%	--	--	649	0/32 [0%]	0.7
Nickel	7440-02-0	34.9	95-95UTL	32	32	16.9	46	0%	--	--	27	2/32 [6%]	1.3
Zinc	7440-66-6	109	Unrestricted	32	32	58.9	155	0%	--	--	85	3/32 [9%]	1.4
Mercury	7439-97-6	0.18	Unrestricted	46	46	0.0367	1.75	0%	--	--	0.39	23/46 [50%]	9.7

Notes:
All values are provided in milligrams per kilogram (mg/kg)
^a Selected background values are from background parcel BG02, which has a similar soil type to OU-4.
^b Average includes detected and non-detected concentrations.
^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value
HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list
HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:
SCO: Soil Cleanup Objective
95-95UTL: 95 percent upper tolerance limit with 95 percent coverage
--: Not Applicable

Table 25
Site Pesticide Soil Data Summary (0 to 2 feet bgs)
Chevron Environmental Management Company
Former Texaco Research Center
Beacon (Glenham), NY

Constituent	CAS Number	Selected Background Value ^a	Background Value Type	Result Count	Detect Count	Minimum Detect	Maximum Detect	Non Detection Frequency (%)	Minimum Non Detection	Maximum Non Detection	Arithmetic Mean ^b	Background Value Exceedance Frequency ^c	Maximum Concentration to Background Value Ratio
Operable Unit 1A													
4,4-DDD	72-54-8	0.0033	Unrestricted	16	1	0.0043	0.0043	94%	0.00035	0.042	0.0085	1/16 [6%]	1.3
4,4-DDE	72-55-9	0.017	95-95UTL	16	13	0.00047	1.4	19%	0.00037	0.00040	0.25	6/16 [38%]	82
4,4-DDT	50-29-3	0.016	95-95UTL	16	11	0.00091	0.23	31%	0.00083	0.0010	0.055	6/16 [38%]	14
Endrin	72-20-8	0.014	Unrestricted	16	1	0.032	0.032	94%	0.00072	0.087	0.019	1/16 [6%]	2.3
Operable Unit 1B													
4,4-DDD	72-54-8	0.0033	Unrestricted	52	11	0.00066	0.0061	79%	0.00037	0.0028	0.00091	2/52 [4%]	1.8
4,4-DDE	72-55-9	0.017	95-95UTL	52	46	0.00049	0.059	12%	0.00037	0.00041	0.010	10/52 [19%]	3.5
4,4-DDT	50-29-3	0.017	95-95UTL	52	44	0.00045	0.073	15%	0.00037	0.00043	0.010	8/52 [15%]	4.3
Operable Unit 1C													
4,4-DDT	50-29-3	0.013	95-95UTL	8	6	0.00048	0.0042	25%	0.00040	0.00040	0.0015	0/8 [0%]	0.3
Operable Unit 1D													
4,4-DDD	72-54-8	0.0033	Unrestricted	8	3	0.00050	0.0039	63%	0.00036	0.0036	0.0016	1/8 [13%]	1.2
4,4-DDE	72-55-9	0.0033	Unrestricted	8	8	0.0020	0.20	0%	--	--	0.045	3/8 [38%]	61
4,4-DDT	50-29-3	0.0046	95-95UTL	8	8	0.00090	0.096	0%	--	--	0.026	6/8 [75%]	21
Operable Unit 1E													
4,4-DDE	72-55-9	0.007	95-95UTL	76	48	0.00043	0.0045	37%	0.00036	0.00057	0.0011	0/76 [0%]	0.64
Operable Unit 3													
4,4-DDE	72-55-9	0.0033	Unrestricted	4	4	0.0019	0.011	0%	--	--	0.0062	3/4 [75%]	3.3
4,4-DDT	50-29-3	0.0046	95-95UTL	4	4	0.00052	0.0040	0%	--	--	0.0019	0/4 [0%]	0.87

Notes:

All values are provided in milligrams per kilogram (mg/kg)

^a Selected background values are chosen based on background parcels with similar soil type (see in-text Table 17).

^b Average includes detected and non-detected concentrations.

^c Exceedance count includes detected concentrations only.

Bold: Exceeds Background Value

HIGHLIGHT: Frequency of background value exceedance is less than or equal to 5 percent and constituent is removed from COPC list

HIGHLIGHT: Maximum concentration to background value ratio is less than or equal to 2 and constituent is removed from COPC list

Acronyms and Abbreviations:

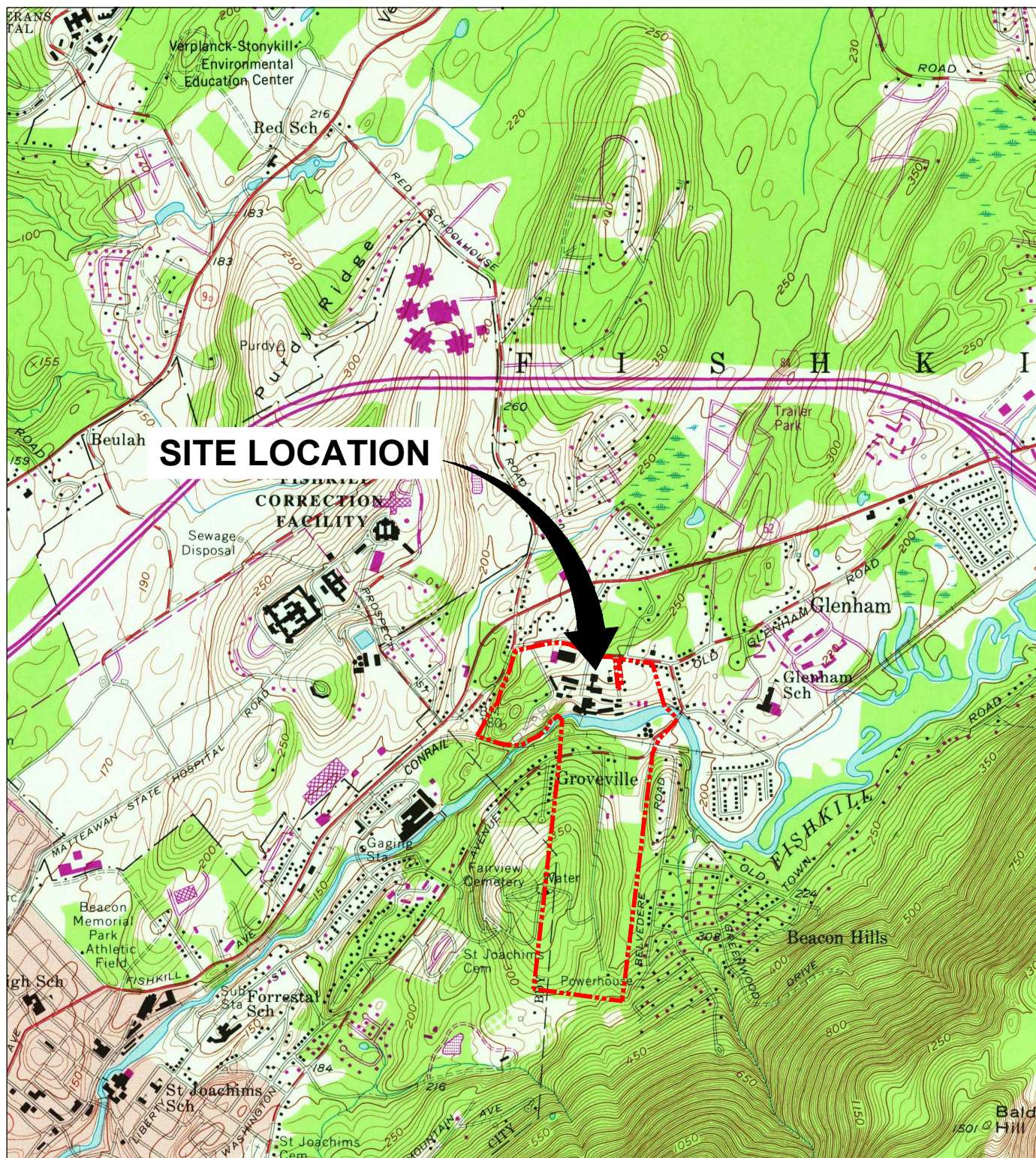
SCO: Soil Cleanup Objective

95-95UTL: 95 percent upper tolerance limit with 95 percent coverage

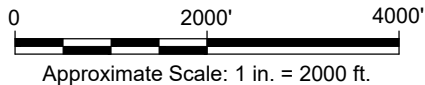
--: Not Applicable

FIGURES



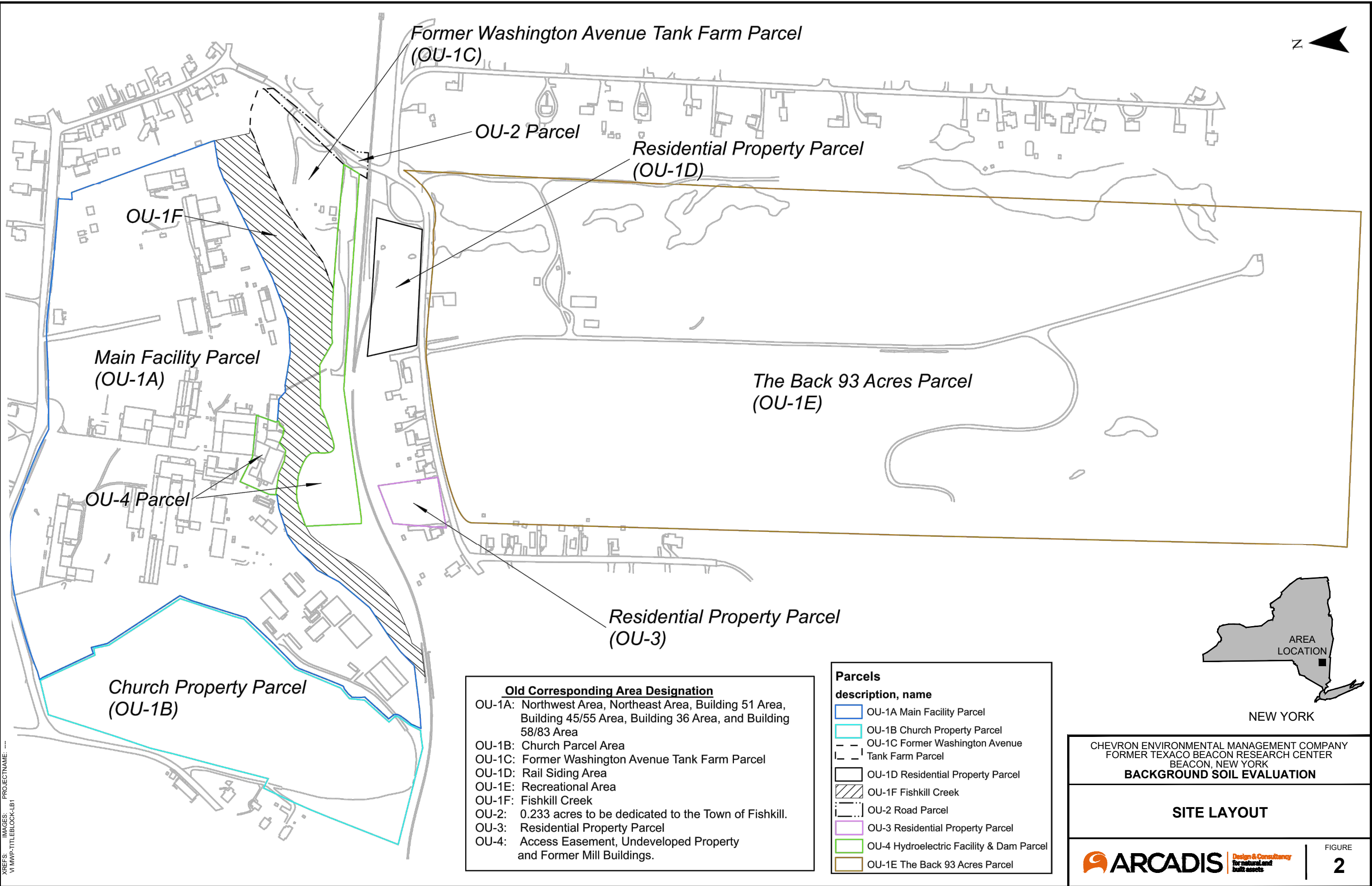


REFERENCE: BASE MAP USGS 7.5 MIN. TOPO. QUAD., WAPPINGERS FALLS, NY, DATED 1956, PHOTOREVISED 1981.



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GLENHAM, NEW YORK
BACKGROUND SOIL EVALUATION

SITE LOCATION MAP



CITY:CRANBURY-NJ DIV:GROUP:IMDV-ENV:CAD DB:JMEYER LD:JMEYER PIC:(Opt) PM:JMEYER TM:(Opt) LVR:(Opt)ON="OFF"-REF*
C:\Users\jmeyer\BIM 360\Aradis\ANA - CHEVRON CORPORATION\Project Files\BEACON-SITE\2020\3004361501-DWG\BDA-FIX-BACKGROUND SAMPLES AND SITE LAYOUT.dwg LAYOUT: X SAVED: 9/15/2020 10:09 PM ACADVER: 23.1S (LMS TECH) PAGES: 1 OF 1 PLOTSTYLETABLE: ----
PLOTTED: 9/15/2020 10:09 PM BY: MEYER, JULIE

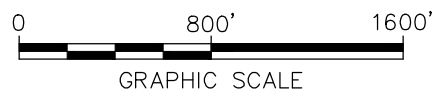
XREFS: BEACON-BASEMAP RIR-TITLEBLOCK.LB

PROJECTNAME:

SOURCE:

1. BASEMAP PROVIDED BY PARSONS COMMERCIAL TECHNOLOGY GROUP, SURVEYED 2007 BY BADEY & WATSON, SURVEY & ENGINEERING, P.C. THE MERIDIAN AND COORDINATE VALUES HEREON REFER TO THE NEW YORK STATE COORDINATE SYSTEM, EAST ZONE NAD83, EXPRESSED IN FEET.
2. WELL AND BORING ELEVATIONS ARE REFERENCED TO A SITE VERTICAL DATUM ESTABLISHED BY TEXACO IN 1957, HEREINAFTER REFERRED TO AS THE TEXACO DATUM, THIS DATUM IS 1.07' BELOW NAVD 1988.

- LEGEND:**
- FENCE
 - RAILROAD
 - STREAM
 - SOIL BORING LOCATIONS



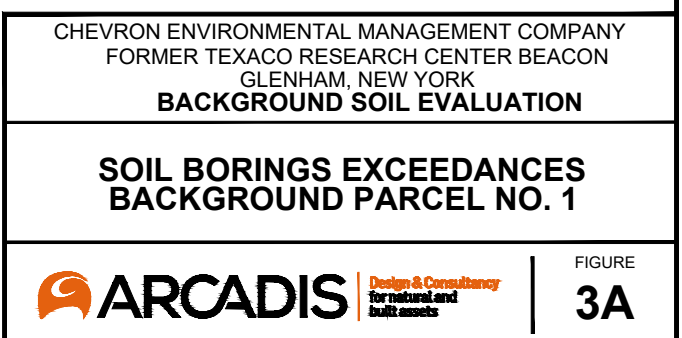
PARCELS	
LEGEND	DESCRIPTION, NAME
	OU-1 MAIN FACILITY PARCEL
	OU-1B CHURCH PROPERTY PARCEL
	OU-1C FORMER WASHINGTON AVENUE TANK FARM PARCEL
	OU-1D RESIDENTIAL PROPERTY PARCEL
	OU-1F FISHKILL CREEK
	OU-2 ROAD PARCEL
	OU-3 RESIDENTIAL PROPERTY PARCEL
	OU-4 HYDROELECTRIC FACILITY & DAM PARCEL
	OU-1E THE BACK 93 ACRE PARCEL

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GLENHAM, NEW YORK
BACKGROUND SOIL EVALUATION

BACKGROUND SOIL BORINGS AND SITE LAYOUT



FIGURE
3



Soil Cleanup Objectives			
End Use	6 NYCRR 375-6.8(a) Unrestricted	6 NYCRR 375-6.8(b) Residential	6 NYCRR 375-6.8(b) Residential Restricted
Constituent			
4-Methylphenol (p-Cresol)	0.33 mg/kg	34 mg/kg	100 mg/kg
4,4-DDE	0.0033 mg/kg	1.8 mg/kg	8.9 mg/kg
4,4-DDT	0.0033 mg/kg	1.7 mg/kg	7.9 mg/kg
alpha Chlordane	0.094 mg/kg	0.91 mg/kg	4.2 mg/kg
Arsenic	13 mg/kg	16 mg/kg	16 mg/kg
Chromium	30 mg/kg	36 mg/kg	180 mg/kg
Copper	50 mg/kg	270 mg/kg	270 mg/kg
Iron	--	2,000 mg/kg	--
Lead	63 mg/kg	400 mg/kg	400 mg/kg
Manganese	1,600 mg/kg	2,000 mg/kg	2,000 mg/kg
Nickel	30 mg/kg	140 mg/kg	310 mg/kg
Zinc	109 mg/kg	2,200 mg/kg	10,000 mg/kg
Mercury	0.18 mg/kg	0.81 mg/kg	0.81 mg/kg

1. BASEMAP PROVIDED BY PARSONS COMMERCIAL TECHNOLOGY GROUP, SURVEYED 2007 BY BADEY & WATSON, SURVEY & ENGINEERING, P.C. THE MERIDIAN AND COORDINATE VALUES HEREON REFER TO THE NEW YORK STATE COORDINATE SYSTEM, EAST ZONE NAD83, EXPRESSED IN FEET.
2. WELL AND BORING ELEVATIONS ARE REFERENCED TO A SITE VERTICAL DATUM ESTABLISHED BY TEXACO IN 1957, HEREINAFTER REFERRED TO AS THE TEXACO DATUM, THIS DATUM IS 1.07' BELOW NAVD 1988.

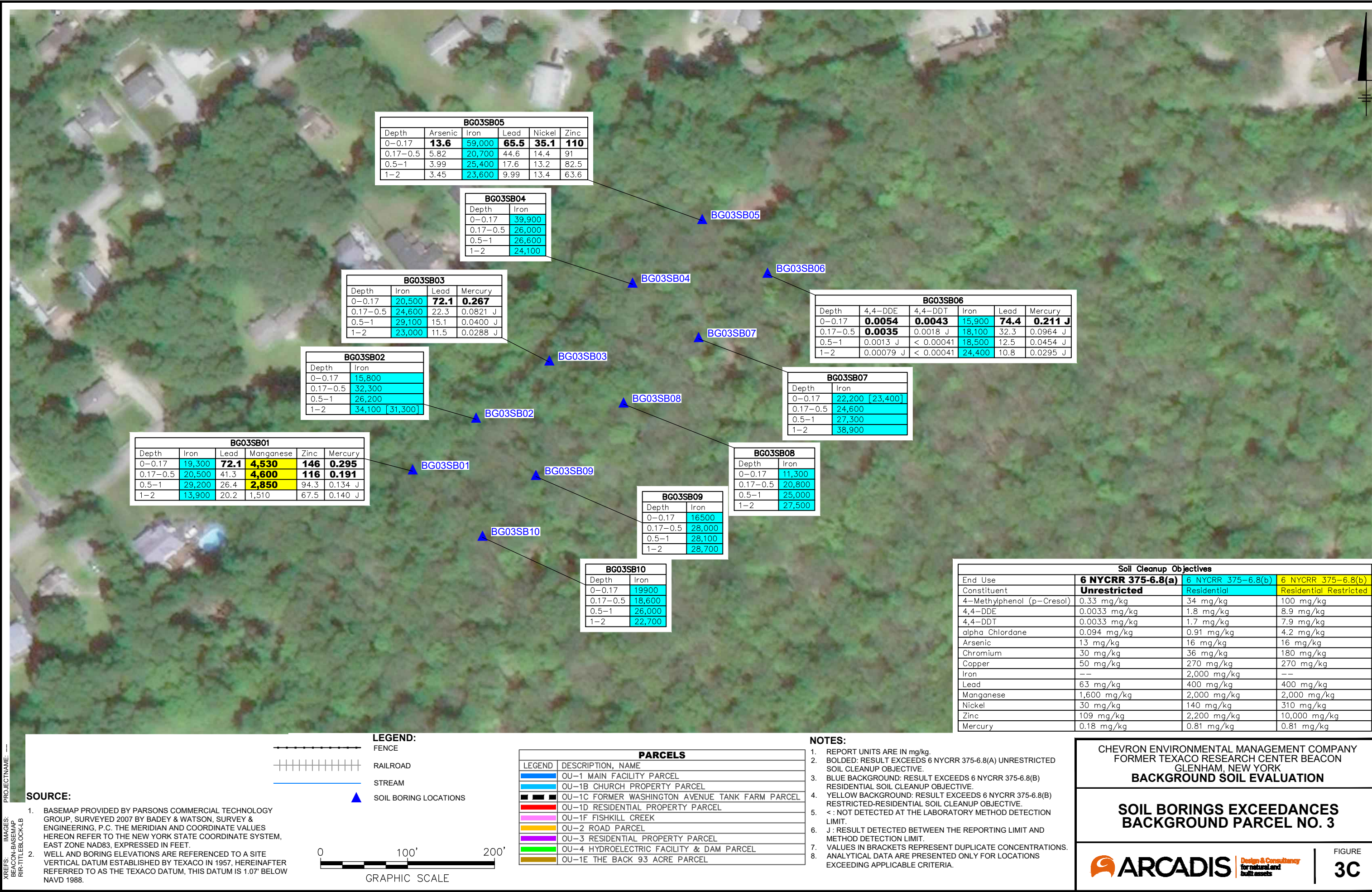
-
- FENCE
 RAILROAD
 STREAM
 SOIL BORING LOCATIONS

PARCELS	
LEGEND	DESCRIPTION, NAME
	OU-1 MAIN FACILITY PARCEL
	OU-1B CHURCH PROPERTY PARCEL
	OU-1C FORMER WASHINGTON AVENUE TANK FARM PARCEL
	OU-1D RESIDENTIAL PROPERTY PARCEL
	OU-1F FISHKILL CREEK
	OU-2 ROAD PARCEL
	OU-3 RESIDENTIAL PROPERTY PARCEL
	OU-4 HYDROELECTRIC FACILITY & DAM PARCEL
	OU-1E THE BACK 93 ACRE PARCEL

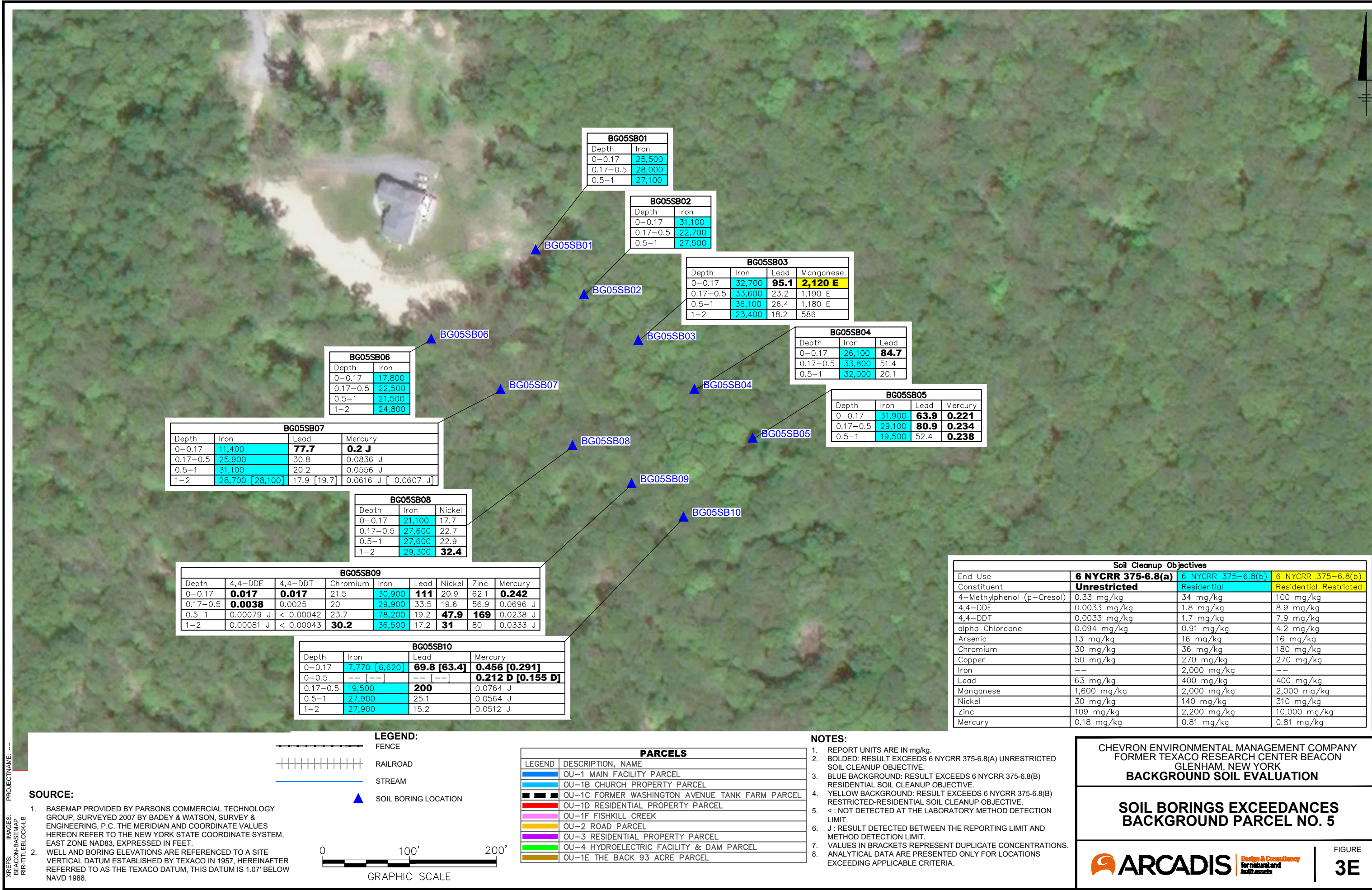
1. REPORT UNITS ARE IN mg/kg.
2. BOLD: RESULT EXCEEDS 6 NYCRR 375-6.8(A) UNRESTRICTED SOIL CLEANUP OBJECTIVE.
3. BLUE BACKGROUND: RESULT EXCEEDS 6 NYCRR 375-6.8(B) RESIDENTIAL SOIL CLEANUP OBJECTIVE.
4. YELLOW BACKGROUND: RESULT EXCEEDS 6 NYCRR 375-6.8(B) RESTRICTED-RESIDENTIAL SOIL CLEANUP OBJECTIVE.
5. < : NOT DETECTED AT THE LABORATORY METHOD DETECTION LIMIT.
6. J : RESULT DETECTED BETWEEN THE REPORTING LIMIT AND METHOD DETECTION LIMIT.
7. VALUES IN BRACKETS REPRESENT DUPLICATE CONCENTRATIONS.
8. ANALYTICAL DATA ARE PRESENTED ONLY FOR LOCATIONS EXCEEDING APPLICABLE CRITERIA.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GLENHAM, NEW YORK
BACKGROUND SOIL EVALUATION

SOIL BORINGS EXCEEDANCES BACKGROUND PARCEL NO. 2



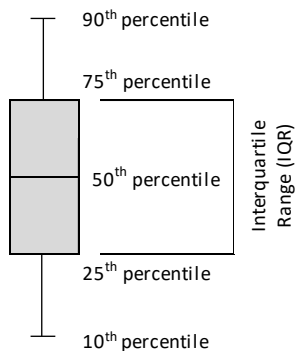
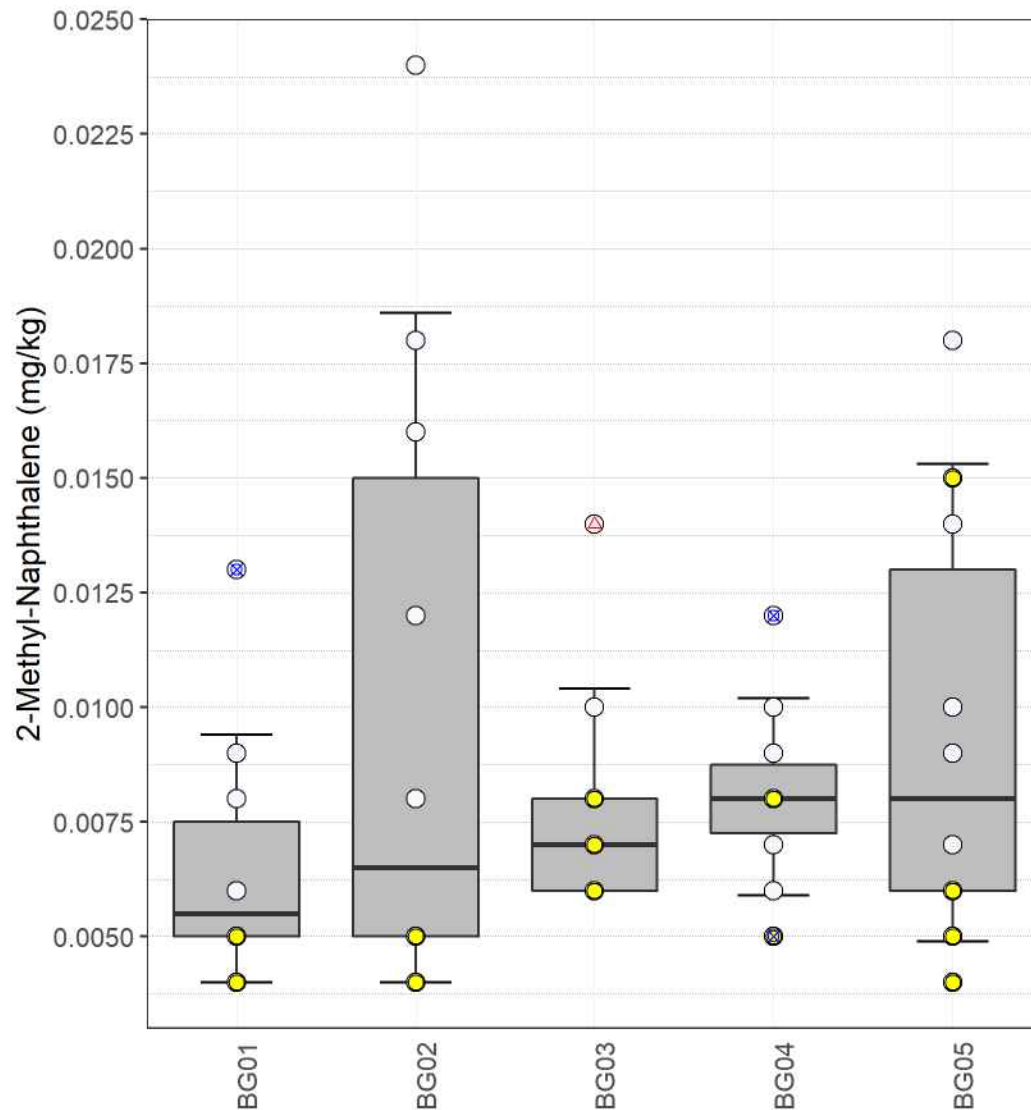




