Basic Environmental
COMPANY

TECHNICAL MEMORANDUM

To: Shannon Harbour (NDEP)

From: Ranajit Sahu (BEC)

cc: Brian Rakvica (NDEP)
Jim Najima (NDEP)
Teri Copeland
Paul Black (Neptune and Co.)

Date: February 11, 2008

Subject: Technical Memorandum – Data Review for 2007 Tronox Parcels A/B Investigation, BMI Industrial Complex, Clark County, Nevada, Revision 1

Introduction

The objective of this Technical Memorandum is to present the results of the Phase 2 soil investigation Basic Environmental Company (BEC) and Tronox performed for the Tronox Parcels "A" and "B" (portions of APN Nos. 178-01-401-001, 178-12-101-002, 178-12-201-006, and 178-12-601-005). Parcels A and B will collectively be referred to as the Site for the purposes of this Data Review Technical Memorandum. The Site is located north of Warm Springs Road, 1/4 mile west of the intersection with Boulder Highway, in Henderson, Nevada. Figure 1 illustrates the location of the subject Site relative to the Tronox property. Figures 2 and 3 show details of Parcels A and B themselves. It should be noted that the Nevada Pick-A-Part facility is not a part of the Site.

This revision of the Data Review Technical Memorandum, Revision 1, incorporates comments received from the NDEP, dated January 10, 2008, on Revision 0 of the report, dated December 6, 2007. The NDEP comments and BRC's response to these comments are included in Attachment A. Also included in Attachment A is a redline/strikeout version of the text showing the revisions from the December 6, 2007 version of the technical memorandum.

The Site, which represents a portion of the Tronox property, is comprised of primarily of vacant land, and includes an area in the northeast corner of the Parcel formerly leased by Lavern Vohs. BEC also recognizes that other historic uses/disposals on or near the Site may have occurred. A Phase 1 investigation has been performed on the Site. The Phase 1 investigation, Site visits and historical aerial photographs analysis indicate the presence of certain debris, gravel, fill and

concrete/asphalt piles, an abandoned baghouse of unknown origin, and multiple five gallon pails of what appears to be oil to be located on the Site. In addition, there are at least two "homeless" camps that may or may not be currently in use on the Site. Given the vicinity of BMI Industrial Companies, it is also possible that the Site or portions thereof could also have been indirectly impacted by such operations. Legal descriptions of the properties are included in Attachment B.

Therefore, this current investigation was conducted to provide data to confirm existing data and fill identified data gaps with regards to possible contaminant distribution on this property. The sampling was conducted in accordance to the NDEP-approved *Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization* (BEC 2007). The Site investigation involved collection of random soil matrix samples placed within a 4-acre grid across the Site. The grid was modified from a square grid pattern based on the following: 1) started the grid along the western parcel boundary (for each parcel independently), 2) combined partial grids with either other partial grids or whole grids (which resulted in irregular shaped grid cells), and 3) made all grids approximately four acres in size. Grid sizes ranged from 1.2 to 4.5 acres. The random sample locations were supplemented with judgmental sampling locations targeting specific site features (e.g., miscellaneous pile locations). The rationale for the various judgmental sampling locations is provided below:

- Parcel A, grid cell 'A-A3' – gravel pile location;
- Parcel A, grid cell 'A-A2' – historical northwestern ditch;
- Parcel A, grid cell 'A-C3' – abandoned baghouse of unknown origin;
- Parcel B, grid cell 'B-A4' – debris pile location;
- Parcel B, grid cell 'B-A4' – fill pile location;
- Parcel B, grid cell 'B-B2' – concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' – concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' – debris pile location; and
- Parcel B, grid cell 'B-A4' – multiple five gallon pails of what appears to be waste oil.

Soil borings were advanced with a hollow-stem auger to a total depth of 10 feet below ground surface (bgs). Soil samples were collected at approximately zero (i.e., surface) and 10 feet bgs. The Site investigation involved collecting enough samples for completion of a statistically sufficient assessment of chemical distribution, and if desired, to provide a robust data set upon which to perform a screening-level human health risk assessment.

Parcel A and the adjacent Parcel B were not directly used for any manufacturing or waste disposal activities. They are located north of the BMI facilities, and adjacent to other industrial properties. Based on the data collected, a No Further Action Determination (NFAD) is being sought from the NDEP in order to support future industrial/commercial use on this Site. No

residential use is planned. Specifically, this technical memorandum includes the following primary tasks:

- Summary of data;
- Statistical comparison to background concentrations;
- Data usability evaluation;
- Data adequacy evaluation; and
- Screening-level health risk assessment.

Each of these tasks is discussed below.

Data Summary

Sixty-four (64) samples were collected from 32 sample locations. Sample locations for this current investigation are shown on Figures 2 and 3. Results of the investigation are presented in Attachment C, and electronically on CD. All data have been validated per the NDEP-approved *Data Validation Summary Report* (DVSR) (BEC and ERM 2007; approved in letter from Shannon Harbour of the NDEP to Susan Crowley, dated December 6, 2007).

Following the first round of sampling, surface soil from several areas of the property, around sample locations TSB-AJ-03, TSB-AR-06, TSB-AR-08, TSB-AR-09, TSB-AR-10, TSB-AR-12, TSB-AR-13, TSB-AR-14, TSB-BJ-02, TSB-BR-05 was scraped and removed due to the detection of long amphibole asbestos fibers at these locations. Post-scrape samples were collected and analyzed for asbestos from 10 locations within these areas. During the second round of sampling, a single long amphibole asbestos fiber was detected in sample TSB-BR-05-PS. Therefore, further scraping around this location was performed. In addition, sample locations TSB-AR-11 and TSB-BJ-01 contained 8 and 19 long chrysotile asbestos fibers, respectively. Therefore, further scraping around these locations was also performed. Final samples were collected from locations TSB-BR-05, TSB-AR-11, and TSB-BJ-01 following the second and third scrapings. Figure 4 shows all areas of surface soil that were scraped and removed. Based on this, the original surface sample data for asbestos from these locations were removed from further evaluation and the re-sampled asbestos results are used instead. Both pre-scrape and post-scrape asbestos results are included in Attachments C and D.

The consequences of the asbestos remediation are that the new surface layer of the Site could have different concentrations of chemicals than those that were measured prior to remediation. However, because there are no historical uses of the Site, it is reasonable to assume that the

concentration distribution has not changed in any important way. It might also be reasonable to assume that concentrations are now lower for some chemicals (*e.g.*, dioxins), because of the removal of some soil. Although a quantitative evaluation of the depth-profile of the chemicals has not been conducted, a qualitative review of the data indicate that generally volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were primarily detected in surface soil only (for example, 1,3-dichlorobenzene, 1,4-dichlorobenzene, benzo[a]pyrene, benzo[a]anthracene, benzo[b]fluoranthene, hexachlorobenzene), while concentrations are not appreciably different with depth for those chemicals detected in both surface and subsurface soil. A review of the data in Attachment C indicates that it is reasonable to assume that the previous samples are still representative of current conditions. Therefore, because only asbestos was re-analyzed for in the post-scrape samples, the original measured surface soil data at the Site for all other chemicals is retained for the evaluations conducted below.

The results also indicated that uranium isotope analytical results are biased low in comparison to the 2005 shallow soil background dataset, as presented in the *Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity* (BRC and TIMET 2007). A comparison of the methods used for preparation and analysis indicate that the primary difference between the background and Site uranium isotope data is that the sample preparation method in the background dataset used a total dissolution method, while the Site dataset used a nitric acid preparation method. Because of the incompatibility between the two datasets, two approaches were developed to account for and correct this low bias associated with the Site uranium isotope data. The two approaches are similar, in that they both base the re-calculation of the Site uranium isotope activities on the use of the uranium metal analytical results. These approaches and re-calculations are presented in detail in Attachment E. The recommended approach provides a reasonable means to correct for the low-biased measured uranium isotope data, to obtain a Site dataset that is compatible with the shallow soil background dataset, without being overly conservative. The corrected uranium isotope data were used in the evaluations and comparisons discussed below.

Using the compound-specific information presented in Table 2 of the Quality Assurance Project Plan (QAPP; BRC, ERM and MWH 2007a), the comparison levels for each chemical included in the investigation were compiled and compared. Specific soil comparison levels used for this effort were as follows:

- U.S. Environmental Protection Agency (USEPA) Region 9 industrial soil Preliminary Remediation Goals (PRGs) (USEPA 2004a); and

- Soil screening levels (SSLs) protective of groundwater assuming dilution attenuation factors (DAFs) of 1 and 20 (USEPA 2004a).

A DAF of one is used when little or no dilution or attenuation of soil leachate concentrations is expected. Although the property is greater than 30 acres, because of the depth to groundwater (approximately 25 to 30 feet bgs) and the absence of fractured media or karst topography, consistent with USEPA (2002a) recommendations, SSLs using a DAF of 20 were also considered appropriate for comparison purposes for the property. A summary of the data for the property, including identification of number of instances that chemical concentrations exceed each of the comparison levels are listed in Table 1, and summarized below.

Except as discussed below, there are no chemicals or instances where concentrations exceed comparison levels. Although there are numerous instances where arsenic and radionuclides exceed the USEPA Region 9 industrial PRG, there are no instances where arsenic and only a few instances where any radionuclides exceeded their respective 2005 shallow soil background levels, and, as evaluated further below.

Dioxins/furans toxic equivalency quotients (TEQs) were compared to the Agency for Toxic Substances and Disease Registry (ATSDR) action level of 1.0 parts per billion (ppb; ATSDR 1997). The ATSDR action level is used to identify where potential health effects may be of concern at a site. There were no instances where dioxins/furans TEQs exceeded this level.

In addition, although there are some instances where VOCs have been detected, as noted above there are no instances of a VOC exceeding the USEPA Region 9 industrial PRG. However, USEPA Region 9 PRGs do not account for potential migration of VOCs from the subsurface into indoor air. In general USEPA does not recommend evaluating the indoor air exposure pathway using soil matrix data (USEPA 2002b). Because no potential source areas were identified at the Site, soil vapor data were not collected. The indoor air exposure pathway is not considered a pathway of concern because 1) VOCs were detected only sporadically, and no hot spots were identified (see Determination of Exposure Point Concentrations section below); 2) the levels are generally below USEPA Region 9 industrial PRGs, recognizing that these values do not account for indoor air exposures; and 3) no potential sources of VOCs were identified on the property, and the data support this conclusion.

Depth to groundwater at the property is approximately 25 to 30 feet bgs, as measured at monitoring wells H-49A [26.8 feet bgs], H-56A [24.4 feet bgs], and H-58A [30.2 feet bgs]). There are several instances where cadmium and beta-BHC exceed their USEPA SSLs. For beta-BHC, most of these instances were in surface soil, with only five samples collected at 10

feet bgs above the USEPA SSL with a highest concentration of 0.038 mg/kg versus the SSLs of 0.003 and 0.0001 mg/kg (for SSL DAF 1 and 20, respectively). The DAF of 1 for beta-BHC is extremely low and is often exceeded by non-detects as well. There is a known source of beta-BHC in soil and groundwater off-Site and the concentrations of this compound at this Site are considered insignificant relative to upgradient data. If beta-BHC were to leach to groundwater it is unlikely that the contribution from this Site could be detected.

Based upon a review of available groundwater data in the region, cadmium does not appear to be leaching to groundwater and is not a concern at this time. It is also noted that there are only three locations above the SSL DAF 1 and these concentrations are only marginally elevated (0.59 mg/kg maximum versus an SSL of 0.4 mg/kg). All cadmium detections are well below the SSL DAF 20 (8 mg/kg). If cadmium were to leach to groundwater it is expected that this matter could be addressed by the existing groundwater treatment system, as necessary.

In addition, given the discussion above, there is no indication that concentrations increase with depth, further supporting the conclusion that the site is not a likely source of impacts to groundwater. This is further supported by the low level of detected chemicals most associated with potential groundwater impacts (*e.g.*, VOCs, some organochlorine pesticides). In addition, a review of Tronox Phase A data collected deeper than 10 feet bgs (from 15 to 25 feet bgs) further support this conclusion as the results from deeper samples are generally consistent with those collected from surface to 10 feet bgs. Therefore, potential impacts to groundwater, and subsequent groundwater exposures were not further evaluated. It should be noted that development of the property will not preclude future groundwater investigation or remediation activities that may need to be conducted by BEC.

Several monitoring wells are located within these properties, which are used by several of the BMI plant operating companies. For example, Tronox collected a groundwater sample from monitoring well M95 during it's recent (December 2006) Phase A source area investigation. Low parts per billion (ppb) levels of several VOCs were detected in this sample. Chloroform was detected at 350 ppb. In addition, Stauffer Management Company LLC (Stauffer), Montrose Chemical Corporation of California (Montrose), Syngenta Crop Protection, Inc., and Pioneer Americas, LLC (the Companies) conducted quarterly groundwater samples from three monitoring wells within the property (H-49A, H-56A, and H-58A). Similar results were found to the Tronox sampling event, that is, low ppb levels of VOCs. No chemicals, including VOCs, were found at levels in wells within the Site higher than wells located upgradient of Parcels A and B in any of the previous sampling events. This suggests that there are not any on-Site sources of groundwater impacts.

This includes the potential vapor intrusion to indoor air from groundwater exposure pathway. The chloroform plume associated with the industrial facilities lies primarily to the east of the Site. Given levels of VOCs detected in groundwater beneath the site are generally lower (for example, 350 ppb chloroform at M95 versus 1,400 ppb at PC67 to the east) than those within this plume, the Site is immediately downgradient of the groundwater treatment system, and depth to groundwater is greater at the Site than locations to the northeast, it is likely that vapor intrusion impacts and concerns from groundwater are less than those associated with the chloroform plume.

Following remediation there were 23 chrysotile asbestos fibers detected from throughout the property, with nine of these long fibers (see Attachment D). There were no amphibole asbestos fibers detected from throughout the property. There are no comparison levels available for asbestos. Asbestos is further evaluated in the screening-level health risk assessment.

Conceptual Site Model

The conceptual site model (CSM) is used to describe relationships between chemicals and potentially exposed human receptor populations, thereby delineating the relationships between the suspected sources of chemicals identified at the property, the mechanisms by which the chemicals might be released and transported in the environment, and the means by which the receptors could come in contact with the chemicals. The CSM provides a basis for defining data quality objectives and developing exposure scenarios.

The CSM considers current and potential future land-use conditions. Currently, the property is undeveloped. Current receptors that may use the property include on-site trespassers. Therefore, current exposures to native soils at the property are likely to be minimal. In addition, exposures to future on-site workers will be much greater than current exposures. For example, future receptors include commercial/industrial workers who are assumed to be exposed to soil at the property for 250 days per year for 25 years which is much greater than any current exposures.

USEPA (1989) guidance states that potential future land use should be considered in addition to current land use when evaluating the potential for human exposure at a site. Therefore, the CSM also considers other future land-uses. For example, the CSM includes the planned use of the property for redevelopment into commercial use. The potentially exposed populations and their potential routes of exposure are presented in Figure 5.

Potential Source Areas

As discussed above nine areas were identified in the Sampling and Analysis Plan that warranted further investigation. These areas are shown on Figures 2 and 3. Judgemental soil samples were collected from each of these areas.

Potential Human Exposure Scenarios

Given the planned development of the property, potential human receptors include on-site construction workers, on-site indoor commercial workers, on-site outdoor maintenance workers, and on-site visitors. However, as discussed below, not all of these receptors are evaluated in the screening-level health risk assessment. Potential migration pathways, exposure pathways, and routes of exposure are shown on Figure 5.

Although several potential human receptors may occur on the property in the future, the screening-level health risk assessment focuses on the commercial/industrial receptor. This receptor is considered to have the highest level of exposure at the property, as supported by the comparison levels that have been developed in the project QAPP (BRC, ERM and MWH 2007a). Other receptors generally have lower exposures, and thus lower risk estimates. Therefore, risk estimates generated for commercial/industrial receptors will be protective of other potential receptors at the property. The only exception to this is construction worker exposures to asbestos. This is because asbestos risks are only evaluated for the dust inhalation exposure pathway, with construction activities generating more dust than under normal circumstances. Therefore, the screening-level health risk assessment also evaluates the construction worker receptor for asbestos exposures.

Evaluation of Concentrations Relative to Background Conditions

The comparison of property-related soil concentrations to background levels was conducted using the existing, shallow soils background data set presented in the *Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity* (BRC and TIMET 2007). Background comparisons were performed using the Quantile test, Slippage test, the *t*-test, and the Wilcoxon Rank Sum test with Gehan modification. The computer statistical software program, Guided Interactive Statistical Decision Tools (GISdT®; Neptune and Company 2007), was used to perform all statistical comparisons. A summary of the results of this evaluation, including summary statistics, is presented in Tables 2 and 3.

The results of this comparison indicate that levels of cadmium, total chromium, hexavalent chromium, lead, molybdenum, niobium, potassium, sodium, tin, titanium, and uranium exceed background levels. Although the comparison statistics indicate that these metals levels at the property are above background, small analytical differences or small differences related to geologic or depth differences as seen in the background dataset may be responsible for these results. Given that these chemicals are not expected to be found as contaminants at the Site, it is likely that the property and background datasets are representative of a single population. However, as discussed below, these metals are considered in the screening-level health risk assessment. Cumulative probability plots and boxplots are presented in Attachment F.

In addition, background comparisons indicate that uranium isotope levels exceed background levels, while none of the other radionuclides fail background comparisons at all. In fact, some of the site radionuclides appear to be slightly lower than background. It might be reasonable to assume that the differences are the result of minor analytical differences, and that all radionuclides are at background concentrations. However, the uranium isotopes are considered in the screening-level health risk assessment.

Data Usability Evaluation

The primary objective of the data review and usability evaluation was to identify appropriate data for use in the screening-level health risk assessment. The analytical data were reviewed for applicability and usability following procedures in the *Guidance for Data Usability in Risk Assessment (Part A)* (USEPA 1992a) and USEPA (1989). A quality assurance/quality control (QA/QC) review of the analytical results was conducted during the sampling events. According to the USEPA Data Usability Guidance, there are six principal evaluation criteria by which data are judged for usability in risk assessment. The six criteria are:

- availability of information associated with site data;
- documentation;
- data sources;
- analytical methods and detection limits;
- data review; and
- data quality indicators, including precision, accuracy, representativeness, comparability, and completeness.

A summary of these six criteria for determining data usability is provided below.

Criterion I – Availability of Information Associated with Site Data

The usability analysis of the site characterization data requires the availability of sufficient data for review. The required information is available from documentation associated with the site data and data collection efforts. The following lists the information sources and the availability of such information for the data usability process:

- A property description provided in the NDEP-approved Sampling and Analysis Plan (BEC 2007) identifies the location and features of the property, the characteristics of the vicinity, and contaminant transport mechanisms.
- A site map with sample locations is provided in Figures 2 and 3.
- Sampling design and procedures were provided in the NDEP-approved Sampling and Analysis Plan (BEC 2007).
- Analytical methods and detection limits are provided in Attachment C.
- A complete data set is provided in Attachment C.
- A narrative of qualified data is provided with each analytical data package, the laboratory provided a narrative of QA/QC procedures and results. These narratives are included as part of the NDEP-approved DVSR (BEC and ERM 2007).
- QC results are provided by the laboratory, including blanks, replicates, and spikes. The laboratory QC results are included as part of the NDEP-approved DVSR (BEC and ERM 2007).
- Data flags used by the laboratory were defined adequately as part of the NDEP-approved DVSR (BEC and ERM 2007).
- Electronic files containing the raw data made available by the laboratory are included as part of the NDEP-approved DVSR (BEC and ERM 2007).

Criterion II – Documentation Review

The objective of the documentation review is to confirm that the analytical results provided are associated with a specific sample location and collection procedure, using available

documentation. For the purposes of this data usability analysis, the chain-of-custody forms prepared in the field were reviewed and compared to the analytical data results provided by the laboratory to ensure completeness of the data set. Based on the documentation review, all samples analyzed by the laboratory were correlated to the correct geographic location at the property. Field procedures included documentation of sample times, dates and locations, other sample specific information such as depth bgs were also recorded. Information from field forms generated during sample collection activities was imported into the project database.

The analytical data were reported in a format that provides adequate information for evaluation, including appropriate quality control measures and acceptance criteria. Each laboratory report describes the analytical method used, provides results on a sample by sample basis along with sample specific detection limits, and provides the results of appropriate quality control samples such as laboratory control spike samples, sample surrogates and internal standards (organic analyses only), and matrix spike samples. All laboratory reports, except for asbestos, provided the documentation required by USEPA's Contract Laboratory Program (USEPA 2003a, 2004b,c) which includes chain of custody records, calibration data, QC results for blanks, duplicates, and spike samples from the field and laboratory, and all supporting raw data generated during sample analysis. Reported sample analysis results were imported into the project database.

The recommended method for providing asbestos data which are useful for risk assessment purposes was performed by EMSL Analytical Inc in Westmont, New Jersey. This laboratory is not currently certified in the State of Nevada, but has California and national accreditation for asbestos analysis.

To interpret measurements of asbestos in soils, it is necessary to establish the relationship between the asbestos concentrations observed in soils and concentrations that will occur in air when such soil is disturbed by natural or anthropogenic forces. This is because asbestos is a hazard when inhaled (see, for example, Berman and Crump 2001; USEPA 2003b). In fact, the Modified Elutriator Method (Berman and Kolk 2000), which was the method employed to perform the analyses presented in this report, was designed specifically to facilitate prediction of airborne asbestos exposures based on bulk measurements (see, for example, Berman and Chatfield 1990).

The Modified Elutriator Method incorporates collection of samples that are re-suspended and then forced through an airway and filter. Asbestos structures are isolated and concentrated as part of the respirable dust fraction of a sample and analytical measurements are reported as the number of asbestos structures per mass of respirable dust in the sample. These are precisely the

dimensions required to combine such measurements with published dust emission and dispersion models to convert them to asbestos emission and dispersion estimates. Thus, because published dust emission and dispersion models can be used to address many of the exposure pathways of interest in this study, these can be combined with measurements from the Modified Elutriator Method to predict airborne exposures and assess the attendant risks.

Criterion III –Data Sources

The review of data sources is performed to determine whether the analytical techniques used in the site characterization process are appropriate for risk assessment purposes. The data collection activities were developed to characterize a broad spectrum of chemicals potentially present on the property, including asbestos, VOCs, SVOCs, metals, radionuclides, dioxins/furans, asbestos, polynuclear aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), and petroleum hydrocarbons.

The State of Nevada is in the process of certifying the laboratories used to generate the analytical data. As such, standards of practice in these laboratories follow the quality program developed by the Nevada Revised Statutes (NRS) and are within the guidelines of the analytical methodologies established by the USEPA. Based on the review of the available information, the data sources for chemical and physical parameter measurements are adequate for use in a risk assessment.

Criterion IV – Analytical Methods and Detection Limits

In addition to the appropriateness of the analytical techniques evaluated as part of Criterion III, it is necessary to evaluate whether the detection limits are low enough to allow adequate characterization of risks. At a minimum, this data usability criterion can be met through the determination that routine USEPA and U.S. Department of Energy (DOE) reference analytical methods were used in analyzing samples collected from the property. Attachment C identifies the USEPA and DOE methods that were used in conducting the laboratory analysis of soil samples. Each of the identified USEPA methods are considered the most appropriate method for the respective constituent class and each was approved by NDEP as part of the Sampling and Analysis Plan (BEC 2007).

Laboratory reporting limits were based on those outlined in the reference method, the Sampling and Analysis Plan, and the *BRC Closure Plan* (BRC, ERM, and DBSA 2007). In accordance with respective laboratory standard operating procedures (SOPs), the analytical processes

included performing instrument calibration, laboratory method blanks, and other verification standards used to ensure quality control during the analyses of collected samples.

The range of detection limits achieved in field samples was compared to USEPA Region 9 industrial PRGs (USEPA 2004a). Although n-nitrosodi-n-propylamine had a number of reporting limits that exceeded its respective PRGs, none of the method detection limits were above industrial PRGs. beta-BHC and several SVOCs had method detection limits above the USEPA SSLs; however, given the discussion provided previously, migration of chemicals at the property to groundwater is considered unlikely. Therefore, the detection limits are considered adequate for risk assessment purposes.

Criterion V – Data Review

The data review portion of the data usability process focuses primarily of the quality of the analytical data received from the laboratory. Soil and soil vapor sample data were subject to data validation. A DVSR was prepared as a separate deliverable (BEC and ERM 2007). The analytical data were validated according to the internal procedures using the principles of USEPA National Functional Guidelines (USEPA 1999, 2001, 2002c, 2004b,c) and were designed to ensure completeness and adequacy of the data set. Any analytical errors and/or limitations in the data have been addressed and an explanation for data qualification provided in the respective data tables. The results of ERM's data review for these issues are presented in the DVSR and are summarized below.

Although certain laboratory limits, such as percent recovery (PR) and relative percent difference (RPD) between sample and duplicate, were exceeded for 53 compounds or analyses, as identified by the laboratory (and confirmed during ERM's review of the data), there does not appear to be a wide-spread effect on the quality of the analytical results. Furthermore, based on a review of the laboratory narratives (provided in the laboratory reports in the DVSR), the laboratory does not believe that the observed exceedances of laboratory criteria represent a concern.

For 1,740 out of 16,498 analytical results, quality criteria were not met and various data qualifiers were added to indicate limitations and/or bias in the data. The definitions for the data qualifiers, or data validation flags, used during validation are those defined in SOP-40 (BRC, ERM and MWH 2007b) and the project QAPP (BRC, ERM and MWH 2007a). Sample results were rejected based on findings of serious deficiencies in the ability to properly collect or analyze the sample and meet QC criteria. Only one analytical result (TPH as diesel at sample location TSB-AR-07-10 at 10 feet bgs) was rejected in the entire dataset. Only rejected data were considered unusable for decision-making purposes and rejected analytical results are not used in

the screening-level health risk assessment. Sample results qualified as estimated were affected by special circumstances and are likely to be quantitatively biased to some degree; estimated analytical results are used in the screening-level health risk assessment. Data qualified as anomalous represents an analyte or compound that was not detected above the sample quantitative limit and such data are used in the screening-level health risk assessment. These data usability decisions follow the guidelines provided in the *Guidance for Data Usability in Risk Assessment (Part A)* (USEPA 1992a).

Criterion VI – Data Quality Indicators

Data quality indicators (DQIs) are used to verify that sampling and analytical systems used in support of project activities are in control and the quality of the data generated for this project is appropriate for making decisions affecting future activities. The DQIs address the field and analytical data quality aspects as they affect uncertainties in the data collected for site characterization and risk assessment. The DQIs include precision, accuracy, representativeness, comparability, and completeness (PARCC). The project QAPP provides the definitions and specific criteria for assessing DQIs using field and laboratory QC samples and is the basis for determining the overall quality of the data set. Data validation activities included the evaluation of PARCC parameters, and all data not meeting the established PARCC criteria were qualified during the validation process using the guidelines presented in the *National Functional Guidelines for Laboratory Data Review, Organics and Inorganics and Dioxin/Furans* (USEPA 1999, 2001, 2002c, 2004d). Detailed discussion of and tables with specific exceedances, with respect to precision and accuracy, is provided in the DVSR (BEC and ERM 2007).

Representativeness is the degree to which data accurately and precisely represent a characteristic of the population at a sampling point or an environmental condition (USEPA 2002c). There is no standard method or formula for evaluating representativeness, which is a qualitative term. Representativeness is achieved through selection of sampling locations that are appropriate relative to the objective of the specific sampling task, and by collection of an adequate number of samples from the relevant types of locations. The sampling locations were selected randomly in order to adequately assess the exposure areas. The samples were analyzed for a broad spectrum of analyses across the property. Samples were delivered to the laboratory in coolers with ice to minimize the loss of analytes. At times the samples were received outside the recommended temperature range or were analyzed beyond the holding time. Sample specific results are discussed in the DVSR.

Completeness is commonly expressed as a percentage of measurements that are valid and usable relative to the total number of measurements made. Analytical completeness is a measure of the number of overall accepted analytical results, including estimated values, compared to the total number of analytical results requested on samples submitted for analysis after review of the analytical data. Some of the data were eliminated due to data usability concerns. The percent completeness for the property is 99.9 percent.

Comparability is a qualitative characteristic expressing the confidence with which one dataset can be compared with another. The desire for comparability is the basis for specifying the analytical methods; these methods are generally consistent with those used in previous investigations of the property. The comparability goal is achieved through using standard techniques to collect and analyze representative samples and reporting analytical results in appropriate units.

Data Adequacy

Sample size calculations were conducted for four analytes (arsenic, 2,3,7,8-tetrachlorodibenzo-*p*-dioxin [2,3,7,8-TCDD], beta-BHC, and chrysotile asbestos) for the property. The formula used here for calculation of sample size is based on a non-parametric test (the Wilcoxon signed rank test), and on simulation studies performed by Pacific Northwest National Laboratories that formed the basis for an approximate formula that is based on the normal distribution. Essentially, the formula is the one that would be used if a normal-based test were being performed, but an adjustment is made (multiply by 1.16) to account for the intent to perform a non-parametric test. The formula is as follows:

$$n = 1.16\left[\frac{s^2}{\Delta^2}(z_{1-\alpha} + z_{1-\beta(\mu)})^2 + 0.5z_{1-\alpha}^2\right]$$

where,

n	=	number of samples
s	=	estimated standard deviation of concentrations/fibers
Δ		width of the gray region (the difference between the threshold value in stated in the hypothesis and the point at which β is specified)
α		significance level or Type I error tolerance
$\beta(\mu)$		Type II error tolerance; and
z		quantile from the standard normal distribution

For each chemical, inputs for the calculations include an estimate of the variance from the measured data, a desired significance level, and desired power of the test that must be specified at a concentration of interest (which determines the tolerable difference from the threshold value). The calculations provided here cover a range of Type I and Type II error tolerances, and the point at which the Type II error is specified. Results are presented in Table 4. In Table 4, various combinations of input values are used, including: values of α of 5%, 10% and 15%; values of β of 15%, 20%, and 25%; and a gray region of width 10%, 20% and 30% of the threshold level. It is clear from Table 4 that the number of samples collected is adequate for the property.

Screening-Level Health Risk Assessment

The comparison levels in the Data Review section above do not take into account cumulative effects, nor do they consider all potential exposure pathways (for example, the indoor air pathway). Therefore, the purpose of the screening-level health risk assessment is to determine if chemical concentrations in property soils are: (1) either representative of background conditions; or (2) do not pose an unacceptable risk to human health and the environment under current and anticipated future use conditions.

Human health risks are represented by estimated theoretical upper-bound cancer risks and non-cancer hazards derived in accordance with standard USEPA methods. The acceptable risk levels defined by USEPA for the protection of human health, and following those discussed previously with NDEP, are:

1. For non-carcinogenic compounds, the acceptable criterion is a cumulative hazard index (HI) of one or less. If the screening HI is determined to be greater than 1.0, target organ-specific HIs will be calculated for primary and secondary organs. The final risk goal will be to achieve target organ-specific non-carcinogenic HIs of less than 1.0; and

2. For known or suspected chemical and radionuclide carcinogens, the acceptable ceiling for a cumulative incremental lifetime cancer risk (ILCR) ranges from 10^{-6} to 10^{-4}. The risk goal established by the NDEP is 10^{-6}.

3. Where background levels exceed risk level goals, metals and radionuclides in Site soils are targeted to have risks no greater than those associated with background conditions.

4. For asbestos, calculations are based upon cancer criterion and a risk goal of 10^{-6}.

This screening-level health risk assessment follows the basic procedures outlined in USEPA *Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual* (RAGS; USEPA 1989). Other guidance documents were also consulted for the screening-level health risk assessment.

Selection of Chemicals of Potential Concern

The broad suite of analytes sampled for was the initial list of chemicals of potential concern (COPCs) at the property. However, in order to ensure that a risk assessment focuses on those substances that contribute the greatest to the overall risk (USEPA 1989); only one procedure was used to eliminate the chemicals for quantitative evaluation in the screening-level health risk assessment:

- identification of chemicals with detected levels which are at or less than background concentrations (where applicable).

The procedure for evaluating chemicals relative to background conditions was presented above.

Another criterion that may warrant chemical reduction is the frequency of detection. In general, chemicals exhibiting a low frequency of detection will not contribute significantly to the risk estimates. USEPA (1989) suggests that chemicals with a frequency of detection less than or equal to five percent, with the exception of metals, known human carcinogens, and persistent, bioaccumulative, and toxic (PBT) chemicals as defined by the USEPA PBT program (USEPA 2007b), may be considered for elimination. However, no chemicals were eliminated from further evaluation based on the frequency of detection criteria.

Determination of Exposure Point Concentrations

A representative exposure concentration is a COPC-specific and media-specific concentration value. In risk assessment, these exposure concentrations are values incorporated into the exposure assessment equations from which potential baseline human exposures are calculated. Due to the uncertainty associated with determining the true average concentration at a site, where direct measurements of the site average are unavailable, the USEPA recommends using the lower of the maximum detected concentration or the 95 percent upper confidence limit (UCL) as the concentration of a chemical to which an individual could be exposed over time (USEPA 1992b). For the 95 percent UCL concentration approach, the 95 percent UCL is typically computed in order to represent the area-wide exposure point concentrations. The 95 percent UCL is defined as the value that, when calculated repeatedly for randomly drawn

subsets of site data, equals or exceeds the true mean 95 percent of the time (USEPA 1992b). The purpose for using the 95 percent UCL is to take into account the different concentrations a person may be exposed to on any given day. That is, an individual will be exposed to a range of concentrations that exist at an exposure area, from non-detect to the maximum concentration, over an entire exposure period.

However, while it may be more realistic to develop exposure concentrations consistent with the proposed development of the Site, the maximum concentration was selected as the exposure point concentration for each COPC, regardless of location, for evaluating Site risks in order to identify the worst-case risks for the Site. It is conservatively assumed that individuals will be exposed to a consistent maximum COPC concentration in soil, based on the assumptions used in the assessment, regardless of where they are on the Site. That is, fluctuations in chemical concentrations, either spatially or temporally, are not considered.

The exposure point concentrations for asbestos were based on the pooled analytical sensitivity of the dataset. Therefore, asbestos exposure point concentrations are determined differently than those for the other COPCs. The pooled analytical sensitivity was calculated as follows:

$$Pooled\ Analytical\ Sensitivity = 1/\left[\sum_i (1/analytical\ sensitivity\ \ for\ trial\ i)\right]$$

Two estimates of the asbestos concentration were evaluated, best estimate and upper bound as defined in the draft methodology (USEPA 2003b). The best estimate concentration is similar to a central tendency estimate, while the upper bound concentration is comparable to a reasonable maximum exposure estimate. The pooled analytical sensitivity is multiplied by the number of chrysotile or amphibole structures to estimate concentration:

$$\text{Estimated Bulk Concentration } (10^6 \text{ s/gPM10}) = \text{Long fiber count} \times \text{Pooled analytical sensitivity}$$

For the best estimate, the number of fibers measured is incorporated into the calculation above. The upper bound of the asbestos concentration was also evaluated. It is calculated as the 95 percent UCL of the Poisson distribution where the mean equals the number of structures detected. In EXCEL, the following equation may be employed to calculate this value:

$$\text{95\% UCL of Poisson Distribution } (10^6 \text{ s/gPM10}) = \text{CHIINV}(1 - \alpha, 2 \times (\text{Long fiber count} + 1)/2)$$

This value is then multiplied by the pooled analytical sensitivity to estimate the upper bound concentration. The intent of the risk assessment methodology was to predict the risk associated with airborne asbestos.

In order to quantify the airborne asbestos concentration, the estimated dust levels or particulate emission factors were used:

$$\text{Estimated Airborne Concentration } (s/cm^3) = \text{Estimated bulk concentration } (10^6 \text{ s/gPM10}) \times \text{Estimated dust level } (ug/cm^3)$$

Risk Assessment Methodology

The method used in this screening-level health risk assessment consists of a simple comparison of maximum detected concentrations to USEPA Region 9 industrial PRGs. Several chemicals have both cancer and non-cancer toxicity criteria. For these chemicals USEPA calculates PRGs for both cancer and non-cancer endpoints; however only the lower value is published in its PRG table. The other value is included in a separate spreadsheet table. This other value is shown on Table 1 as the 'Secondary Industrial PRG' and is included in the screening-level risk assessment calculations.

Methods for Assessing Non-Cancer Health Effects

In this assessment, adverse non-cancer health effects were characterized by comparing the maximum measured soil concentrations with an exposure level at which no adverse health effects are expected to occur for a long period of exposure (i.e., USEPA Region 9 PRGs). Maximum measured soil concentrations and PRGs are compared by dividing the maximum measured soil concentration by the PRG, as shown below:

$$Hazard\ Quotient = \frac{Maximum\ Measured\ Soil\ Concentration}{Industrial\ Soil\ PRG}$$

If a person's representative exposure concentration is less than the PRG (i.e., if the hazard quotient is less than one), the chemical is considered unlikely to pose a significant non-cancer health hazard to individuals under the given exposure conditions assumed in the exposure parameters assumed in deriving the applicable PRG.

In accordance with standard risk assessment protocol, the hazard quotients for multiple chemicals are summed to determine whether the cumulative effect poses a potential health concern. The sum of the hazard quotients is known as a hazard index (HI).

$$Hazard\ Index = \sum Hazard\ Quotients$$

An HI less than 1.0 indicates the exposure is unlikely to be associated with a potential health concern.

Methods for Assessing Cancer Risks

Carcinogenic risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of a chemical exposure. When utilizing PRGs, carcinogenic risks are evaluated much in the same manner as hazard quotients.

$$Cancer\ Risk = \frac{Maximum\ Mesured\ Soil\ Concentration}{Industrial\ Soil\ PRG} \times 10^{-6}$$

In this fashion the PRG converts a measured concentration to incremental risk of an individual developing cancer. Because cancer risks are averaged over a person's lifetime, longer term exposure to a carcinogen will result in higher risks than shorter term exposure to the same carcinogen, if all other exposure assumptions are constant.

It is assumed that cancer risks from various exposure routes are additive. Thus, the result of the assessment is a high-end estimate of the total carcinogenic risk.

$$Total\ Carcinogenic\ Risk = \sum Risk_{individual\ \ chemicals}$$

Upper-bound carcinogenic risk estimates were compared to the USEPA acceptable risk range of 1 in 10,000 (10^{-4}) and 1 in 1 million (10^{-6}) and NDEP's acceptable level of 10^{-6}. If the estimated risk falls within or below this risk range, the chemical is considered unlikely to pose an unacceptable carcinogenic risk to individuals under the given exposure conditions. A risk level of 1×10^{-5} (1 E-5) represents a probability of one in 100,000 that an individual could develop cancer from exposure to the potential carcinogen under a defined set of exposure assumptions.

Uncertainty Analysis

Risk estimates are values that have uncertainties associated with them. These uncertainties, which arise at every step of a risk assessment, are evaluated to provide an indication of the uncertainty associated with a risk estimate. Risk assessments are not intended to estimate actual risks to a receptor associated with exposure to chemicals in the environment. In fact, estimating actual risks is impossible because of the variability in the exposed or potentially exposed populations. Therefore, risk assessment is a means of estimating the probability that an adverse health effect (*e.g.*, cancer, impaired reproduction) will occur in a receptor in order to assist in

decision making regarding the protection of human health. The multitude of conservative assumptions used in risk assessments guard against underestimation of risks.

Risk estimates are calculated by combining site data, assumptions about individual receptor's exposures to impacted media, and toxicity data. The uncertainties in this screening-level health risk assessment can be grouped into three main categories that correspond to these steps:

- Uncertainties in environmental sampling and analysis
- Uncertainties in assumptions concerning exposure scenarios
- Uncertainties in toxicity data and dose-response extrapolations

Some of the specific uncertainties associated with this screening-level health risk assessment are discussed below.

The use of maximum concentrations across both Parcels A and B causes an unusual form of conservatism in the results. That is, if a similar risk assessment had been performed separately for Parcels A and B, then these screening risk assessments would produce lower risks. The maximum concentration must be less in one area than in the other, for each chemical in turn.

The use of maximum concentrations also assumes that individuals will be exposed to a consistent maximum concentration regardless of where they are on the Site. That is, fluctuations in chemical concentrations, either spatially or temporally, are not considered.