APPENDIX A

Box-and-Whisker Plots

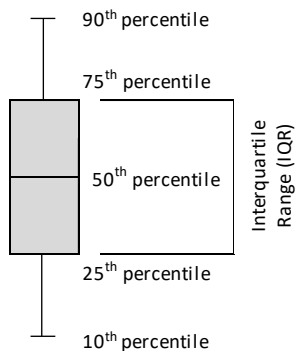
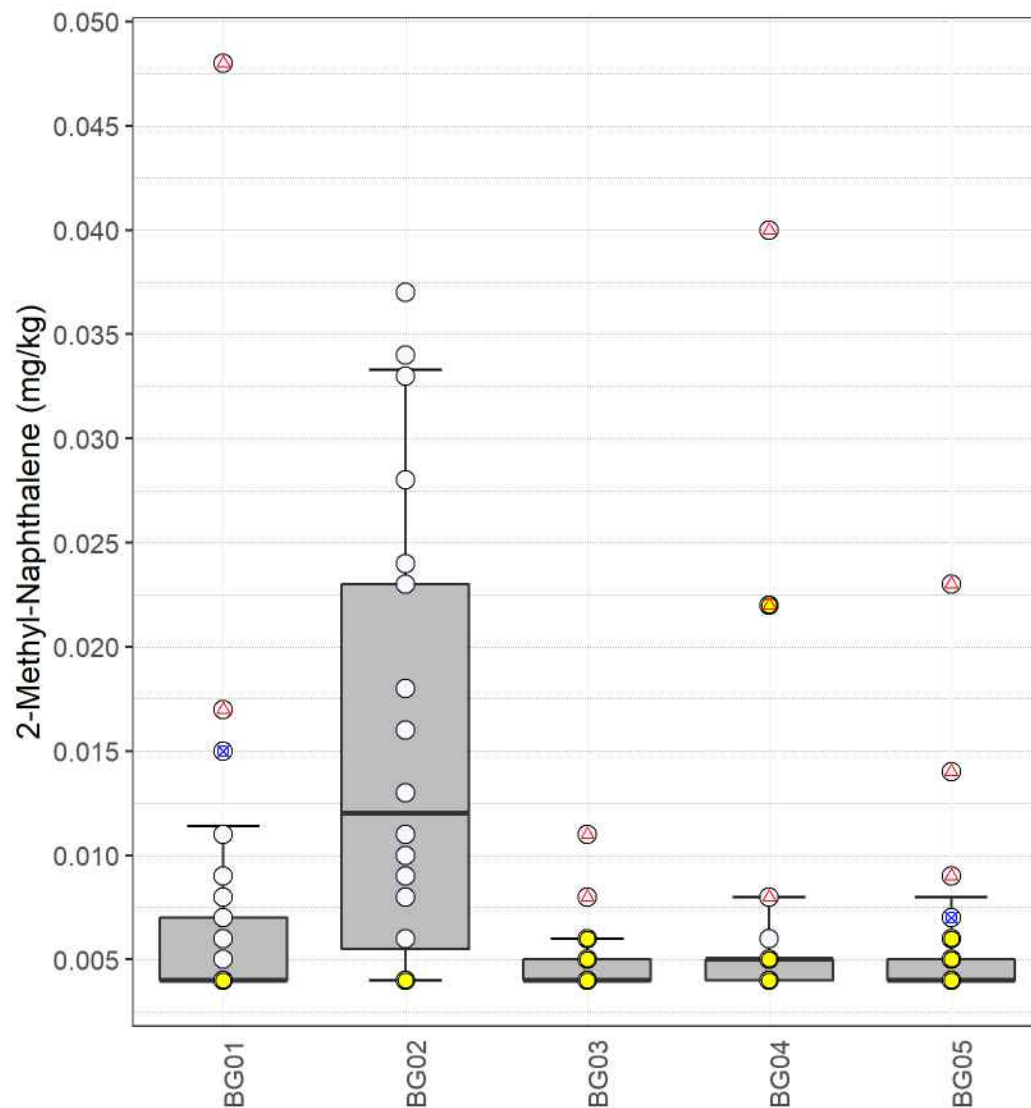




- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

BACKGROUND 2-METHYL-NAPHTHALENE RESULTS - SURFACE



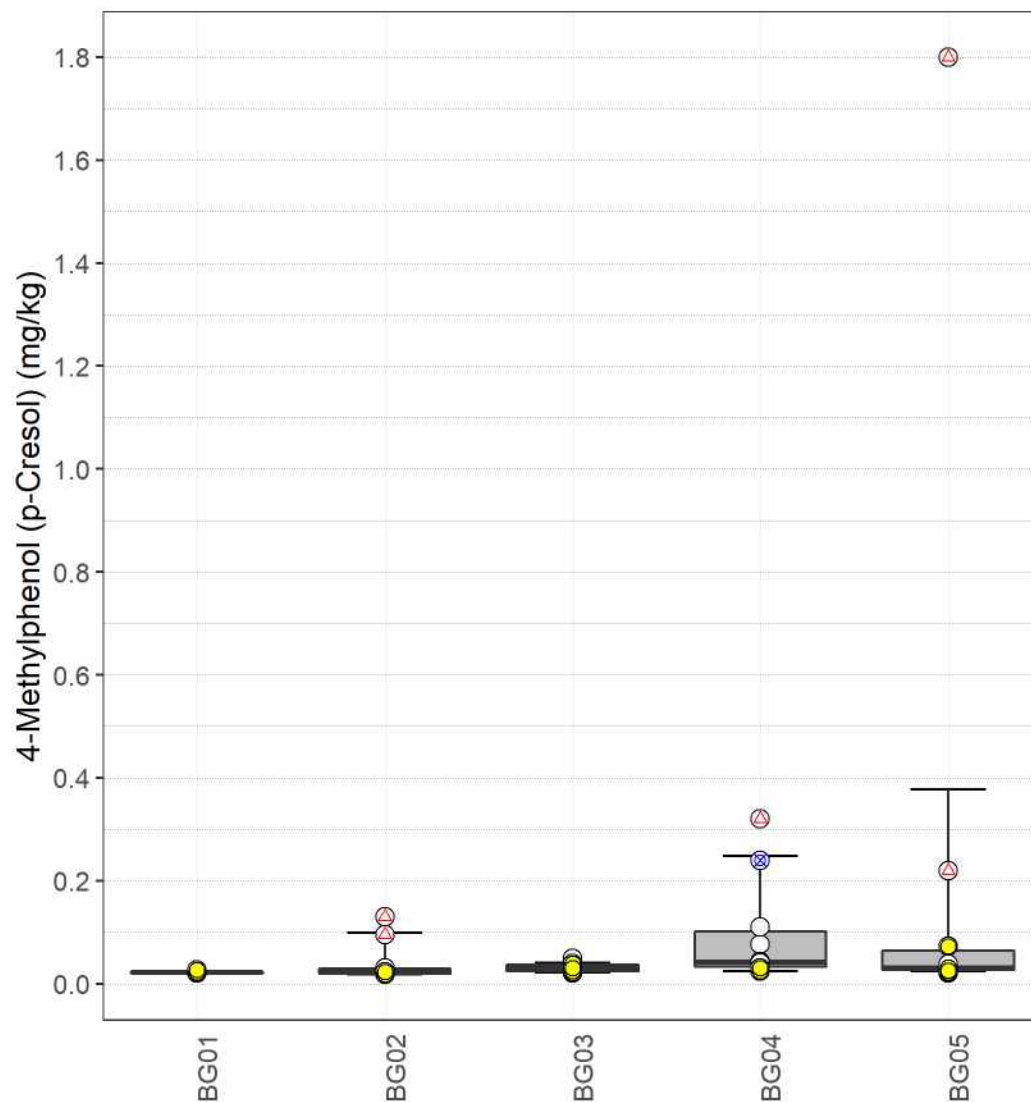
- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

BACKGROUND 2-METHYL-NAPHTHALENE RESULTS - NEAR SURFACE

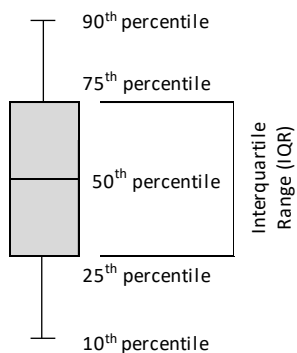
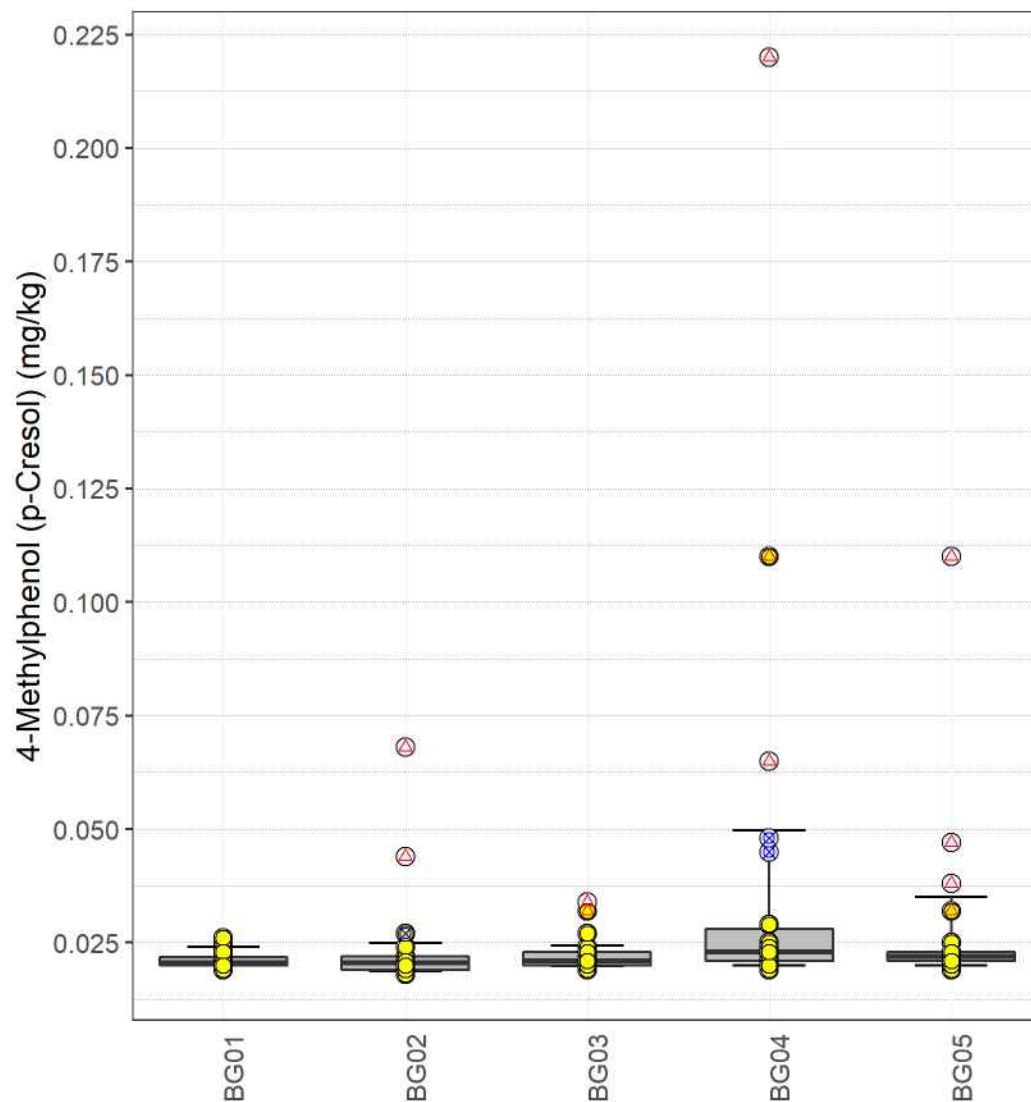


FIGURE
A-2



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

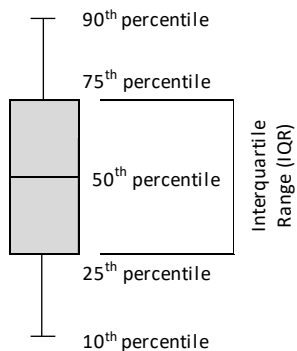
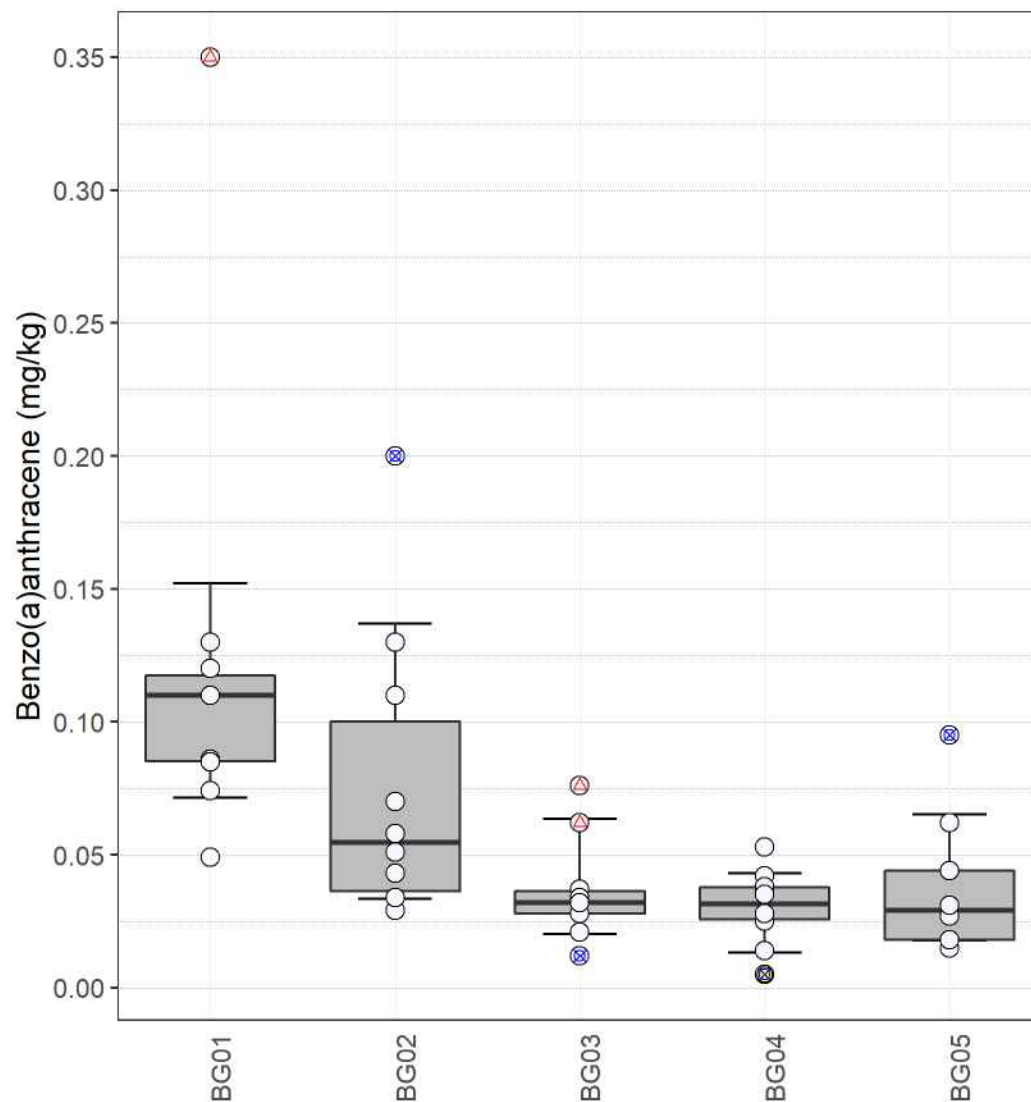
BACKGROUND 4-METHYLPHENOL (P-CRESOL) RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

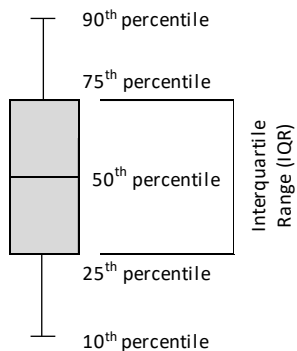
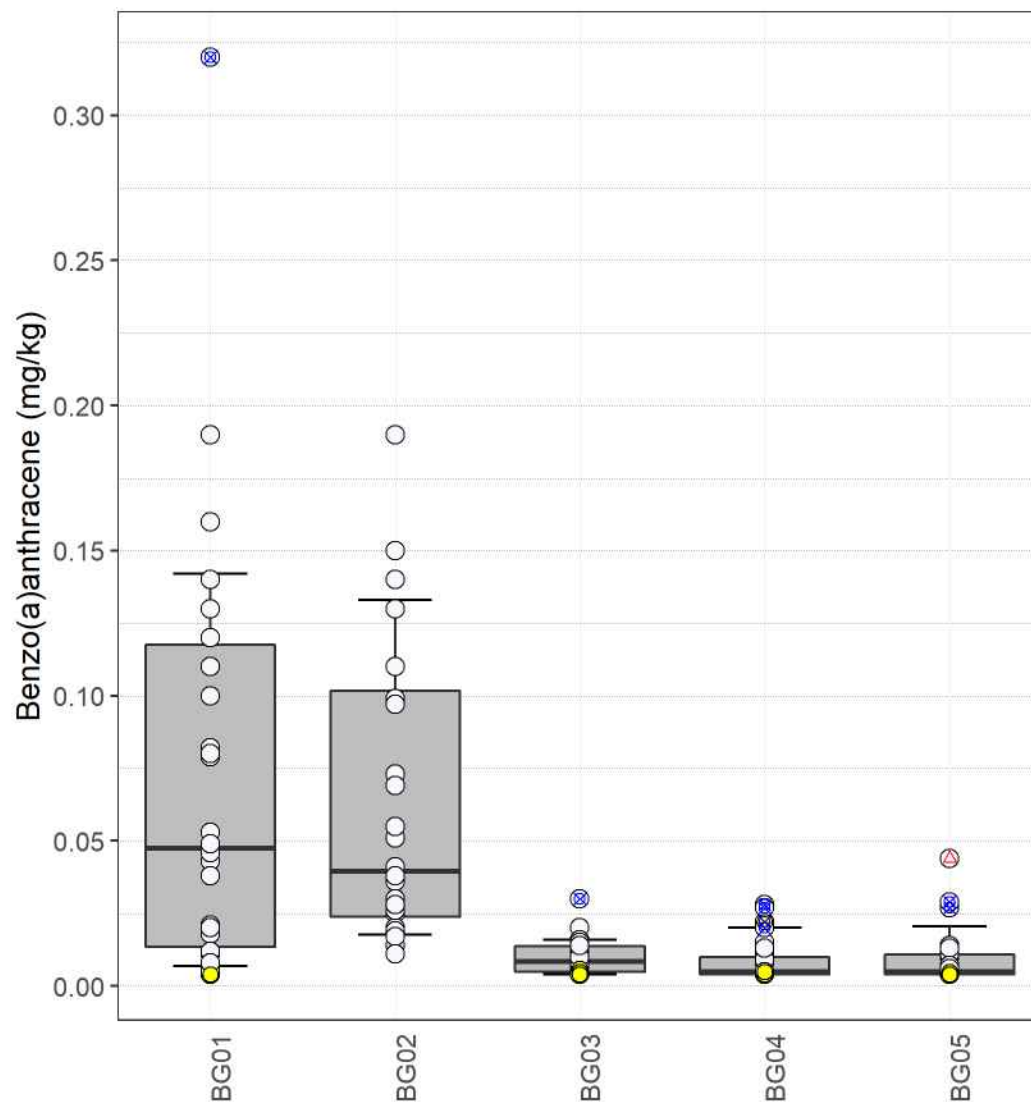
BACKGROUND 4-METHYLPHENOL (P-CRESOL) RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

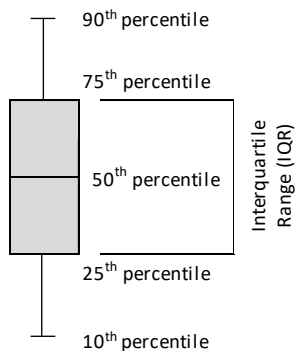
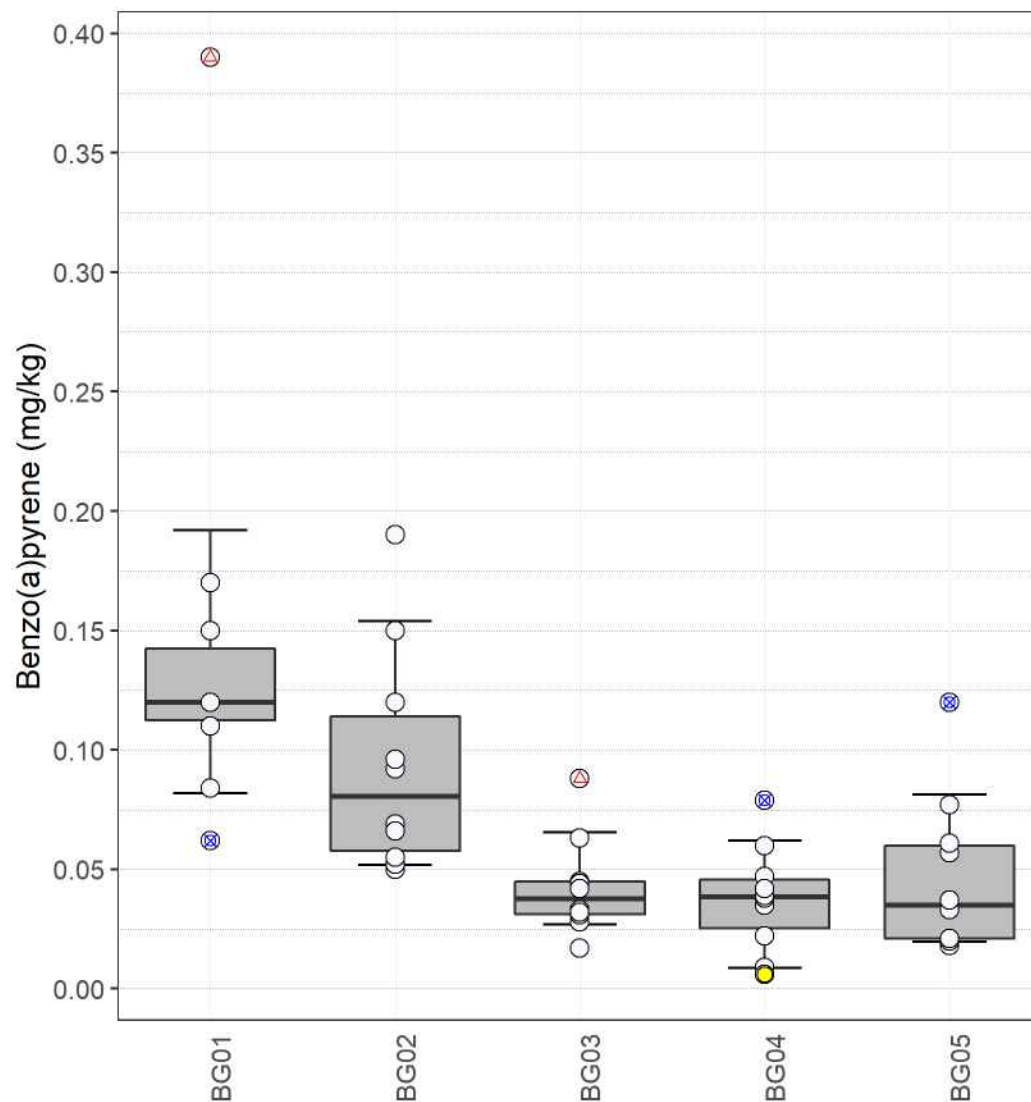
BACKGROUND BENZO(A)ANTHRACENE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \times \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \times \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \times \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \times \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

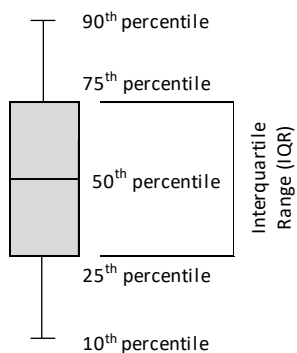
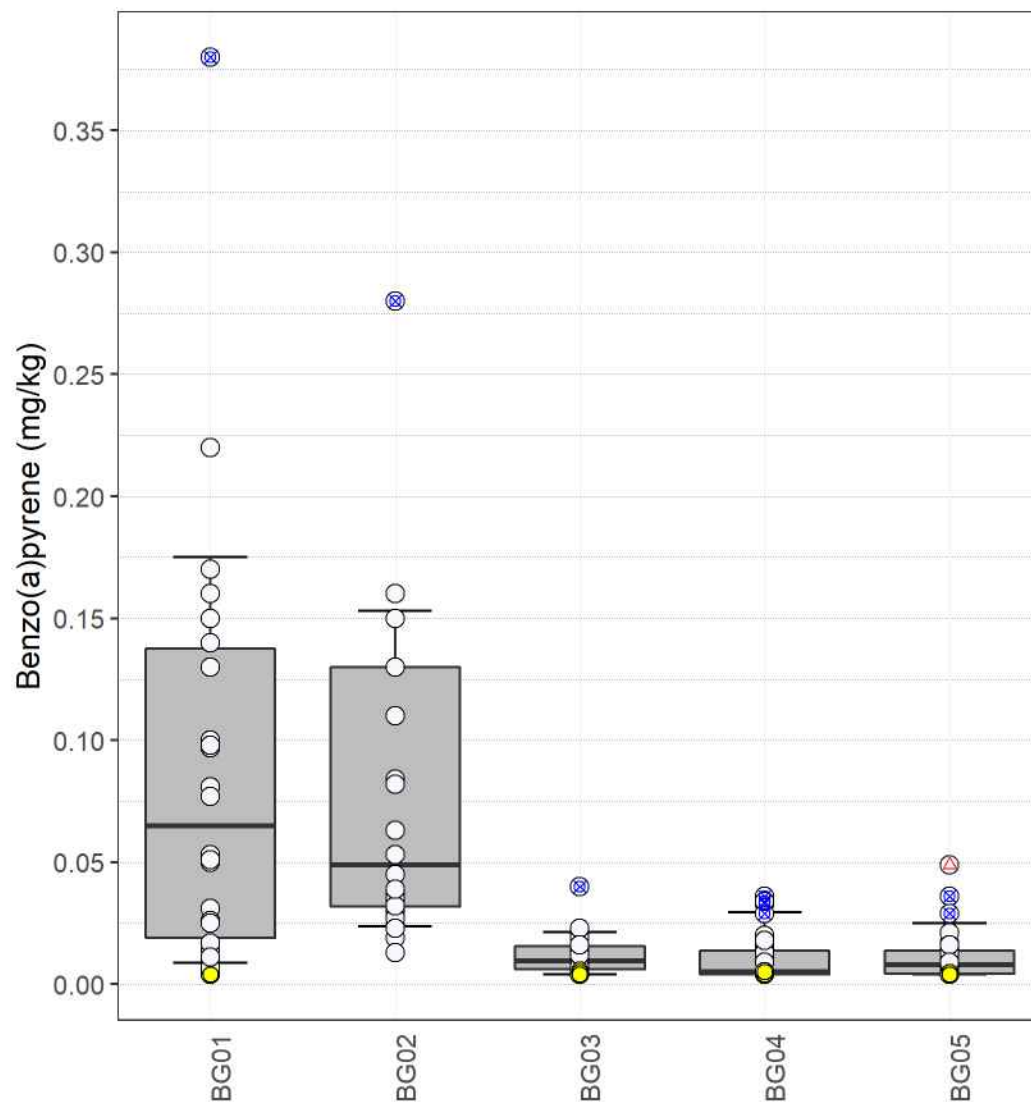
BACKGROUND BENZO(A)ANTHRACENE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