The uranium isotope analyses are different between the background and Site datasets. The primary difference between the background and Site uranium isotope data is that the sample preparation method in the background dataset used a total dissolution method, while the Site dataset used a nitric acid preparation method. Because of incompatibility between the two datasets, an approach was used to account for and correct the low bias associated with the Site uranium isotope data. The approach used to ratio up uranium isotope concentrations is somewhat crude and may overstate the concentrations. It is anticipated that since thorium and radium isotopes are consistent with background, it is likely that actual uranium isotopic concentrations are also consistent with background. However, in the interest of completing the NFAD for the Parcels A and B, the "corrected" uranium data were used.

Because of the surface soil remediation for asbestos, the new surface layer of the Site could have different chemical concentrations than those that were measured prior to remediation. Because only asbestos was re-analyzed for in the post-scrape samples, the original measured surface soil data at the Site for all other chemicals was retained for further evaluation.

However, because there are no historical uses of the Site, and based on the depth profiles of the chemicals, it is reasonable to assume that the concentration distribution did not change in any important way. It might also be reasonable to assume that concentrations are now lower for some chemicals (*e.g.*, dioxins), because of the removal of some soil.

Overall, the exposure assumptions and toxicity criteria are considered conservative and the risk estimates calculated in this screening-level health risk assessment are likely to overestimate rather than underestimate potential risks.

Screening-Level Health Risk Assessment Results

This screening-level health risk assessment has evaluated potential risks to human health associated with chemicals detected in soil at the Tronox Parcels A and B located within the Tronox property in Clark County, Nevada. The calculated theoretical upper-bound ILCRs and non-cancer health effects are presented in Table 1. Asbestos risk calculations are presented in Table 5. All calculation spreadsheets for this screening-level health risk assessment are included in Attachment C.

The risk estimates are based on reasonable worst-case exposure scenarios, which results in estimates of the potential high-end risks associated with the property, which are more conservative than a reasonable maximum exposure scenario. The total cumulative non-cancer HI for future commercial/industrial receptors at the property is 0.27, which is below the target HI of 1.0. Because the total cumulative HI is below 1.0, the potential for adverse health effects is considered unlikely.

The total theoretical upper-bound ILCR for future commercial/industrial receptors at the property for non-radionuclides is 1×10^{-6}. The ILCR is equal to the risk goal of 1×10^{-6}. Because the total theoretical upper-bound ILCR is equal to the risk goal, these results indicate that future receptor exposures at the property should not result in unacceptable non-radionuclide carcinogenic risks.

The total theoretical upper-bound ILCR for future commercial/industrial receptors at the property for radionuclides is 3×10^{-6}. Although the ILCR is above the risk goal of 1×10^{-6}; this is comparable to the theoretical upper-bound ILCR for background levels of the uranium isotopes of 3×10^{-6}. Therefore, these results indicate that future receptor exposures at the property should not result in unacceptable radionuclide carcinogenic risks.

The estimated risks for death from lung cancer or mesothelioma for asbestos exposures to outdoor maintenance worker receptors were below 1×10^{-6}. For construction workers, the best estimate and upper bound concentrations of asbestos range from 1×10^{-7} to 8×10^{-7} for chrysotile fibers, and from zero to 5×10^{-6} for amphibole fibers. No long amphibole structures have been detected at the property. The upper bound estimated risk for death from lung cancer or mesothelioma is associated with the UCL of the Poisson distribution which assumes the mean amphibole concentration is equal to three long amphibole structures per cubic centimeter. However, the high-end risk estimate for deaths from lung cancer or mesothelioma of 5×10^{-6} is an overly conservative value for the following reasons:

- It is based on a 95 percent UCL of the Poisson distribution of three long amphibole structures although no long amphibole structures have been detected at the property following remediation; and

- The values from Tables 8-2 of USEPA (2003a) should only be used for structures longer than 10 μm and thinner than 0.4 μm; and are recommended only for constant lifetime exposures, not short term exposures such as construction activities.

Thus, the results of the screening-level health risk assessment indicate that exposures to chemicals in soil at the property should not result in adverse health effects to all future on-site receptors.

Summary

Based on the results of the 2007 investigation, this data review, and the screening-level health risk assessment, concentration levels of chemicals at the Tronox Parcels A and B property are not at levels of concern for human health risk for an industrial scenario. In summary, BEC concludes that an NFAD for the property is warranted.

REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Dioxin and Dioxin-Like Compounds in Soil, Part 1: ATSDR Interim Policy Guideline. U.S. Department of Health and Human Services, Atlanta, GA.

Basic Environmental Company (BEC). 2007. Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization, Tronox Parcels “A” and “B” Site, Henderson, Nevada (Revision 1).

Basic Environmental Company (BEC) and ERM. 2007. Data Validation Summary Report, Tronox Parcels A/B Investigation August-September 2007, BMI Industrial Complex, Clark County, Nevada. November.

Basic Remediation Company (BRC), ERM, and Daniel B. Stephens & Associates, Inc. (DBS&A). 2007. BRC Closure Plan, BMI Common Areas, Clark County, Nevada. May.

Basic Remediation Company (BRC), ERM, and MWH. 2007a. BRC Quality Assurance Project Plan. BMI Common Areas, Clark County, Nevada. August.

Basic Remediation Company (BRC), ERM, and MWH. 2007b. BRC Field Sampling and Standard operating Procedures. BMI Common Areas, Clark County, Nevada. August.

Basic Remediation Company (BRC) and TIMET. 2007. Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity. Prepared by Tetra Tech and MWH.

Berman, D.W. and Chatfield, E.J. 1990. Interim Superfund Method for the Determination of Asbestos in Ambient Air. Part 2: Technical Background Document, Office of Solid Waste and Remedial Response, U.S. EPA, Washington, D.C., EPA/540/2-90/005b, May.

Berman, D.W. and Kolk, A. 2000. Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material. May (Revision 1).

Berman, D.W. and Crump, K.S. 2001. Technical Support Document for a Protocol to Assess Asbestos-Related Risk. Prepared for Mark Raney, Volpe Center, U.S. Department of Transportation, 55 Broadway, Kendall Square, Cambridge, MA 02142. Under EPA Review.

Neptune and Company. 2007. Guided Interactive Statistical Decision Tools (GIS_dT). www.gisdt.org.

U.S. Environmental Protection Agency (USEPA). 1989. Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response, Washington, D.C. USEPA/540/1-89/002. December.

U.S. Environmental Protection Agency (USEPA). 1992a. Guidance for Data Usability in Risk Assessment. Part A. Office of Emergency and Remedial Response, Washington D.C. Publication 9285.7-09A. PB92-963356. April.

U.S. Environmental Protection Agency (USEPA). 1992b. Guidelines for Exposure Assessment. Federal Register, 57(104):22888-22938. May 29.

U.S. Environmental Protection Agency (USEPA). 1999. National Functional Guidelines for Organic Data Review. EPA 540/R-99-008. OSWER 9240.1-05A-P. October.

U.S. Environmental Protection Agency (USEPA). 2001. National Functional Guidelines for Low-Concentration Organic Data Review. EPA 540-R-00-006. OSWER 9240.1-34. June.

U.S. Environmental Protection Agency (USEPA). 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Office of Solid Waste and Emergency Response, Washington, DC. OSWER 9355.4-24. December.

U.S. Environmental Protection Agency (USEPA). 2002b. Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). Draft Guidance. EPA530-F-02-052. November.

U.S. Environmental Protection Agency (USEPA). 2002b. National Functional Guidelines for Chlorinated Dioxin/Furan Data Review. EPA 540-R-02-003. OSWER 9240.1-37. August.

U.S. Environmental Protection Agency (USEPA). 2002c. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. Office of Emergency and Remedial Response, Washington, DC. EPA 540-R-01-003. September.

U.S. Environmental Protection Agency (USEPA). 2002d. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. Office of Emergency and Remedial Response, Washington, DC. OSWER9285.6-10. December.

U.S. Environmental Protection Agency (USEPA). 2003a. Contract Laboratory Program Statement of Work for Organic Analysis: Multi-media, Multi-concentration. OLM04.3. Office of Emergency and Remedial Response. March.

U.S. Environmental Protection Agency (USEPA). 2003b. Technical Support Document for a Protocol to Assess Asbestos-Related Risk. Final Draft. Office of Solid Waste and Emergency Response, Washington, DC.

U.S. Environmental Protection Agency (USEPA). 2004a. Region 9 PRGs Table 2004 Update. USEPA Region 9, San Francisco, CA. October.

U.S. Environmental Protection Agency (USEPA). 2004b. Contract Laboratory Program Statement of Work for Organic Analysis: Multi-media, Multi-concentration. SOM01.0. Office of Emergency and Remedial Response. October.

U.S. Environmental Protection Agency (USEPA). 2004c. Contract Laboratory Program Statement of Work for Inorganic Analysis: Multi-media, Multi-concentration. ILM05.3. Office of Emergency and Remedial Response. March.

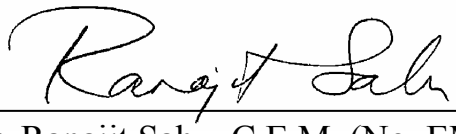
U.S. Environmental Protection Agency (USEPA). 2004d. National Functional Guidelines for Inorganic Data Review. EPA 540-R-04-004. OSWER 9240.1-45. October.

U.S. Environmental Protection Agency (USEPA). 2007a. ProUCL Version 4.0, Technical Guide. Office of Research and Development, Washington, DC. EPA/600/R-07/041. April.

U.S. Environmental Protection Agency (USEPA). 2007b. Persistent Bioaccumulative and Toxic (PBT) Chemical Program. USEPA on-line database: http://www.epa.gov/pbt/.

Attachments: Table 1 – Soil Data and Screening-Level Risk Assessment Results Summary
Table 2 – Site and Background Summary Statistics
Table 3 – Background Comparison Summary
Table 4 – Data Adequacy Evaluation
Table 5 – Asbestos Risk Summary
Figure 1 – Tronox/BEC Parcel Map with Tronox Source Areas
Figure 2 – Parcel A Sample Locations
Figure 3 – Parcel B Sample Locations
Figure 4 – Areas Remediated for Asbestos
Figure 5 – Conceptual Site Model Diagram for Potential Human Exposures
Attachment A – Tronox/BEC Response to Comments and Redline Version of Text
Attachment B – Legal Descriptions for Tronox Parcels A and B
Attachment C – 2007 Tronox Parcels A/B Investigation Data (Database on CD)
Attachment D – January 9, 2008 Asbestos Data Review for 2007 Tronox Parcels A/B Investigation Memorandum
Attachment E – December 18, 2007 Uranium Isotope Data Review for 2007 Tronox Parcels A/B Investigation Memorandum
Attachment F – Probability Plots and Boxplots

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.



February 11, 2008

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2009) Date
BRC Project Manager

FIGURES

N

Parcel "A"

Parcel "B"

Parcel "C"

Parcel "D"

Parcel "E"

Parcel "F"

Parcel "G"

Parcel "H"

Parcel "I"

Parcel "J"

600 300 0 600

Feet

Tronox Property

Monitoring Wells

Historical Ditches

Tronox/BEC Parcels

NFA to be obtained later

NFA to be obtained now

Parcels included in this Data Review

TIMET NFA Area

Tronox Potential Source Area

Tronox Potential Source Area That is Less Defined

BEC / Tronox Parcels A/B Data Review
BMI Common Areas, Henderson, Nevada

FIGURE 1

TRONOX/BEC PARCEL MAP WITH TRONOX SOURCE AREAS

Basic Environmental COMPANY

Prepared by: MKJ

Date 01/30/08

JOB No. 0069073

FILE: GIS/BEC/TRONOX/FIGURE_1.MXD

Sampling Location

Monitoring Well

Gravel Pile

4-Acre Random Sampling Grid (Grid ID = "A-X#")

Sample ID Nomenclature:

TSB-BR(J)-01

- TSB: Parcel ID
- BR: Random Sample
- J: Judgmental Sample
- 01: Sample Number

February 2007 Aerial from AirPhotoUSA.

BEC / Tronox Parcels A/B Data Review
BMI Common Areas, Henderson, Nevada

FIGURE 2

PARCEL A
SAMPLE LOCATIONS

Basic Environmental COMPANY

Prepared by:	Date	JOB No. 0069073
MKJ	01/30/08	FILE: GIS/BEC/TRONOX/FIGURE_2.MXD

- Sampling Location
- Monitoring Well
- Approximate Fill Pile Location
- Approximate Debris Pile Location
- Approximate Concrete/Asphalt Pile Location
- 4-Acre Random Sampling Grid (Grid ID = "B-X#")

Sample ID Nomenclature:

TSB-BR(J)-01

- TSB-BR: Parcel ID
- (J): Random Sample
- -01: Sample Number
- J: Judgmental Sample

February 2007 Aerial from AirPhotoUSA.

BEC / Tronox Parcels A/B Data Review
BMI Common Areas, Henderson, Nevada

FIGURE 3

PARCEL B
SAMPLE LOCATIONS

Basic Environmental COMPANY

Prepared by:	Date	JOB No. 0069073
MKJ	01/30/08	FILE: GIS/BEC/TRONOX/FIGURE_3.MXD

Asbestos Sample Location

Remediated Areas*

February 2007 Aerial from AirPhotoUSA.

*These areas have had a minimum of 4" of soil removed for remediation purposes.

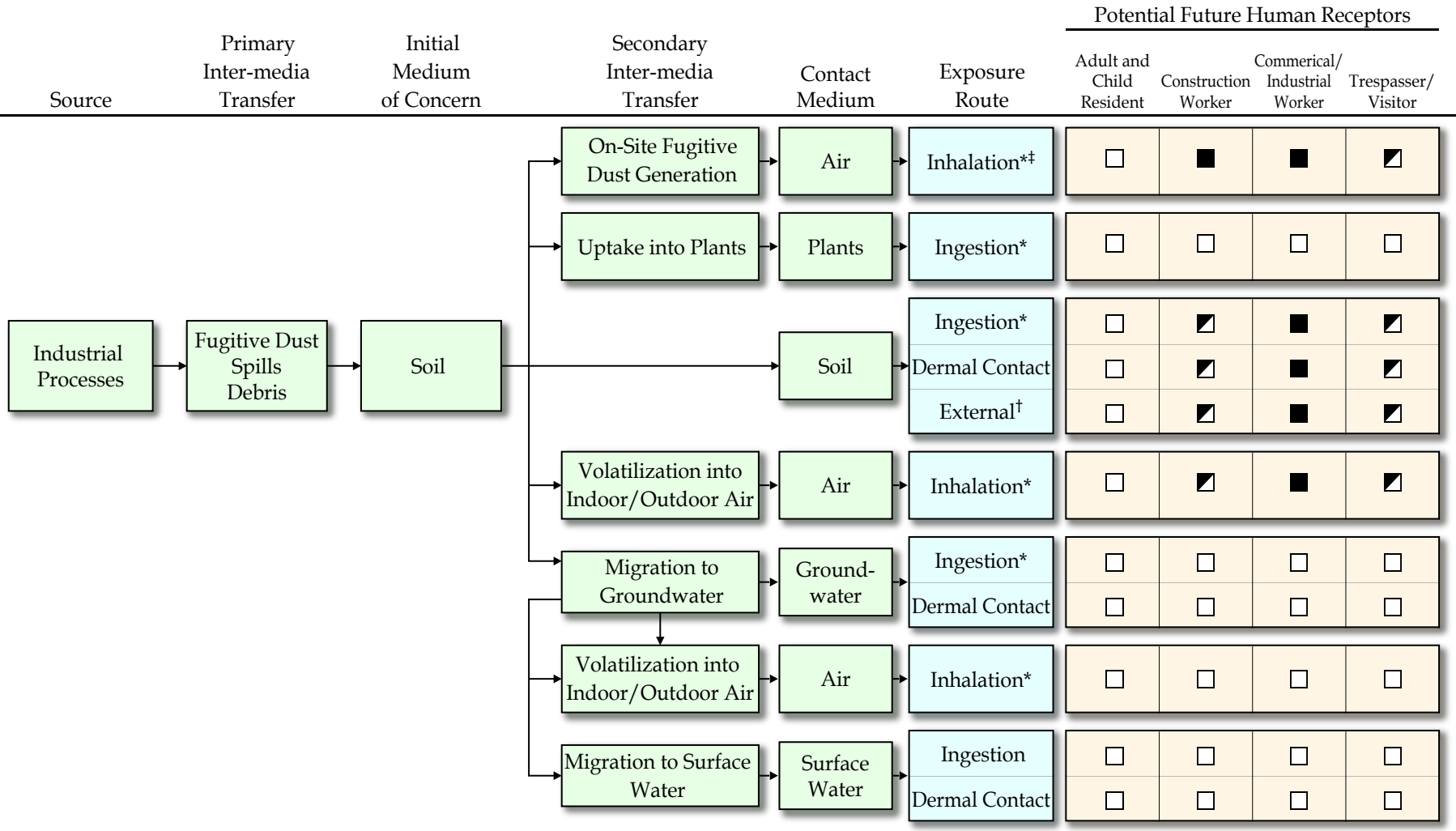
BEC / Tronox Parcels A/B Data Review
BMI Common Areas, Henderson, Nevada

FIGURE 4

ASBESTOS REMEDIATION AREAS

Basic Environmental COMPANY

Prepared by:	Date	JOB No. 0069073
MKJ	01/30/08	FILE: GIS/BEC/TRONOX/FIGURE_4.MXD



□ - Incomplete or insignificant exposure pathway.
■ - Complete or potentially complete exposure pathway.
◩ - Although a potentially complete exposure pathway, only commerical/industrial worker receptors (and construction workers for asbestos exposures) were evaluated in the screening-level health risk assessment (see text).
*Includes radionuclide exposures.
†Only radionuclide exposures.
‡Includes asbestos exposures.

BEC / Tronox Parcels A/B Data Review
BMI Common Areas, Henderson, Nevada

FIGURE 5

CONCEPTUAL SITE MODEL DIAGRAM FOR POTENTIAL HUMAN EXPOSURES

Basic Environmental COMPANY

Prepared by: MKJ Date 01/30/08

JOB No. 0069073
FILE: GIS/BEC/TRONOX/FIGURE_5.AI

TABLES

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect[a]	Max. Detect[a]	Location of Max. Detect	Min. Non-Detect Limit[b]	Max. Non-Detect Limit[b]
Dioxins/Furans	TCDD TEF[n]	pg/g	32	32	100%	0.73	472	TSB-BJ-05-0	--	--
Asbestos[i]	Chrysotile	Structures	30	4	13%	0	3	TSB-AR-05/ TSB-BJ-05	--	--
	Amphibole	Structures	30	0	0%	--	--	--	--	--
General Chemistry	Bromide	mg/kg	64	28	44%	0.69	7.8	TSB-AJ-02-10	2.5	3.1
	Bromine	mg/kg	64	28	44%	1.4	15.7	TSB-AJ-02-10	5.1	6.3
	Chlorate	mg/kg	64	17	27%	1.4	17	TSB-BR-02-10	5.1	6.3
	Chloride	mg/kg	64	62	97%	3.3	2,210	TSB-AR-06-0-DUP	2	206
	Chlorine	mg/kg	64	62	97%	6.6	4,410	TSB-AR-06-0-DUP	4.1	411
	Chlorite	ug/kg	3	0	0%	--	--	--	220	250
	Fluoride	mg/kg	64	41	64%	0.39	4.3	TSB-BJ-04-10	1	1.3
	Nitrate (as N)	mg/kg	64	64	100%	0.33	229	TSB-AR-06-0-DUP	0.2	10.4
	Nitrite (as N)	mg/kg	64	1	2%	0.45	0.45	TSB-AJ-03-0	0.2	0.25
	Orthophosphate as P	mg/kg	64	2	3%	2	2	TSB-AR-11-0	5.1	6.3
	Perchlorate	ug/kg	64	63	98%	53.4	41,600	TSB-BJ-03-10	40.6	2480
	Sulfate	mg/kg	64	64	100%	9.1	8,870	TSB-AR-12-10	5.1	265
Glycols/Alcohols	Ethanol	ug/kg	64	0	0%	--	--	--	250	310
Metals	Aluminum	mg/kg	64	64	100%	6,780	9,750	TSB-BJ-01-0	10.1	12.5
	Antimony	mg/kg	64	54	84%	0.11	0.42	TSB-BR-02-0	1	1.3
	Arsenic	mg/kg	64	64	100%	2.3	5.8	TSB-BR-04-10	2	2.5
	Barium	mg/kg	64	64	100%	148	269	TSB-BJ-01-10	4.1	5
	Beryllium	mg/kg	64	64	100%	0.41	0.65	TSB-BJ-01-10	0.2	0.25
	Boron	mg/kg	64	0	0%	--	--	TSB-BR-06-10	20.3	25
	Cadmium	mg/kg	64	52	81%	0.069	0.59	TSB-BJ-02-0	0.1	0.13
	Calcium	mg/kg	64	64	100%	15,600	75,300	TSB-AR-13-10	101	125
	Chromium (Total)	mg/kg	64	64	100%	7.3	17	TSB-BR-04-10	2	2.5
	Chromium (VI)	mg/kg	61	25	41%	0.18	0.58	TSB-BJ-04-0	1	1.3
	Cobalt	mg/kg	64	64	100%	4.6	7.5	TSB-BR-02-0	0.41	0.5
	Copper	mg/kg	64	64	100%	11.3	31	TSB-BR-02-0	2	2.5
	Iron	mg/kg	64	64	100%	10,100	17,200	TSB-BJ-02-0	10.1	12.5
	Lead	mg/kg	64	64	100%	6.5	136	TSB-BR-03-0	0.61	0.75
	Lithium	mg/kg	64	56	88%	10.9	22.6	TSB-AR-13-10	10.1	26.4
	Magnesium	mg/kg	64	64	100%	6,690	13,600	TSB-BR-05-10	101	125
	Manganese	mg/kg	64	64	100%	218	668	TSB-BR-02-0	0.41	0.5
	Mercury	ug/kg	64	40	63%	7.3	17.5	TSB-BJ-04-0	33.8	41.7
	Molybdenum	mg/kg	64	31	48%	0.48	1.4	TSB-AR-04-10	1	1.3
	Nickel	mg/kg	64	64	100%	11.2	23.7	TSB-AJ-02-0	1	1.3
	Niobium	mg/kg	64	2	3%	1.6	2	TSB-AR-08-0	5.1	6.3
	Palladium	mg/kg	64	64	100%	0.3	1.2	TSB-AR-13-10	0.2	0.25
	Phosphorus (as P)	mg/kg	64	64	100%	527	1,510	TSB-BR-02-0	101	125
	Platinum	mg/kg	64	0	0%	--	--	--	0.2	0.25
	Potassium	mg/kg	64	64	100%	2,040	4,800	TSB-AR-06-0-DUP	20.3	25

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect[a]	Max. Detect[a]	Location of Max. Detect	Min. Non-Detect Limit[b]	Max. Non-Detect Limit[b]
Metals	Selenium	mg/kg	64	0	0%	--	--	--	1	1.3
	Silicon	mg/kg	64	64	100%	128	1,320	TSB-AR-02-0	50.7	62.6
	Silver	mg/kg	64	64	100%	0.081	0.82	TSB-BR-03-0	0.41	0.5
	Sodium	mg/kg	64	64	100%	244	1,720	TSB-AR-06-0	40.6	50.1
	Strontium	mg/kg	64	64	100%	120	487	TSB-AR-13-10	1	1.3
	Sulfur	mg/kg	64	26	41%	443	5,980	TSB-AR-12-10	1010	2550
	Thallium	mg/kg	64	0	0%	--	--	TSB-BR-06-10	0.41	0.5
	Tin	mg/kg	64	56	88%	0.4	1.5	TSB-BR-02-0	0.41	0.5
	Titanium	mg/kg	64	64	100%	504	982	TSB-BJ-02-0	1	1.3
	Tungsten	mg/kg	64	0	0%	--	--	TSB-BR-06-10	1	1.3
	Uranium	mg/kg	64	64	100%	0.69	3.1	TSB-AR-13-10	0.2	0.25
	Vanadium	mg/kg	64	64	100%	24.2	53.4	TSB-BJ-02-0	2	2.5
	Zinc	mg/kg	64	64	100%	25.9	211	TSB-BJ-01-0	4.1	5
	Zirconium	mg/kg	64	64	100%	4.9	27.3	TSB-BJ-02-10	20.3	25
Organochlorine Pesticides	2,4-DDD	ug/kg	64	4	6%	2	17	TSB-BR-01-0	1.7	19
	2,4-DDE	ug/kg	64	11	17%	2.1	150	TSB-BR-01-0	1.7	19
	4,4-DDD	ug/kg	64	2	3%	7.5	18	TSB-BJ-05-0	1.7	19
	4,4-DDE	ug/kg	64	19	30%	1.8	310	TSB-BR-01-0	1.7	19
	4,4-DDT	ug/kg	64	10	16%	2.3	99	TSB-BR-01-0	1.7	19
	Aldrin	ug/kg	64	0	0%	--	--	--	1.7	19
	alpha-BHC	ug/kg	64	0	0%	--	--	--	1.7	19
	alpha-Chlordane	ug/kg	64	0	0%	--	--	--	1.7	19
	beta-BHC	ug/kg	64	31	48%	1.7	190	TSB-BR-01-0	1.7	19
	Chlordane	ug/kg	64	0	0%	--	--	--	17	190
	delta-BHC	ug/kg	64	0	0%	--	--	--	1.7	19
	Dieldrin	ug/kg	64	0	0%	--	--	--	1.7	19
	Endosulfan I	ug/kg	64	0	0%	--	--	--	1.7	19
	Endosulfan II	ug/kg	64	0	0%	--	--	--	1.7	19
	Endosulfan sulfate	ug/kg	64	0	0%	--	--	--	1.7	19
	Endrin	ug/kg	64	1	2%	7	7	TSB-BR-01-0	1.7	19
	Endrin aldehyde	ug/kg	64	2	3%	2.7	3.6	TSB-AR-12-0	1.7	19
	Endrin ketone	ug/kg	64	0	0%	--	--	--	1.7	19
	gamma-Chlordane	ug/kg	64	0	0%	--	--	--	1.7	19
	Heptachlor	ug/kg	64	0	0%	--	--	--	1.7	19
	Heptachlor epoxide	ug/kg	64	0	0%	--	--	--	1.7	19
	Lindane	ug/kg	64	0	0%	--	--	--	1.7	19
	Methoxychlor	ug/kg	64	0	0%	--	--	--	3.3	37
	Toxaphene	ug/kg	64	0	0%	--	--	--	68	760
Petroleum Hydrocarbons	TPH (as Gasoline)	mg/kg	64	0	0%	--	--	--	0.1	0.13
	TPH (as Diesel)	mg/kg	64	0	0%	--	--	--	25	31
	Oil/Grease	mg/kg	64	0	0%	--	--	--	203	250

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect[a]	Max. Detect[a]	Location of Max. Detect	Min. Non-Detect Limit[b]	Max. Non-Detect Limit[b]
Radionuclides	Radium-226	pCi/g	64	64	100%	0.837	1.48	TSB-AJ-01-10	0.0487	0.0944
	Radium-228	pCi/g	64	64	100%	1.4	2.13	TSB-BR-06-0	0.0978	0.18
	Thorium-228	pci/g	64	63	98%	0.973	2.17	TSB-BR-06-0	0.1	0.1
	Thorium-230	pci/g	64	64	100%	0.308	2.03	TSB-AR-3-10	0.1	0.1
	Thorium-232	pci/g	64	63	98%	1.1	2.36	TSB-BR-04-0	0.1	0.1
	Uranium-233/234[k]	pci/g	64	64	100%	0.82	3.69	TSB-AR-13-10	--	--
	Uranium-235/236[k]	pci/g	64	64	100%	0.05	0.22	TSB-AR-13-10	--	--
	Uranium-238[k]	pci/g	64	64	100%	0.81	3.65	TSB-AR-13-10	--	--
SVOCs	1,2,4,5-Tetrachlorobenzene	ug/kg	64	0	0%	--	--	--	330	410
	1,2-Diphenylhydrazine	ug/kg	64	0	0%	--	--	--	330	410
	1,4-Dioxane	ug/kg	64	0	0%	--	--	--	330	410
	1-Nonanal	ug/kg	64	0	0%	--	--	--	10	13
	2,2'-/4,4'-Dichlorobenzil	ug/kg	64	0	0%	--	--	--	330	2800
	2,4,5-Trichlorophenol	ug/kg	64	0	0%	--	--	--	330	410
	2,4,6-Trichlorophenol	ug/kg	64	0	0%	--	--	--	330	410
	2,4-Dichlorophenol	ug/kg	64	0	0%	--	--	--	330	410
	2,4-Dimethylphenol	ug/kg	64	0	0%	--	--	--	330	410
	2,4-Dinitrophenol	ug/kg	64	0	0%	--	--	--	1600	2000
	2,4-Dinitrotoluene	ug/kg	64	0	0%	--	--	--	330	410
	2,6-Dinitrotoluene	ug/kg	64	0	0%	--	--	--	330	410
	2-Chloronaphthalene	ug/kg	64	0	0%	--	--	--	330	410
	2-Chlorophenol	ug/kg	64	0	0%	--	--	--	330	410
	2-Methylnaphthalene	ug/kg	64	0	0%	--	--	--	330	410
	2-Nitroaniline	ug/kg	64	0	0%	--	--	--	1600	2000
	2-Nitrophenol	ug/kg	64	0	0%	--	--	--	330	410
	3,3'-Dichlorobenzidine	ug/kg	64	0	0%	--	--	--	1600	2000
	3-Methylphenol & 4-Methylphenol	ug/kg	64	0	0%	--	--	--	670	830
	3-Nitroaniline	ug/kg	64	0	0%	--	--	--	1600	2000
	4-Bromophenyl phenyl ether	ug/kg	64	0	0%	--	--	--	330	410
	4-Chloro-3-Methylphenol	ug/kg	64	0	0%	--	--	--	330	410
	4-Chlorophenyl phenyl ether	ug/kg	64	0	0%	--	--	--	330	410
	4-Nitrophenol	ug/kg	64	0	0%	--	--	--	1600	2000
	Acenaphthene	ug/kg	64	10	16%	65	1,000	TSB-AJ-01-10	51	63
	Acenaphthylene	ug/kg	64	0	0%	--	--	--	100	130
	Acetophenone	ug/kg	64	0	0%	--	--	--	330	410
	Aniline	ug/kg	64	0	0%	--	--	--	330	410
	Anthracene	ug/kg	64	0	0%	--	--	--	30	38
	Azobenzene	ug/kg	64	0	0%	--	--	--	330	410
	Benzenethiol	ug/kg	64	0	0%	--	--	--	330	410
	Benzo(a)anthracene	ug/kg	64	1	2%	55	55	TSB-AR-01-0-DUP	15	19
	Benzo(a)pyrene	ug/kg	64	1	2%	19	19	TSB-BJ-03-0	15	19

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect[a]	Max. Detect[a]	Location of Max. Detect	Min. Non-Detect Limit[b]	Max. Non-Detect Limit[b]
SVOCs	Benzo(b)fluoranthene	ug/kg	64	1	2%	21	21	TSB-BJ-03-0	15	19
	Benzo(g,h,i)perylene	ug/kg	64	0	0%	--	--	--	30	38
	Benzo(k)fluoranthene	ug/kg	64	0	0%	--	--	--	15	19
	Benzoic acid	ug/kg	64	0	0%	--	--	--	1600	2000
	Benzyl alcohol	ug/kg	64	0	0%	--	--	--	330	410
	Benzyl butyl phthalate	ug/kg	64	4	6%	42	420	TSB-BJ-04-0	330	410
	bis(2-Chloroethoxy) methane	ug/kg	64	0	0%	--	--	--	330	410
	bis(2-Chloroethyl) ether	ug/kg	64	0	0%	--	--	--	330	410
	bis(2-Chloroisopropyl) ether	ug/kg	64	0	0%	--	--	--	330	410
	bis(2-Ethylhexyl) phthalate	ug/kg	64	2	3%	37	140	TSB-BR-03-0	330	410
	bis(p-Chlorophenyl) disulfide	ug/kg	64	0	0%	--	--	--	330	410
	bis(p-Chlorophenyl) sulfone	ug/kg	64	0	0%	--	--	--	330	410
	Carbazole	ug/kg	64	0	0%	--	--	--	330	410
	Chrysene	ug/kg	64	2	3%	18	24	TSB-BJ-03-0	15	19
	Dibenzo(a,h)anthracene	ug/kg	64	0	0%	--	--	--	30	38
	Dibenzofuran	ug/kg	64	0	0%	--	--	--	330	410
	Dibutyl phthalate	ug/kg	64	1	2%	50	50	TSB-BR-03-0	330	410
	Diethyl phthalate	ug/kg	64	0	0%	--	--	--	330	410
	Dimethyl phthalate	ug/kg	64	0	0%	--	--	--	330	410
	Di-n-octyl phthalate	ug/kg	64	0	0%	--	--	--	330	410
	Diphenyl sulfone	ug/kg	64	0	0%	--	--	--	330	410
	Fluoranthene	ug/kg	64	0	0%	--	--	--	330	410
	Fluorene	ug/kg	64	0	0%	--	--	--	330	410
	Hexachlorobenzene	ug/kg	64	1	2%	49	49	TSB-BR-01-0	330	410
	Hexachlorocyclopentadiene	ug/kg	64	0	0%	--	--	--	1600	2000
	Hydroxymethyl phthalimide	ug/kg	64	0	0%	--	--	--	330	410
	Indeno(1,2,3-cd)pyrene	ug/kg	64	0	0%	--	--	--	15	19
	Isophorone	ug/kg	64	0	0%	--	--	--	330	410
	Naphthalene	ug/kg	64	0	0%	--	--	--	330	410
	Nitrobenzene	ug/kg	64	0	0%	--	--	--	330	410
	N-nitrosodi-n-propylamine	ug/kg	64	0	0%	--	--	--	330	410
	N-nitrosodiphenylamine	ug/kg	64	0	0%	--	--	--	330	410
	o-Cresol	ug/kg	64	0	0%	--	--	--	330	410
	Octachlorostyrene	ug/kg	64	1	2%	41	41	TSB-BR-01-0	330	410
	p-Chloroaniline	ug/kg	64	0	0%	--	--	--	330	410
	p-Chlorothiophenol	ug/kg	64	0	0%	--	--	--	330	410
	Pentachlorobenzene	ug/kg	64	0	0%	--	--	--	330	410
	Pentachlorophenol	ug/kg	64	0	0%	--	--	--	1600	2000
	Phenanthrene	ug/kg	64	0	0%	--	--	--	30	38
	Phenol	ug/kg	64	0	0%	--	--	--	330	410
	Phenyl Disulfide	ug/kg	64	0	0%	--	--	--	330	410

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect[a]	Max. Detect[a]	Location of Max. Detect	Min. Non-Detect Limit[b]	Max. Non-Detect Limit[b]
SVOCs	Phenyl Sulfide	ug/kg	64	0	0%	--	--	--	330	410
	Phthalic acid	ug/kg	64	0	0%	--	--	--	1600	2000
	p-Nitroaniline	ug/kg	64	0	0%	--	--	--	1600	2000
	Pyrene	ug/kg	64	0	0%	--	--	--	30	38
	Pyridine	ug/kg	64	0	0%	--	--	--	670	830
VOCs	1,1,1,2-Tetrachloroethane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,1,1-Trichloroethane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,1,2,2-Tetrachloroethane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,1,2-Trichloroethane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,1-Dichloroethane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,1-Dichloroethylene	ug/kg	64	0	0%	--	--	--	5	6.3
	1,1-Dichloropropene	ug/kg	64	0	0%	--	--	--	5	6.3
	1,2,3-Trichlorobenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	1,2,3-Trichloropropane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,2,4-Trichlorobenzene	ug/kg	64	1	2%	0.9	0.9	TSB-AJ-01-10	5	6.3
	1,2,4-Trimethylbenzene	ug/kg	64	34	53%	0.23	0.57	TSB-AR-13-10	5	6.3
	1,2-Dibromo-3-chloropropane	ug/kg	64	0	0%	--	--	--	10	13
	1,2-Dichlorobenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	1,2-Dichloroethane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,2-Dichloroethylene	ug/kg	64	0	0%	--	--	--	10	13
	1,2-Dichloropropane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,3,5- Trichlorobenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	1,3,5-Trimethylbenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	1,3-Dichlorobenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	1,3-Dichloropropane	ug/kg	64	0	0%	--	--	--	5	6.3
	1,4-Dichlorobenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	2,2,3-Trimethylbutane	ug/kg	64	0	0%	--	--	--	5	6.3
	2,2-Dichloropropane	ug/kg	64	0	0%	--	--	--	5	6.3
	2,2-Dimethylpentane	ug/kg	64	0	0%	--	--	--	5	6.3
	2,3-Dimethylpentane	ug/kg	64	0	0%	--	--	--	5	6.3
	2,4-Dimethylpentane	ug/kg	64	0	0%	--	--	--	20	25
	2-Chlorotoluene	ug/kg	64	0	0%	--	--	--	5	6.3
	2-Nitropropane	ug/kg	64	0	0%	--	--	--	10	13
	2-Phenylbutane	ug/kg	64	0	0%	--	--	--	5	6.3
	3,3-dimethylpentane	ug/kg	64	0	0%	--	--	--	10	13
	3-ethylpentane	ug/kg	64	0	0%	--	--	--	5	6.3
	3-Methylhexane	ug/kg	64	0	0%	--	--	--	5	6.3
	4-Chlorothioanisole	ug/kg	64	0	0%	--	--	--	330	410
	4-Chlorotoluene	ug/kg	64	0	0%	--	--	--	5	6.3
	Acetone	ug/kg	64	9	14%	6.5	16	TSB-BJ-01-10	20	25
	Acetonitrile	ug/kg	64	0	0%	--	--	--	50	63

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect[a]	Max. Detect[a]	Location of Max. Detect	Min. Non-Detect Limit[b]	Max. Non-Detect Limit[b]
VOCs	Benzene	ug/kg	64	0	0%	--	--	--	5	6.3
	Bromobenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	Bromodichloromethane	ug/kg	64	0	0%	--	--	--	5	6.3
	Bromomethane	ug/kg	64	0	0%	--	--	--	10	13
	Carbon disulfide	ug/kg	64	0	0%	--	--	--	5	6.3
	Carbon tetrachloride	ug/kg	64	0	0%	--	--	--	5	6.3
	Freon 11	ug/kg	64	0	0%	--	--	--	5	6.3
	Freon 12	ug/kg	64	0	0%	--	--	--	10	13
	Freon 113	ug/kg	64	0	0%	--	--	--	5	6.3
	Chlorobenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	Chlorobromomethane	ug/kg	64	0	0%	--	--	--	5	6.3
	Chlorodibromomethane	ug/kg	64	0	0%	--	--	--	5	6.3
	Chloroethane	ug/kg	64	0	0%	--	--	--	10	13
	Chloroform	ug/kg	64	0	0%	--	--	--	5	6.3
	Chloromethane	ug/kg	64	0	0%	--	--	--	10	13
	cis-1,2-Dichloroethylene	ug/kg	64	0	0%	--	--	--	5	6.3
	cis-1,3-Dichloropropylene	ug/kg	64	0	0%	--	--	--	5	6.3
	Cymene	ug/kg	64	0	0%	--	--	--	5	6.3
	Dibromomethane	ug/kg	64	0	0%	--	--	--	5	6.3
	Dichloromethane	ug/kg	64	0	0%	--	--	--	5	6.3
	Ethylbenzene	ug/kg	64	3	5%	0.2	0.24	TSB-AR-07-10	5	6.3
	Hexachloro-1,3-butadiene	ug/kg	64	0	0%	--	--	--	330	410
	Hexachloroethane	ug/kg	64	0	0%	--	--	--	330	410
	Hexane, 2-methyl-	ug/kg	64	0	0%	--	--	--	5	6.3
	Isopropylbenzene	ug/kg	64	0	0%	--	--	--	5	6.3
	m,p-Xylene	ug/kg	64	0	0%	--	--	--	5	6.3
	Methyl disulfide	ug/kg	64	0	0%	--	--	--	5	6.3
	Methyl ethyl ketone	ug/kg	64	0	0%	--	--	--	20	25
	Methyl iodide	ug/kg	64	0	0%	--	--	--	5	6.3
	Methyl isobutyl ketone	ug/kg	64	0	0%	--	--	--	20	25
	Methyl n-butyl ketone	ug/kg	64	0	0%	--	--	--	20	25
	MTBE (Methyl tert-butyl ether)	ug/kg	64	0	0%	--	--	--	5	6.3
	n-Butyl benzene	ug/kg	64	0	0%	--	--	--	5	6.3
	n-Heptane	ug/kg	64	0	0%	--	--	--	5	6.3
	n-Propyl benzene	ug/kg	64	0	0%	--	--	--	5	6.3
	o-Xylene	ug/kg	64	0	0%	--	--	--	5	6.3
	Styrene (monomer)	ug/kg	64	0	0%	--	--	--	5	6.3
	tert-Butyl benzene	ug/kg	64	0	0%	--	--	--	5	6.3
	Tetrachloroethylene	ug/kg	64	0	0%	--	--	--	5	6.3
	Toluene	ug/kg	64	11	17%	0.24	0.65	TSB-BR-06-10	5	6.3
	trans-1,2-Dichloroethylene	ug/kg	64	0	0%	--	--	--	5	6.3