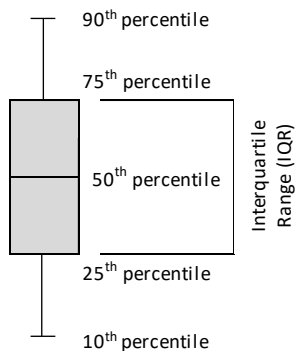
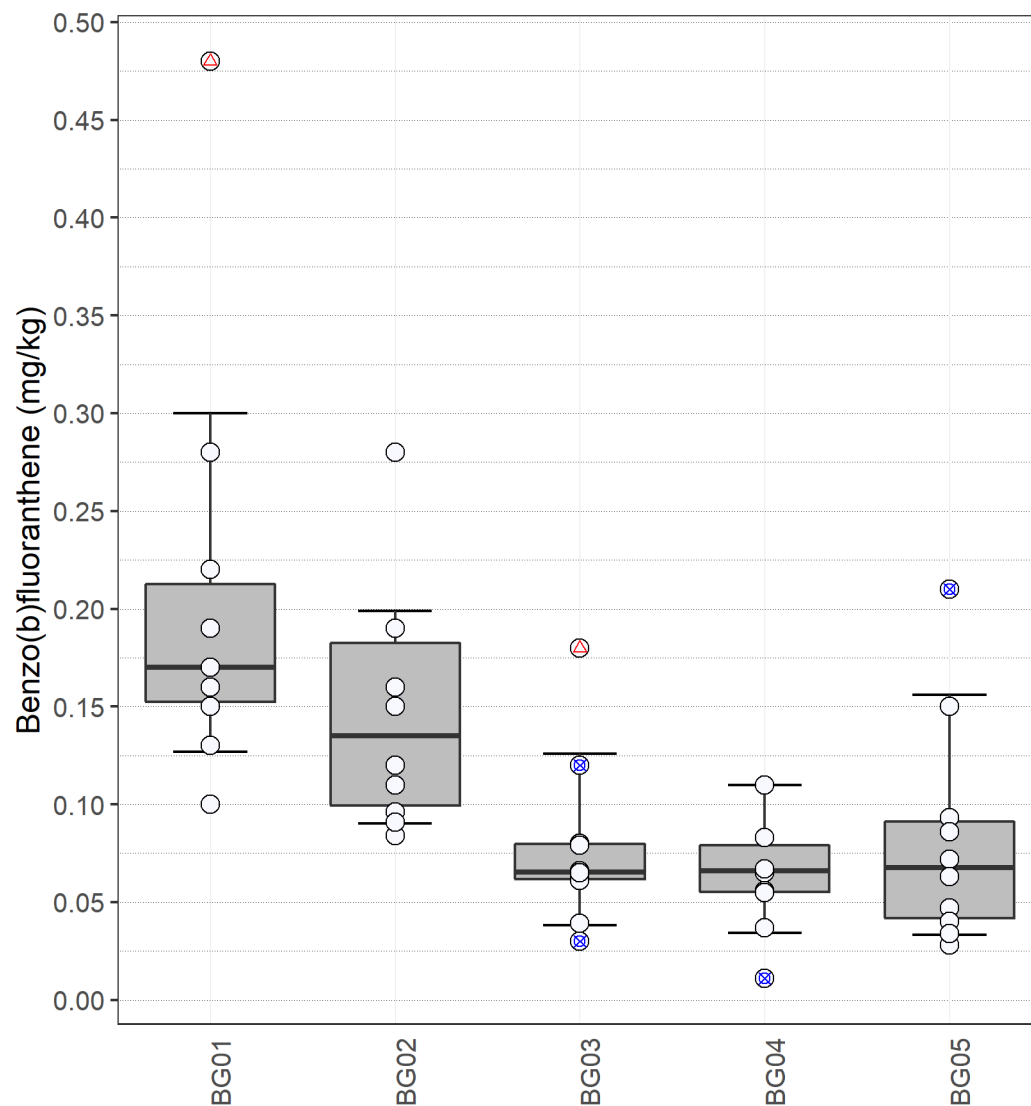
BACKGROUND BENZO(A)PYRENE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

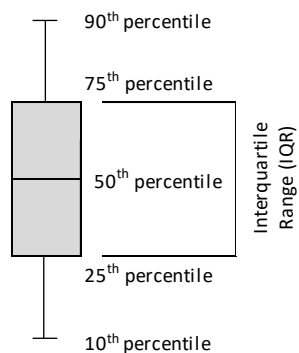
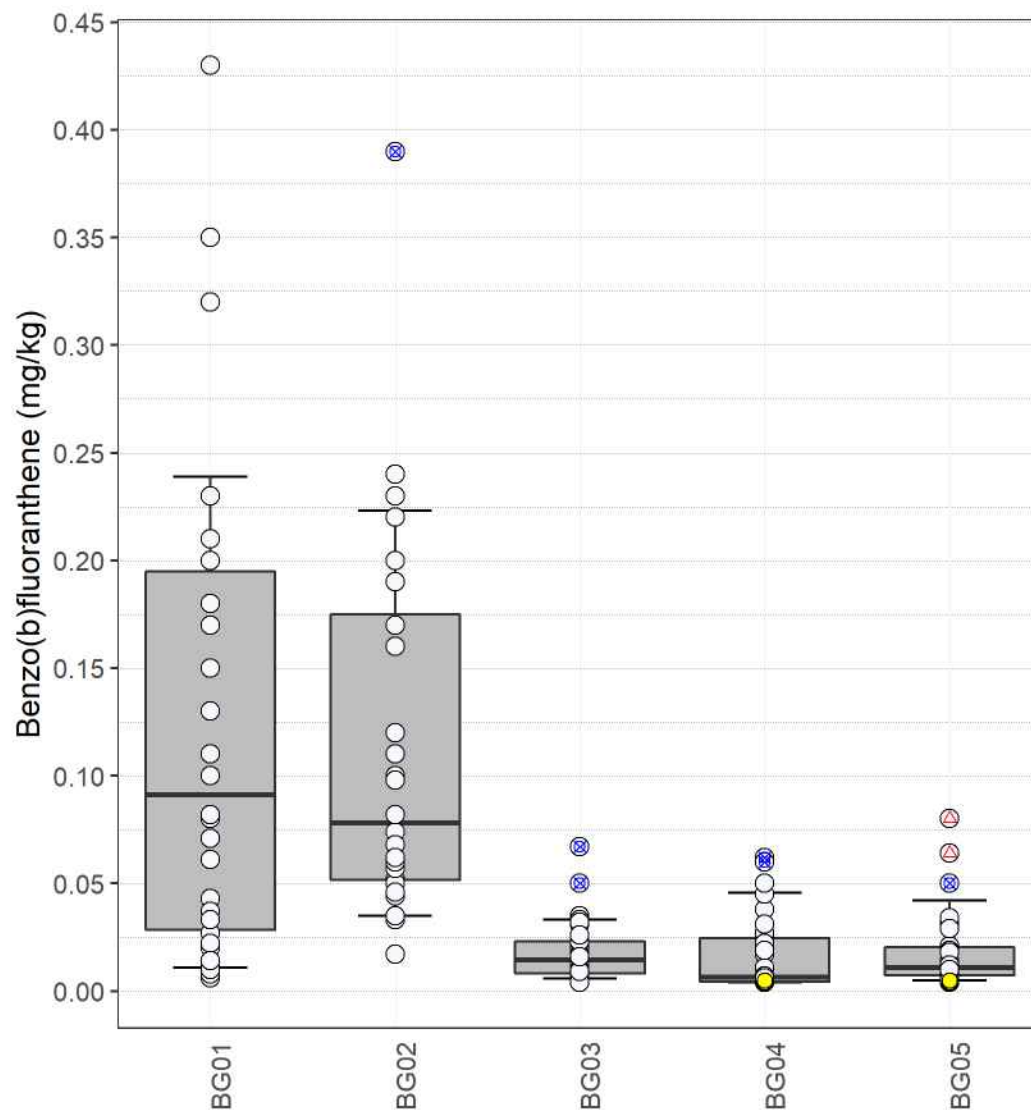
BACKGROUND BENZO(A)PYRENE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

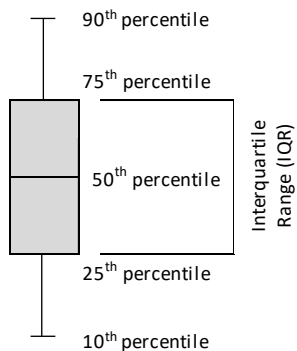
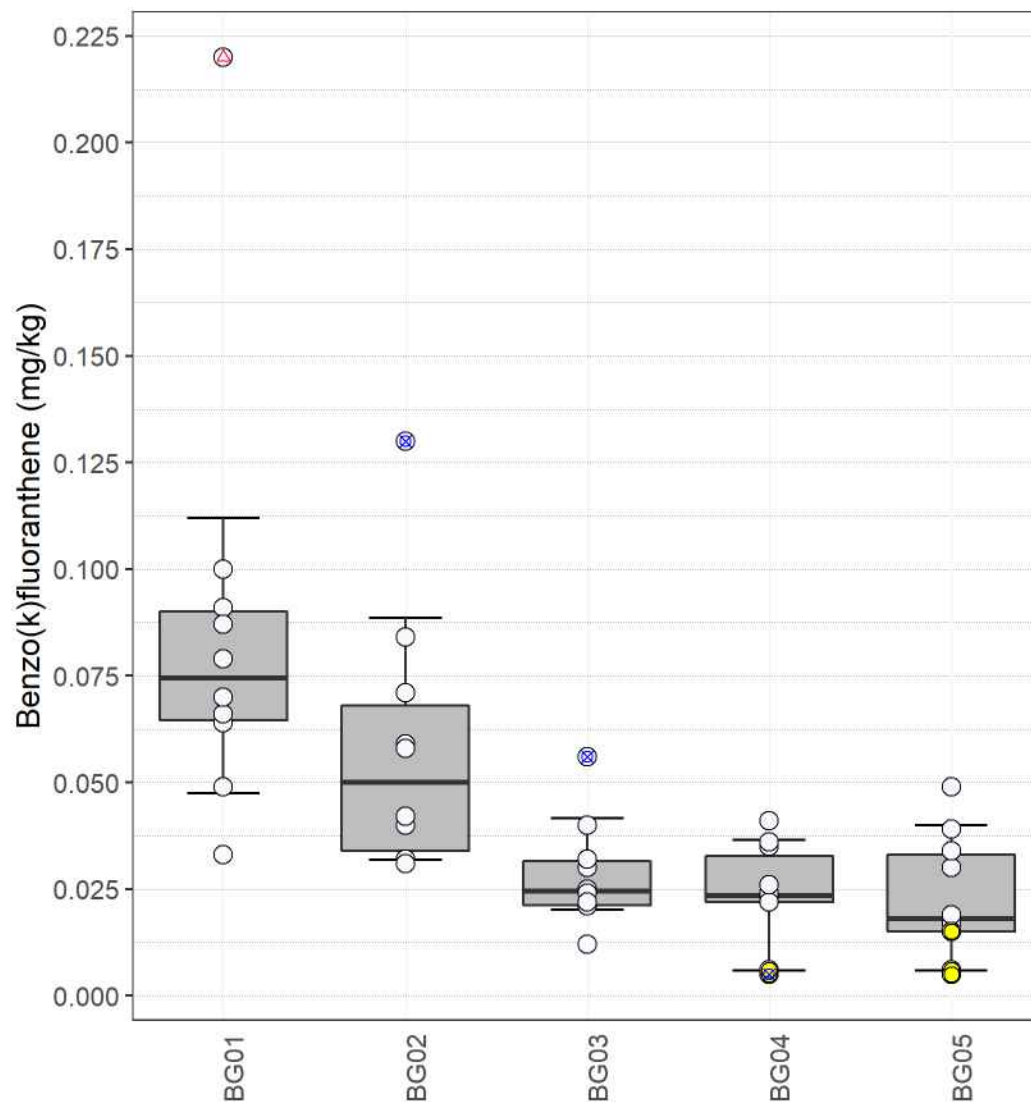
BACKGROUND BENZO(B)FLUORANTHENE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

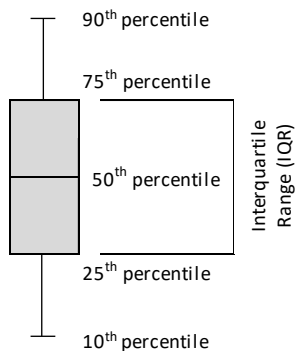
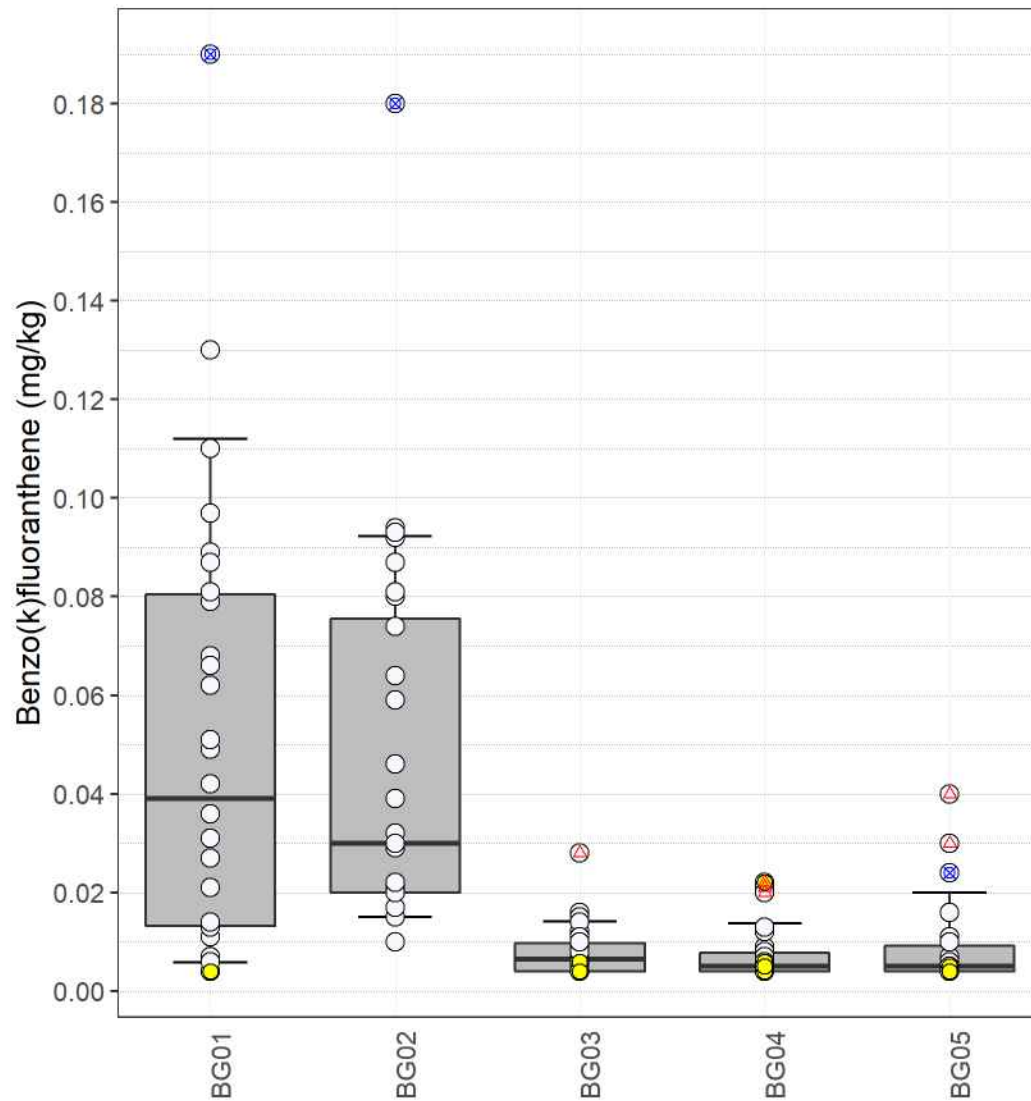
BACKGROUND BENZO(B)FLUORANTHENE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

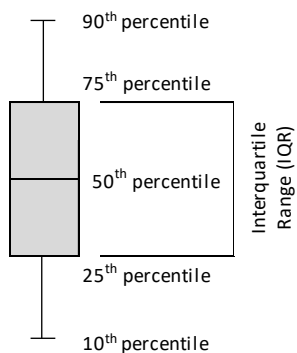
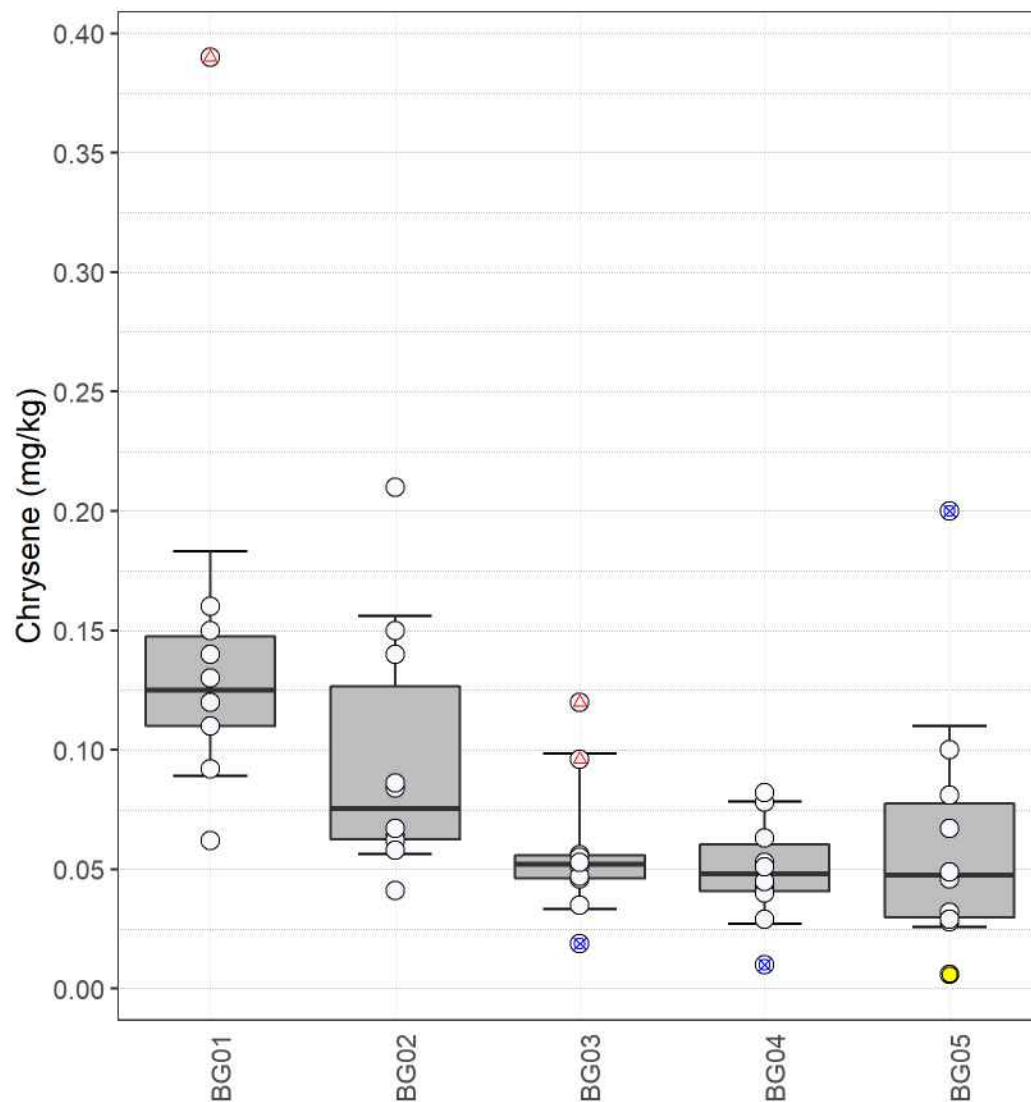
BACKGROUND BENZO(K)FLUORANTHENE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

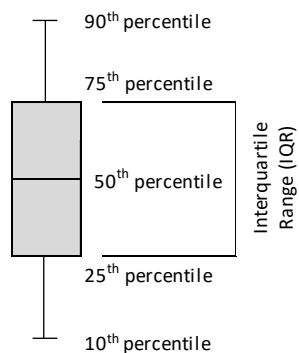
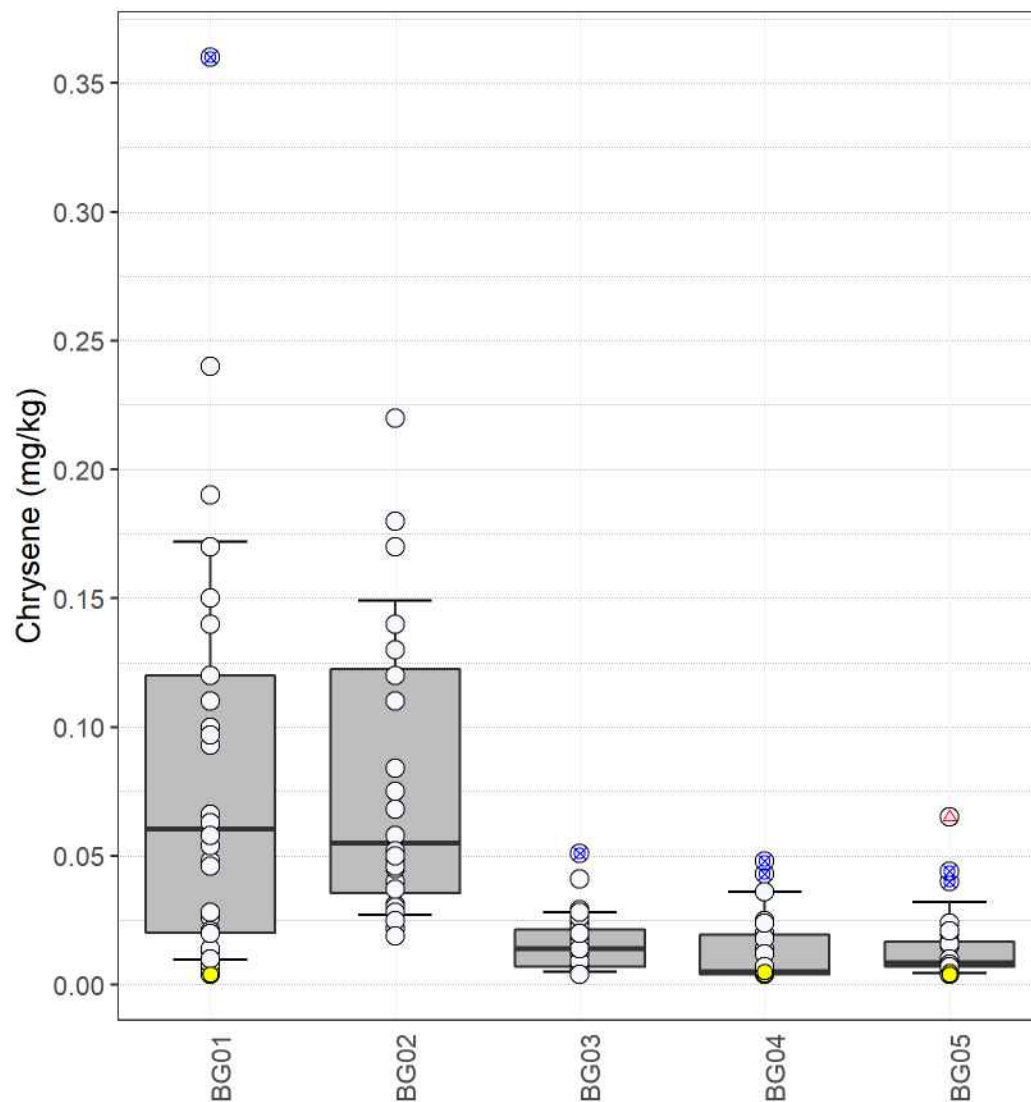
BACKGROUND BENZO(K)FLUORANTHENE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

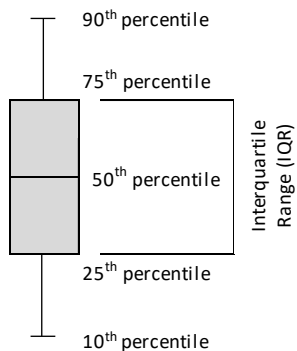
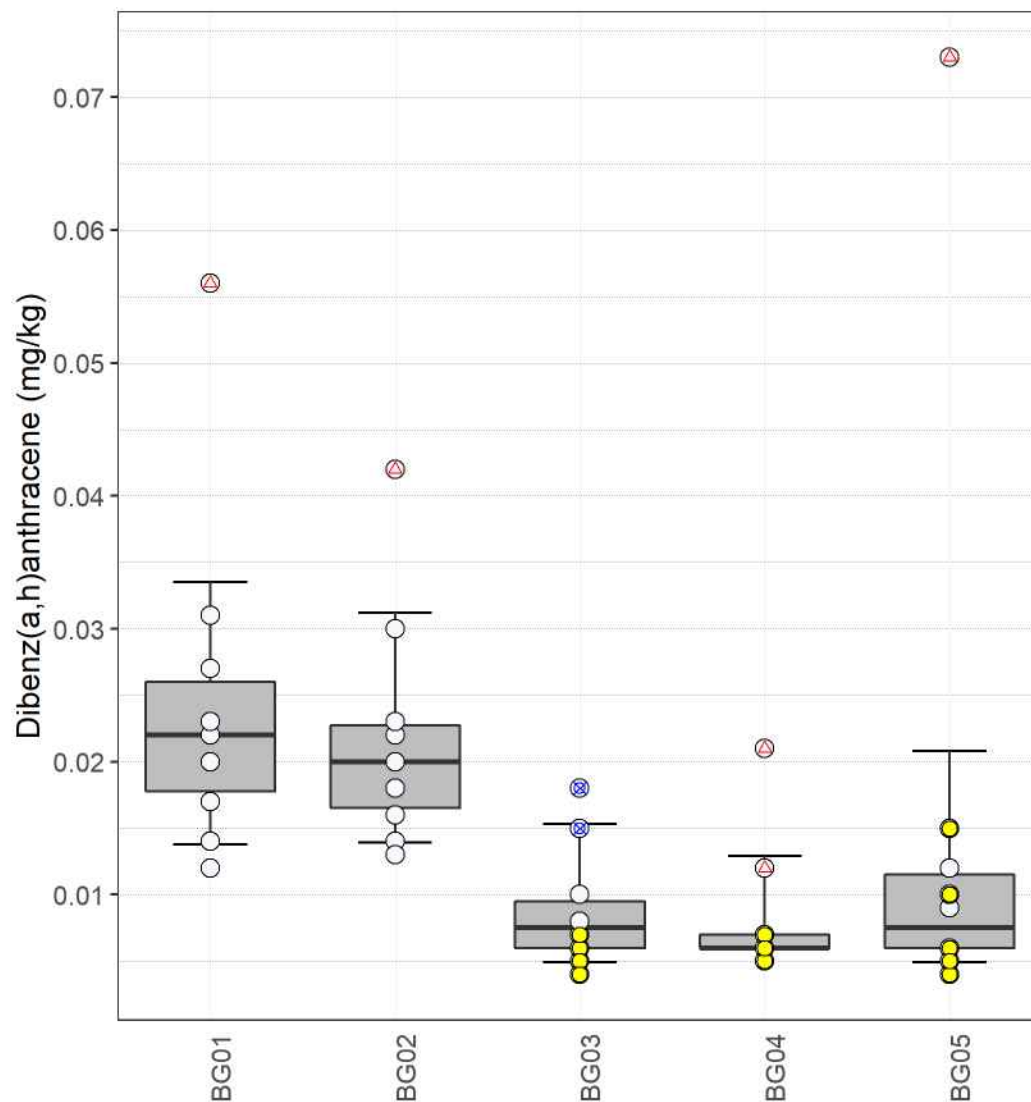
BACKGROUND CHRYSENE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

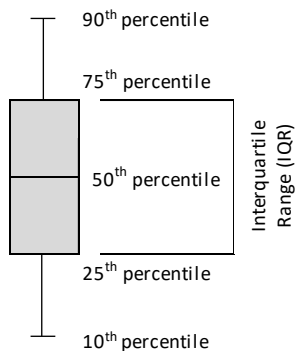
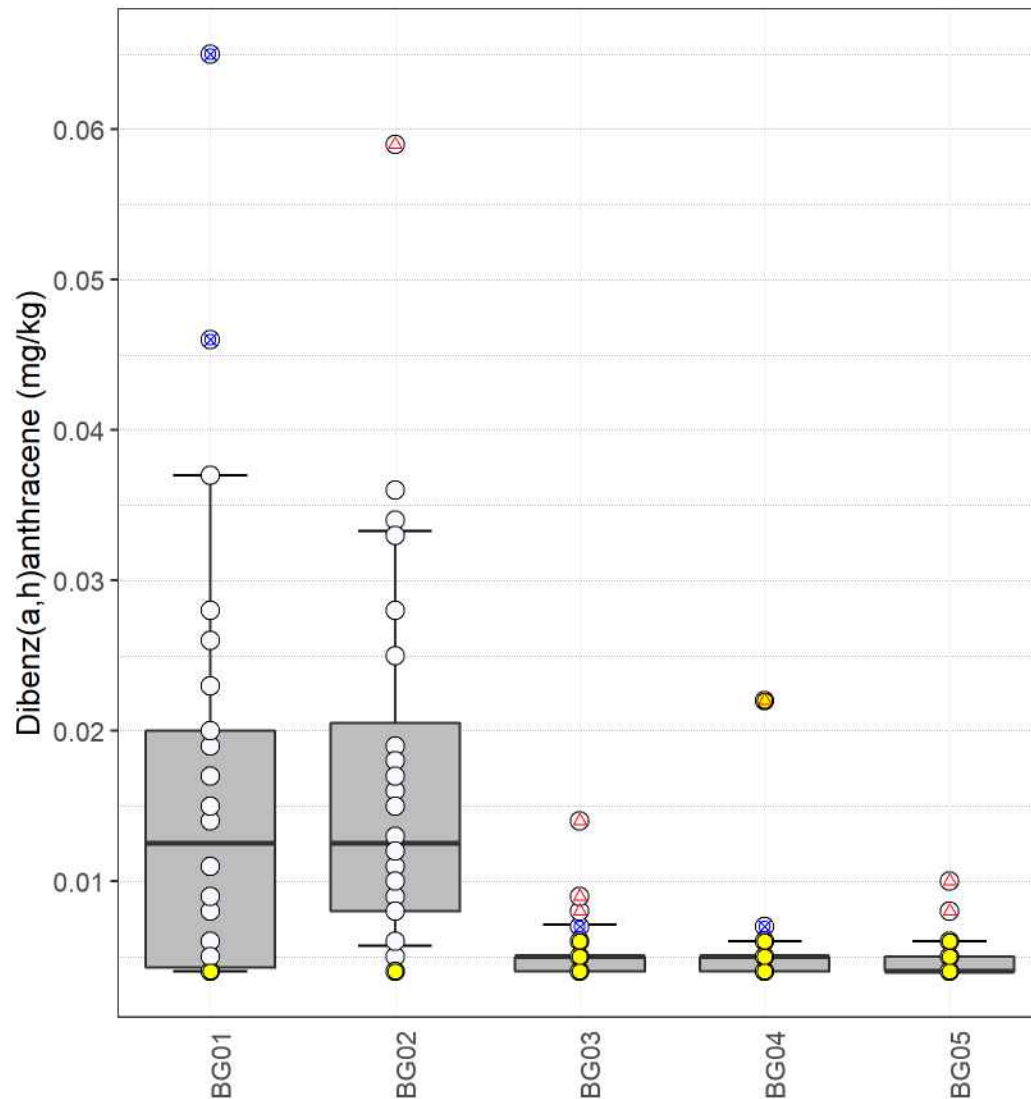
BACKGROUND CHRYSENE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