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect[a]	Max. Detect[a]	Location of Max. Detect	Min. Non-Detect Limit[b]	Max. Non-Detect Limit[b]
VOCs	trans-1,3-Dichloropropylene	ug/kg	64	0	0%	--	--	--	5	6.3
	Tribromomethane	ug/kg	64	0	0%	--	--	--	5	6.3
	Trichloroethylene	ug/kg	64	0	0%	--	--	--	5	6.3
	Vinyl acetate	ug/kg	64	0	0%	--	--	--	5	6.3
	Vinyl chloride	ug/kg	64	0	0%	--	--	--	5	6.3
	Xylenes (total)	ug/kg	64	0	0%	--	--	--	10	13

a - Range of detections include estimated values of detect results between the detection limit and reporting limit. As such some minimum detected concentrations may be below the minimum reporting limit. In these cases the respective sample results are flagged in the data set.
b - The quantitation limits shown include samples which had detections. For screening purposes, the detection limit was used for comparison to the screening levels.
c - From USEPA Region 9 preliminary remediation goals (PRG) table, Oct. 2004 (and the 2007 USEPA radionuclide PRG webpage; http://epa-prgs.ornl.gov/radionuclides). Values used are industrial soil PRGs. Several chemicals have both cancer and non-cancer toxicity criteria. For these chemicals USEPA calculates PRGs for both cancer and non-cancer endpoints; however only the lower value is published in its PRG table. The other value is included in a separate spreadsheet table. This other value is shown on this table as the 'Secondary Industrial PRG' and is included in the screening-level risk assessment calculations.
d - Values used are the maximum from the shallow soils background dataset presented in the Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity (BRC/TIMET 2007).
e - Based on results of statistical comparison tests performed between shallow background and site datasets (see Table 3).
f - Non-cancer hazard indices were calculated by dividing the maximum detected value by its PRG (or secondary PRG). The total non-cancer hazard index is the sum of all chemical-specific hazard indices.
g - Theoretical upper-bound incremental lifetime cancer risks were calculated by were calculated by dividing the maximum detected value by its PRG (or secondary PRG) times 1E-6. The total incremental lifetime cancer risk is the sum of all chemical-specific cancer risks.
h - Agency for Toxic Substances and Disease Registry (ATSDR) action level of 1.0 parts per billion (ppb).
i - Asbestos results shown are for long protocol structures (>10um).
j - Reporting limits exceed industrial PRGs; however, in all cases MDL is below PRG.
k - Calculated activities for the uranium isotopes are based on Approach #1 presented in the Uranium Isotope Data Review for 2007 Tronox Parcels A/B Investigation memorandum (see Attachment E).

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Count of Detects > PRG	SSL (DAF = 1)[c]	Count of Detects > SSL (1)	SSL (DAF = 20)[c]	Count of Detects > SSL (20)
Dioxins/Furans	TCDD TEF[n]	pg/g	472	1,000	ca	--	0	--	--	--	--
Asbestos[i]	Chrysotile	Structures	3	--	--	--	--	--	--	--	--
	Amphibole	Structures	--	--	--	--	--	--	--	--	--
General Chemistry	Bromide	mg/kg	7.8	--	--	--	--	--	--	--	--
	Bromine	mg/kg	15.7	--	--	--	--	--	--	--	--
	Chlorate	mg/kg	17	--	--	--	--	--	--	--	--
	Chloride	mg/kg	2,210	--	--	--	--	--	--	--	--
	Chlorine	mg/kg	4,410	--	--	--	--	--	--	--	--
	Chlorite	ug/kg	--	--	--	--	--	--	--	--	--
	Fluoride	mg/kg	4.3	36,900	nc	--	0	--	--	--	--
	Nitrate (as N)	mg/kg	229	--	--	--	--	--	--	--	--
	Nitrite (as N)	mg/kg	0.45	--	--	--	--	--	--	--	--
	Orthophosphate as P	mg/kg	2	--	--	--	--	--	--	--	--
	Perchlorate	ug/kg	41,600	>100,000	--	--	0	--	--	--	--
	Sulfate	mg/kg	8,870	--	--	--	--	--	--	--	--
Glycols/Alcohols	Ethanol	ug/kg	--	--	--	--	--	--	--	--	--
Metals	Aluminum	mg/kg	9,750	>100,000	nc	--	0	--	--	--	--
	Antimony	mg/kg	0.42	409	nc	--	0	0.3	3	5	0
	Arsenic	mg/kg	5.8	1.6	ca	260	64	1	64	29	0
	Barium	mg/kg	269	66,600	nc	--	0	82	64	1600	0
	Beryllium	mg/kg	0.65	1940	ca	--	0	3	0	63	0
	Boron	mg/kg	--	>100,000	nc	--	0	--	--	--	--
	Cadmium	mg/kg	0.59	451	nc	3,000	0	0.4	4	8	0
	Calcium	mg/kg	75,300	--	--	--	--	--	--	--	--
	Chromium (Total)	mg/kg	17	448	nc	--	0	--	--	--	--
	Chromium (VI)	mg/kg	0.58	64	ca	2,500	0	2	0	38	0
	Cobalt	mg/kg	7.5	1,920	ca	--	0	--	--	--	--
	Copper	mg/kg	31	40,900	nc	--	0	--	--	--	--
	Iron	mg/kg	17,200	>100,000	nc	--	0	--	--	--	--
	Lead	mg/kg	136	800	nc	--	0	--	--	--	--
	Lithium	mg/kg	22.6	20,400	nc	--	0	--	--	--	--
	Magnesium	mg/kg	13,600	--	--	--	--	--	--	--	--
	Manganese	mg/kg	668	19,500	nc	--	0	--	--	--	--
	Mercury	ug/kg	17.5	--	--	--	--	--	--	--	--
	Molybdenum	mg/kg	1.4	5,110	nc	--	0	--	--	--	--
	Nickel	mg/kg	23.7	20,400	nc	--	0	7	64	130	0
	Niobium	mg/kg	2	--	--	--	--	--	--	--	--
	Palladium	mg/kg	1.2	--	--	--	--	--	--	--	--
	Phosphorus (as P)	mg/kg	1,510	--	nc	--	--	--	--	--	--
	Platinum	mg/kg	--	--	--	--	--	--	--	--	--
	Potassium	mg/kg	4,800	--	--	--	--	--	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Count of Detects > PRG	SSL (DAF = 1)[c]	Count of Detects > SSL (1)	SSL (DAF = 20)[c]	Count of Detects > SSL (20)
Metals	Selenium	mg/kg	--	5,110	nc	--	0	0.3	0	5	0
	Silicon	mg/kg	1,320	--	--	--	--	--	--	--	--
	Silver	mg/kg	0.82	5,110	nc	--	0	2	0	34	0
	Sodium	mg/kg	1,720	--	--	--	--	--	--	--	--
	Strontium	mg/kg	487	>100,000	nc	--	0	--	--	--	--
	Sulfur	mg/kg	5,980	--	--	--	--	--	--	--	--
	Thallium	mg/kg	--	68	nc	--	0	--	--	--	--
	Tin	mg/kg	1.5	>100,000	nc	--	0	--	--	--	--
	Titanium	mg/kg	982	>100,000	nc	--	0	--	--	--	--
	Tungsten	mg/kg	--	--	--	--	--	--	--	--	--
	Uranium	mg/kg	3.1	204	nc	--	0	--	--	--	--
	Vanadium	mg/kg	53.4	1,020	nc	--	0	300	0	6000	0
	Zinc	mg/kg	211	>100,000	nc	--	0	620	0	12000	0
	Zirconium	mg/kg	27.3	--	--	--	--	--	--	--	--
Organochlorine Pesticides	2,4-DDD	ug/kg	17	--	--	--	--	--	--	--	--
	2,4-DDE	ug/kg	150	--	--	--	--	--	--	--	--
	4,4-DDD	ug/kg	18	9,950	ca	--	0	0.8	0	16	0
	4,4-DDE	ug/kg	310	7,020	ca	--	0	3	0	54	0
	4,4-DDT	ug/kg	99	7,020	ca	>100,000	0	2	0	32	0
	Aldrin	ug/kg	--	101	ca	19,000	0	0.02	0	0.5	0
	alpha-BHC	ug/kg	--	359	ca	>100,000	0	0.00003	0	0.0005	0
	alpha-Chlordane	ug/kg	--	--	--	--	--	0.5	0	10	0
	beta-BHC	ug/kg	190	1,260	ca	>100,000	0	0.0001	31	0.003	26
	Chlordane	ug/kg	--	--	--	--	--	0.5	0	10	0
	delta-BHC	ug/kg	--	--	--	--	--	--	--	--	--
	Dieldrin	ug/kg	--	108	ca	31,000	0	0.0002	0	0.004	0
	Endosulfan I	ug/kg	--	--	--	--	--	0.9	0	18	0
	Endosulfan II	ug/kg	--	--	--	--	--	0.9	0	18	0
	Endosulfan sulfate	ug/kg	--	--	--	--	--	--	--	--	--
	Endrin	ug/kg	7	>100,000	nc	--	0	0.05	0	1	0
	Endrin aldehyde	ug/kg	3.6	--	--	--	--	--	--	--	--
	Endrin ketone	ug/kg	--	--	--	--	--	--	--	--	--
	gamma-Chlordane	ug/kg	--	--	--	--	--	0.5	0	10	0
	Heptachlor	ug/kg	--	383	ca	>100,000	0	1	0	23	0
	Heptachlor epoxide	ug/kg	--	189	ca	8,000	0	0.03	0	0.7	0
	Lindane	ug/kg	--	1,740	ca	>100,000	0	0.0005	0	0.009	0
	Methoxychlor	ug/kg	--	>100,000	nc	--	0	8	0	160	0
	Toxaphene	ug/kg	--	1,570	ca	--	0	2	0	31	0
Petroleum Hydrocarbons	TPH (as Gasoline)	mg/kg	--	--	--	--	--	--	--	--	--
	TPH (as Diesel)	mg/kg	--	--	--	--	--	--	--	--	--
	Oil/Grease	mg/kg	--	--	--	--	--	--	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Count of Detects > PRG	SSL (DAF = 1)[c]	Count of Detects > SSL (1)	SSL (DAF = 20)[c]	Count of Detects > SSL (20)
Radionuclides	Radium-226	pCi/g	1.48	0.026	ca	--	64	--	--	--	--
	Radium-228	pCi/g	2.13	0.15	ca	--	64	--	--	--	--
	Thorium-228	pci/g	2.17	0.26	ca	--	63	--	--	--	--
	Thorium-230	pci/g	2.03	20	ca	--	0	--	--	--	--
	Thorium-232	pci/g	2.36	19	ca	--	0	--	--	--	--
	Uranium-233/234[k]	pci/g	3.69	32	ca	--	0	--	--	--	--
	Uranium-235/236[k]	pci/g	0.22	0.40	ca	--	0	--	--	--	--
	Uranium-238[k]	pci/g	3.65	1.8	ca	--	10	--	--	--	--
SVOCs	1,2,4,5-Tetrachlorobenzene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	1,2-Diphenylhydrazine	ug/kg	--	2,150	ca	--	0	--	--	--	--
	1,4-Dioxane	ug/kg	--	>100,000	ca	--	0	--	--	--	--
	1-Nonanal	ug/kg	--	--	--	--	--	--	--	--	--
	2,2'-/4,4'-Dichlorobenzil	ug/kg	--	--	--	--	--	14	0	270	0
	2,4,5-Trichlorophenol	ug/kg	--	>100,000	nc	--	0	0.008	0	0.2	0
	2,4,6-Trichlorophenol	ug/kg	--	61,600	nc	>100,000	0	0.05	0	1	0
	2,4-Dichlorophenol	ug/kg	--	>100,000	nc	--	0	0.4	0	9	0
	2,4-Dimethylphenol	ug/kg	--	>100,000	nc	--	0	0.01	0	0.3	0
	2,4-Dinitrophenol	ug/kg	--	>100,000	nc	--	0	4E-05	0	0.0008	0
	2,4-Dinitrotoluene	ug/kg	--	>100,000	nc	--	0	0.00003	0	0.0007	0
	2,6-Dinitrotoluene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	2-Chloronaphthalene	ug/kg	--	>100,000	nc	--	0	0.2	0	4	0
	2-Chlorophenol	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	2-Methylnaphthalene	ug/kg	--	--	--	--	--	--	--	--	--
	2-Nitroaniline	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	2-Nitrophenol	ug/kg	--	--	--	--	--	0.0003	0	0.007	0
	3,3'-Dichlorobenzidine	ug/kg	--	3,830	ca	--	0	--	--	--	--
	3-Methylphenol & 4-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
	3-Nitroaniline	ug/kg	--	82,100	ca	>100,000	0	--	--	--	--
	4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chloro-3-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
	4-Nitrophenol	ug/kg	--	--	--	--	--	29	0	570	0
	Acenaphthene	ug/kg	1,000	>100,000	nc	--	0	--	--	--	--
	Acenaphthylene	ug/kg	--	--	--	--	--	--	--	--	--
	Acetophenone	ug/kg	--	--	--	--	--	--	--	--	--
	Aniline	ug/kg	--	>100,000	ca	>100,000	0	590	0	12000	0
	Anthracene	ug/kg	--	>100,000	ca	--	0	--	--	--	--
	Azobenzene	ug/kg	--	15,700	ca	--	0	--	--	--	--
	Benzenethiol	ug/kg	--	--	--	--	--	0.08	0	2	0
	Benzo(a)anthracene	ug/kg	55	2,110	ca	--	0	0.4	0	8	0
	Benzo(a)pyrene	ug/kg	19	211	ca	--	0	0.2	0	5	0

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Count of Detects > PRG	SSL (DAF = 1)[c]	Count of Detects > SSL (1)	SSL (DAF = 20)[c]	Count of Detects > SSL (20)
SVOCs	Benzo(b)fluoranthene	ug/kg	21	2,110	ca	--	0	--	--	--	--
	Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	2	0	49	0
	Benzo(k)fluoranthene	ug/kg	--	21,100	ca	--	0	20	0	400	0
	Benzoic acid	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Benzyl alcohol	ug/kg	--	>100,000	nc	--	0	810	0	930	0
	Benzyl butyl phthalate	ug/kg	420	>100,000	nc	--	0	--	--	--	--
	bis(2-Chloroethoxy) methane	ug/kg	--	--	--	--	--	0.00002	0	0.0004	0
	bis(2-Chloroethyl) ether	ug/kg	--	575	ca	--	0	--	--	--	--
	bis(2-Chloroisopropyl) ether	ug/kg	--	7,350	ca	>100,000	0	--	--	--	--
	bis(2-Ethylhexyl) phthalate	ug/kg	140	>100,000	ca	>100,000	0	--	--	--	--
	bis(p-Chlorophenyl) disulfide	ug/kg	--	--	--	--	--	--	--	--	--
	bis(p-Chlorophenyl) sulfone	ug/kg	--	>100,000	nc	--	0	0	0	0.6	0
	Carbazole	ug/kg	--	86,200	ca	--	0	8	0	160	0
	Chrysene	ug/kg	24	>100,000	ca	--	0	0.08	0	2	0
	Dibenzo(a,h)anthracene	ug/kg	--	211	ca	--	0	--	--	--	--
	Dibenzofuran	ug/kg	--	>100,000	nc	--	0	270	0	2300	0
	Dibutyl phthalate	ug/kg	50	>100,000	nc	--	0	--	--	--	--
	Diethyl phthalate	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Dimethyl phthalate	ug/kg	--	>100,000	nc	--	0	10000	0	10000	0
	Di-n-octyl phthalate	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Diphenyl sulfone	ug/kg	--	>100,000	nc	--	0	210	0	4300	0
	Fluoranthene	ug/kg	--	>100,000	nc	--	0	28	0	560	0
	Fluorene	ug/kg	--	>100,000	nc	--	0	0.1	0	2	0
	Hexachlorobenzene	ug/kg	49	1,080	ca	>100,000	0	20	0	400	0
	Hexachlorocyclopentadiene	ug/kg	--	>100,000	nc	--	0	0.02	0	0.5	0
	Hydroxymethyl phthalimide	ug/kg	--	--	--	--	--	0.7	0	14	0
	Indeno(1,2,3-cd)pyrene	ug/kg	--	2,110	ca	--	0	0.03	0	0.5	0
	Isophorone	ug/kg	--	>100,000	ca	>100,000	0	4	0	84	0
	Naphthalene	ug/kg	--	>100,000	nc	--	0	0.007	0	0.1	0
	Nitrobenzene	ug/kg	--	>100,000	nc	--	0	0.000002	0	0.00005	0
	N-nitrosodi-n-propylamine	ug/kg	--	246	ca	--	0[l]	0.06	0	1	0
	N-nitrosodiphenylamine	ug/kg	--	>100,000	ca	>100,000	0	0.8	0	15	0
	o-Cresol	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Octachlorostyrene	ug/kg	41	--	--	--	--	0.03	0	0.7	0
	p-Chloroaniline	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	p-Chlorothiophenol	ug/kg	--	--	--	--	--	--	--	--	--
	Pentachlorobenzene	ug/kg	--	>100,000	nc	--	0	0.001	0	0.03	0
	Pentachlorophenol	ug/kg	--	9,000	ca	>100,000	0	--	--	--	--
	Phenanthrene	ug/kg	--	--	--	--	--	5	0	100	0
	Phenol	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Phenyl Disulfide	ug/kg	--	--	--	--	--	--	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Count of Detects > PRG	SSL (DAF = 1)[c]	Count of Detects > SSL (1)	SSL (DAF = 20)[c]	Count of Detects > SSL (20)
SVOCs	Phenyl Sulfide	ug/kg	--	--	--	--	--	--	--	--	--
	Phthalic acid	ug/kg	--	--	--	--	--	--	--	--	--
	p-Nitroaniline	ug/kg	--	82,100	ca	>100,000	0	210	0	4200	0
	Pyrene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Pyridine	ug/kg	--	>100,000	nc	--	0	--	--	--	--
VOCs	1,1,1,2-Tetrachloroethane	ug/kg	--	7,280	ca	>100,000	0	0.1	0	2	0
	1,1,1-Trichloroethane	ug/kg	--	>100,000	nc	--	0	0.0002	0	0.003	0
	1,1,2,2-Tetrachloroethane	ug/kg	--	929	ca	>100,000	0	0.0009	0	0.02	0
	1,1,2-Trichloroethane	ug/kg	--	1,610	ca	>100,000	0	1	0	23	0
	1,1-Dichloroethane	ug/kg	--	>100,000	nc	--	0	0.003	0	0.06	0
	1,1-Dichloroethylene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	1,1-Dichloropropene	ug/kg	--	--	--	--	--	--	--	--	--
	1,2,3-Trichlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--
	1,2,3-Trichloropropane	ug/kg	--	76	ca	79,000	0	0.3	0	5	0
	1,2,4-Trichlorobenzene	ug/kg	0.9	>100,000	nc	--	0	--	--	--	--
	1,2,4-Trimethylbenzene	ug/kg	0.57	>100,000	nc	--	0	--	--	--	--
	1,2-Dibromo-3-chloropropane	ug/kg	--	2,020	ca	11,000	0	0.9	0	17	0
	1,2-Dichlorobenzene	ug/kg	--	>100,000	nc	--	0	0.001	0	0.02	0
	1,2-Dichloroethane	ug/kg	--	603	ca	28,000	0	--	--	--	--
	1,2-Dichloroethylene	ug/kg	--	--	--	--	--	0.001	0	0.03	0
	1,2-Dichloropropane	ug/kg	--	742	ca	21,000	0	--	--	--	--
	1,3,5- Trichlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--
	1,3,5-Trimethylbenzene	ug/kg	--	69,700	nc	--	0	--	--	--	--
	1,3-Dichlorobenzene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	1,3-Dichloropropane	ug/kg	--	>100,000	nc	--	0	0.1	0	2	0
	1,4-Dichlorobenzene	ug/kg	--	7,870	ca	>100,000	0	--	--	--	--
	2,2,3-Trimethylbutane	ug/kg	--	--	--	--	--	--	--	--	--
	2,2-Dichloropropane	ug/kg	--	--	--	--	--	--	--	--	--
	2,2-Dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	2,3-Dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	2,4-Dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	2-Chlorotoluene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	2-Nitropropane	ug/kg	--	--	--	--	--	--	--	--	--
	2-Phenylbutane	ug/kg	--	--	--	--	--	--	--	--	--
	3,3-dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	3-ethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	3-Methylhexane	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chlorothioanisole	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chlorotoluene	ug/kg	--	--	--	--	--	0.8	0	16	0
	Acetone	ug/kg	16	>100,000	nc	--	0	--	--	--	--
	Acetonitrile	ug/kg	--	>100,000	nc	--	0	0.002	0	0.03	0

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Count of Detects > PRG	SSL (DAF = 1)[c]	Count of Detects > SSL (1)	SSL (DAF = 20)[c]	Count of Detects > SSL (20)
VOCs	Benzene	ug/kg	--	1,410	ca	>100,000	0	--	--	--	--
	Bromobenzene	ug/kg	--	92,200	nc	--	0	0.03	0	0.6	0
	Bromodichloromethane	ug/kg	--	1,830	ca	>100,000	0	0.01	0	0.2	0
	Bromomethane	ug/kg	--	13,100	nc	--	0	2	0	32	0
	Carbon disulfide	ug/kg	--	>100,000	nc	--	0	0.003	0	0.07	0
	Carbon tetrachloride	ug/kg	--	549	ca	7,300	0	--	--	--	--
	Freon 11	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Freon 12	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Freon 113	ug/kg	--	>100,000	nc	--	0	0.07	0	1	0
	Chlorobenzene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Chlorobromomethane	ug/kg	--	--	--	--	--	0.02	0	0.4	0
	Chlorodibromomethane	ug/kg	--	2,550	ca	>100,000	0	--	--	--	--
	Chloroethane	ug/kg	--	6,490	ca	>100,000	0	0.03	0	0.6	0
	Chloroform	ug/kg	--	470	ca	>100,000	0	--	--	--	--
	Chloromethane	ug/kg	--	>100,000	nc	--	0	0.02	0	0.4	0
	cis-1,2-Dichloroethylene	ug/kg	--	>100,000	nc	--	0	0.0002	0	0.004	0
	cis-1,3-Dichloropropylene	ug/kg	--	--	--	--	--	--	--	--	--
	Cymene	ug/kg	--	--	--	--	--	--	--	--	--
	Dibromomethane	ug/kg	--	>100,000	nc	--	0	0.001	0	0.02	0
	Dichloromethane	ug/kg	--	20,500	ca	>100,000	0	0.7	0	13	0
	Ethylbenzene	ug/kg	0.24	>100,000	nc	--	0	--	--	--	--
	Hexachloro-1,3-butadiene	ug/kg	--	22,100	ca	>100,000	0	0.1	0	2	0
	Hexachloroethane	ug/kg	--	>100,000	ca	>100,000	0	--	--	--	--
	Hexane, 2-methyl-	ug/kg	--	--	--	--	--	--	--	--	--
	Isopropylbenzene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	m,p-Xylene	ug/kg	--	--	--	--	--	--	--	--	--
	Methyl disulfide	ug/kg	--	--	--	--	--	--	--	--	--
	Methyl ethyl ketone	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Methyl iodide	ug/kg	--	--	--	--	--	--	--	--	--
	Methyl isobutyl ketone	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	Methyl n-butyl ketone	ug/kg	--	--	--	--	--	--	--	--	--
	MTBE (Methyl tert-butyl ether)	ug/kg	--	70,000	ca	>100,000	0	--	--	--	--
	n-Butyl benzene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	n-Heptane	ug/kg	--	--	--	--	--	--	--	--	--
	n-Propyl benzene	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	o-Xylene	ug/kg	--	--	--	--	--	0.2	0	4	0
	Styrene (monomer)	ug/kg	--	>100,000	nc	--	0	--	--	--	--
	tert-Butyl benzene	ug/kg	--	>100,000	nc	--	0	0.003	0	0.06	0
	Tetrachloroethylene	ug/kg	--	1,310	ca	>100,000	0	0.6	0	12	0
	Toluene	ug/kg	0.65	>100,000	nc	--	0	0.03	0	0.7	0
	trans-1,2-Dichloroethylene	ug/kg	--	>100,000	nc	--	0	0.0002	0	0.004	0

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Count of Detects > PRG	SSL (DAF = 1)[c]	Count of Detects > SSL (1)	SSL (DAF = 20)[c]	Count of Detects > SSL (20)
VOCs	trans-1,3-Dichloropropylene	ug/kg	--	--	--	--	--	0.04	0	0.8	0
	Tribromomethane	ug/kg	--	>100,000	ca	>100,000	0	0.003	0	0.1	0
	Trichloroethylene	ug/kg	--	115	ca	>100,000	0	8	0	170	0
	Vinyl acetate	ug/kg	--	>100,000	nc	--	0	0.0007	0	0.01	0
	Vinyl chloride	ug/kg	--	746	ca	>100,000	0	10	0	210	0
	Xylenes (total)	ug/kg	--	>100,000	nc	--	0	--	--	--	--

a - Range of detections include estimated values of detect results between the detection limit and reporting limit. As such some minimum detected concentrations may be below the minimum reporting limit. In these cases the respective sample results are flagged in the data set.
b - The quantitation limits shown include samples which had detections. For screening purposes, the detection limit was used for comparison to the screening levels.
c - From USEPA Region 9 preliminary remediation goals (PRG) table, Oct. 2004 (and the 2007 USEPA radionuclide PRG webpage; http://epa-prgs.ornl.gov/radionuclides). Values used are industrial soil PRGs. Several chemicals have both cancer and non-cancer toxicity criteria. For these chemicals USEPA calculates PRGs for both cancer and non-cancer endpoints; however only the lower value is published in its PRG table. The other value is included in a separate spreadsheet table. This other value is shown on this table as the 'Secondary Industrial PRG' and is included in the screening-level risk assessment calculations.
d - Values used are the maximum from the shallow soils background dataset presented in the Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity (BRC/TIMET 2007).
e - Based on results of statistical comparison tests performed between shallow background and site datasets (see Table 3).
f - Non-cancer hazard indices were calculated by dividing the maximum detected value by its PRG (or secondary PRG). The total non-cancer hazard index is the sum of all chemical-specific hazard indices.
g - Theoretical upper-bound incremental lifetime cancer risks were calculated by were calculated by dividing the maximum detected value by its PRG (or secondary PRG) times 1E-6. The total incremental lifetime cancer risk is the sum of all chemical-specific cancer risks.
h - Agency for Toxic Substances and Disease Registry (ATSDR) action level of 1.0 parts per billion (ppb).
i - Asbestos results shown are for long protocol structures (>10um).
j - Reporting limits exceed industrial PRGs; however, in all cases MDL is below PRG.
k - Calculated activities for the uranium isotopes are based on Approach #1 presented in the Uranium Isotope Data Review for 2007 Tronox Parcels A/B Investigation memorandum (see Attachment E).

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Max. Bkgrd[d]	Count of Detects > Bkgrd	Above Bkgrd?[e]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Non-Cancer Hazard Index[f]	Incremental Lifetime Cancer Risk[g]
Dioxins/Furans	TCDD TEF[n]	pg/g	472	--	--	--	1,000	ca	--	--	5 E-7
Asbestos[i]	Chrysotile	Structures	3	--	--	--	--	--	--	--	See Table 5
	Amphibole	Structures	--	--	--	--	--	--	--	--	
General Chemistry	Bromide	mg/kg	7.8	--	--	--	--	--	--	--	--
	Bromine	mg/kg	15.7	--	--	--	--	--	--	--	--
	Chlorate	mg/kg	17	--	--	--	--	--	--	--	--
	Chloride	mg/kg	2,210	1,110	9	--	--	--	--	--	--
	Chlorine	mg/kg	4,410	--	--	--	--	--	--	--	--
	Chlorite	ug/kg	--	--	--	--	--	--	--	--	--
	Fluoride	mg/kg	4.3	2.5	3	--	36,900	nc	--	0.00012	--
	Nitrate (as N)	mg/kg	229	102	1	--	--	--	--	--	--
	Nitrite (as N)	mg/kg	0.45	0.21	1	--	--	--	--	--	--
	Orthophosphate as P	mg/kg	2	--	--	--	--	--	--	--	--
	Perchlorate	ug/kg	41,600	--	--	--	>100,000	--	--	--	--
	Sulfate	mg/kg	8,870	4,130	1	--	--	--	--	--	--
Glycols/Alcohols	Ethanol	ug/kg	--	--	--	--	--	--	--	--	--
Metals	Aluminum	mg/kg	9,750	15,300	0	No	>100,000	nc	--	--	--
	Antimony	mg/kg	0.42	0.5	0	No	409	nc	--	--	--
	Arsenic	mg/kg	5.8	7.2	0	No	1.6	ca	260	--	--
	Barium	mg/kg	269	836	0	No	66,600	nc	--	--	--
	Beryllium	mg/kg	0.65	0.89	0	No	1940	ca	--	--	--
	Boron	mg/kg	--	11.6	0	No	>100,000	nc	--	--	--
	Cadmium	mg/kg	0.59	0.13	22	Yes	451	nc	3,000	0.0013	2 E-10
	Calcium	mg/kg	75,300	82,800	0	No	--	--	--	--	--
	Chromium (Total)	mg/kg	17	16.7	1	Yes	448	nc	--	0.038	--
	Chromium (VI)	mg/kg	0.58	0.32	4	Yes	64	ca	2,500	0.00052	2 E-8
	Cobalt	mg/kg	7.5	16.3	0	No	1,920	ca	--	--	--
	Copper	mg/kg	31	30.5	1	No	40,900	nc	--	--	--
	Iron	mg/kg	17,200	19,700	0	No	>100,000	nc	--	--	--
	Lead	mg/kg	136	35.1	2	Yes	800	nc	--	0.17	--
	Lithium	mg/kg	22.6	26.5	0	No	20,400	nc	--	--	--
	Magnesium	mg/kg	13,600	17,500	0	No	--	--	--	--	--
	Manganese	mg/kg	668	1,090	0	No	19,500	nc	--	--	--
	Mercury	ug/kg	17.5	110	0	No	--	--	--	--	--
	Molybdenum	mg/kg	1.4	2.0	0	Yes	5,110	nc	--	0.00027	--
	Nickel	mg/kg	23.7	30	0	No	20,400	nc	--	--	--
	Niobium	mg/kg	2	2.8	0	Yes	--	--	--	--	--
	Palladium	mg/kg	1.2	1.5	0	No	--	--	--	--	--
	Phosphorus (as P)	mg/kg	1,510	2,010	0	No	--	nc	--	--	--
	Platinum	mg/kg	--	0.099	0	No	--	--	--	--	--
	Potassium	mg/kg	4,800	3,890	5	Yes	--	--	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Max. Bkgrd[d]	Count of Detects > Bkgrd	Above Bkgrd?[e]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Non-Cancer Hazard Index[f]	Incremental Lifetime Cancer Risk[g]
Metals	Selenium	mg/kg	--	0.60	0	No	5,110	nc	--	--	--
	Silicon	mg/kg	1,320	4,150	0	No	--	--	--	--	--
	Silver	mg/kg	0.82	0.26	1	No	5,110	nc	--	--	--
	Sodium	mg/kg	1,720	1,320	5	Yes	--	--	--	--	--
	Strontium	mg/kg	487	808	0	No	>100,000	nc	--	--	--
	Sulfur	mg/kg	5,980	--	--	--	--	--	--	--	--
	Thallium	mg/kg	--	1.8	0	No	68	nc	--	--	--
	Tin	mg/kg	1.5	0.80	4	Yes	>100,000	nc	--	0.000015	--
	Titanium	mg/kg	982	1,010	0	Yes	>100,000	nc	--	0.0098	--
	Tungsten	mg/kg	--	2.5	0	No	--	--	--	--	--
	Uranium	mg/kg	3.1	2.7	3	Yes	204	nc	--	0.015	--
	Vanadium	mg/kg	53.4	59.1	0	No	1,020	nc	--	--	--
	Zinc	mg/kg	211	121	2	No	>100,000	nc	--	--	--
	Zirconium	mg/kg	27.3	179	0	No	--	--	--	--	--
Organochlorine Pesticides	2,4-DDD	ug/kg	17	--	--	--	--	--	--	--	--
	2,4-DDE	ug/kg	150	--	--	--	--	--	--	--	--
	4,4-DDD	ug/kg	18	--	--	--	9,950	ca	--	--	2 E-9
	4,4-DDE	ug/kg	310	--	--	--	7,020	ca	--	--	4 E-8
	4,4-DDT	ug/kg	99	--	--	--	7,020	ca	>100,000	0.00099	1 E-8
	Aldrin	ug/kg	--	--	--	--	101	ca	19,000	--	--
	alpha-BHC	ug/kg	--	--	--	--	359	ca	>100,000	--	--
	alpha-Chlordane	ug/kg	--	--	--	--	--	--	--	--	--
	beta-BHC	ug/kg	190	--	--	--	1,260	ca	>100,000	0.0019	2 E-7
	Chlordane	ug/kg	--	--	--	--	--	--	--	--	--
	delta-BHC	ug/kg	--	--	--	--	--	--	--	--	--
	Dieldrin	ug/kg	--	--	--	--	108	ca	31,000	--	--
	Endosulfan I	ug/kg	--	--	--	--	--	--	--	--	--
	Endosulfan II	ug/kg	--	--	--	--	--	--	--	--	--
	Endosulfan sulfate	ug/kg	--	--	--	--	--	--	--	--	--
	Endrin	ug/kg	7	--	--	--	>100,000	nc	--	0.00019	--
	Endrin aldehyde	ug/kg	3.6	--	--	--	--	--	--	--	--
	Endrin ketone	ug/kg	--	--	--	--	--	--	--	--	--
	gamma-Chlordane	ug/kg	--	--	--	--	--	--	--	--	--
	Heptachlor	ug/kg	--	--	--	--	383	ca	>100,000	--	--
	Heptachlor epoxide	ug/kg	--	--	--	--	189	ca	8,000	--	--
	Lindane	ug/kg	--	--	--	--	1,740	ca	>100,000	--	--
	Methoxychlor	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Toxaphene	ug/kg	--	--	--	--	1,570	ca	--	--	--
Petroleum Hydrocarbons	TPH (as Gasoline)	mg/kg	--	--	--	--	--	--	--	--	--
	TPH (as Diesel)	mg/kg	--	--	--	--	--	--	--	--	--
	Oil/Grease	mg/kg	--	--	--	--	--	--	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Max. Bkgrd[d]	Count of Detects > Bkgrd	Above Bkgrd?[e]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Non-Cancer Hazard Index[f]	Incremental Lifetime Cancer Risk[g]
Radionuclides	Radium-226	pCi/g	1.48	2.36	0	No	0.026	ca	--	--	--
	Radium-228	pCi/g	2.13	2.94	0	No	0.15	ca	--	--	--
	Thorium-228	pci/g	2.17	2.28	0	No	0.26	ca	--	--	--
	Thorium-230	pci/g	2.03	3.01	0	No	20	ca	--	--	--
	Thorium-232	pci/g	2.36	2.23	1	No	19	ca	--	--	--
	Uranium-233/234[k]	pci/g	3.69	2.84	3	Yes	32	ca	--	--	1 E-7
	Uranium-235/236[k]	pci/g	0.22	0.21	1	Yes	0.40	ca	--	--	6 E-7
	Uranium-238[k]	pci/g	3.65	2.37	4	Yes	1.8	ca	--	--	2 E-6
SVOCs	1,2,4,5-Tetrachlorobenzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	1,2-Diphenylhydrazine	ug/kg	--	--	--	--	2,150	ca	--	--	--
	1,4-Dioxane	ug/kg	--	--	--	--	>100,000	ca	--	--	--
	1-Nonanal	ug/kg	--	--	--	--	--	--	--	--	--
	2,2'-/4,4'-Dichlorobenzil	ug/kg	--	--	--	--	--	--	--	--	--
	2,4,5-Trichlorophenol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2,4,6-Trichlorophenol	ug/kg	--	--	--	--	61,600	nc	>100,000	--	--
	2,4-Dichlorophenol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2,4-Dimethylphenol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2,4-Dinitrophenol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2,4-Dinitrotoluene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2,6-Dinitrotoluene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2-Chloronaphthalene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2-Chlorophenol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2-Methylnaphthalene	ug/kg	--	--	--	--	--	--	--	--	--
	2-Nitroaniline	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
	3,3'-Dichlorobenzidine	ug/kg	--	--	--	--	3,830	ca	--	--	--
	3-Methylphenol & 4-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
	3-Nitroaniline	ug/kg	--	--	--	--	82,100	ca	>100,000	--	--
	4-Bromophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chloro-3-Methylphenol	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chlorophenyl phenyl ether	ug/kg	--	--	--	--	--	--	--	--	--
	4-Nitrophenol	ug/kg	--	--	--	--	--	--	--	--	--
	Acenaphthene	ug/kg	1,000	--	--	--	>100,000	nc	--	0.01	--
	Acenaphthylene	ug/kg	--	--	--	--	--	--	--	--	--
	Acetophenone	ug/kg	--	--	--	--	--	--	--	--	--
	Aniline	ug/kg	--	--	--	--	>100,000	ca	>100,000	--	--
	Anthracene	ug/kg	--	--	--	--	>100,000	ca	--	--	--
	Azobenzene	ug/kg	--	--	--	--	15,700	ca	--	--	--
	Benzenethiol	ug/kg	--	--	--	--	--	--	--	--	--
	Benzo(a)anthracene	ug/kg	55	--	--	--	2,110	ca	--	--	3 E-8
	Benzo(a)pyrene	ug/kg	19	--	--	--	211	ca	--	--	9 E-8