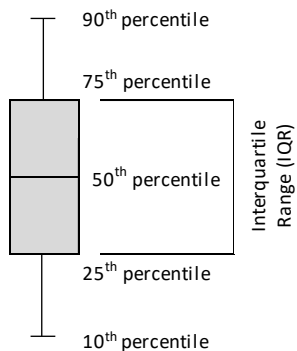
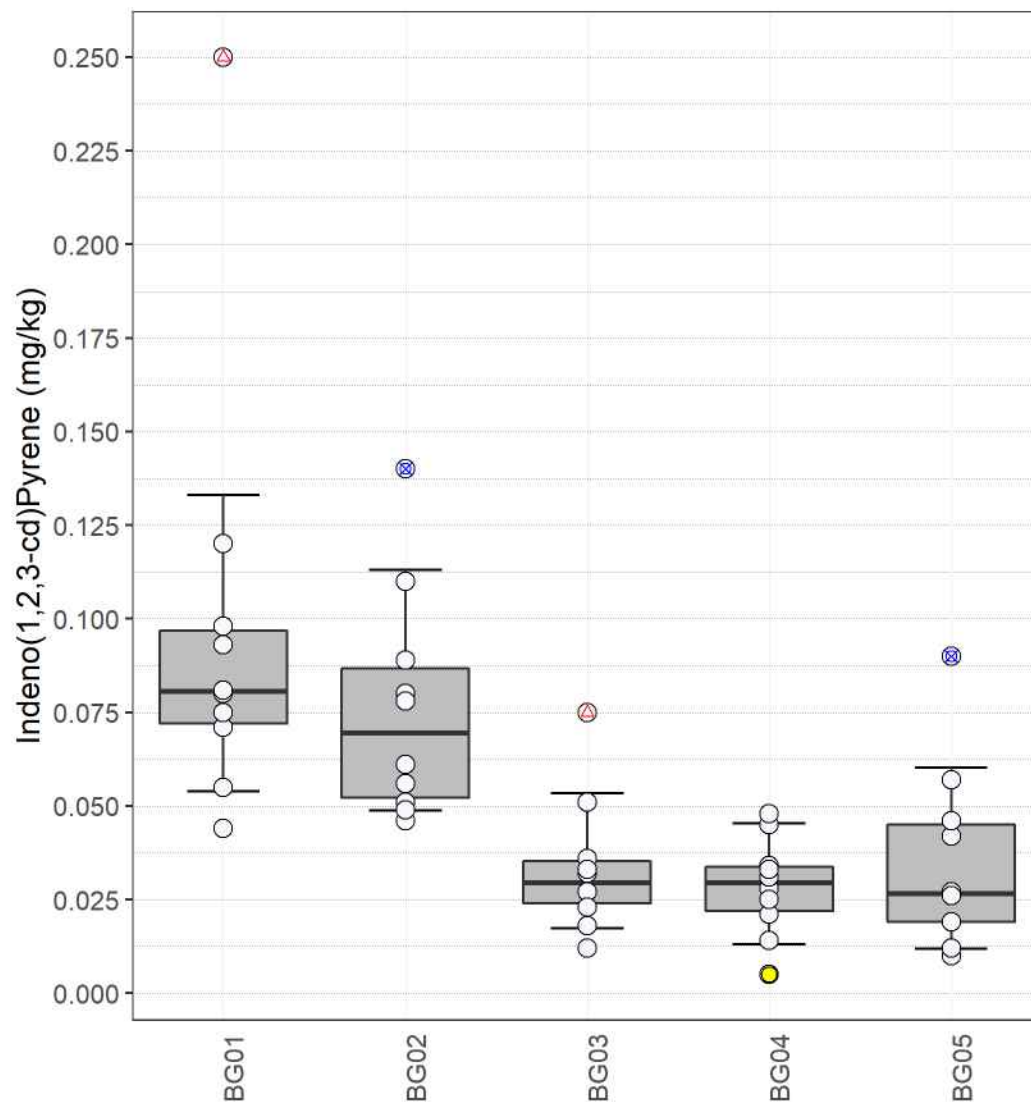
BACKGROUND DIBENZ(A,H)ANTHRACENE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

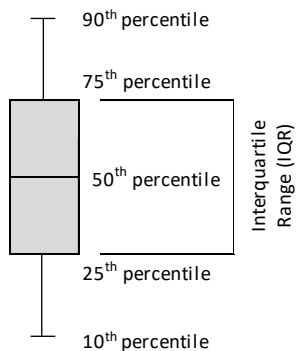
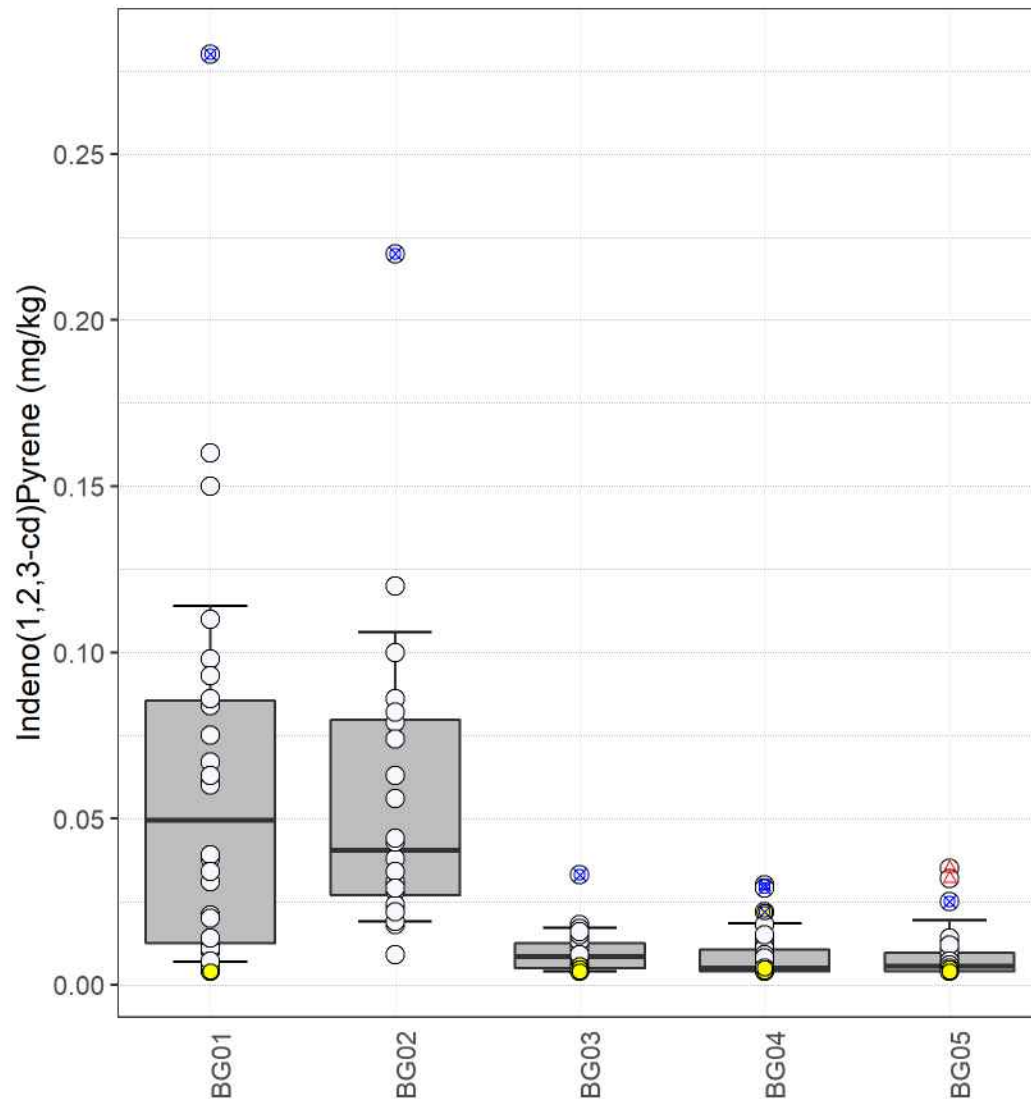
BACKGROUND DIBENZO(A,H)ANTHRACENE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

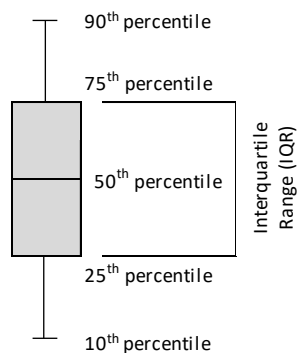
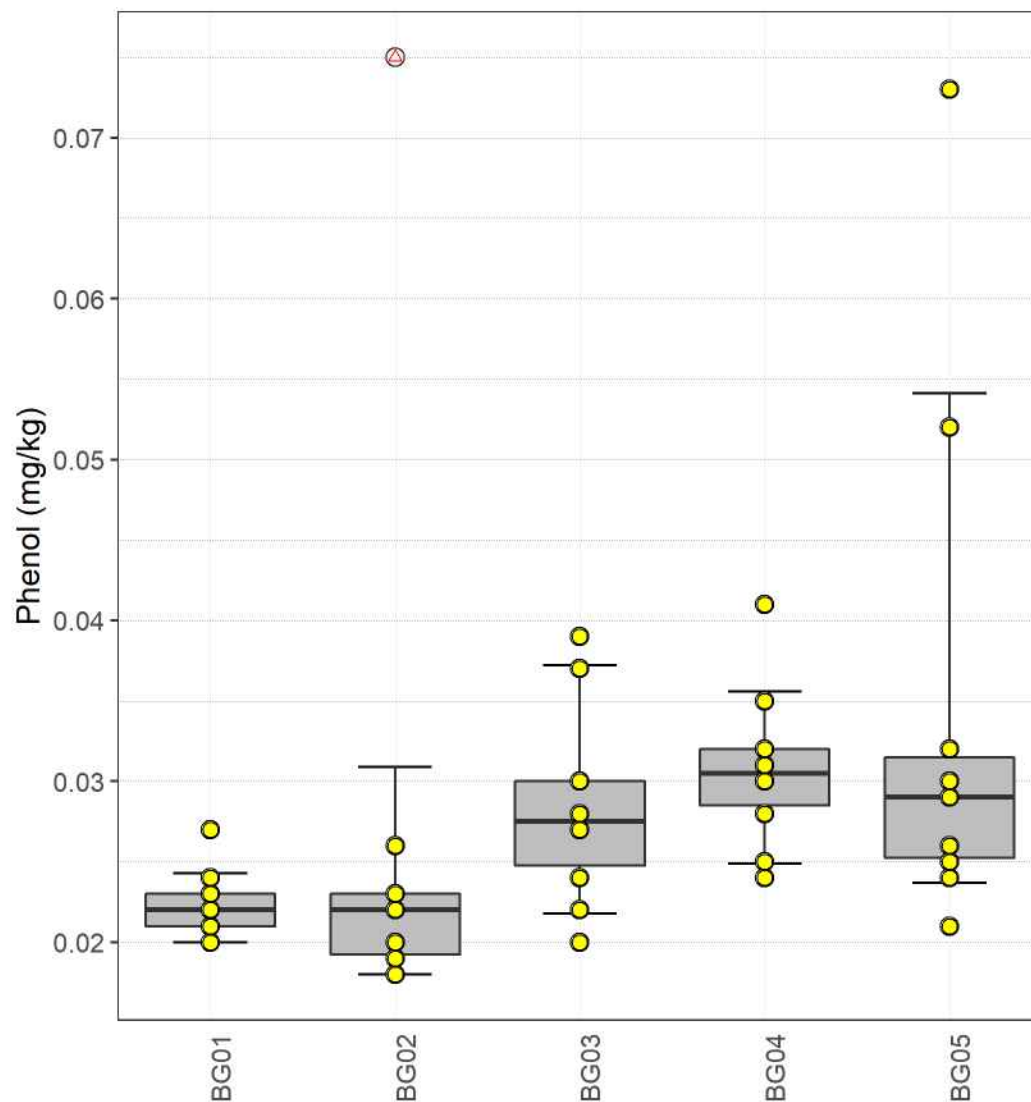
BACKGROUND INDENO(1,2,3-CD)PYRENE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

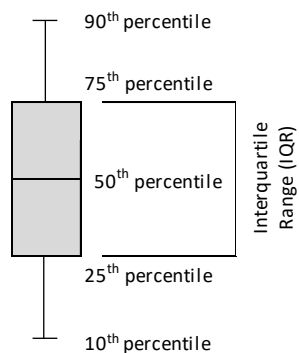
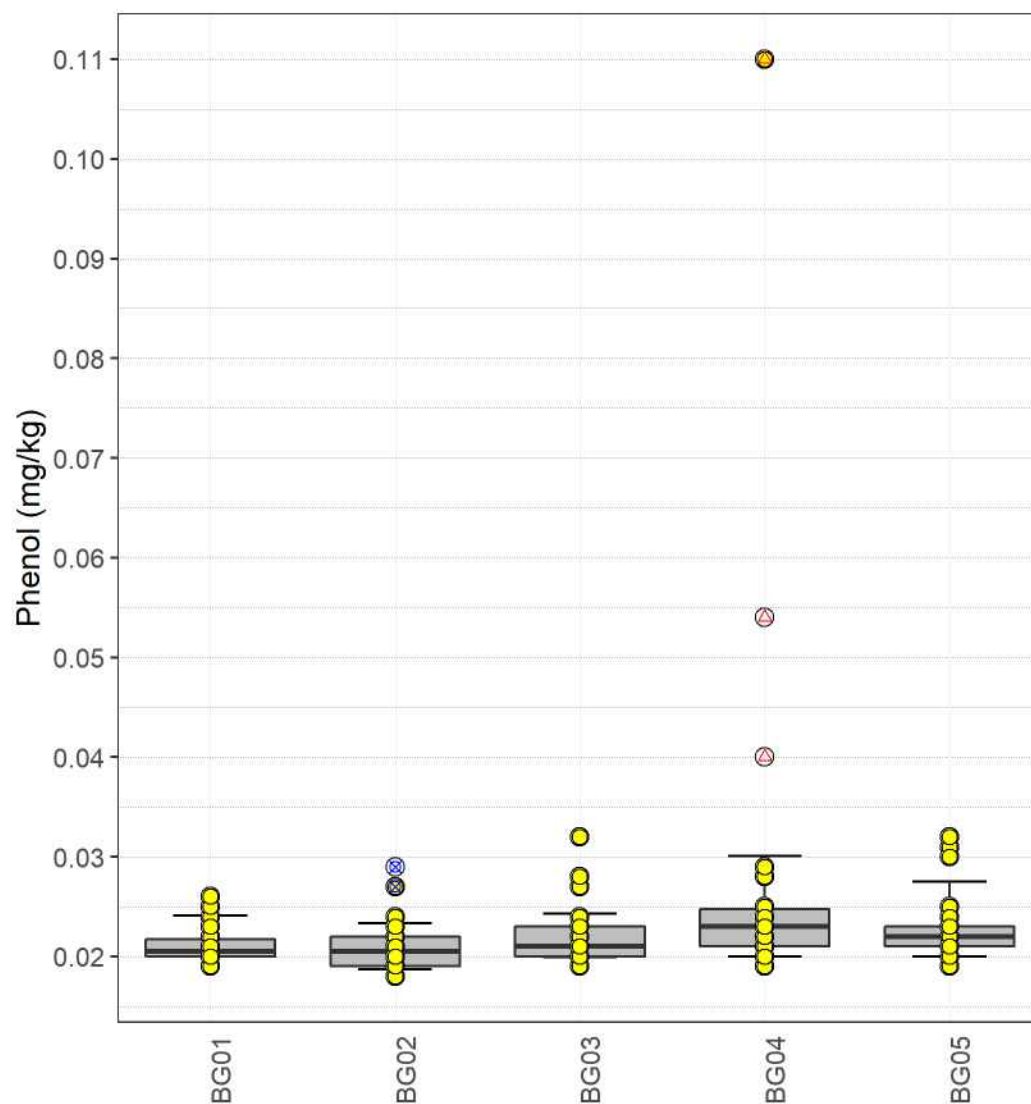
BACKGROUND INDENO(1,2,3-CD)PYRENE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

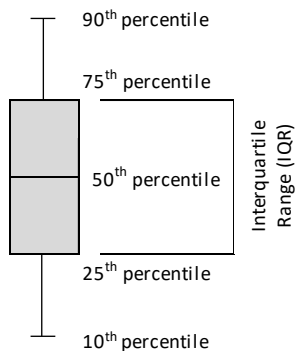
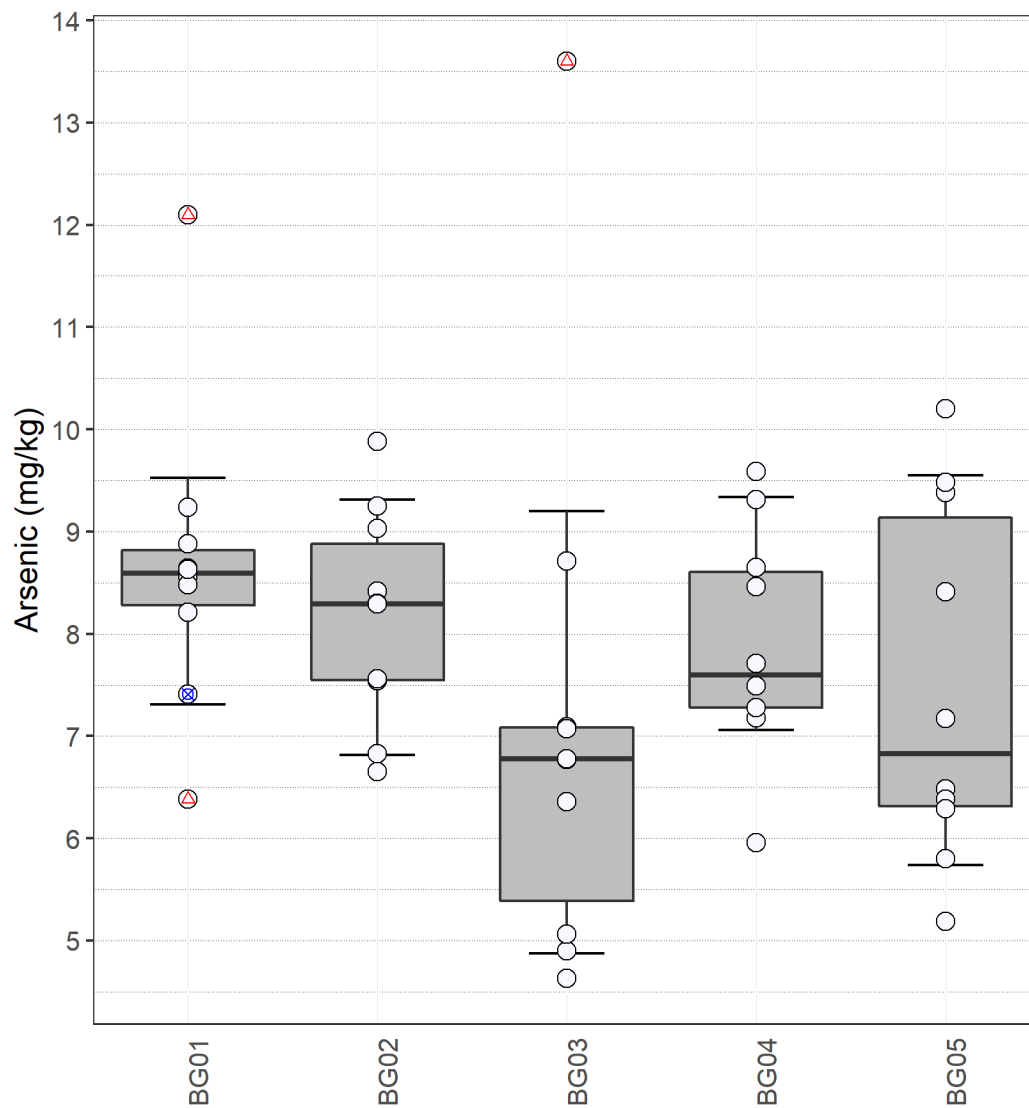
BACKGROUND PHENOL RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

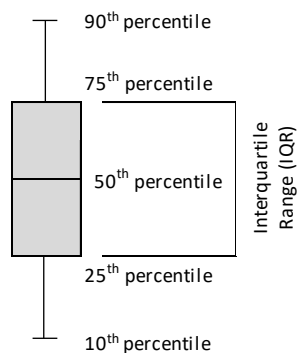
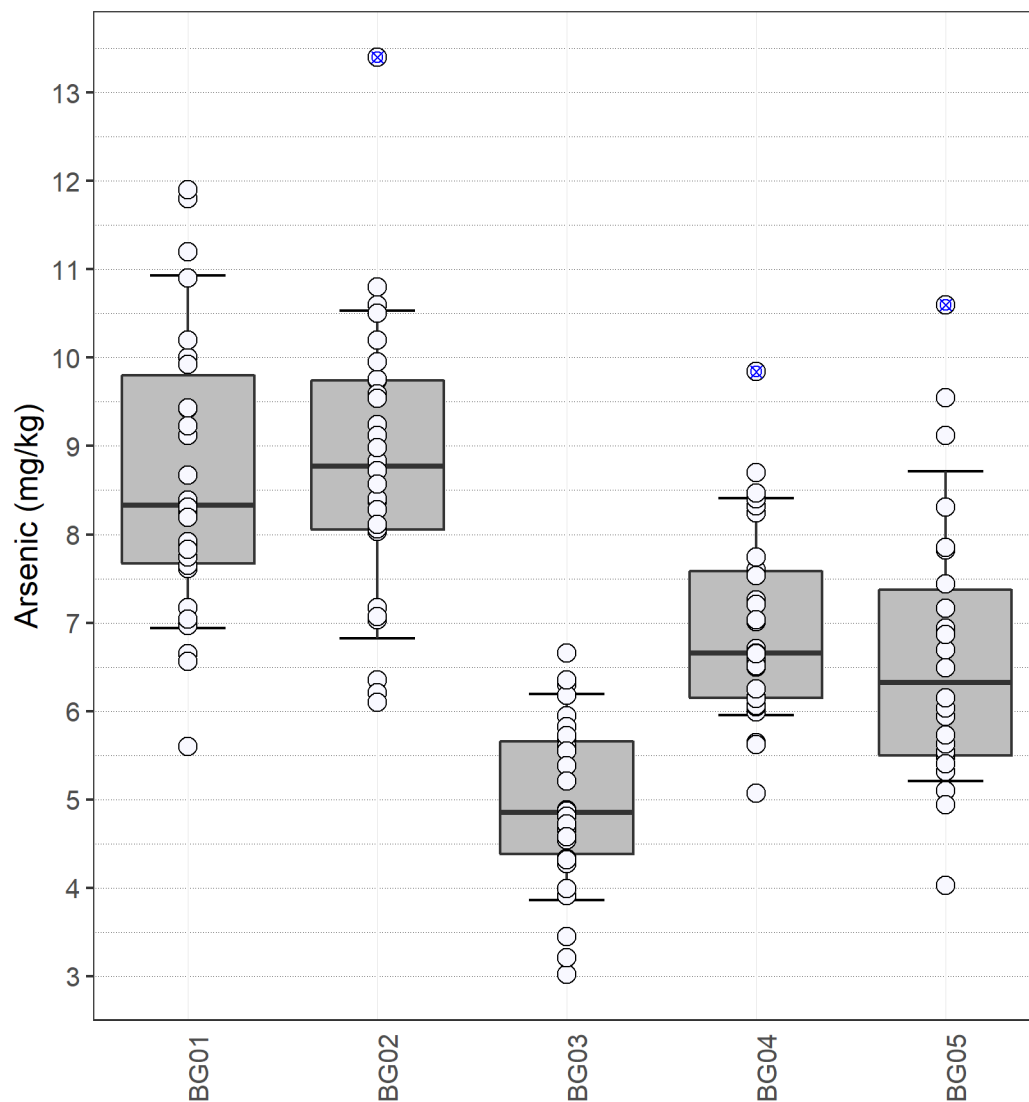
BACKGROUND PHENOL RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

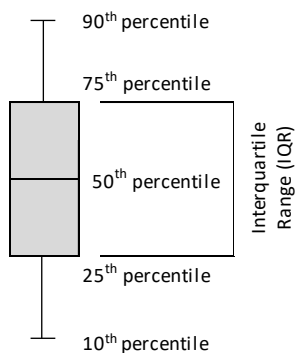
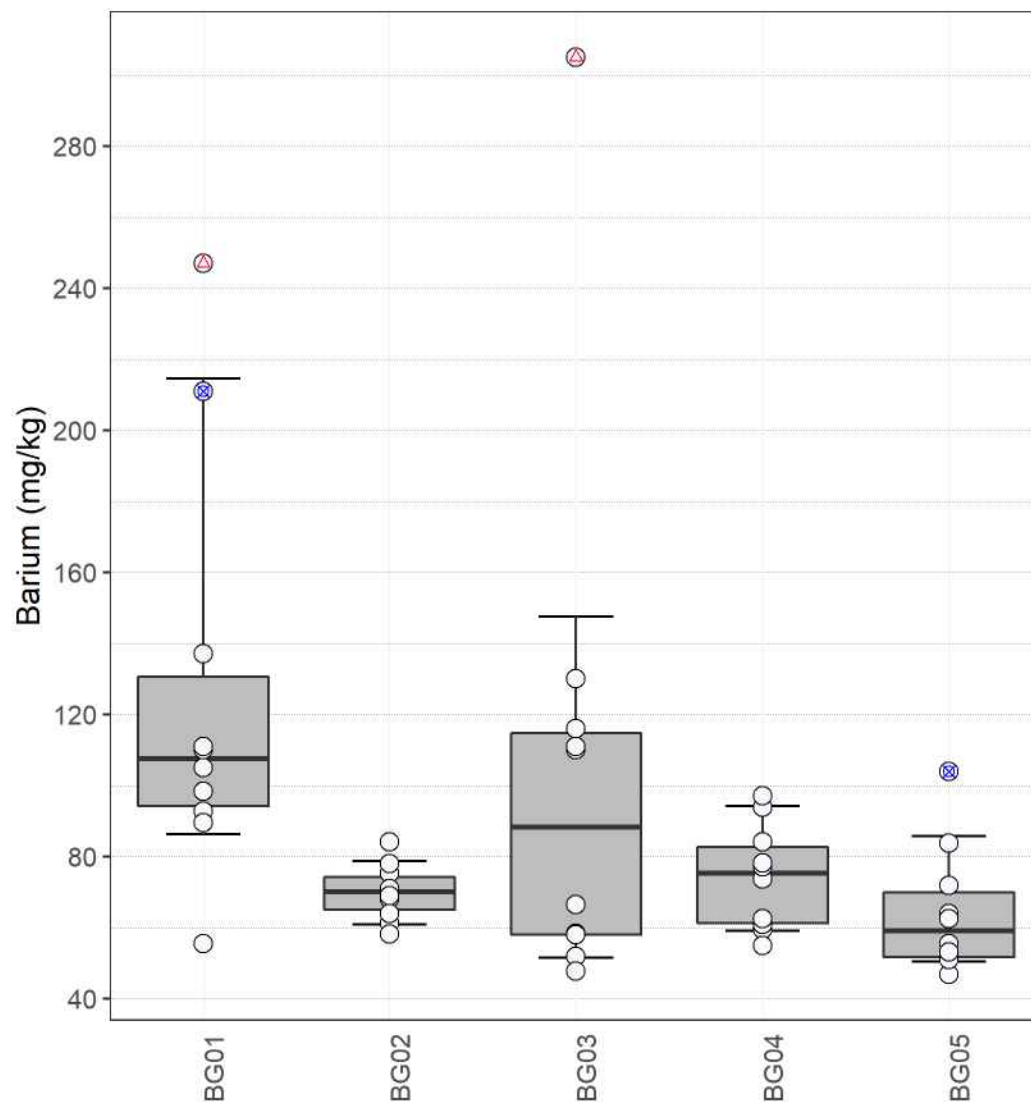
BACKGROUND ARSENIC RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

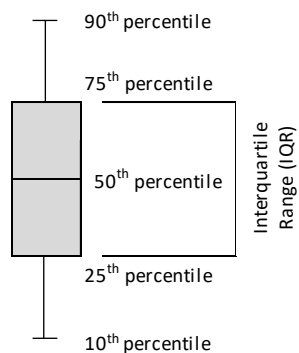
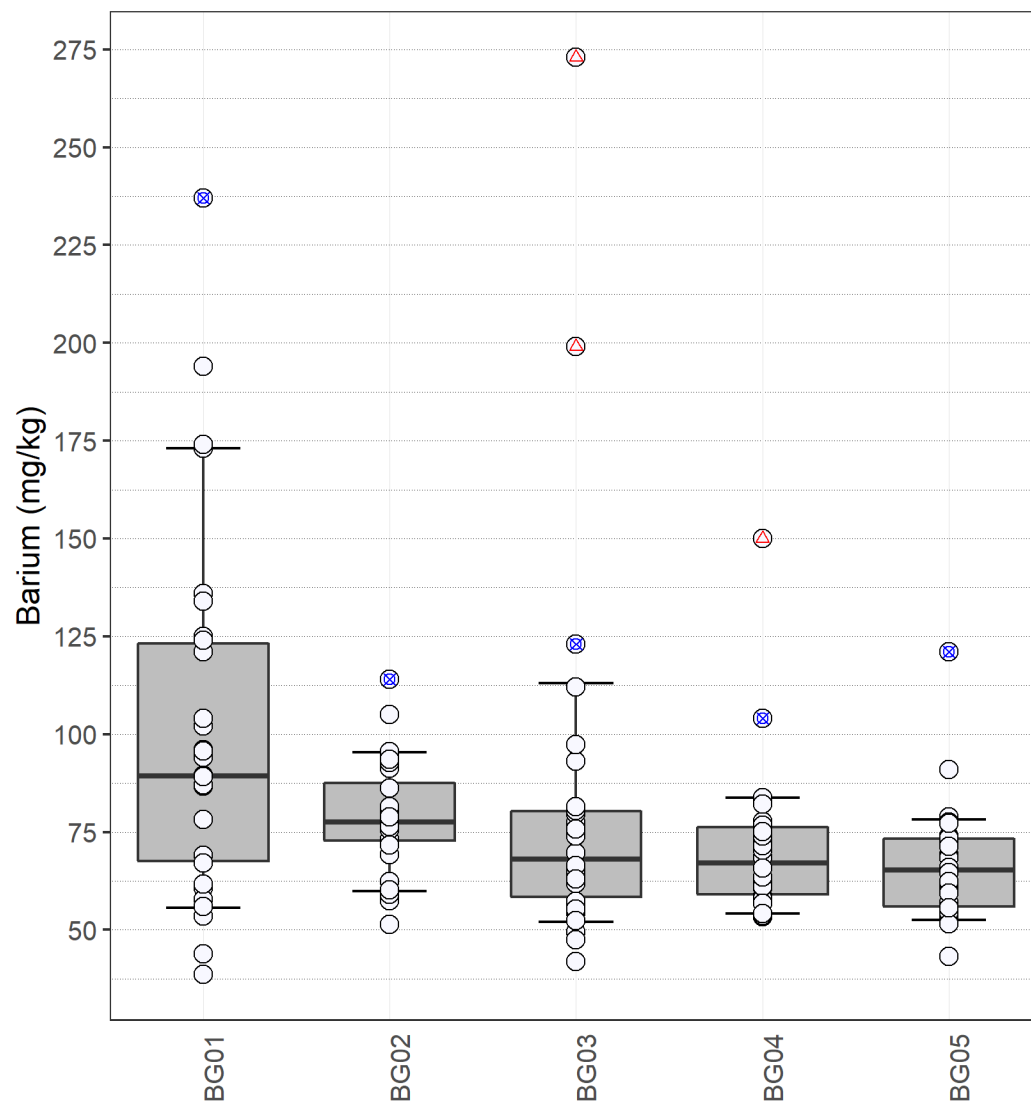
BACKGROUND ARSENIC RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