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Max. Bkgrd[d]	Count of Detects > Bkgrd	Above Bkgrd?[e]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Non-Cancer Hazard Index[f]	Incremental Lifetime Cancer Risk[g]
SVOCs	Benzo(b)fluoranthene	ug/kg	21	--	--	--	2,110	ca	--	--	1 E-8
	Benzo(g,h,i)perylene	ug/kg	--	--	--	--	--	--	--	--	--
	Benzo(k)fluoranthene	ug/kg	--	--	--	--	21,100	ca	--	--	--
	Benzoic acid	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Benzyl alcohol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Benzyl butyl phthalate	ug/kg	420	--	--	--	>100,000	nc	--	0.0042	--
	bis(2-Chloroethoxy) methane	ug/kg	--	--	--	--	--	--	--	--	--
	bis(2-Chloroethyl) ether	ug/kg	--	--	--	--	575	ca	--	--	--
	bis(2-Chloroisopropyl) ether	ug/kg	--	--	--	--	7,350	ca	>100,000	--	--
	bis(2-Ethylhexyl) phthalate	ug/kg	140	--	--	--	>100,000	ca	>100,000	0.0041	4 E-9
	bis(p-Chlorophenyl) disulfide	ug/kg	--	--	--	--	--	--	--	--	--
	bis(p-Chlorophenyl) sulfone	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Carbazole	ug/kg	--	--	--	--	86,200	ca	--	--	--
	Chrysene	ug/kg	24	--	--	--	>100,000	ca	--	--	2 E-10
	Dibenzo(a,h)anthracene	ug/kg	--	--	--	--	211	ca	--	--	--
	Dibenzofuran	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Dibutyl phthalate	ug/kg	50	--	--	--	>100,000	nc	--	0.0041	--
	Diethyl phthalate	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Dimethyl phthalate	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Di-n-octyl phthalate	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Diphenyl sulfone	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Fluoranthene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Fluorene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Hexachlorobenzene	ug/kg	49	--	--	--	1,080	ca	>100,000	0.0041	4 E-7
	Hexachlorocyclopentadiene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Hydroxymethyl phthalimide	ug/kg	--	--	--	--	--	--	--	--	--
	Indeno(1,2,3-cd)pyrene	ug/kg	--	--	--	--	2,110	ca	--	--	--
	Isophorone	ug/kg	--	--	--	--	>100,000	ca	>100,000	--	--
	Naphthalene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Nitrobenzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	N-nitrosodi-n-propylamine	ug/kg	--	--	--	--	246	ca	--	--	--
	N-nitrosodiphenylamine	ug/kg	--	--	--	--	>100,000	ca	>100,000	--	--
	o-Cresol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Octachlorostyrene	ug/kg	41	--	--	--	--	--	--	--	--
	p-Chloroaniline	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	p-Chlorothiophenol	ug/kg	--	--	--	--	--	--	--	--	--
	Pentachlorobenzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Pentachlorophenol	ug/kg	--	--	--	--	9,000	ca	>100,000	--	--
	Phenanthrene	ug/kg	--	--	--	--	--	--	--	--	--
	Phenol	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Phenyl Disulfide	ug/kg	--	--	--	--	--	--	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Max. Bkgrd[d]	Count of Detects > Bkgrd	Above Bkgrd?[e]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Non-Cancer Hazard Index[f]	Incremental Lifetime Cancer Risk[g]
SVOCs	Phenyl Sulfide	ug/kg	--	--	--	--	--	--	--	--	--
	Phthalic acid	ug/kg	--	--	--	--	--	--	--	--	--
	p-Nitroaniline	ug/kg	--	--	--	--	82,100	ca	>100,000	--	--
	Pyrene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Pyridine	ug/kg	--	--	--	--	>100,000	nc	--	--	--
VOCs	1,1,1,2-Tetrachloroethane	ug/kg	--	--	--	--	7,280	ca	>100,000	--	--
	1,1,1-Trichloroethane	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	1,1,2,2-Tetrachloroethane	ug/kg	--	--	--	--	929	ca	>100,000	--	--
	1,1,2-Trichloroethane	ug/kg	--	--	--	--	1,610	ca	>100,000	--	--
	1,1-Dichloroethane	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	1,1-Dichloroethylene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	1,1-Dichloropropene	ug/kg	--	--	--	--	--	--	--	--	--
	1,2,3-Trichlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--
	1,2,3-Trichloropropane	ug/kg	--	--	--	--	76	ca	79,000	--	--
	1,2,4-Trichlorobenzene	ug/kg	0.9	--	--	--	>100,000	nc	--	0.000063	--
	1,2,4-Trimethylbenzene	ug/kg	0.57	--	--	--	>100,000	nc	--	0.000063	--
	1,2-Dibromo-3-chloropropane	ug/kg	--	--	--	--	2,020	ca	11,000	--	--
	1,2-Dichlorobenzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	1,2-Dichloroethane	ug/kg	--	--	--	--	603	ca	28,000	--	--
	1,2-Dichloroethylene	ug/kg	--	--	--	--	--	--	--	--	--
	1,2-Dichloropropane	ug/kg	--	--	--	--	742	ca	21,000	--	--
	1,3,5- Trichlorobenzene	ug/kg	--	--	--	--	--	--	--	--	--
	1,3,5-Trimethylbenzene	ug/kg	--	--	--	--	69,700	nc	--	--	--
	1,3-Dichlorobenzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	1,3-Dichloropropane	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	1,4-Dichlorobenzene	ug/kg	--	--	--	--	7,870	ca	>100,000	--	--
	2,2,3-Trimethylbutane	ug/kg	--	--	--	--	--	--	--	--	--
	2,2-Dichloropropane	ug/kg	--	--	--	--	--	--	--	--	--
	2,2-Dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	2,3-Dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	2,4-Dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	2-Chlorotoluene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	2-Nitropropane	ug/kg	--	--	--	--	--	--	--	--	--
	2-Phenylbutane	ug/kg	--	--	--	--	--	--	--	--	--
	3,3-dimethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	3-ethylpentane	ug/kg	--	--	--	--	--	--	--	--	--
	3-Methylhexane	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chlorothioanisole	ug/kg	--	--	--	--	--	--	--	--	--
	4-Chlorotoluene	ug/kg	--	--	--	--	--	--	--	--	--
	Acetone	ug/kg	16	--	--	--	>100,000	nc	--	0.00025	--
	Acetonitrile	ug/kg	--	--	--	--	>100,000	nc	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Max. Bkgrd[d]	Count of Detects > Bkgrd	Above Bkgrd?[e]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Non-Cancer Hazard Index[f]	Incremental Lifetime Cancer Risk[g]
VOCs	Benzene	ug/kg	--	--	--	--	1,410	ca	>100,000	--	--
	Bromobenzene	ug/kg	--	--	--	--	92,200	nc	--	--	--
	Bromodichloromethane	ug/kg	--	--	--	--	1,830	ca	>100,000	--	--
	Bromomethane	ug/kg	--	--	--	--	13,100	nc	--	--	--
	Carbon disulfide	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Carbon tetrachloride	ug/kg	--	--	--	--	549	ca	7,300	--	--
	Freon 11	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Freon 12	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Freon 113	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Chlorobenzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Chlorobromomethane	ug/kg	--	--	--	--	--	--	--	--	--
	Chlorodibromomethane	ug/kg	--	--	--	--	2,550	ca	>100,000	--	--
	Chloroethane	ug/kg	--	--	--	--	6,490	ca	>100,000	--	--
	Chloroform	ug/kg	--	--	--	--	470	ca	>100,000	--	--
	Chloromethane	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	cis-1,2-Dichloroethylene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	cis-1,3-Dichloropropylene	ug/kg	--	--	--	--	--	--	--	--	--
	Cymene	ug/kg	--	--	--	--	--	--	--	--	--
	Dibromomethane	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Dichloromethane	ug/kg	--	--	--	--	20,500	ca	>100,000	--	--
	Ethylbenzene	ug/kg	0.24	--	--	--	>100,000	nc	--	0.000063	--
	Hexachloro-1,3-butadiene	ug/kg	--	--	--	--	22,100	ca	>100,000	--	--
	Hexachloroethane	ug/kg	--	--	--	--	>100,000	ca	>100,000	--	--
	Hexane, 2-methyl-	ug/kg	--	--	--	--	--	--	--	--	--
	Isopropylbenzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	m,p-Xylene	ug/kg	--	--	--	--	--	--	--	--	--
	Methyl disulfide	ug/kg	--	--	--	--	--	--	--	--	--
	Methyl ethyl ketone	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Methyl iodide	ug/kg	--	--	--	--	--	--	--	--	--
	Methyl isobutyl ketone	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Methyl n-butyl ketone	ug/kg	--	--	--	--	--	--	--	--	--
	MTBE (Methyl tert-butyl ether)	ug/kg	--	--	--	--	70,000	ca	>100,000	--	--
	n-Butyl benzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	n-Heptane	ug/kg	--	--	--	--	--	--	--	--	--
	n-Propyl benzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	o-Xylene	ug/kg	--	--	--	--	--	--	--	--	--
	Styrene (monomer)	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	tert-Butyl benzene	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Tetrachloroethylene	ug/kg	--	--	--	--	1,310	ca	>100,000	--	--
	Toluene	ug/kg	0.65	--	--	--	>100,000	nc	--	0.000063	--
	trans-1,2-Dichloroethylene	ug/kg	--	--	--	--	>100,000	nc	--	--	--

TABLE 1
SOIL DATA AND SCREENING-LEVEL RISK ASSESSMENT RESULTS SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Parameter of Interest	Chemical	Result Unit	Max. Detect[a]	Max. Bkgrd[d]	Count of Detects > Bkgrd	Above Bkgrd?[e]	Industrial PRG[c]	PRG Basis	Secondary Industrial PRG[c]	Non-Cancer Hazard Index[f]	Incremental Lifetime Cancer Risk[g]
VOCs	trans-1,3-Dichloropropylene	ug/kg	--	--	--	--	--	--	--	--	--
	Tribromomethane	ug/kg	--	--	--	--	>100,000	ca	>100,000	--	--
	Trichloroethylene	ug/kg	--	--	--	--	115	ca	>100,000	--	--
	Vinyl acetate	ug/kg	--	--	--	--	>100,000	nc	--	--	--
	Vinyl chloride	ug/kg	--	--	--	--	746	ca	>100,000	--	--
	Xylenes (total)	ug/kg	--	--	--	--	>100,000	nc	--	--	--
									Total Non-Cancer Hazard Index:	0.27	
									Total Incremental Lifetime Cancer Risk - Non-Radionuclides:		1 E-6
									Total Incremental Lifetime Cancer Risk - Radionuclides:		3 E-6

a - Range of detections include estimated values of detect results between the detection limit and reporting limit. As such some minimum detected concentrations may be below the minimum reporting limit. In these cases the respective sample results are flagged in the data set.
b - The quantitation limits shown include samples which had detections. For screening purposes, the detection limit was used for comparison to the screening levels.
c - From USEPA Region 9 preliminary remediation goals (PRG) table, Oct. 2004 (and the 2007 USEPA radionuclide PRG webpage; http://epa-prgs.ornl.gov/radionuclides). Values used are industrial soil PRGs. Several chemicals have both cancer and non-cancer toxicity criteria. For these chemicals USEPA calculates PRGs for both cancer and non-cancer endpoints; however only the lower value is published in its PRG table. The other value is included in a separate spreadsheet table. This other value is shown on this table as the 'Secondary Industrial PRG' and is included in the screening-level risk assessment calculations.
d - Values used are the maximum from the shallow soils background dataset presented in the Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity (BRC/TIMET 2007).
e - Based on results of statistical comparison tests performed between shallow background and site datasets (see Table 3).
f - Non-cancer hazard indices were calculated by dividing the maximum detected value by its PRG (or secondary PRG). The total non-cancer hazard index is the sum of all chemical-specific hazard indices.
g - Theoretical upper-bound incremental lifetime cancer risks were calculated by were calculated by dividing the maximum detected value by its PRG (or secondary PRG) times 1E-6. The total incremental lifetime cancer risk is the sum of all chemical-specific cancer risks.
h - Agency for Toxic Substances and Disease Registry (ATSDR) action level of 1.0 parts per billion (ppb).
i - Asbestos results shown are for long protocol structures (>10um).
j - Reporting limits exceed industrial PRGs; however, in all cases MDL is below PRG.
k - Calculated activities for the uranium isotopes are based on Approach #1 presented in the Uranium Isotope Data Review for 2007 Tronox Parcels A/B Investigation memorandum (see Attachment E).

TABLE 2
SITE AND BACKGROUND SUMMARY STATISTICS
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA
(Page 1 of 2)

	Background								Site								
Chemical	No. of Detects	Total Samples	Percent Detects	Minimum Detect	Maximum Detect	Median	Mean	Standard Deviation	No. of Detects	Total Samples	Percent Detects	Minimum Detect	Maximum Detect	Median	Mean	Standard Deviation	Units
Metals																	
Aluminum	120	120	100%	3,740	15,300	8,420	8,899	2,653	64	64	100%	6,780	9,750	8,555	8,430	689	mg/kg
Antimony	49	120	41%	0.12	0.50	0.16	0.24	0.13	54	64	84%	0.11	0.42	0.17	0.23	0.15	mg/kg
Arsenic	120	120	100%	2.1	7.2	3.9	4.1	1.1	64	64	100%	2.3	5.8	3.0	3.2	0.85	mg/kg
Barium	120	120	100%	73	836	190	223	126	64	64	100%	148	269	199	200	27	mg/kg
Beryllium	120	120	100%	0.16	0.89	0.54	0.56	0.16	64	64	100%	0.41	0.65	0.51	0.51	0.048	mg/kg
Boron	78	104	75%	3.4	12	4.3	4.5	2.3	0	64	0%	NA	NA	10	11	0.45	mg/kg
Cadmium	16	120	13%	0.052	0.16	0.065	0.070	0.017	52	64	81%	0.069	0.59	0.11	0.14	0.11	mg/kg
Calcium	104	104	100%	8,160	82,800	23,650	28,130	14,860	64	64	100%	15,600	75,300	26,450	29,370	10,570	mg/kg
Chromium (Total)	120	120	100%	2.6	17	8.8	8.9	2.9	64	64	100%	7.3	17	11	11	2.0	mg/kg
Chromium (VI)	0	104	0%	NA	NA	0.13	0.13	0.0042	25	61	41%	0.18	0.58	0.50	0.42	0.14	mg/kg
Cobalt	120	120	100%	3.7	16	8.3	8.2	2.5	64	64	100%	4.6	7.5	6.1	6.1	0.70	mg/kg
Copper	120	120	100%	7.8	31	17	17	4.2	64	64	100%	11	31	14	15	3.1	mg/kg
Iron	120	120	100%	5,410	19,700	13,050	12,810	3,263	64	64	100%	10,100	17,200	13,050	13,090	1,337	mg/kg
Lead	120	120	100%	3.0	35	7.8	9.4	5.1	64	64	100%	6.5	136	9.9	15	20	mg/kg
Lithium	104	104	100%	7.5	27	13	14	4.3	56	64	88%	11	23	14	14	3.7	mg/kg
Magnesium	120	120	100%	4,580	17,500	9,425	9,505	3,046	64	64	100%	6,690	13,600	8,420	8,693	1,235	mg/kg
Manganese	120	120	100%	151	1,090	419	425	135	64	64	100%	218	668	338	361	93	mg/kg
Mercury	93	120	78%	0.0084	0.11	0.015	0.018	0.015	40	64	63%	0.0073	0.018	0.014	0.014	0.0038	mg/kg
Molybdenum	120	120	100%	0.17	2.0	0.48	0.55	0.28	31	64	48%	0.48	1.4	0.55	0.63	0.20	mg/kg
Nickel	120	120	100%	7.8	30	15	15	4.2	64	64	100%	11	24	14	14	2.1	mg/kg
Niobium	69	104	66%	1.1	2.8	1.3	1.25	0.64	2	64	3%	1.6	2.0	2.6	2.6	0.19	mg/kg
Palladium	104	104	100%	0.14	1.5	0.40	0.46	0.24	64	64	100%	0.30	1.2	0.42	0.47	0.16	mg/kg
Platinum	5	104	5%	0.045	0.099	0.022	0.024	0.011	0	64	0%	NA	NA	0.11	0.11	0.0048	mg/kg
Potassium	104	104	100%	625	3,890	1,535	1,730	733	64	64	100%	2,040	4,800	2,855	2,956	592	mg/kg
Selenium	52	120	43%	0.10	0.60	0.079	0.18	0.13	0	64	0%	NA	NA	0.50	0.53	0.032	mg/kg

TABLE 2
SITE AND BACKGROUND SUMMARY STATISTICS
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA
(Page 2 of 2)

	Background								Site								
Chemical	No. of Detects	Total Samples	Percent Detects	Minimum Detect	Maximum Detect	Median	Mean	Standard Deviation	No. of Detects	Total Samples	Percent Detects	Minimum Detect	Maximum Detect	Median	Mean	Standard Deviation	Units
Silicon	104	104	100%	335	4,150	720	981	780	64	64	100%	128	1,320	513	509	268	mg/kg
Silver	16	120	13%	0.019	0.083	0.13	0.12	0.028	64	64	100%	0.081	0.82	0.11	0.12	0.090	mg/kg
Sodium	104	104	100%	111	1,320	452	486	286	64	64	100%	244	1,720	698	737	348	mg/kg
Strontium	104	104	100%	69	808	186	223	132	64	64	100%	120	487	178	199	69	mg/kg
Thallium	101	120	84%	0.10	1.8	0.51	0.65	0.46	0	64	0%	NA	NA	0.21	0.21	0.0090	mg/kg
Tin	103	104	99%	0.20	0.80	0.49	0.48	0.13	56	64	88%	0.40	1.5	0.52	0.54	0.23	mg/kg
Titanium	120	120	100%	200	1,010	504	510	171	64	64	100%	504	982	648	653	93	mg/kg
Tungsten	104	104	100%	0.49	2.5	1.05	1.18	0.43	0	64	0%	NA	NA	0.50	0.53	0.032	mg/kg
Uranium	103	103	100%	0.43	2.7	0.94	1.0	0.31	64	64	100%	0.69	3.1	1.0	1.2	0.51	mg/kg
Vanadium	120	120	100%	15	59	36	35	11	64	64	100%	24	53	32	33	4.6	mg/kg
Zinc	120	120	100%	15	121	37	37	13	64	64	100%	26	211	32	39	27	mg/kg
Zirconium	104	104	100%	60	179	125	126	27	64	64	100%	4.9	27	23	23	3.0	mg/kg
Radionuclides																	
Radium-226	104	104	100%	0.49	2.4	1.1	1.1	0.35	64	64	100%	0.84	1.5	1.0	1.0	0.13	pCi/g
Radium-228	84	84	100%	0.9	2.9	2.0	1.9	0.40	64	64	100%	1.4	2.1	1.8	1.8	0.16	pCi/g
Thorium-228	120	120	100%	1.1	2.3	1.7	1.7	0.28	63	64	98%	0.97	2.2	1.6	1.6	0.33	pCi/g
Thorium-230	120	120	100%	0.66	3.0	1.2	1.2	0.38	64	64	100%	0.31	2.0	1.2	1.2	0.30	pCi/g
Thorium-232	120	120	100%	1.1	2.2	1.6	1.6	0.27	63	64	98%	1.1	2.4	1.4	1.5	0.30	pCi/g
Uranium-233/234	120	120	100%	0.47	2.8	0.99	1.11	0.46	64	64	100%	0.82	3.7	1.19	1.43	0.61	pCi/g
Uranium-235/236	54	120	45%	0.037	0.21	0.041	0.053	0.043	28	64	44%	0.058	0.223	0.0432	0.066	0.046	pCi/g
Uranium-238	120	120	100%	0.45	2.4	1.0	1.1	0.37	64	64	100%	0.81	3.7	1.18	1.41	0.60	pCi/g

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).
mg/kg - milligrams per kilogram
pCi/g - picoCuries per gram

TABLE 3
BACKGROUND COMPARISON SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA
(Page 1 of 2)

Chemical	*t*- Test *p*	Quantile Test *p*	Slippage Test *p*	WRS Test *p*	Greater than Background?	Units	Basis
Metals							
Aluminum	9.7 E-1	1.0 E+0	1.0 E+0	5.3 E-1	NO	mg/kg	Multiple Tests
Antimony	6.4 E-1	9.7 E-1	1.0 E+0	1.0 E+0	NO	mg/kg	Multiple Tests
Arsenic	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	mg/kg	Multiple Tests
Barium	9.7 E-1	9.8 E-1	1.0 E+0	1.4 E-1	NO	mg/kg	Multiple Tests
Beryllium	1.0 E+0	1.0 E+0	1.0 E+0	9.2 E-1	NO	mg/kg	Multiple Tests
Boron	2.3 E-50	1.0 E+0	1.0 E+0	0.0 E+0	NO	mg/kg	Non-Detect in Site Data
Cadmium	3.6 E-6	2.4 E-8	1.6 E-5	1.0 E+0	YES	mg/kg	Multiple Tests
Calcium	2.7 E-1	7.1 E-1	1.0 E+0	2.6 E-2	NO	mg/kg	Multiple Tests
Chromium (Total)	7.2 E-9	2.6 E-2	3.5 E-1	5.5 E-8	YES	mg/kg	WRS and *t* -Test
Chromium (VI)	6.0 E-24	3.1 E-6	NA	5.3 E-9	YES	mg/kg	WRS and *t* -Test
Cobalt	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	mg/kg	Multiple Tests
Copper	1.0 E+0	1.0 E+0	3.5 E-1	1.0 E+0	NO	mg/kg	Multiple Tests
Iron	2.1 E-1	1.0 E+0	1.0 E+0	3.6 E-1	NO	mg/kg	Multiple Tests
Lead	1.8 E-2	2.6 E-2	1.2 E-1	1.0 E-5	YES	mg/kg	WRS and *t* -Test
Lithium	4.0 E-1	8.2 E-1	1.0 E+0	3.2 E-3	NO	mg/kg	Multiple Tests
Magnesium	9.9 E-1	1.0 E+0	1.0 E+0	9.8 E-1	NO	mg/kg	Multiple Tests
Manganese	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	mg/kg	Multiple Tests
Mercury	9.9 E-1	1.0 E+0	1.0 E+0	3.0 E-2	NO	mg/kg	Multiple Tests
Molybdenum	9.2 E-3	3.3 E-1	1.0 E+0	0.0 E+0	YES	mg/kg	WRS and *t* -Test
Nickel	9.7 E-1	1.0 E+0	1.0 E+0	9.2 E-1	NO	mg/kg	Multiple Tests
Niobium	1.9 E-42	1.0 E+0	1.0 E+0	0.0 E+0	YES	mg/kg	Non-Detect in Background
Palladium	3.7 E-1	6.1 E-1	1.0 E+0	6.8 E-2	NO	mg/kg	Multiple Tests
Platinum	9.9 E-113	1.0 E+0	1.0 E+0	0.0 E+0	NO	mg/kg	Non-Detect in Site Data
Potassium	7.5 E-24	7.0 E-9	7.3 E-3	0.0 E+0	YES	mg/kg	Multiple Tests
Selenium	7.8 E-61	1.0 E+0	1.0 E+0	0.0 E+0	NO	mg/kg	Non-Detect in Site Data