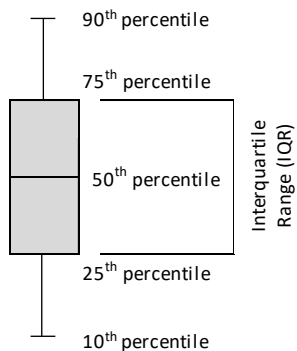
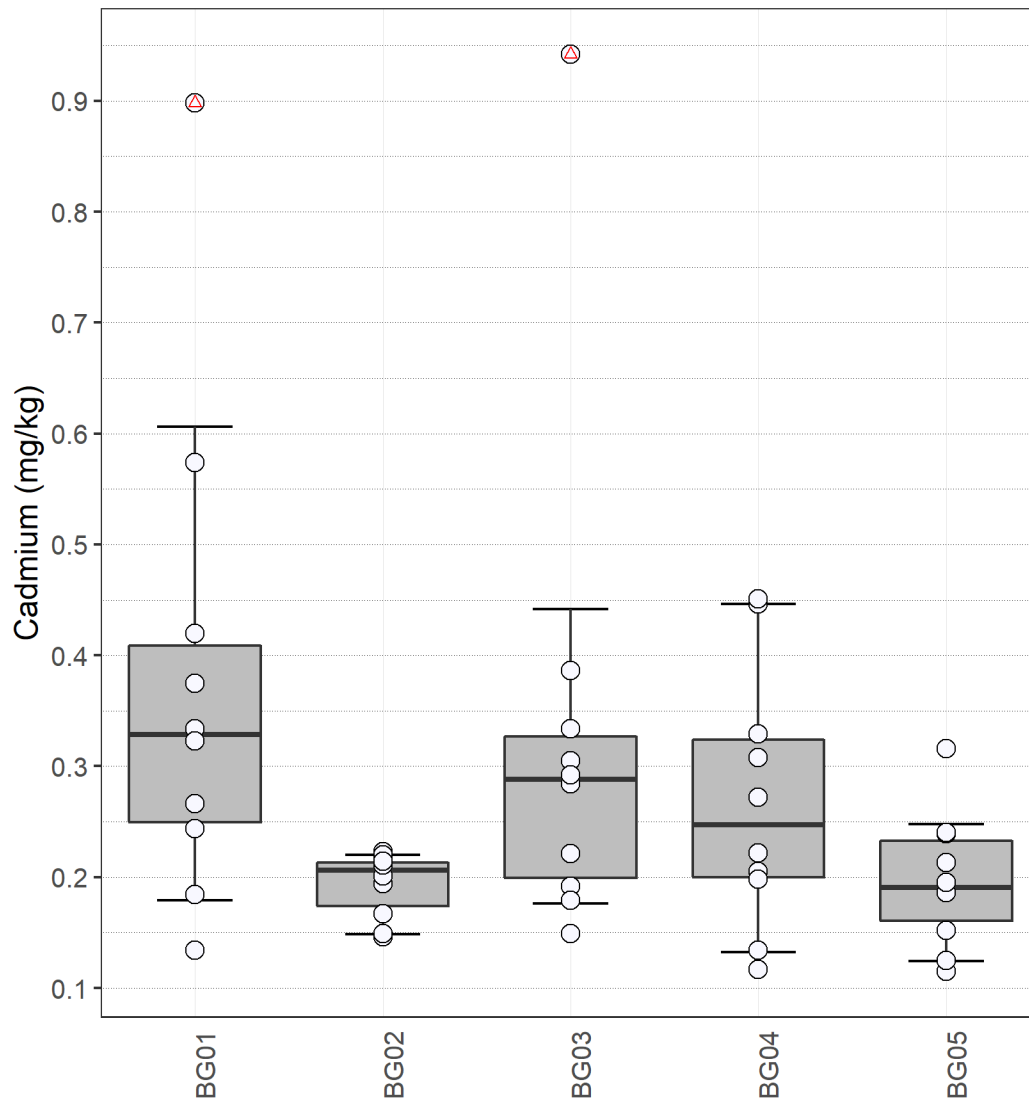
BACKGROUND BARIUM RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

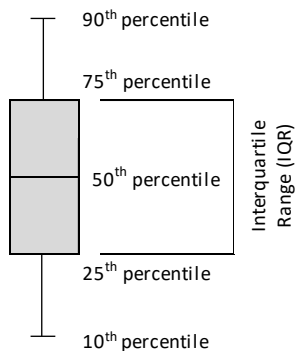
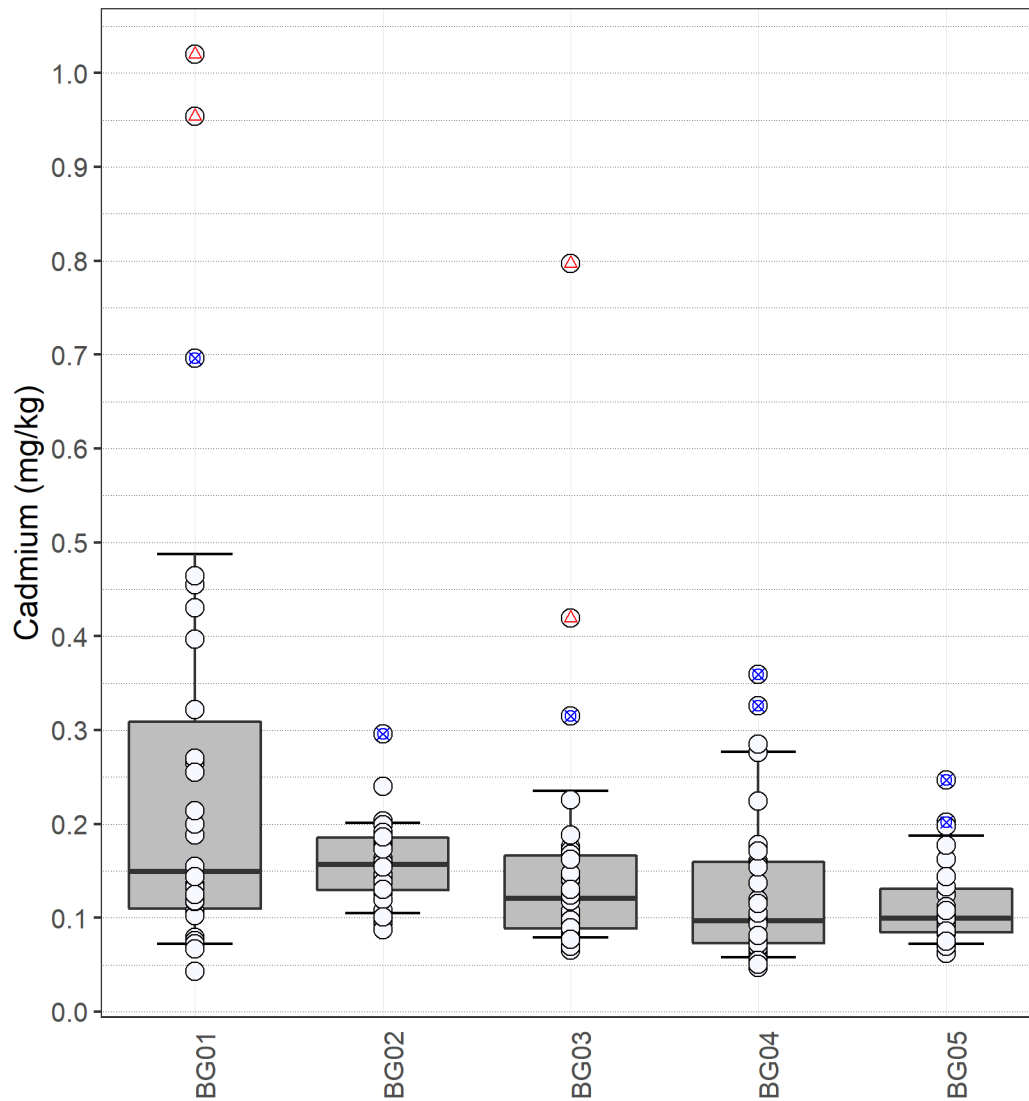
BACKGROUND BARIUM RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

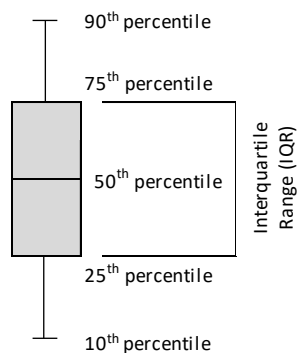
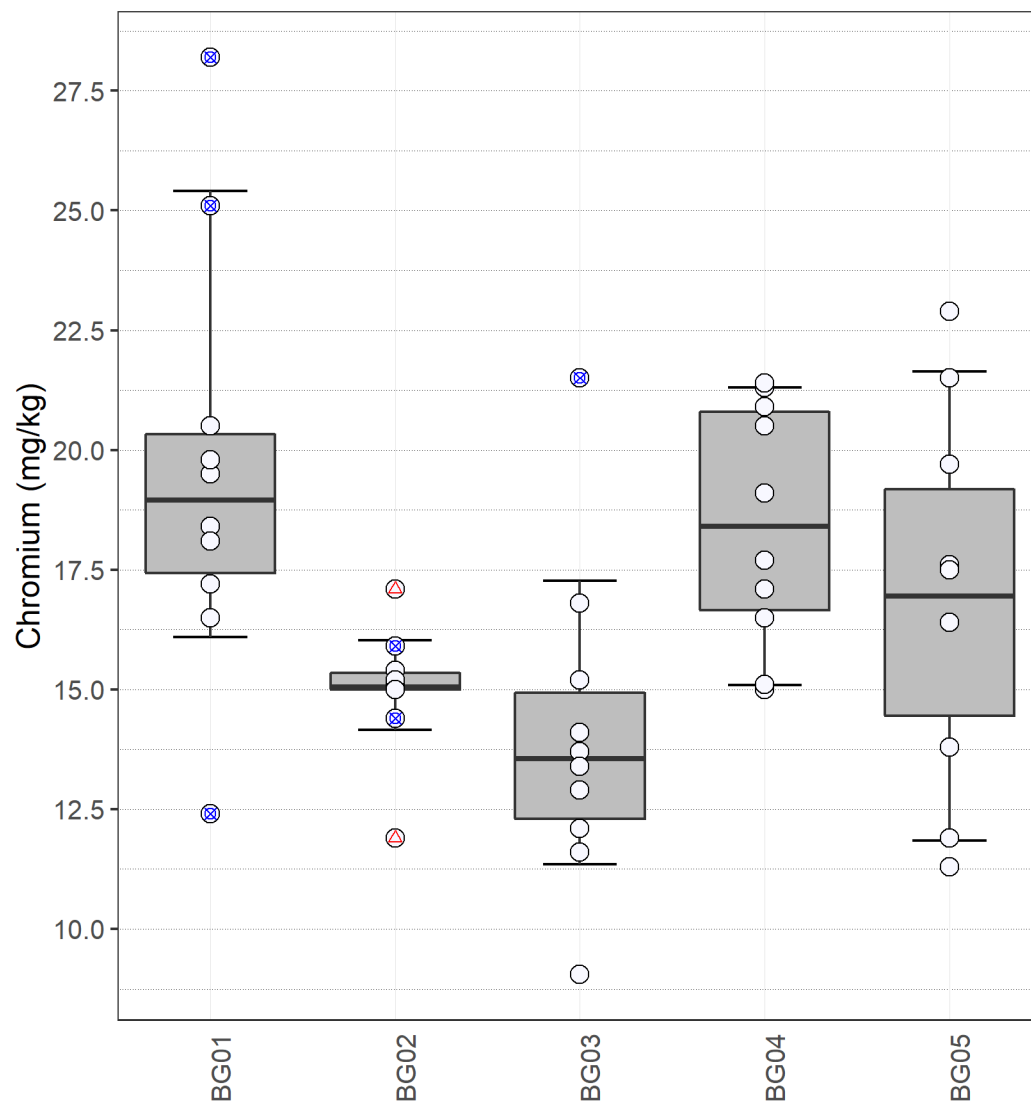
BACKGROUND CADMIUM RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

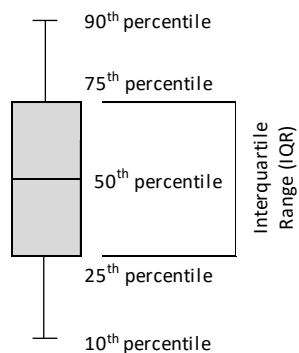
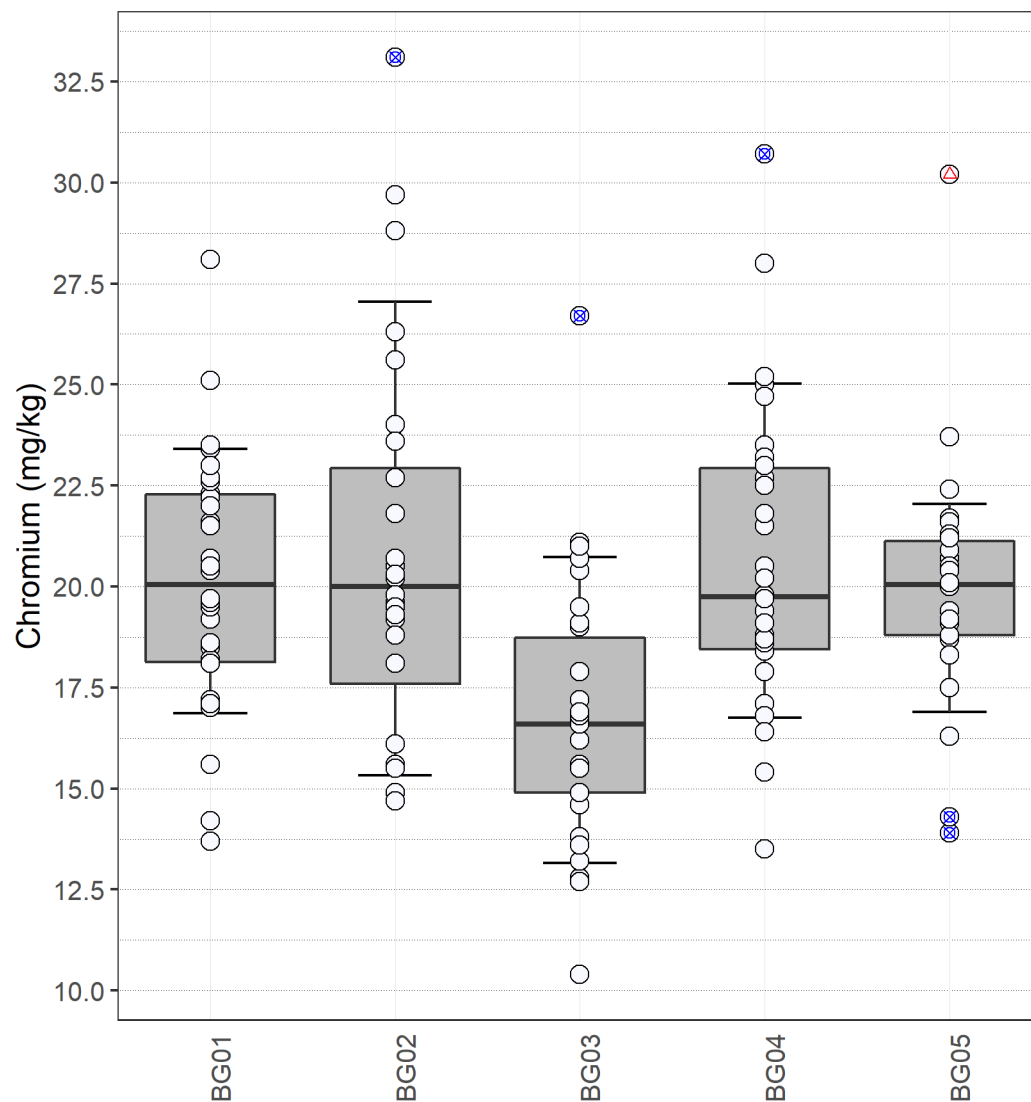
BACKGROUND CADMIUM RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

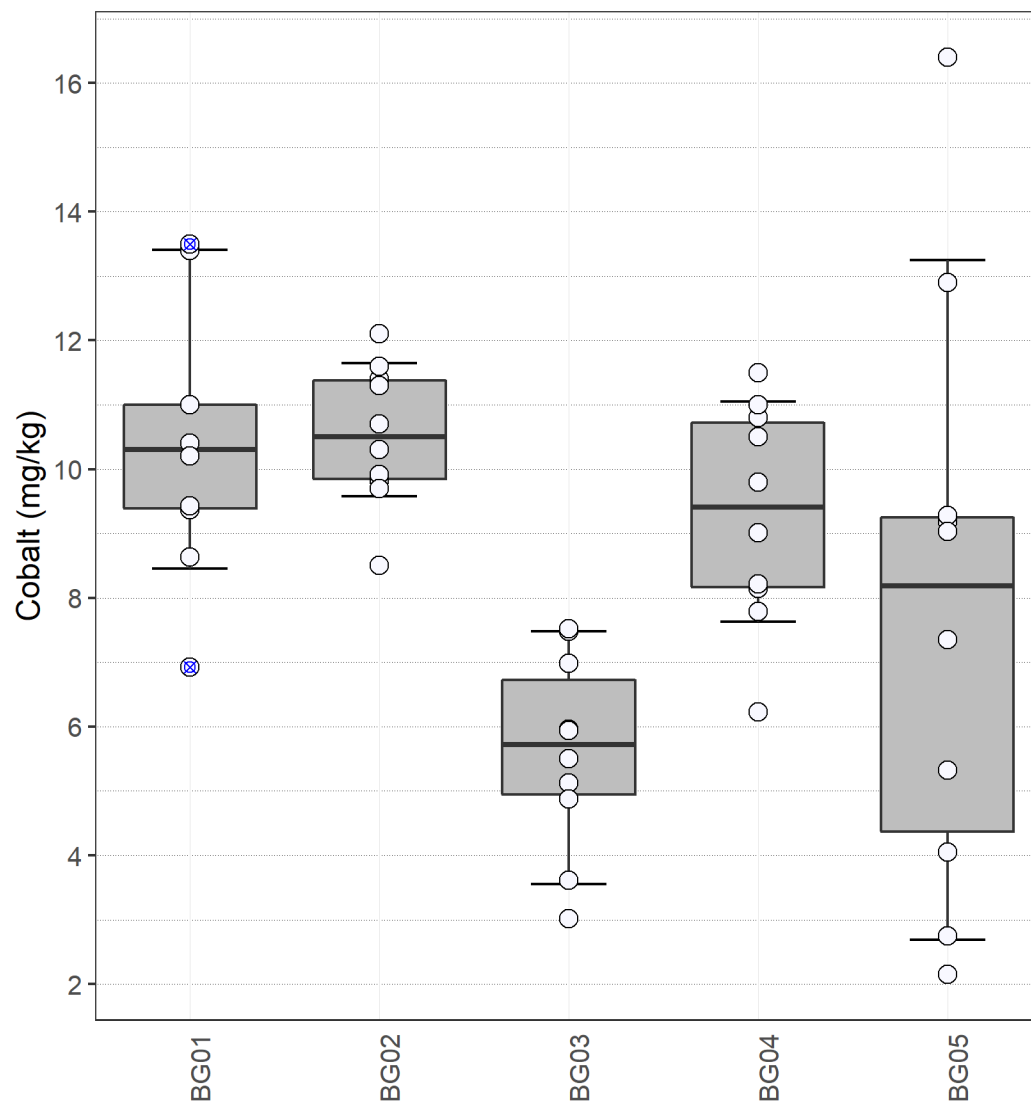
BACKGROUND CHROMIUM RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

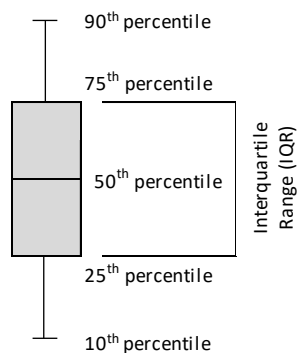
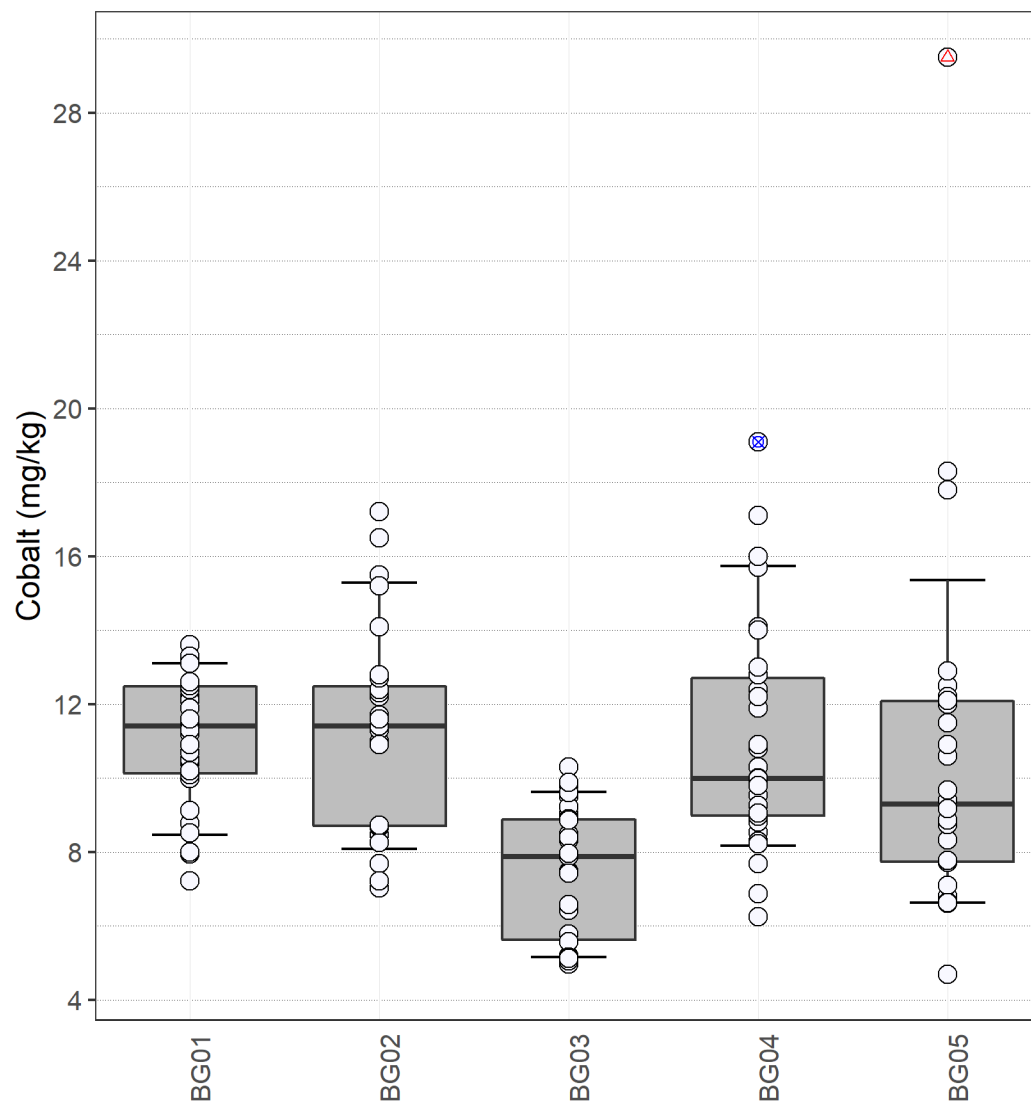
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

BACKGROUND CHROMIUM RESULTS - NEAR SURFACE



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

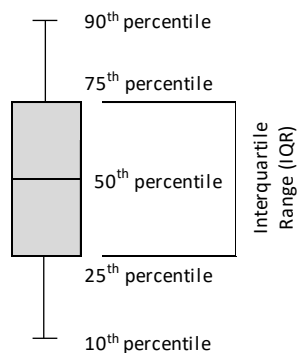
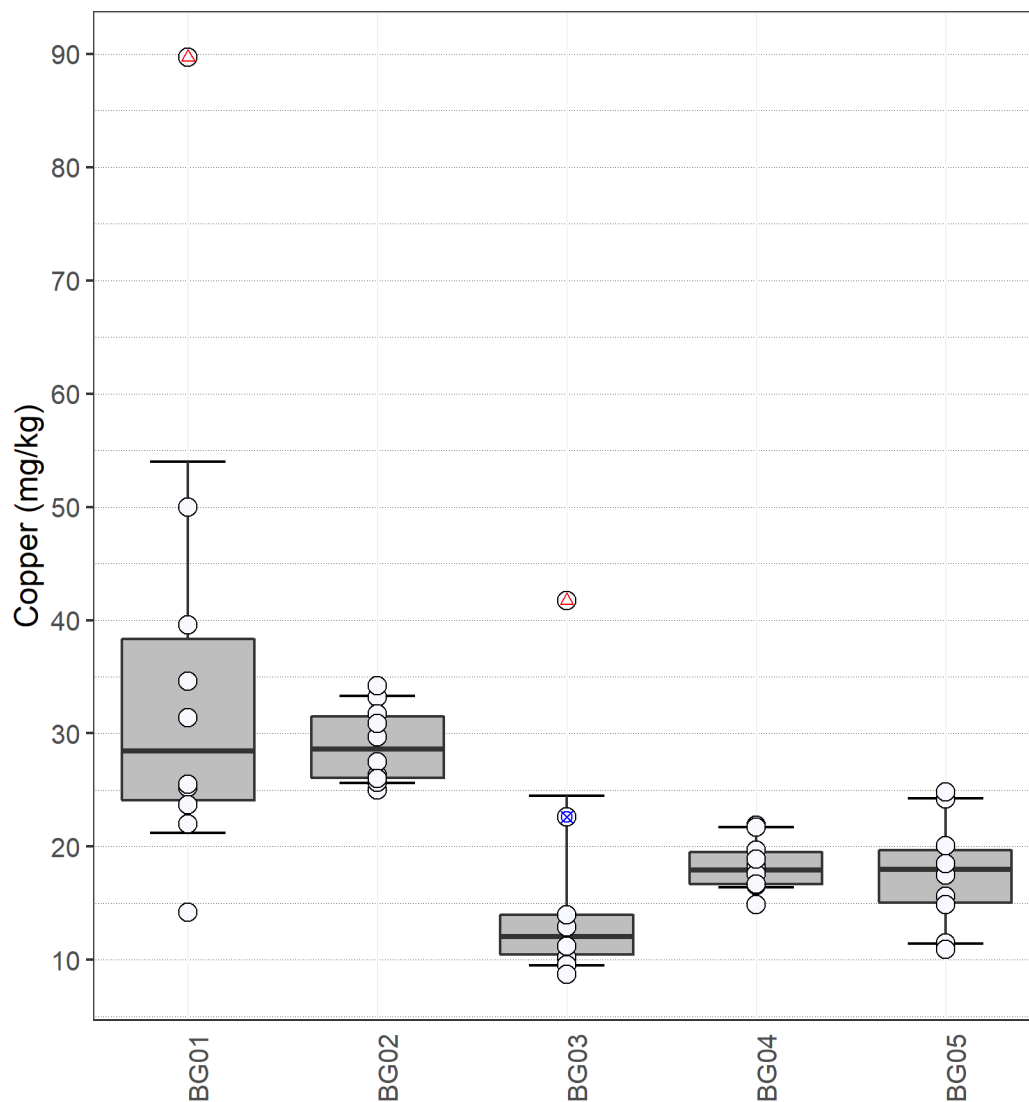
BACKGROUND COBALT RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

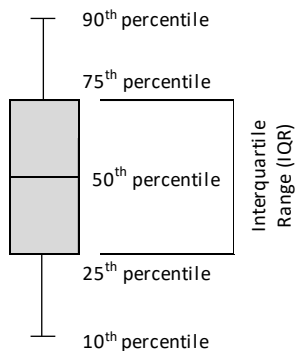
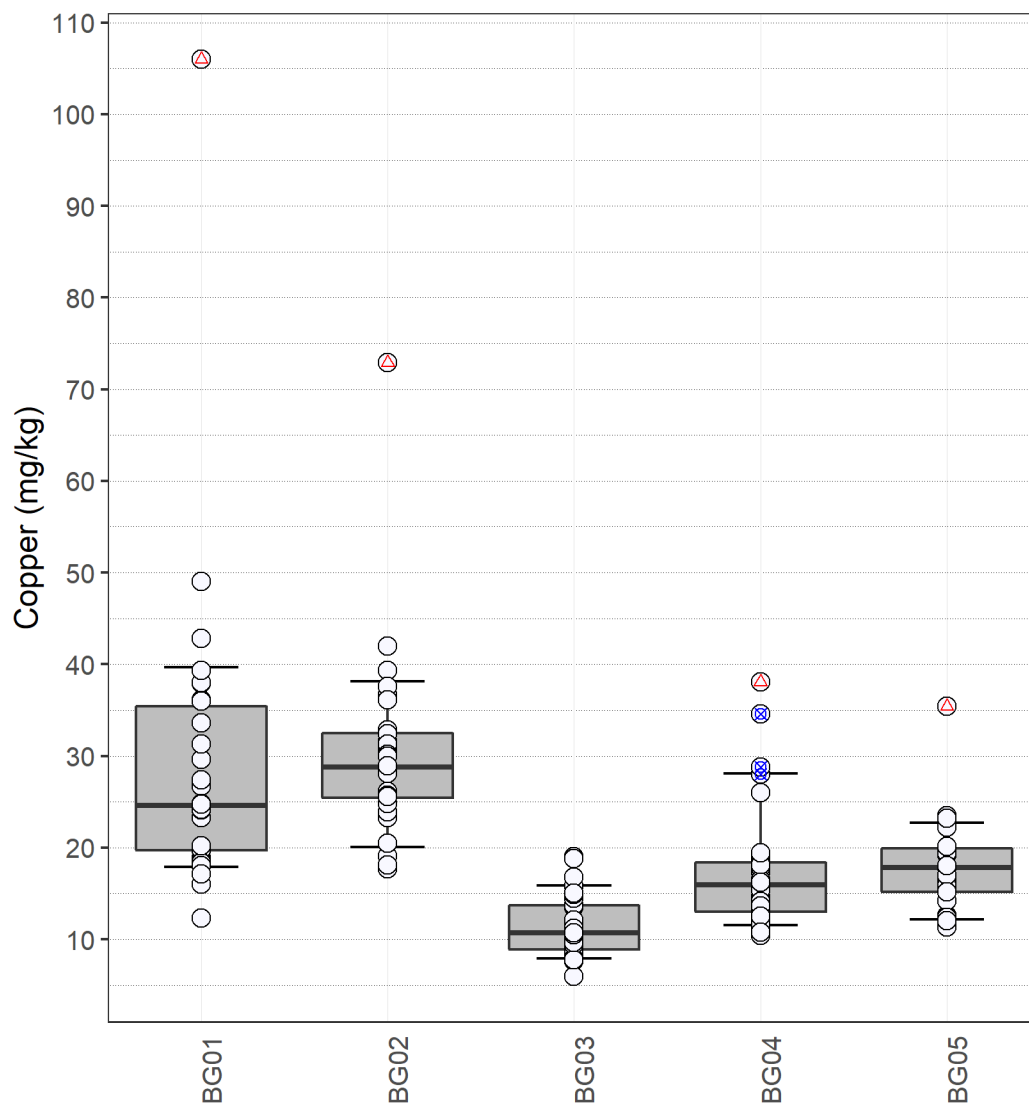
BACKGROUND COBALT RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER TEXACO RESEARCH CENTER BEACON
 GELNHAM, NEW YORK
 SOIL BACKGROUND EVALUATION

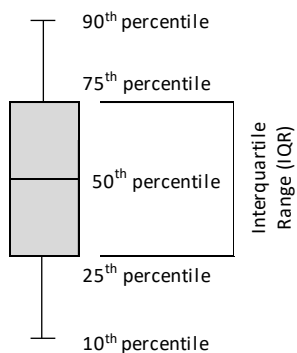
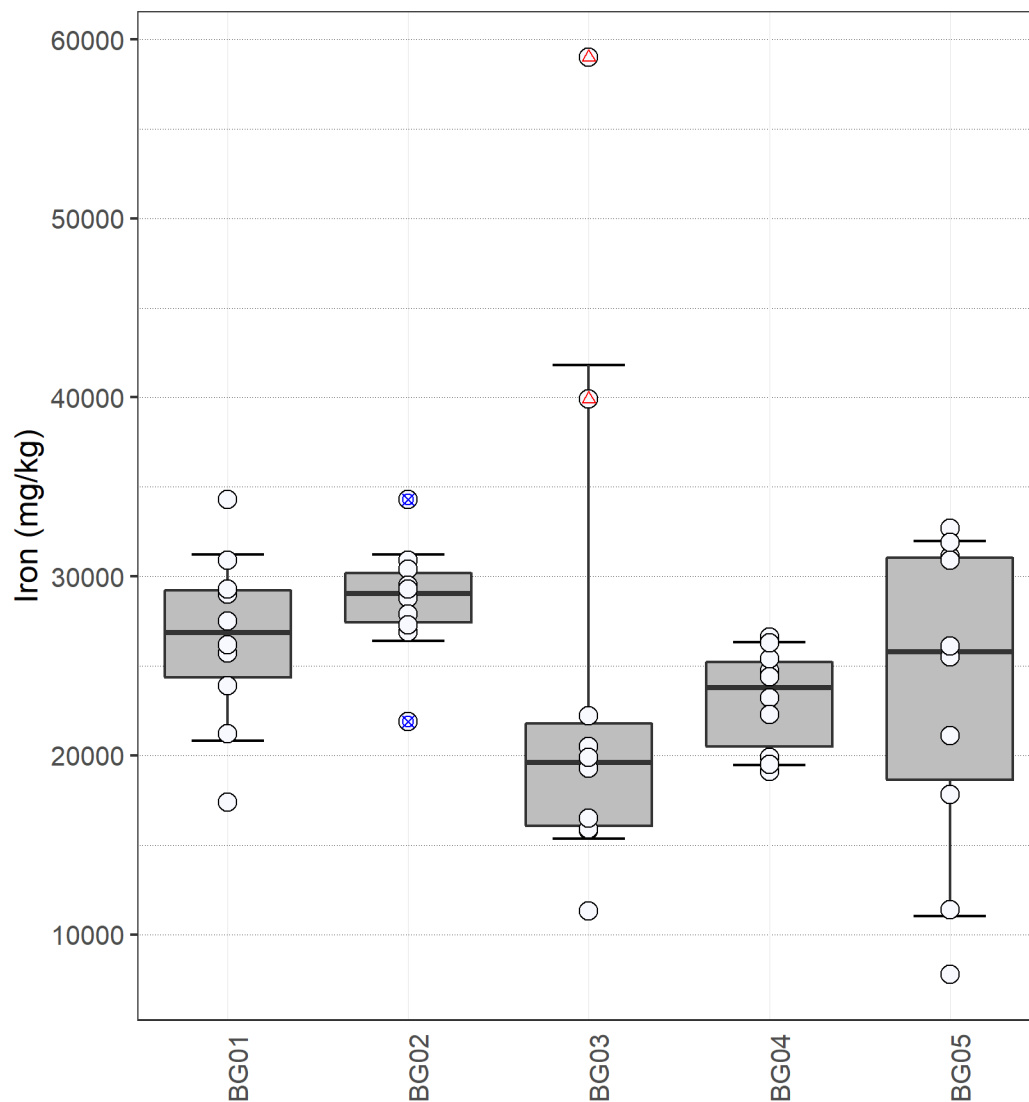
BACKGROUND COPPER RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

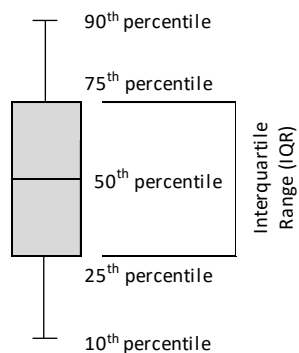
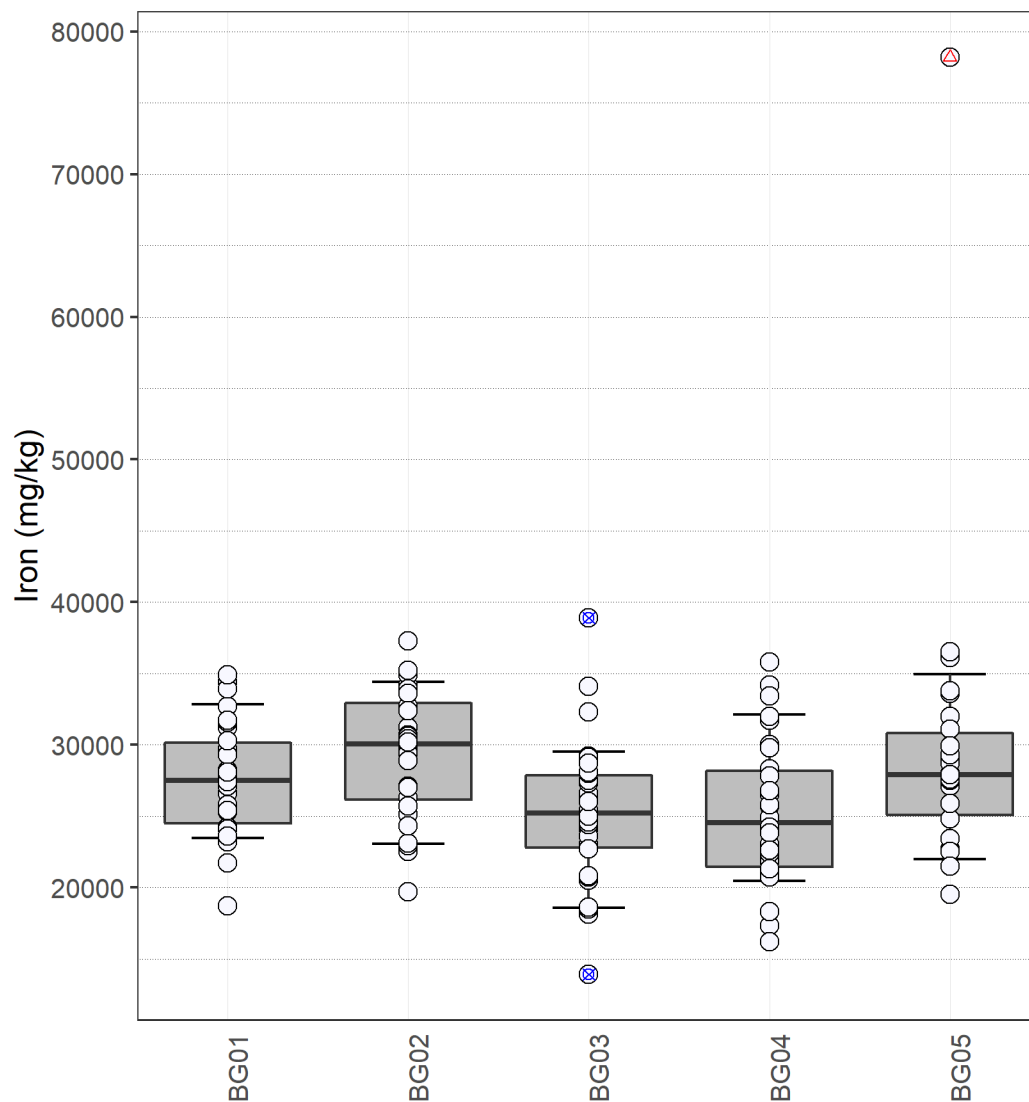
BACKGROUND COPPER RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

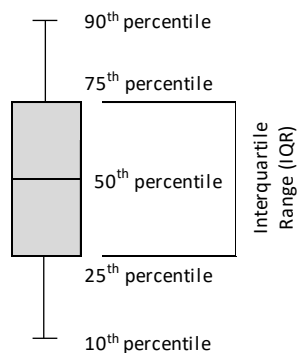
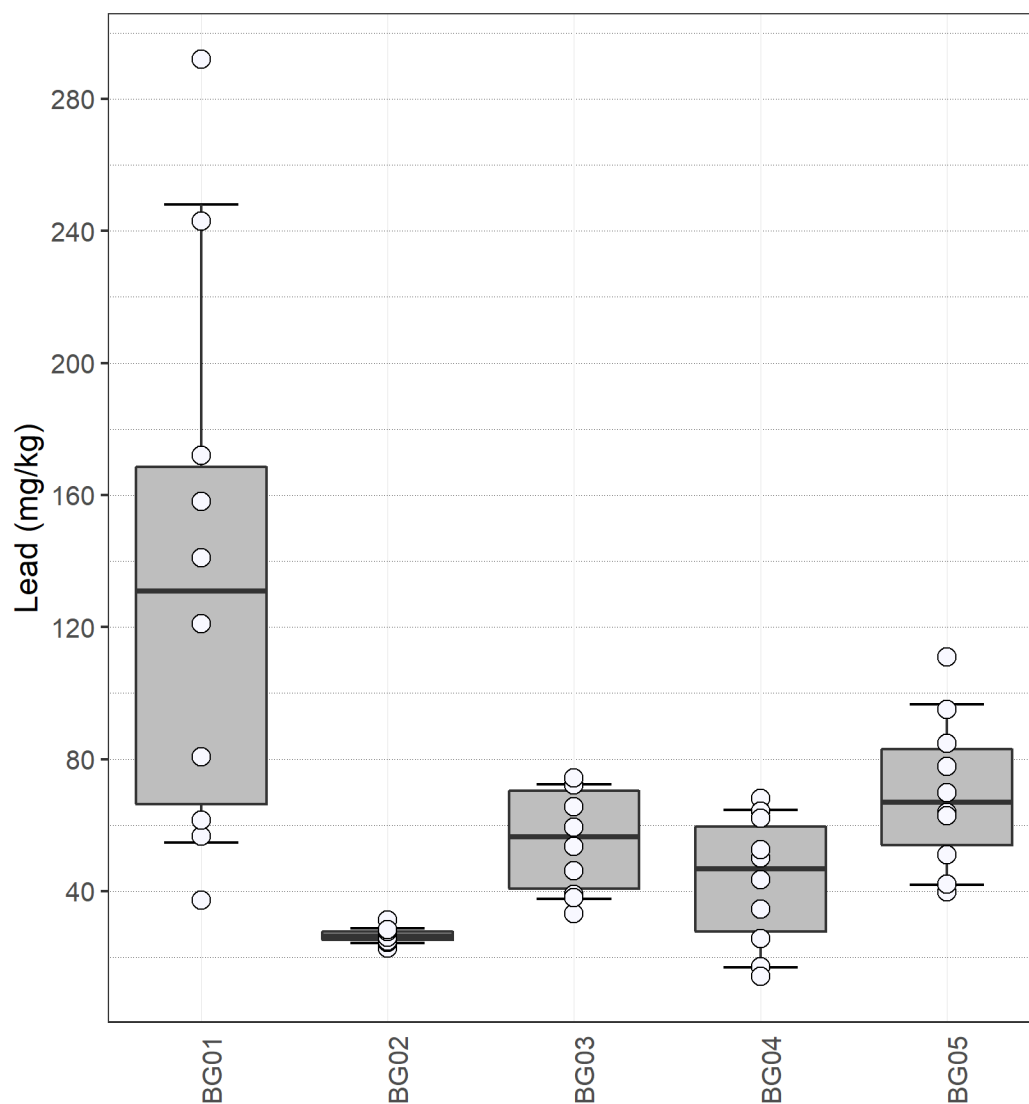
BACKGROUND IRON RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

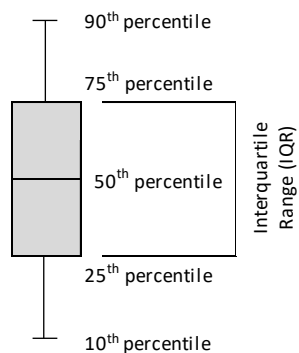
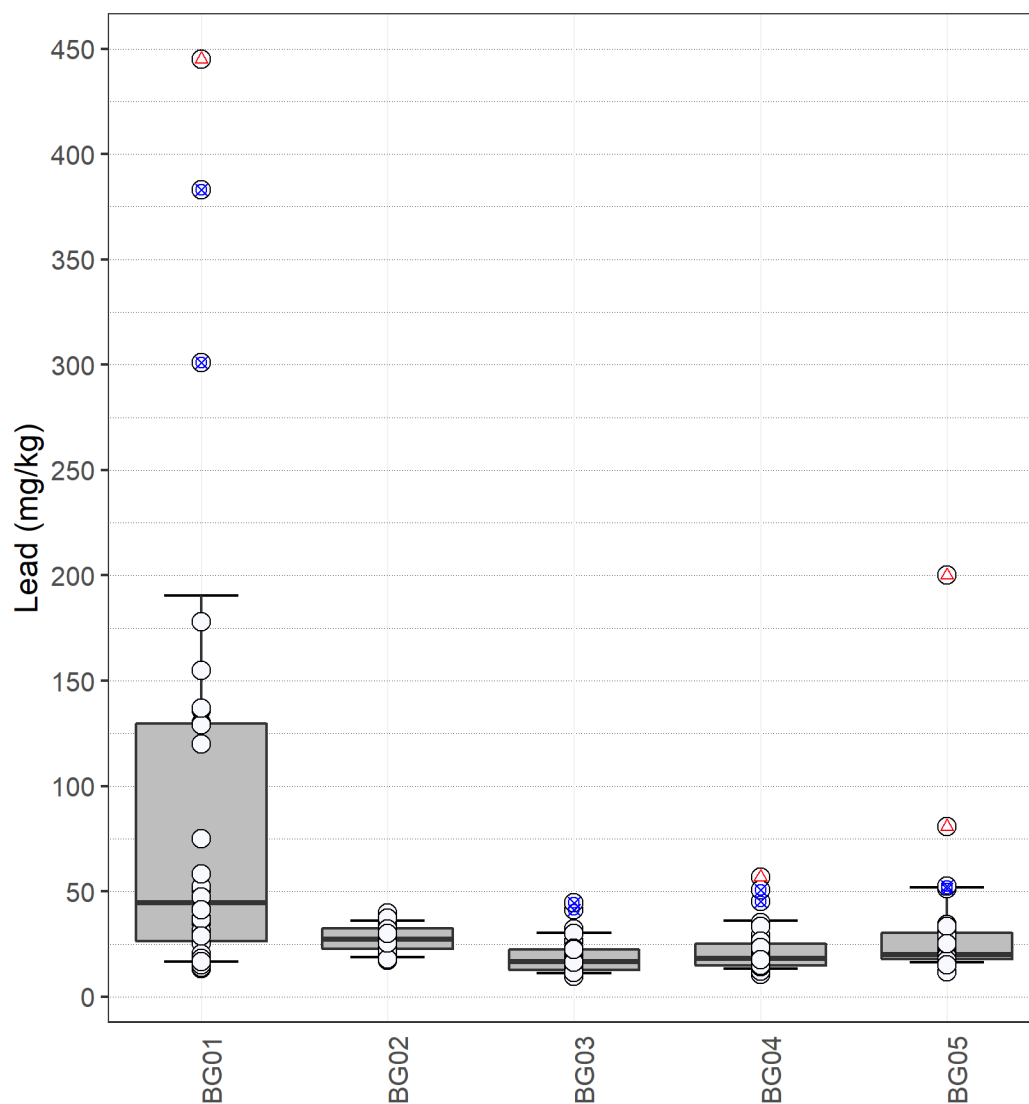
BACKGROUND IRON RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

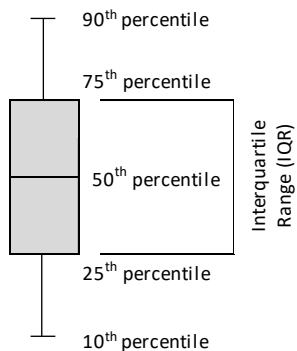
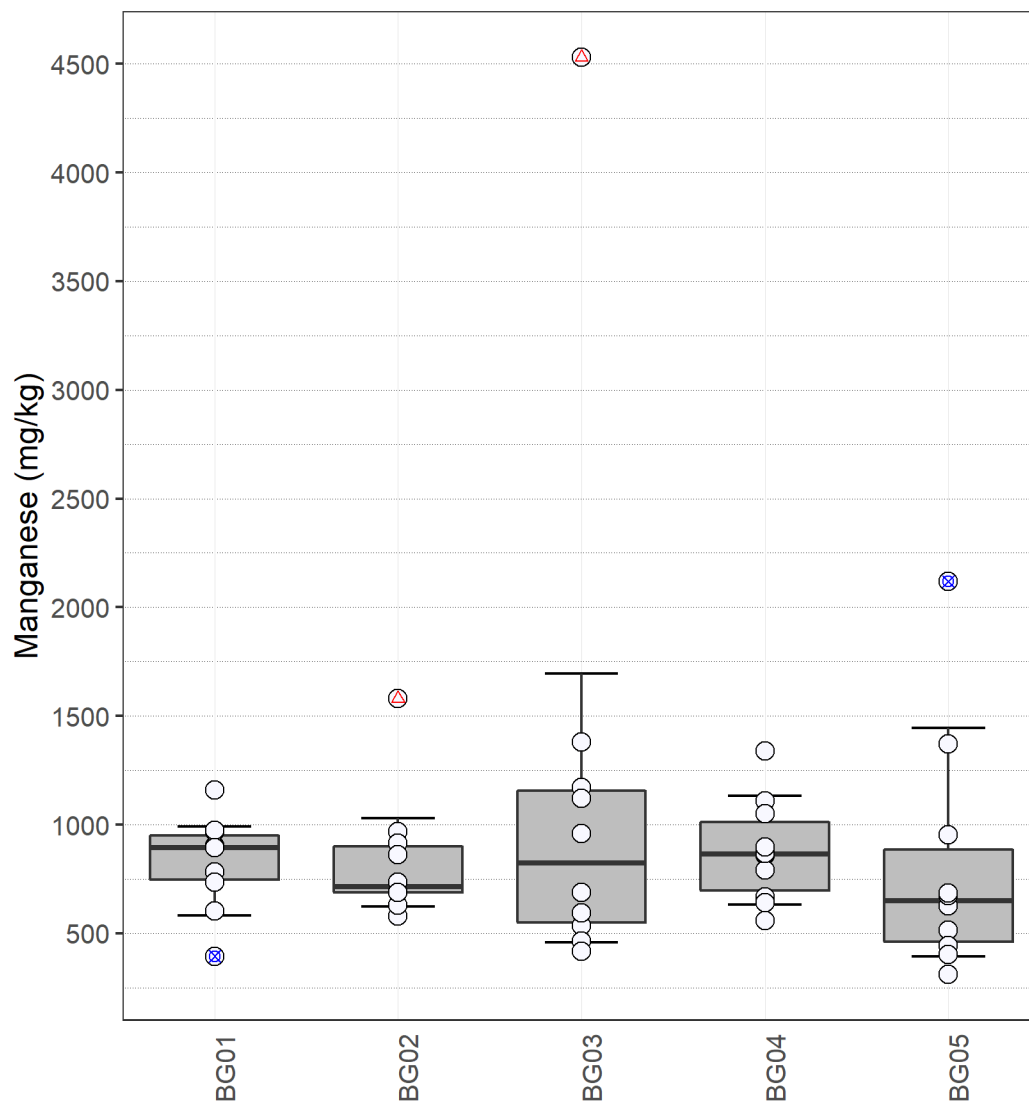
BACKGROUND LEAD RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

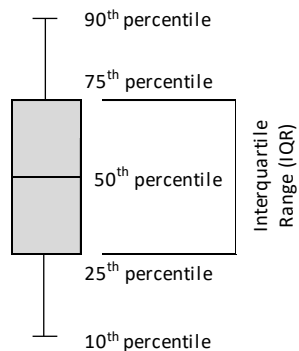
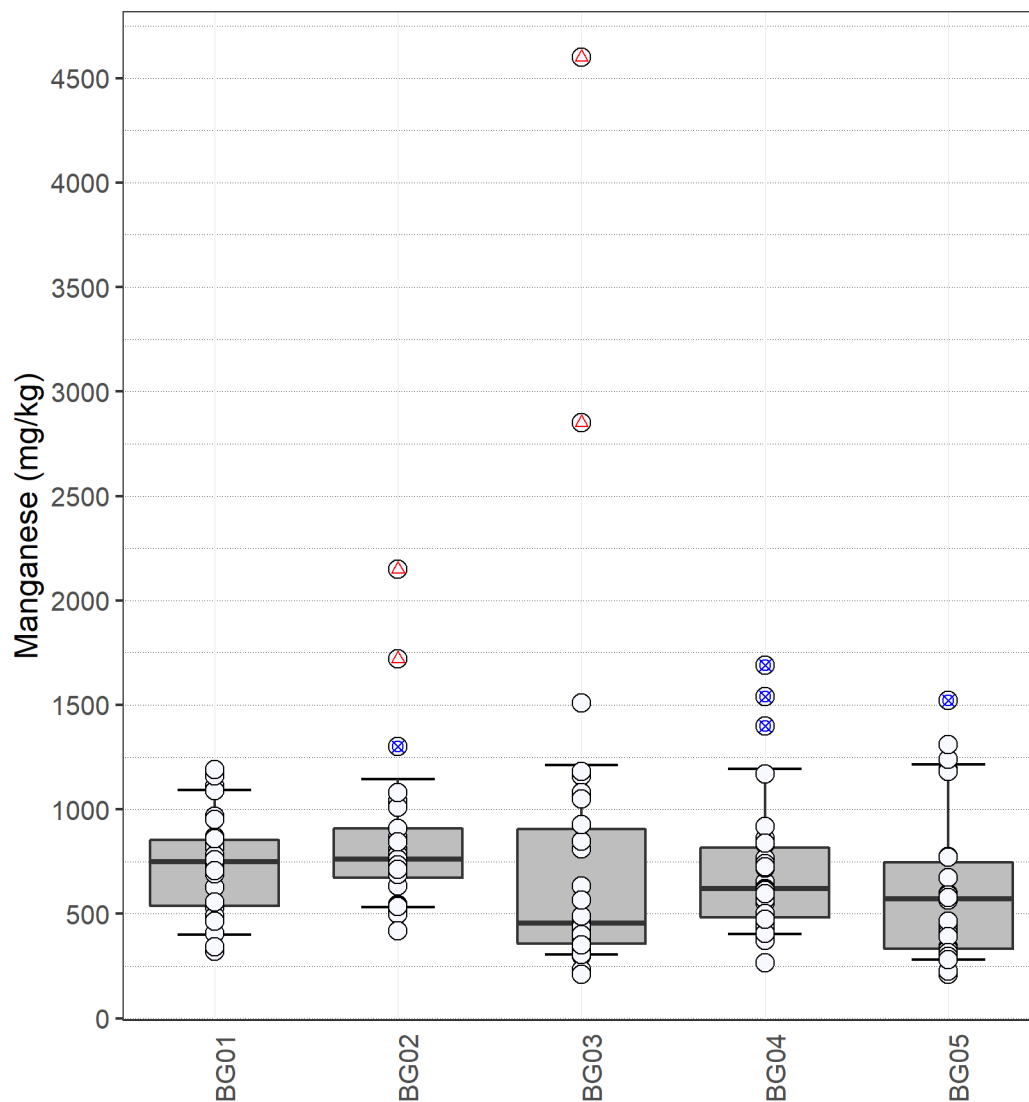
BACKGROUND LEAD RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
 FORMER TEXACO RESEARCH CENTER BEACON
 GELNHAM, NEW YORK
 SOIL BACKGROUND EVALUATION

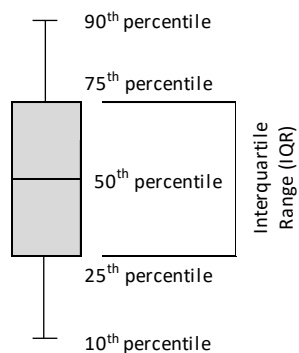
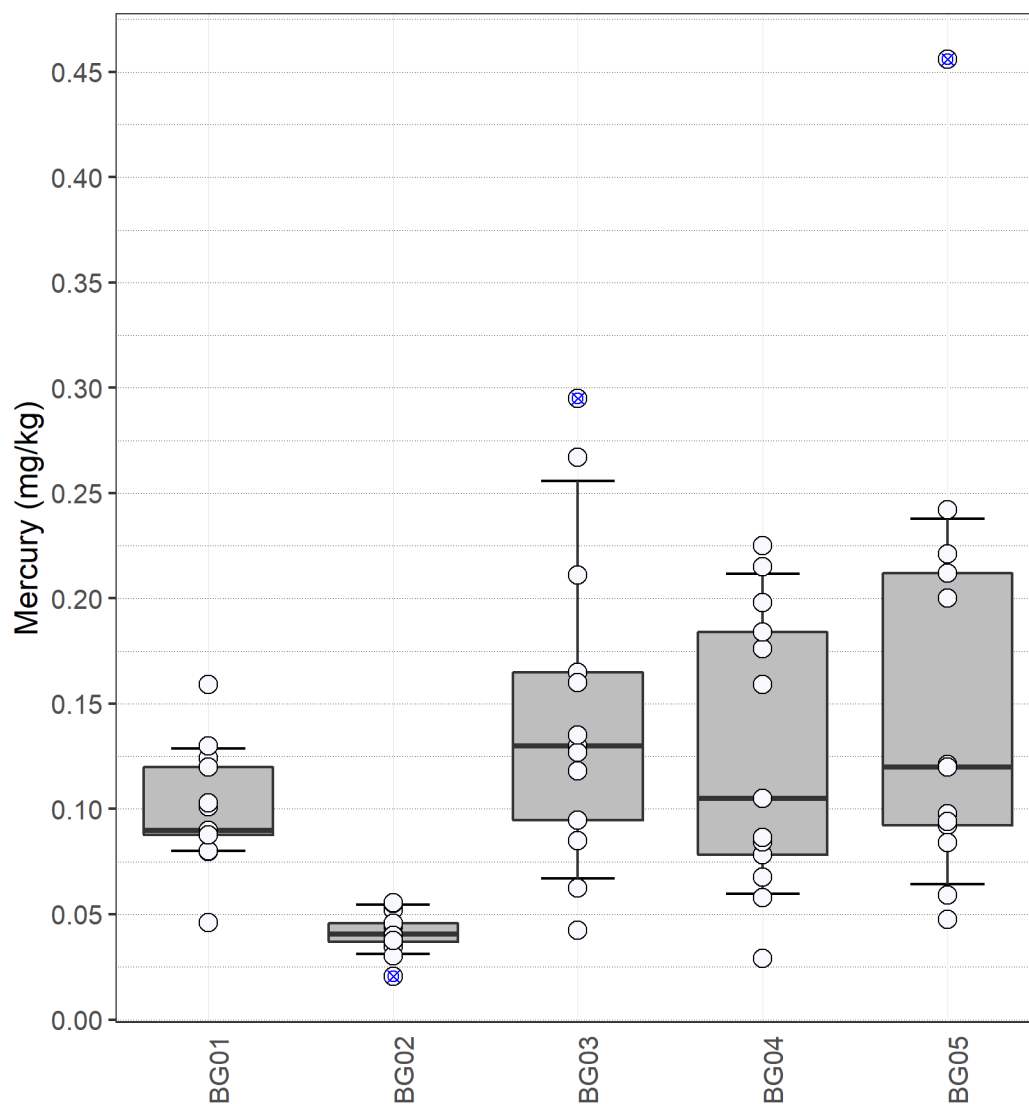
BACKGROUND MANGANESE RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

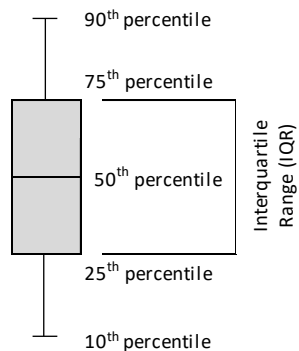
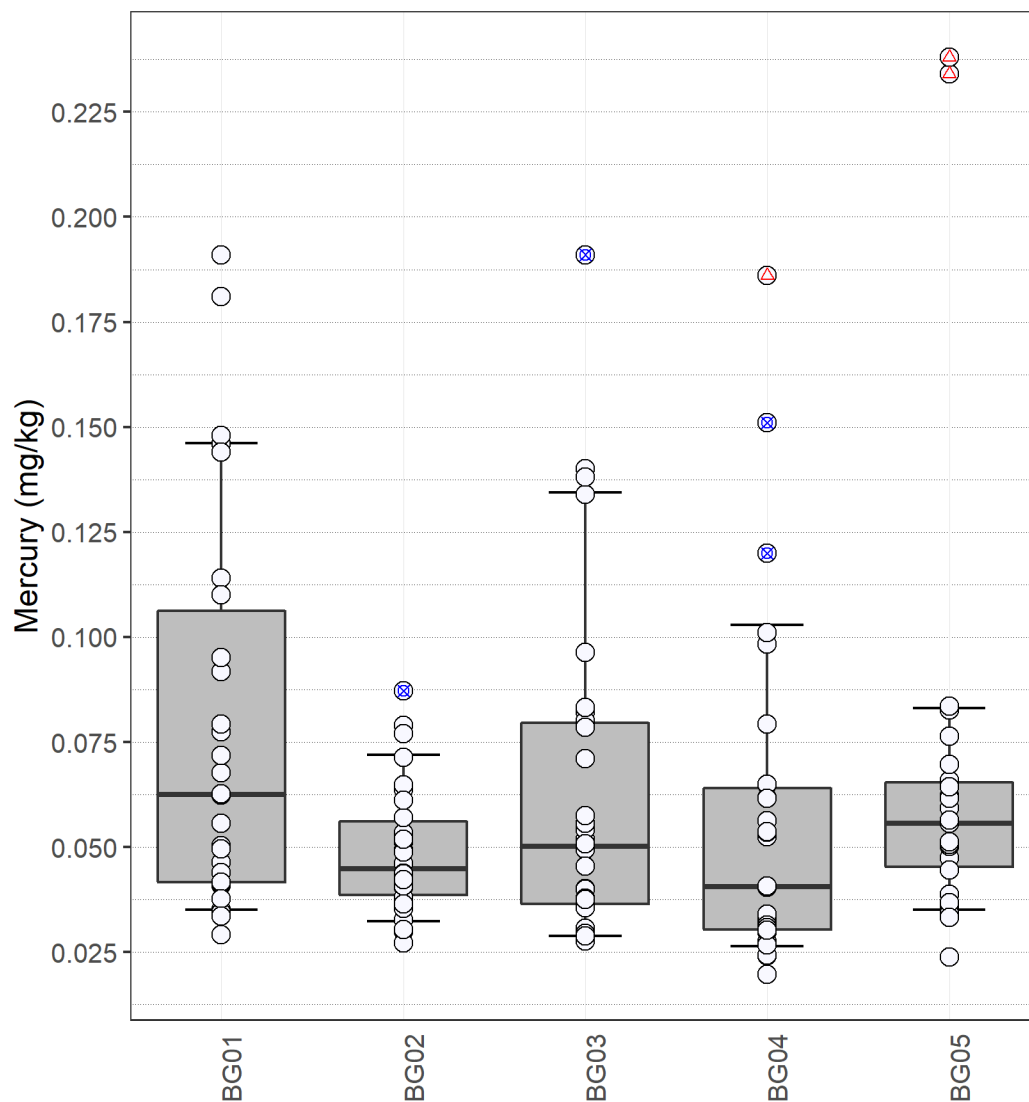
BACKGROUND MANGANESE RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

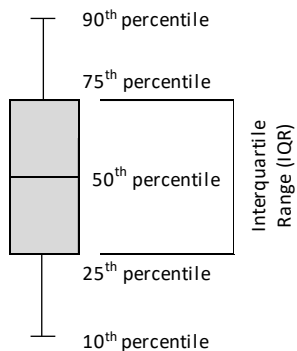
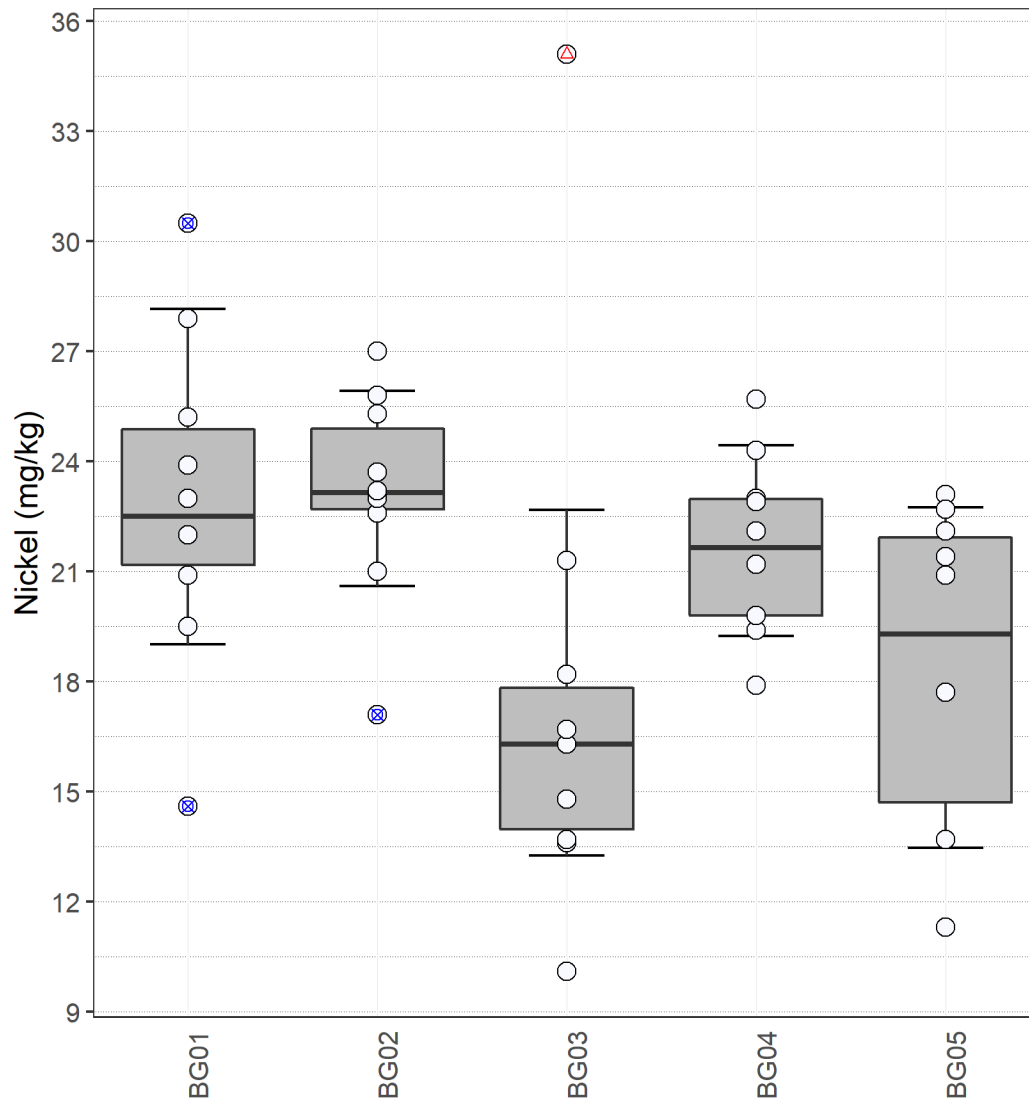
BACKGROUND MERCURY RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

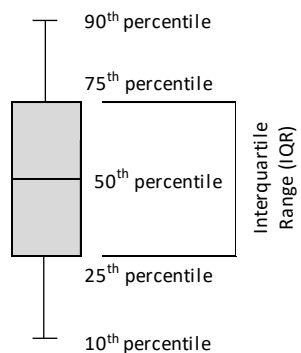
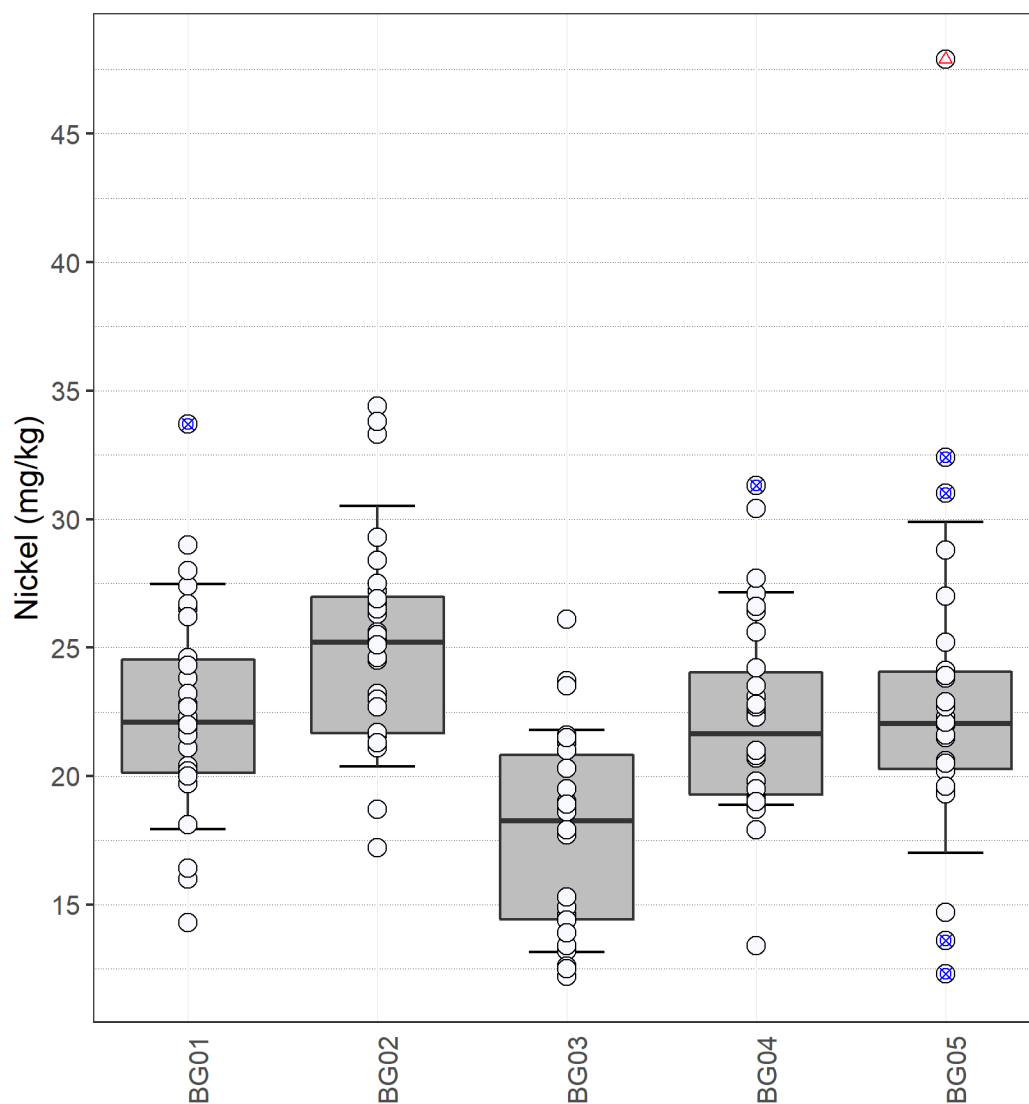
BACKGROUND MERCURY RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

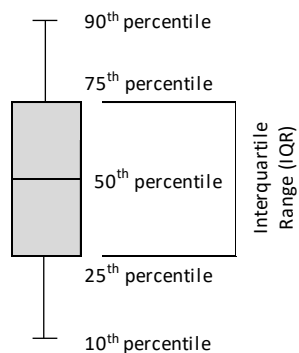
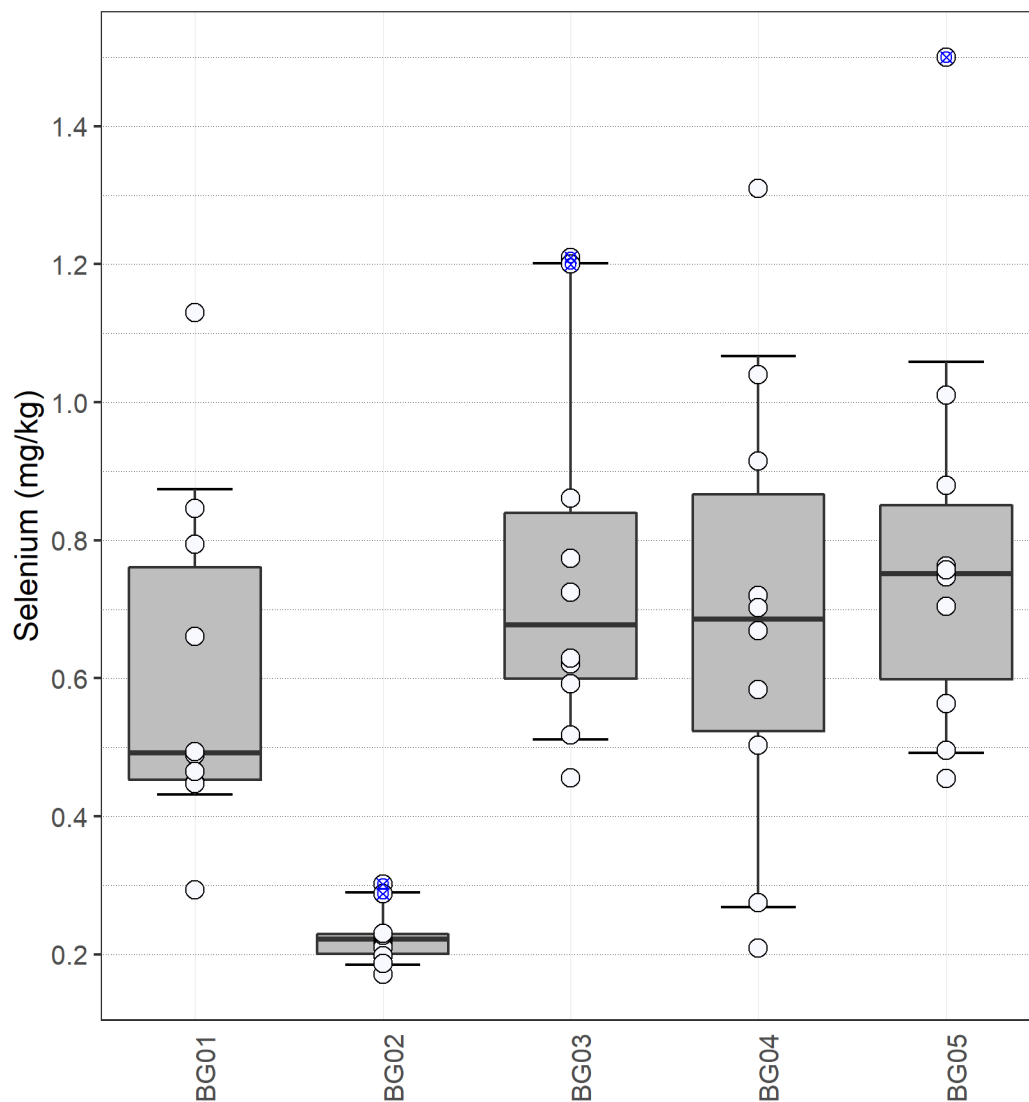
BACKGROUND NICKEL RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

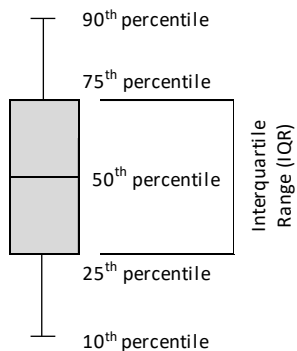
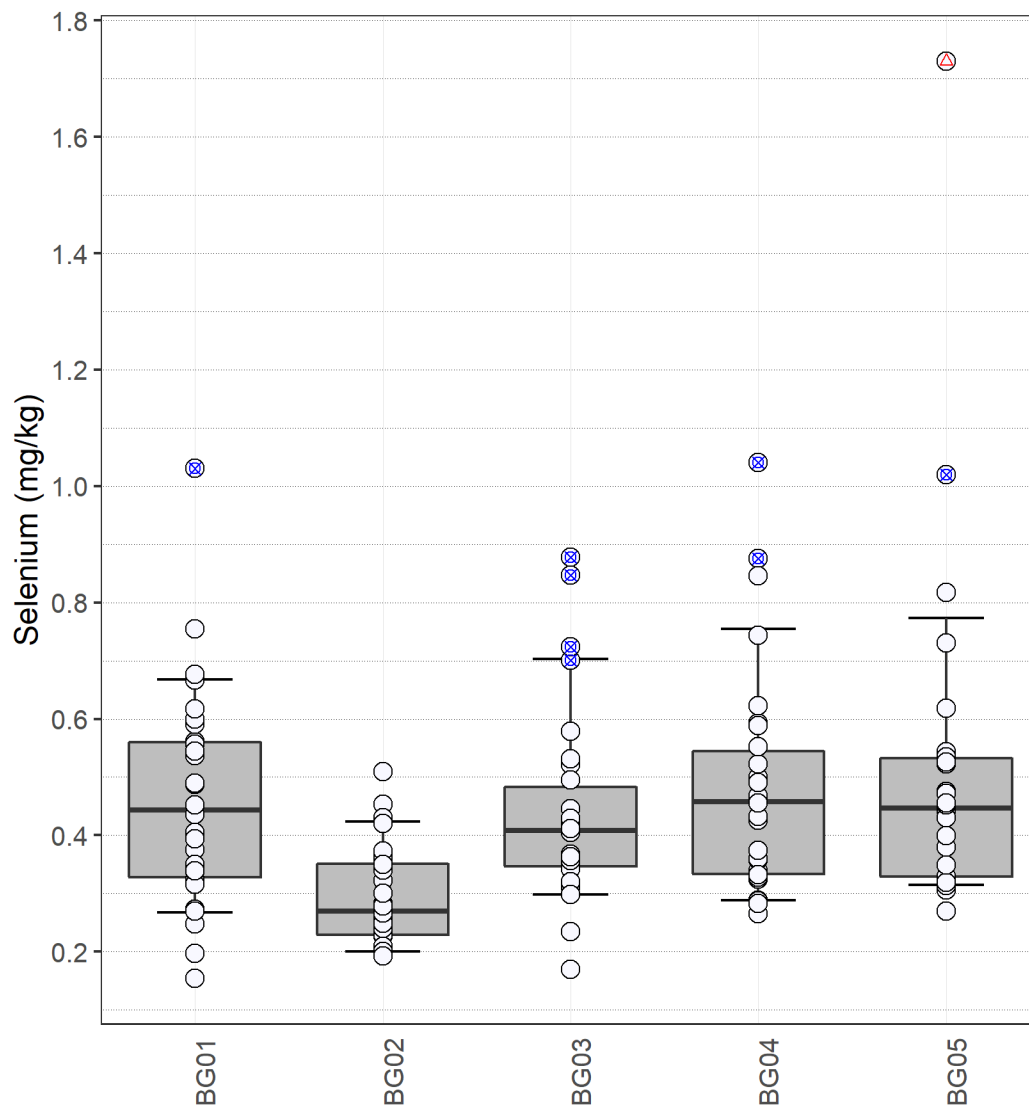
BACKGROUND NICKEL RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

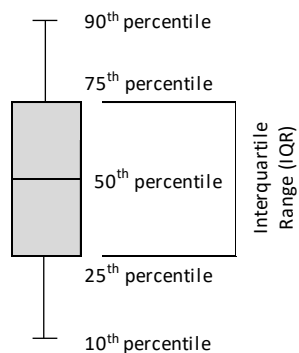
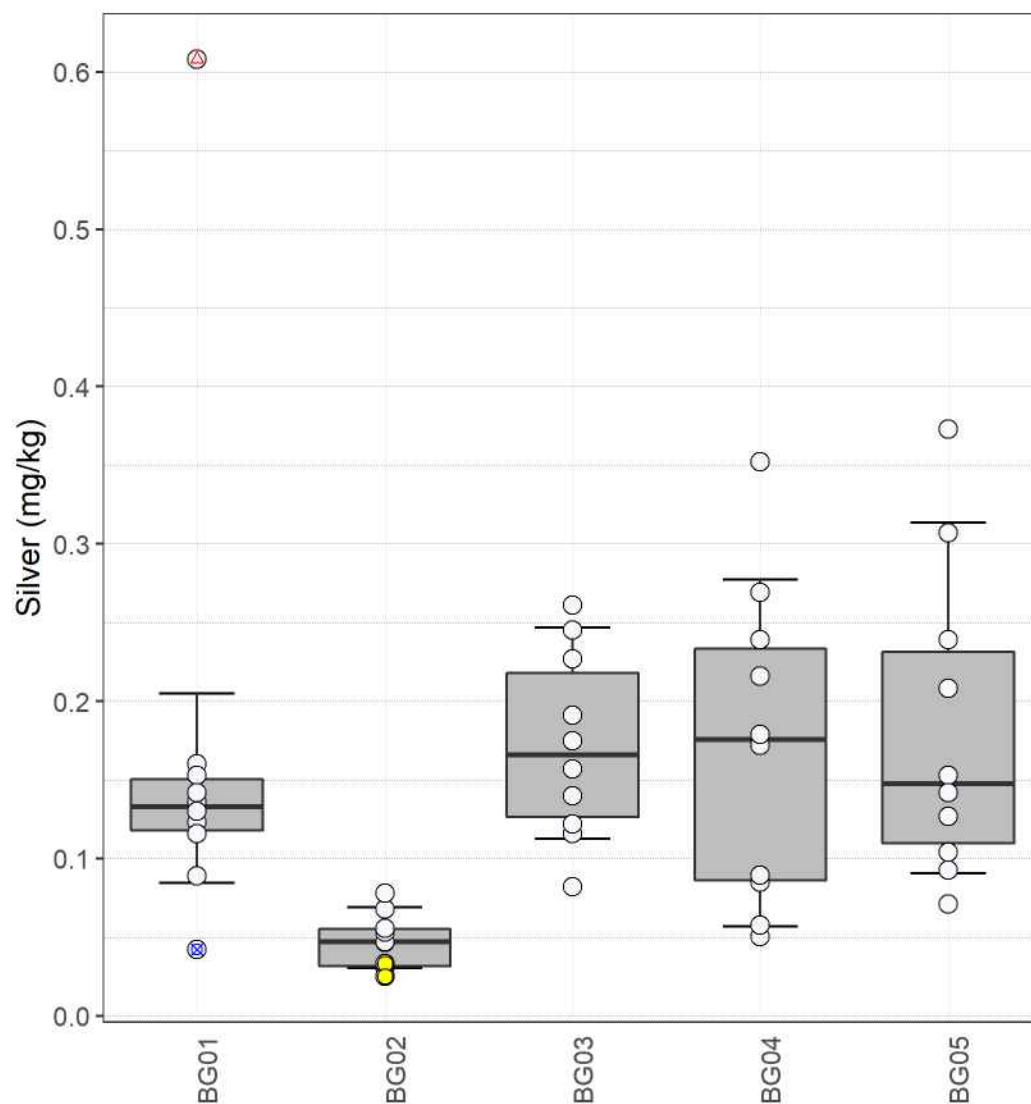
BACKGROUND SELENIUM RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

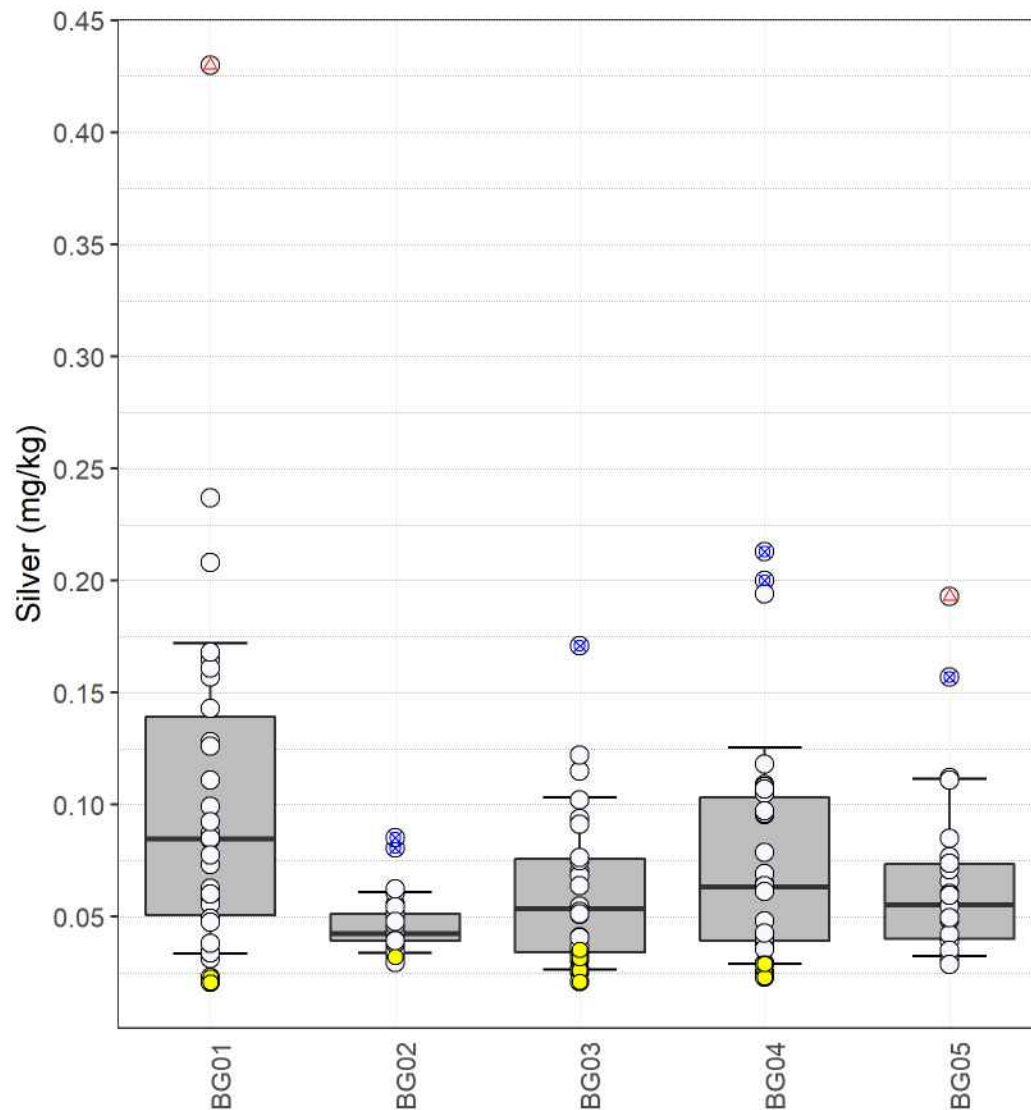
BACKGROUND SELENIUM RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

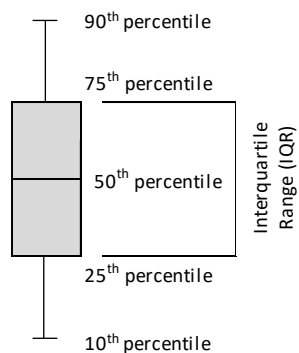
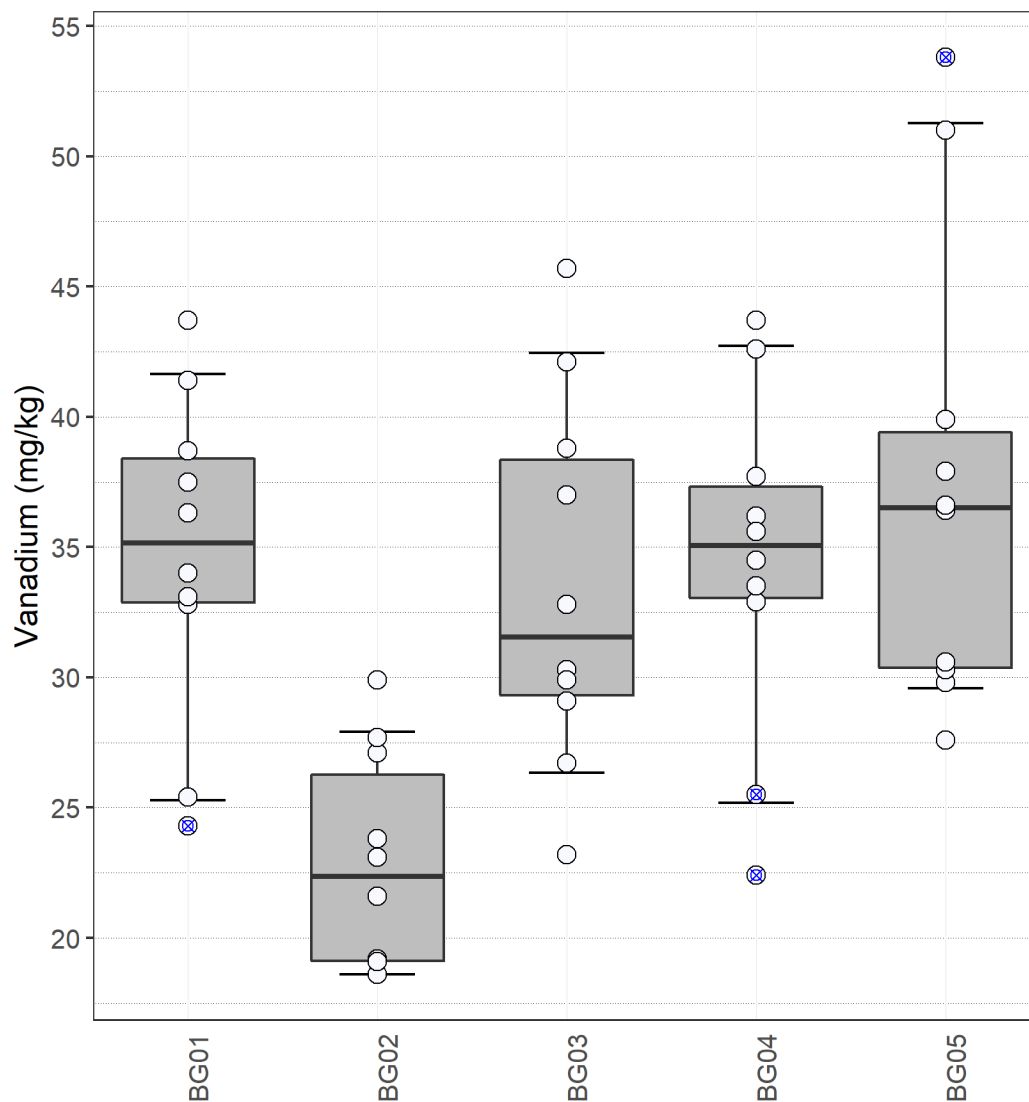
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

BACKGROUND SILVER RESULTS - SURFACE



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

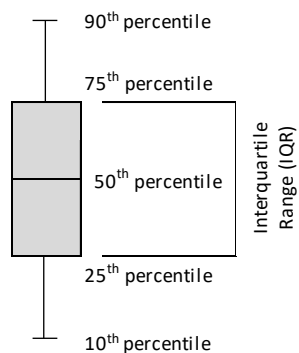
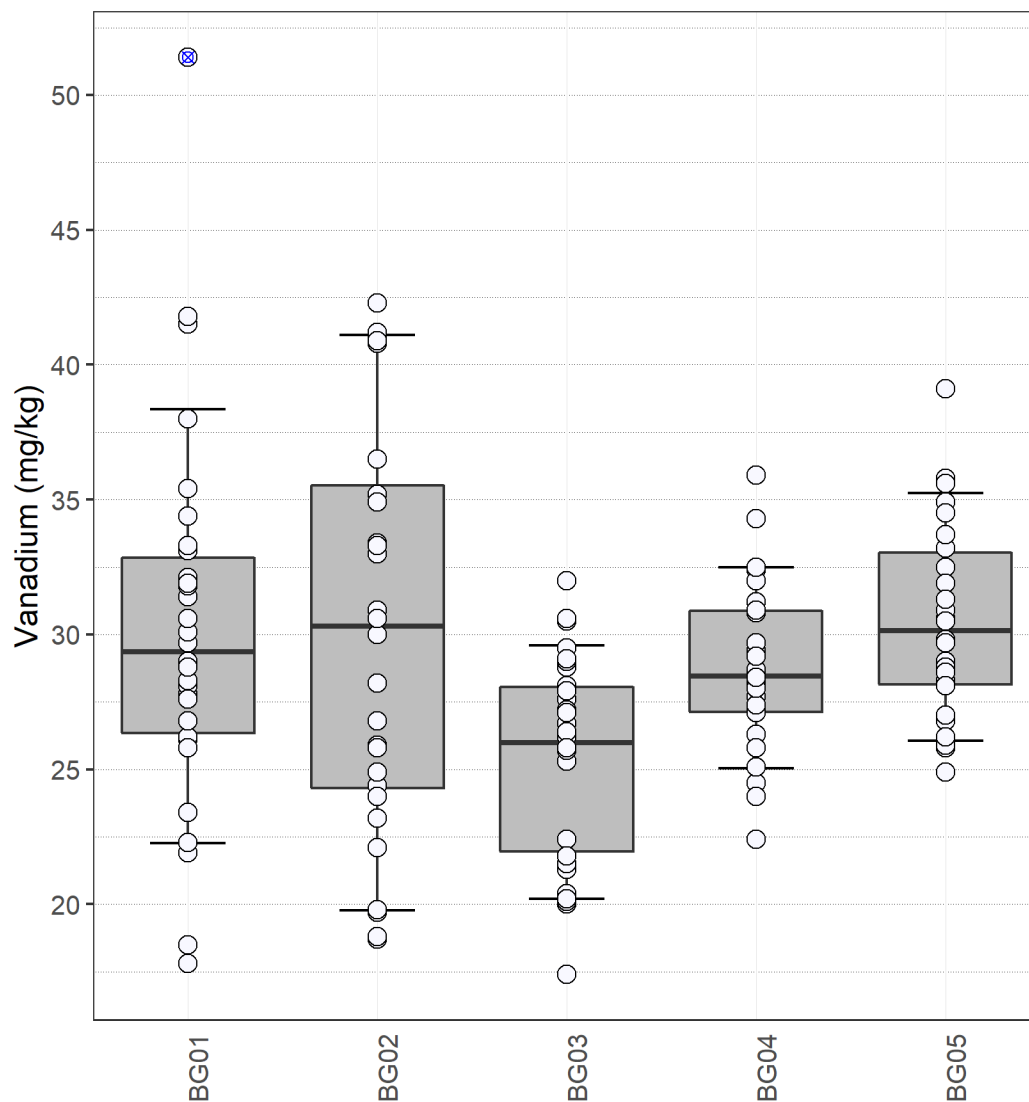
BACKGROUND SILVER RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 * \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 * \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 * \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 * \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

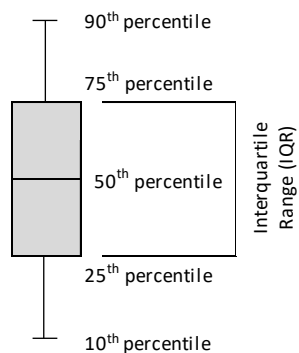
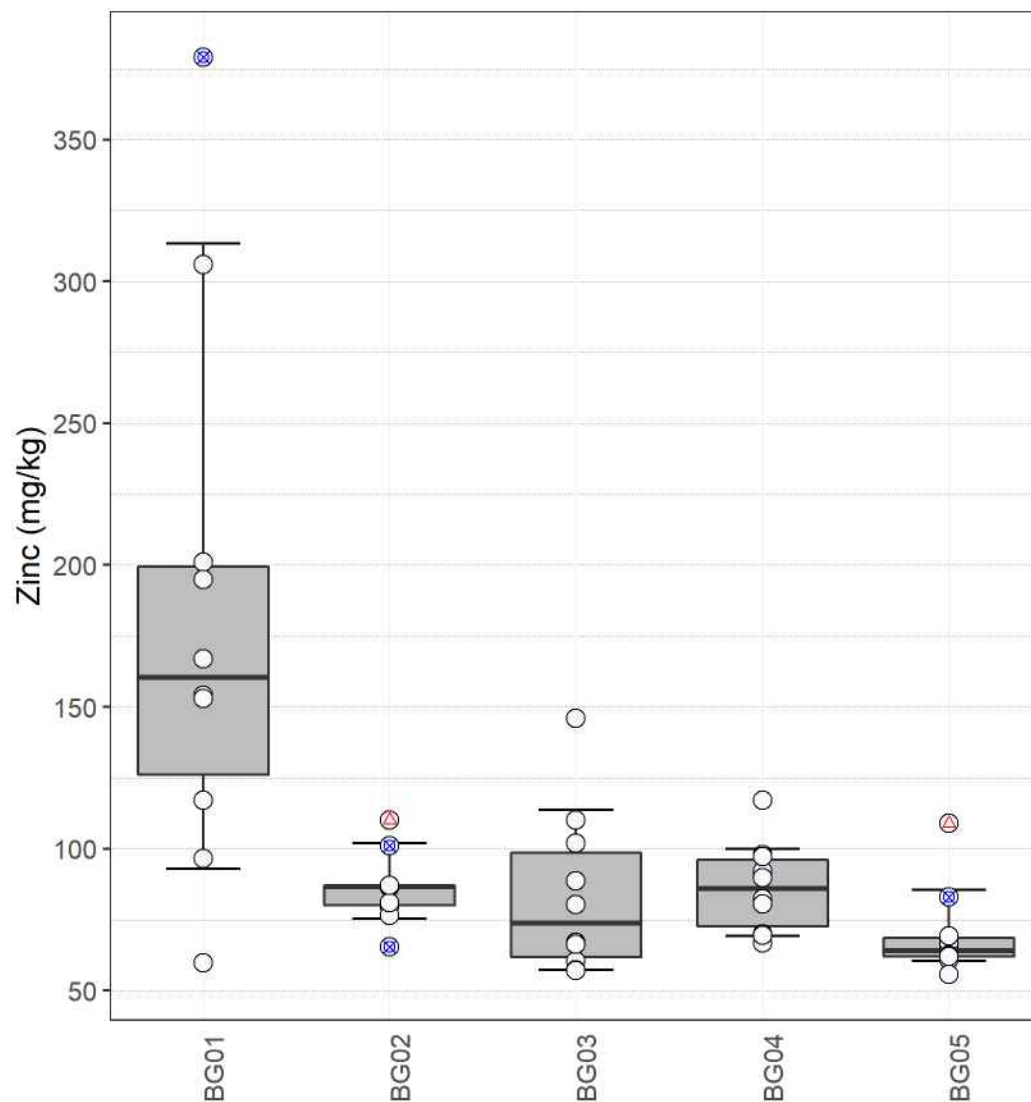
BACKGROUND VANADIUM RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 * \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 * \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 * \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 * \text{IQR}$

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

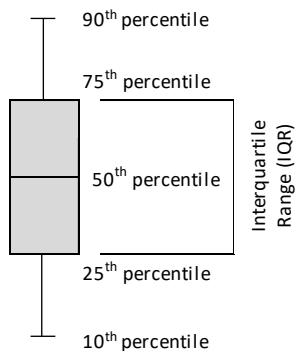
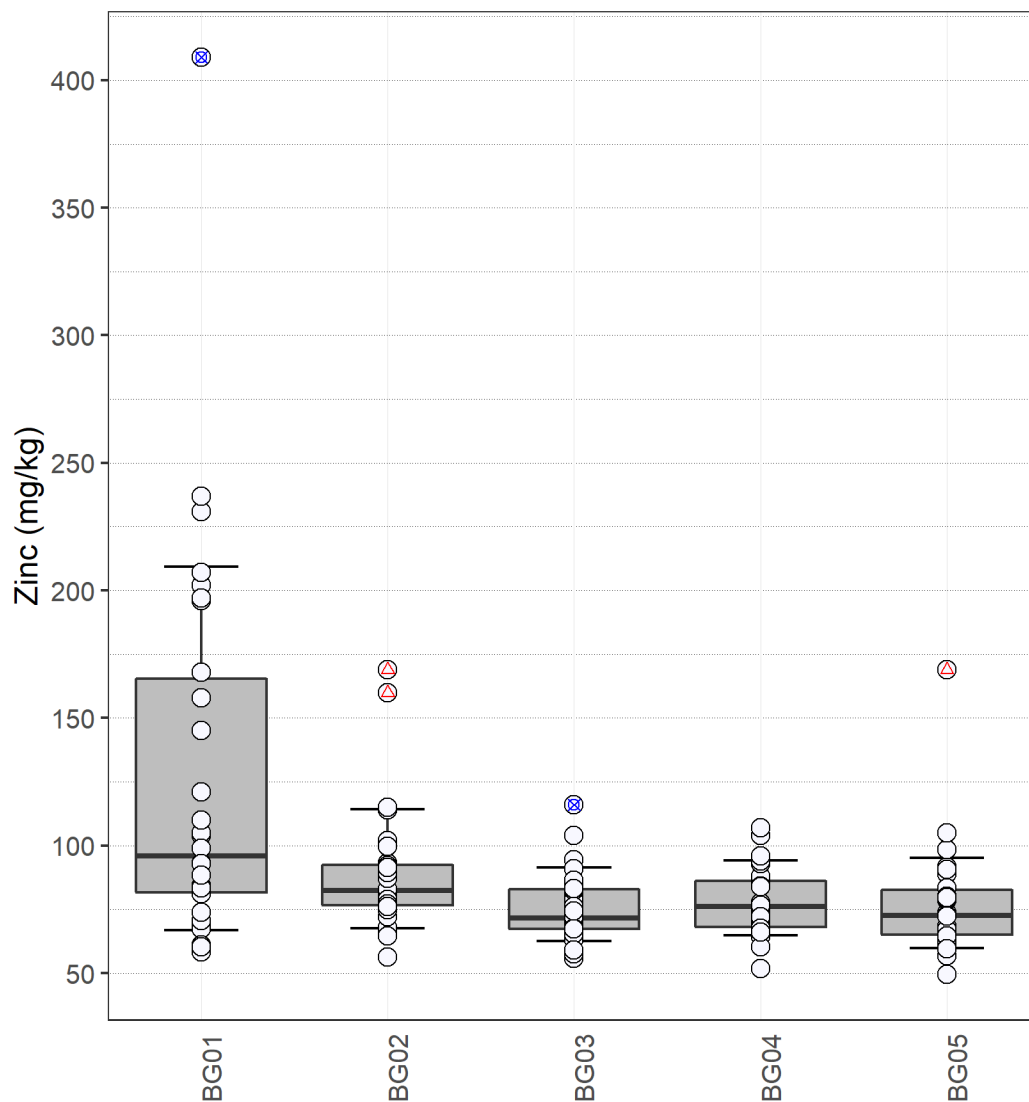
BACKGROUND VANADIUM RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

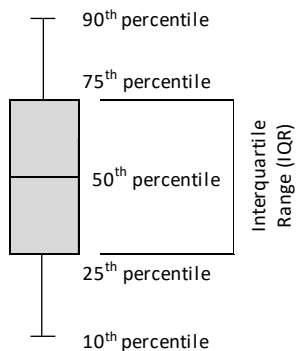
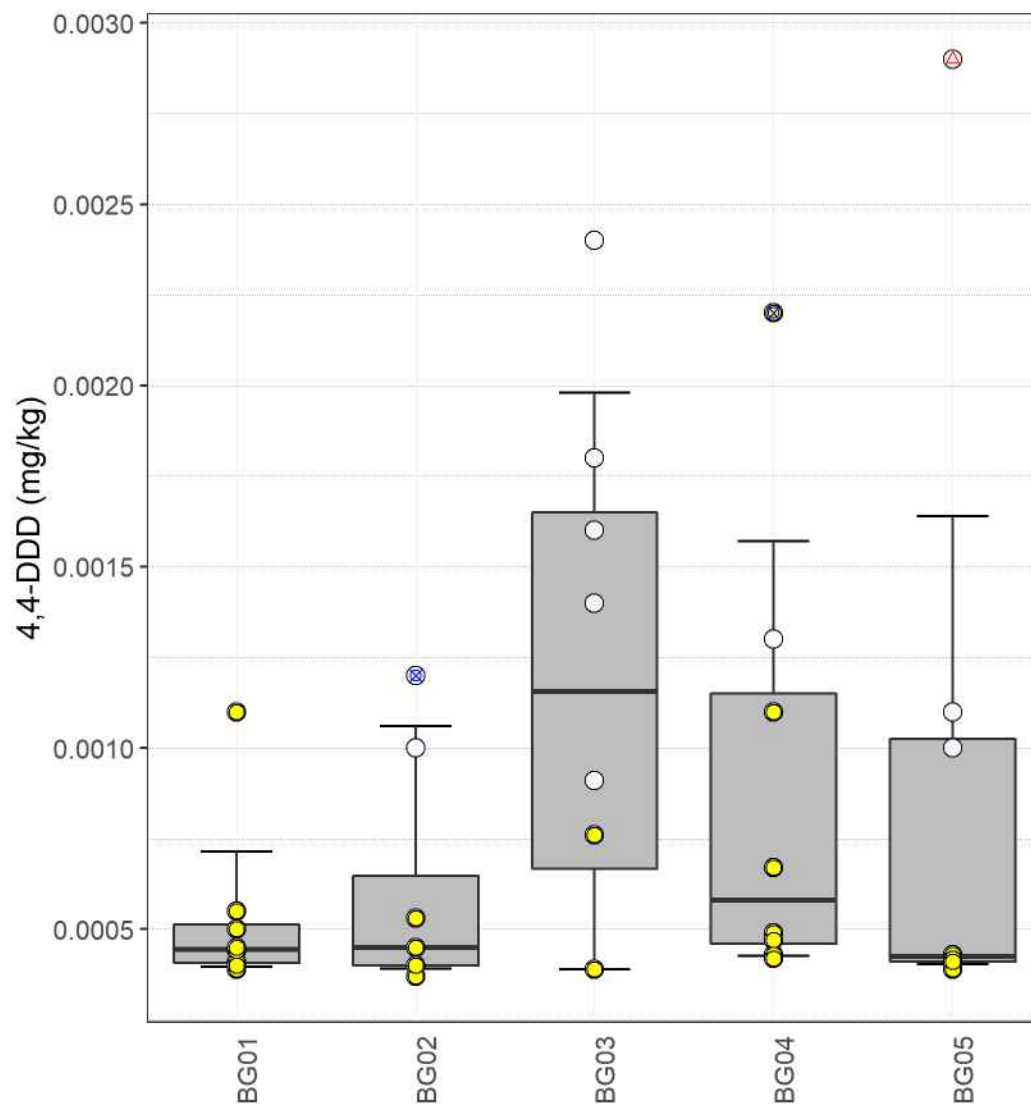
BACKGROUND ZINC RESULTS - SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

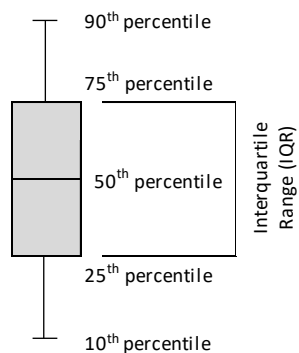
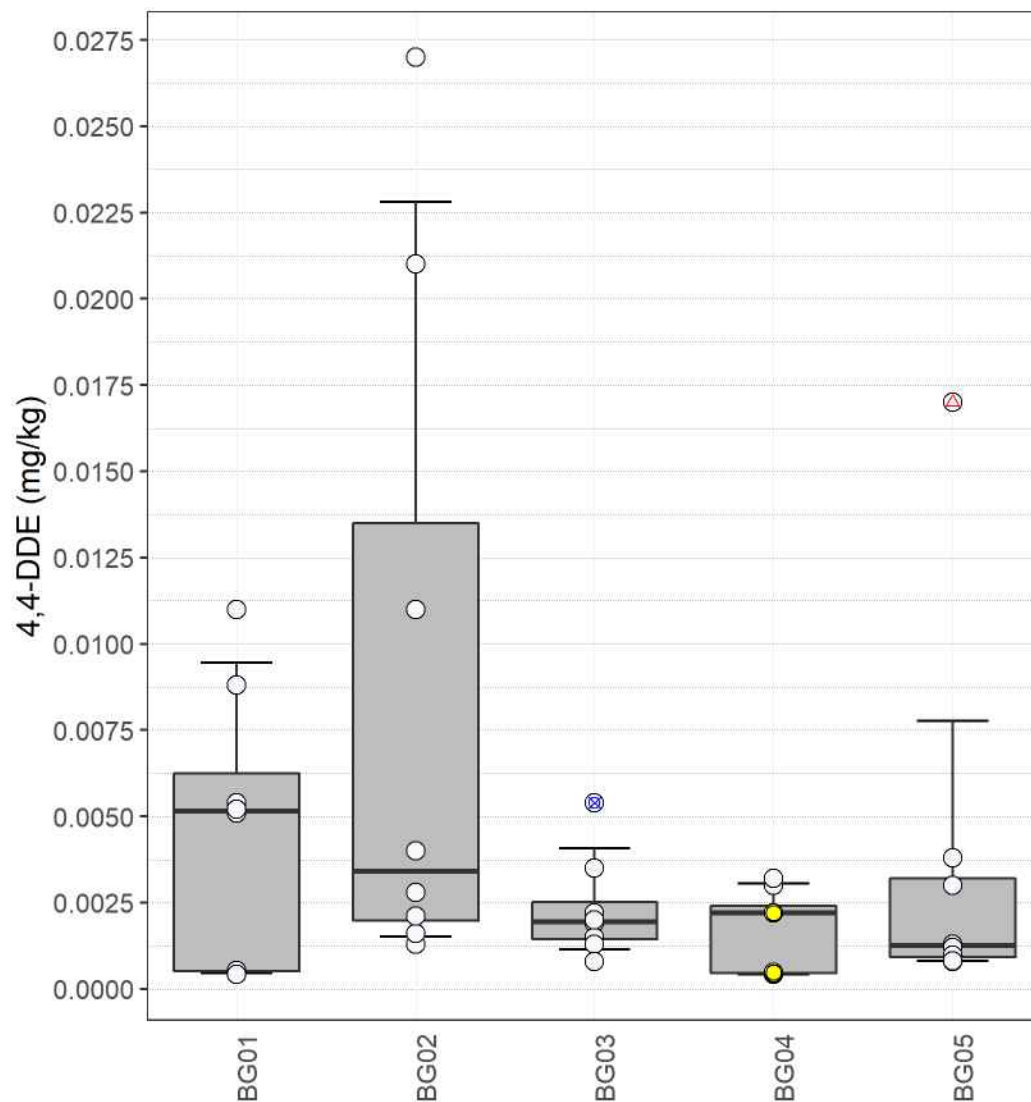
BACKGROUND ZINC RESULTS - NEAR SURFACE



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

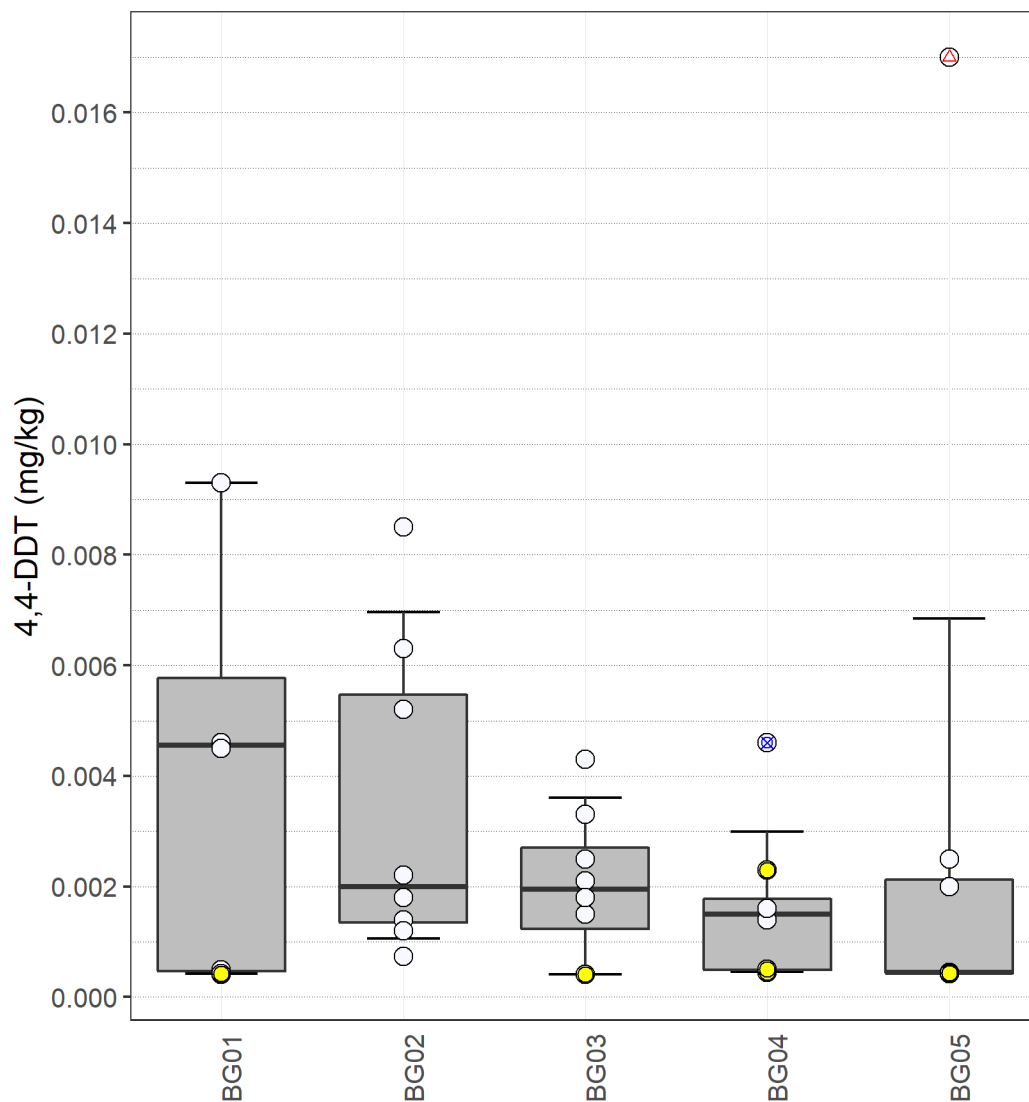
BACKGROUND 4,4-DDD RESULTS (SURFACE + NEAR SURFACE)



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is $< 25^{\text{th}} \text{ percentile} - 3 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 3 \cdot \text{IQR}$
- ⊗ Result Value is $< 25^{\text{th}} \text{ percentile} - 1.5 \cdot \text{IQR}$ or $> 75^{\text{th}} \text{ percentile} + 1.5 \cdot \text{IQR}$

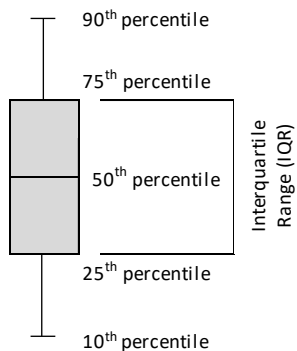
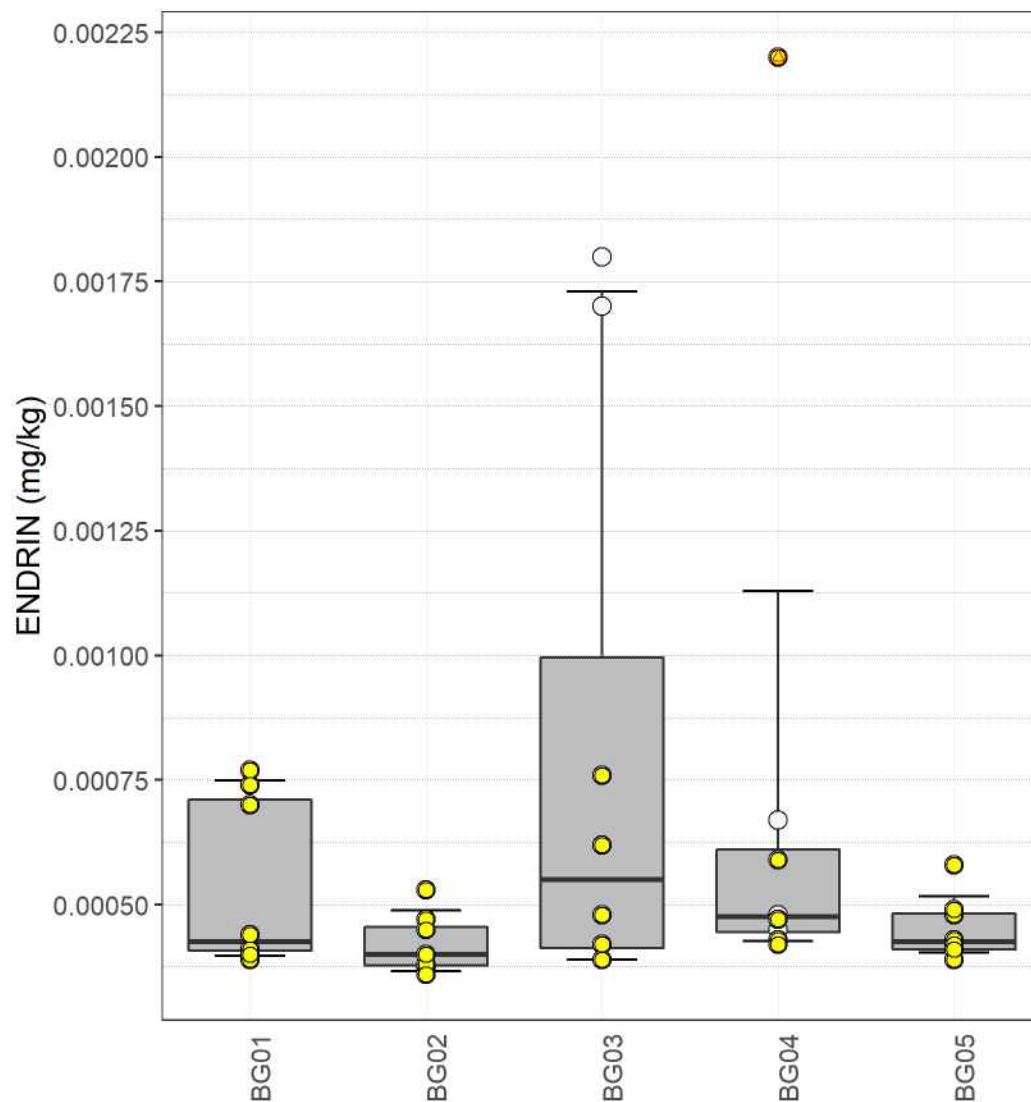
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

BACKGROUND 4,4-DDE RESULTS (SURFACE + NEAR SURFACE)



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

BACKGROUND 4,4-DDT RESULTS (SURFACE + NEAR SURFACE)



- Detected Result
- Non-detected Result (plotted at detection limit)
- △ Result Value is < 25th percentile - 3*IQR or > 75th percentile + 3*IQR
- ⊗ Result Value is < 25th percentile - 1.5*IQR or > 75th percentile + 1.5*IQR

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER TEXACO RESEARCH CENTER BEACON
GELNHAM, NEW YORK
SOIL BACKGROUND EVALUATION

BACKGROUND ENDRIN RESULTS (SURFACE + NEAR SURFACE)

Arcadis U.S., Inc.

50 Millstone Road

Building 200

Suite 220

East Windsor, New Jersey 08520

Tel 609 860 0590

Fax 609 448 0890