TABLE 3
BACKGROUND COMPARISON SUMMARY
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA
(Page 2 of 2)

Chemical	*t*- Test *p*	Quantile Test *p*	Slippage Test *p*	WRS Test *p*	Greater than Background?	Units	Basis
Silicon	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	mg/kg	Multiple Tests
Silver	4.5 E-1	3.5 E-1	5.7 E-15	1.0 E+0	NO	mg/kg	Multiple Tests
Sodium	1.9 E-6	9.0 E-3	7.3 E-3	2.6 E-6	YES	mg/kg	Multiple Tests
Strontium	9.4 E-1	7.1 E-1	1.0 E+0	5.1 E-1	NO	mg/kg	Multiple Tests
Thallium	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	mg/kg	Multiple Tests
Tin	2.0 E-2	1.8 E-1	2.0 E-2	2.6 E-3	YES	mg/kg	Multiple Tests
Titanium	2.9 E-12	1.1 E-2	1.0 E+0	1.6 E-10	YES	mg/kg	Multiple Tests
Tungsten	1.0 E+0	1.0 E+0	1.0 E+0	4.9 E-1	NO	mg/kg	Multiple Tests
Uranium	2.9 E-3	2.0 E-2	5.5 E-2	5.8 E-3	YES	mg/kg	Multiple Tests
Vanadium	9.9 E-1	1.0 E+0	1.0 E+0	9.8 E-1	NO	mg/kg	Multiple Tests
Zinc	3.3 E-1	1.0 E+0	1.2 E-1	9.7 E-1	NO	mg/kg	Multiple Tests
Zirconium	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	mg/kg	Multiple Tests
Radionuclides							
Radium-226	9.8 E-1	1.0 E+0	1.0 E+0	8.8 E-1	NO	pCi/g	Multiple Tests
Radium-228	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	pCi/g	Multiple Tests
Thorium-228	1.0 E+0	1.0 E+0	1.0 E+0	1.0 E+0	NO	pCi/g	Multiple Tests
Thorium-230	7.7 E-1	6.6 E-1	1.0 E+0	5.2 E-1	NO	pCi/g	Multiple Tests
Thorium-232	1.0 E+0	1.0 E+0	3.5 E-1	1.0 E+0	NO	pCi/g	Multiple Tests
Uranium-233/234	1.8 E-4	2.7 E-3	4.1 E-2	6.1 E-7	YES	pCi/g	Multiple Tests
Uranium-235/236	2.5 E-4	5.7 E-1	3.4 E-1	4.1 E-7	YES	pCi/g	Multiple Tests
Uranium-238	6.4 E-5	4.1 E-3	1.4 E-2	2.1 E-6	YES	pCi/g	Multiple Tests

Note: Summary and background comparison statistics were performed using one-half the detection limit for metals and using GISdT® (Neptune and Company 2007).
BOLD with Highlight indicates Site concentrations are greater than background.
WRS = Wilcoxon Rank Sum Test with the Gehan Modification
mg/kg - milligrams per kilogram
pCi/g - picoCuries per gram

TABLE 4
DATA ADEQUACY EVALUATION
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Table 4a: Sample Size Results for Arsenic with Background = 7.2 mg/kg

Number of samples = 64		s = 0.85		
Threshold = 7.2 mg/kg		a = 5%	a = 10%	a = 15%
MDD = 10% (0.72 mg/kg)	b = 15%	13	10	8
	b = 20%	4	8	6
	b = 25%	3	7	5
MDD = 20% (1.44 mg/kg)	b = 15%	2	3	2
	b = 20%	2	3	2
	b = 25%	2	3	2
MDD = 30% (2.16 mg/kg)	b = 15%	2	2	1
	b = 20%	2	2	1
	b = 25%	2	2	1

Table 4b: Sample Size Results for 2,3,7,8-TCDD with PRG = 16 pg/g

Number of samples = 32		s = 2.33		
Threshold = 16 pg/g		a = 5%	a = 10%	a = 15%
MDD = 10% (1.6 pg/g)	b = 15%	19	14	11
	b = 20%	17	12	9
	b = 25%	15	10	8
MDD = 20% (3.2 pg/g)	b = 15%	6	4	3
	b = 20%	5	4	3
	b = 25%	5	3	2
MDD = 30% (4.8 pg/g)	b = 15%	4	2	2
	b = 20%	3	2	2
	b = 25%	3	2	1

Table 4c: Sample Size Results for beta-BHC with PRG = 1,260 µg/kg

Number of samples = 64		s = 31.2		
Threshold = 1,260 µg/kg		a = 5%	a = 10%	a = 15%
MDD = 10% (126 µg/kg)	b = 15%	2	1	1
	b = 20%	2	1	1
	b = 25%	2	1	1
MDD = 20% (252 µg/kg)	b = 15%	2	1	1
	b = 20%	2	1	1
	b = 25%	2	1	1
MDD = 30% (378 µg/kg)	b = 15%	2	1	1
	b = 20%	2	1	1
	b = 25%	2	1	1

Table 4d: Sample Size Results for Chrysotile Asbestos (50 long fibers = 1×10^{-6})

Number of samples = 30		s = 0.84		
Threshold = 50 long fibers		a = 5%	a = 10%	a = 15%
MDD = 10% (5 long fibers)	b = 15%	2	1	1
	b = 20%	2	1	1
	b = 25%	2	1	1
MDD = 20% (10 long fibers)	b = 15%	2	1	1
	b = 20%	2	1	1
	b = 25%	2	1	1
MDD = 30% (15 long fibers)	b = 15%	2	1	1
	b = 20%	2	1	1
	b = 25%	2	1	1

TABLE 5
ASBESTOS SCREENING-LEVEL RISK ASSESSMENT RESULTS
TRONOX PARCELS A/B INVESTIGATION
CLARK COUNTY, NEVADA

Baseline Risk Estimates (Based on Measured Asbestos Fibers-Post-Scrape)

Scenario	Estimated Airborne Chrysotile Concentrations[1] (s/cm^3)	Estimated Airborne Amphibole Concentrations[1] (s/cm^3)	Adjusted Chrysotile URF[2] $(s/cm^3)^{-1}$	Adjusted Amphibole URF[2] $(s/cm^3)^{-1}$	Estimated Chrysotile[3] Risk	Estimated Amphibole[3] Risk
LONG FIBERS						
Construction Worker-Best Estimate (No Dust Mit./1 Yr Exp.)	7.9 E-4	0.0 E+0	1.9 E-4	2.1 E-2	1 E-7	0 E+0
Construction Worker-Upper Bound (No Dust Mit./1 Yr Exp.)	1.4 E-3	2.6 E-4	1.9 E-4	2.1 E-2	3 E-7	5 E-6
Construction Worker-Best Estimate (with Dust Mit./0.5 Yr Exp.)[4]	3.4 E-4	0.0 E+0	9.7 E-5	1.1 E-2	3 E-8	0 E+0
Construction Worker-Upper Bound (with Dust Mit./0.5 Yr Exp.)[4]	6.0 E-4	1.1 E-4	9.7 E-5	1.1 E-2	6 E-8	1 E-6
Future Maintenance Worker-Best Estimate	6.3 E-7	0.0 E+0	4.2 E-3	4.6 E-1	3 E-9	0 E+0
Future Maintenance Worker-Upper Bound	1.1 E-6	2.1 E-7	4.2 E-3	4.6 E-1	5 E-9	1 E-7
Current/Future On-Site Trespasser-Best Estimate	6.3 E-7	0.0 E+0	1.1 E-4	1.2 E-2	7 E-11	0 E+0
Current/Future On-Site Trespasser-Upper Bound	1.1 E-6	2.1 E-7	1.1 E-4	1.2 E-2	1 E-10	3 E-9

Notes:
[1] Calculated based on estimated dust estimates and asbestos fiber concentrations.
[2] Calculated uing equation information from Table 8-2 of 2003 Methodology (Berman and Crump 2003).
[3] Estimated airborne concentrations × URF.
[4] A six-month construction period with dust mitigation (soil wetting) is considered a reasonable exposure scenario. A soil moisture content of 50 percent is assumed as a result of dust mitigation.
Best Estimate - Based on the pooled analytical sensitivity multiplied by the number of asbestos fibers found.
Upper Bound - Based on the 95% UCL of the Poisson distribution.

ATTACHMENT A

TRONOX/BEC RESPONSE TO COMMENTS AND
REDLINE VERSION OF TEXT

Attachment A
Response to NDEP Comments Dated January 10, 2008 on the
Technical Memorandum – Data Review for the 2007 Tronox Parcels A/B Investigation
Dated December 6, 2007 (and Subsequent Supplemental Information)

This Response to Comments has been Prepared by BEC on Behalf of Tronox

1. General comment, examples of information provided by electronic mail which were used to supplement the review and understanding of Parcels A and B include (but are not limited to):
   a. Probability and box plots (exploratory data analysis);
   b. Revised data tables presenting USEPA SSLs (DAFI and DAF 20);
   c. Legal descriptions of Parcels A and B (expected to be recorded following the issuance of this NFA). These descriptions serve as the basis of understanding for the definition of Parcels A and B).
   d. In addition, several telephone conferences were held to discuss and clarify technical issues relating to Parcels A and B.

Response: *BEC has provided an updated version of the technical memorandum that includes all additions that have been prepared and submitted since the December 6, 2007 version of the memorandum. These include the asbestos technical memorandum (discussed on page 3 and included as Attachment C), the uranium technical memorandum (discussed on page 4 and included as Attachment D), and probability and boxplots (included as Attachment E).*

2. General comment, the additional documentation submitted since December 6, 2007 causes some of the very specific conclusions stated in the report to be incorrect. For example, on Page 4, uranium now exceeds the screening level. Some rewording in light of the update information would have been helpful.

Response: *As noted in response to comment #1 above, the revised technical memorandum incorporates changes as a result of the additional documentation since the December 6, 2007 submittal. See response to comment #1 on where these can be found in the revised technical memorandum.*

3. General comment, the report is lacking transparency in many ways. For example, the CSM is not provided in full, the data are not related back to the CSM fully (for example, consider how the radionuclides are handled), and the risk assessment is minimal. This comment is made in recognition that Parcels A and B appear to have only sporadic and low levels of contamination (now that the asbestos remediation has been performed), in which case a simple risk assessment can be deemed sufficient. However, NDEP expects greater level of detail in other risk assessments performed at TRONOX and elsewhere at the BMI Complex and Common Areas.

Response: *As noted in this comment, the simple risk assessment is considered sufficient for this site. It is anticipated that technical memoranda to be submitted for the other Tronox parcels*

(Parcels C, D, F, G, and H) will be similar to this technical memorandum, but may include more extensive risk assessments if sampling identifies the presence of more chemical impacts. All future BEC/BRC risk assessments for the other portions of the Eastside property will comply with the BRC Closure Plan methodology. No modifications have been made to the document in response to this comment.

4. General comment, a further consideration related to the asbestos remediation is that many of the sample locations have now been remediated or partially remediated. No mention is made of the consequence of this cleanup on the data analysis and risk assessment for all the other chemicals included in the screening risk assessment. The new surface layer could have different concentrations. However, it might be reasonable to assume that the concentration distribution has not changed in any important way for these chemicals. This should be related to the CSM. It might even be reasonable to assume that concentrations are now lower for some chemicals (e.g., dioxins), because of the removal of some soil. Whichever argument is made, it should have been included in the text, and defended in the context of the CSM. A further option is to compare the data across the different depths of data collection. For example, if the concentrations are similar at the different depth intervals of sampling, then it would be reasonable to assume that the old samples are still representative of the current conditions. Consideration of concentrations by depth would also be helpful for understanding the leaching pathway (e.g., to see if concentrations are increasing with depth), and could have resolved some background comparisons for some metals or radionuclides. For example, for several metals and radionuclides the site data are statistically lower than the background data. Without some explanation, this raises issues about the appropriateness of the comparisons.

Response: *BEC agrees that the post-scrape surface layer could have different concentrations; however, as noted in the comment it is unlikely that the concentration distribution has appreciably changed. Therefore, no changes have been made to the tables and calculations in the document. A qualitative analysis conducted comparing the data across the different depths, and text has been added to page 4 of the document discussing this issue. Briefly, a review of the results indicates that it is reasonable to assume that the previous samples are still representative of current conditions. In addition, text regarding the leaching pathway has also been added to page 6, given the results of the depth-comparison analysis. That is, there is no indication that concentrations increase with depth, further supporting the conclusion that the site is not a likely source of impacts to groundwater.*

5. General comment, Although the radionuclide activities appear to be small there are still some outstanding issues that should be addressed in the future. The immediate issues surrounding the radionuclide uranium and thorium analysis appear to have been resolved (methods have been fully identified, and adjustments have been made to the uranium radionuclide results), and we are comfortable enough with the methods used to predict uranium isotope concentrations for comparison with background and use in the risk assessment. Still of concern is that the uranium metal results fail background comparisons in Parcel A, but none of the other radionuclides fail background comparisons at all. In fact, some of the site radionuclides appear to be slightly lower than background. It might be reasonable to assume that the differences are the result of minor analytical differences, and that all radionuclides

are at background concentrations. However, the argument should have been made. The argument includes concerns about the different methods that have been used (gamma-spec for radium, alpha-spec with strong acid digestion for thorium, and alpha-spec with weak acid digestion for uranium as well as uranium as a metal by ICPMS). Since secular equilibrium is expected, the results should be similar for radionuclides within the same chain, but they are not statistically similar. The different methods might provide some explanation.

Our understanding of the Work Plan was that 10% of the samples submitted for gamma spec analysis for radium would also be submitted for alpha-spec (and beta-spec) analysis for radium. If this had been done, then a better understanding of these inconsistencies might be possible. In our experience, gamma-spec analysis is biased low for some radionuclides. If this is the case here, then this could explain the differences that are seen. Alternatively, a CSM is needed that explains the slightly high uranium concentrations in Parcel A versus Parcel B. Please note that deviations from the Work Plan are not acceptable without NDEP approval.

A further option that could be considered is to perform background comparisons with subsets of the background dataset. We have not looked at the background dataset to see if this would be helpful, however, we recognize that the background dataset shows differences by geology and depth.

The risks are small at this site, but inclusion of uranium in the screening risk assessment raises issues about secular equilibrium and, hence, whether radium should also be included in the risk assessment. Uranium is now driving the cancer endpoint risk assessment, hence the concern. Without uranium the incremental (screening level) risks are, instead, 1x10-6.

It is also not clear yet that it is appropriate to combine cancer risk for radionuclides with those for non-radionuclides. USEPA has for many years not combined risk assessments for these two chemical groups, and this has not been done previously for risk assessments at the BMI Complex and Common Areas. It would help to have a clearer explanation of what is really expected given the data, and the thoughts described above could help provide greater defensibility for the risk assessment. This issue should be discussed between the NDEP and TRX for development of future Deliverables.

Response: *Text has been added to page 8 that states that differences in radionuclide concentrations between background and site data are likely due to minor analytical differences. Text has also been added to page 4 discussing the uranium analysis issue, with reference to the uranium technical memorandum provided in Attachment D. Further background comparisons with subsets of the background dataset were not performed. BEC agrees that typically radionuclide risks are not summed with non-radionuclide risks; therefore, these radionuclide and non-radionuclide risks are presented separately in Table 1, and discussed separately on page 21.*

6. General comment, we note that use of maximum concentrations across Parcels A and B causes an unusual form of conservatism in the results. That is, if a similar risk assessment had been performed separately for Parcels A and B, then these screening risk assessments

would produce lower risks. The maximum concentration must be less in one area than in the other, for each chemical in turn. It would have been worth noting this in the uncertainty analysis.

Response: *BEC agrees with this comment. Text has been added to the uncertainty analysis section on page 20.*

7. General comment, it is not clear that it is appropriate to include lead in the HI calculation. Risk assessments for lead are often separated from the bulk of the risk assessment because of the source of information about lead risks. This would not affect the conclusions, but would raise beta-BHC and hexachlorobenzene to the level of drivers for the low HI presented. This issue should be discussed between TRX and the NDEP for the development of future Deliverables.

Response: *BEC agrees that typically lead risks are considered separately; however, given the screening nature of the risk assessment this was considered appropriate for this site. No modifications have been made to the document in response to this comment.*

8. General comment, analytical methods appear to be insufficient (not always providing low enough concentrations) for several analytes, including: antimony, boron, selenium, niobium, and platinum. In the case of antimony this causes failure of the statistical background comparisons tests, and failure of comparison with SSLs. It would be helpful if this issue could be addressed in future sampling events.

Response: *BEC is working to address the detection limit issue for the project in general. No modifications have been made to the document in response to this comment.*

9. General comment, please note that the USEPA no longer supports their Preliminary Remediation Goals. Consequently, some care should be taken to make sure that the most up to date toxicological information is being used in the screening risk assessment.

Response: *Agreed. Alternatively, BEC suggests that the Oak Ridge National Laboratory (ORNL) Preliminary Remediation Goals (PRGs) be considered in place of the USEPA Region 9 PRGs. The ORNL PRGs are updated more often than USEPA Region 9's; and the equations and parameters are similar to those used by USEPA Region 9. No modifications have been made to the document in response to this comment.*

10. General comment, the calculations performed to assess risk following the scraping of soils to address asbestos include a "duration of construction" of 130 days. The USEPA default is 250 days/year. It is not appropriate to deviate from default values without justification.

Response: *This comment ignores the fact that the asbestos risks were also performed using the USEPA default of 250 days per year, the results of which are what the decisions for the site are*

based on. The risks were also calculated for a construction duration of 130 days (six months; as well as consideration for soil wetting during construction) for context, since this is considered a more likely site-specific construction duration. A footnote has been added to the asbestos risk table (Table 5) providing justification for this value.

11. Page 2, we note that the term "robust" has a specific meaning in statistics that is different than intended here. Since the term is used in the context of the data, it is inappropriate. The word "sufficient" could be used instead. Please address this in the development of future Deliverables.

Response: *The word "robust" has been replaced with "sufficient" in the document.*

12. Pages 3 and 4, Data Summary, the NDEP has the following comments:
    a. NDEP does not concur with the use of a DAF of20 for this Site based on source area size and depth to groundwater.

Response: *As noted in comment 12b. below, a DAF of 1 was also used in the revised evaluation. This has been included in this revision to the technical memorandum.*

    b. TRX provided a revised evaluation of Site data versus SSLs with a DAF of 1 and it appears that this modification does not materially change the conclusions regarding the Site. At a DAF of 1 the only compounds that were detected and above background were: cadmium and beta-BHC.

Response: *Agreed. No modifications have been made to the document in response to this comment.*

    c. The DAF of 1 for beta-BHC is extremely low and is often exceeded by non-detects as well. This is not a useful metric for the basis of a decision and additional lines of evidence must be examined. There is a known source of beta-BHC in soil and groundwater off-Site and the concentrations of this compound at this Site are considered insignificant relative to upgradient data. If beta-BHC were to leach to groundwater it is unlikely that the contribution from this Site could be detected.

Response: *Agreed. Text reflecting this comment has been added to page 6 of the document.*

    d. Based upon a review of available groundwater data in the region, cadmium does not appear to be leaching to groundwater and is not a concern at this time. It is also noted that the cadmium concentrations at the Site do not appear to pose any health risks. It is also noted that there are only three locations above the SSL DAF 1 and these concentrations are only marginally elevated (0.59 mg/kg maximum versus an SSL of 0.4 mg/kg). All cadmium detections are well below the SSL DAF 20 (8 mg/kg). If cadmium were to leach to groundwater it is expected that this matter could be addressed by the existing groundwater treatment system, as necessary.

Response: *Agreed. Text reflecting this comment has been added to page 6 of the document.*

e. It would have been helpful to provide a site-specific model (e.g.: VLEACH to substantiate these concepts). Future Deliverables must address these issues in more detail.

Response: *Agreed. Site-specific modeling will be considered in future deliverables. Given the discussion on the text regarding potential impacts to groundwater (no site history of chemicals use, depth-concentration profiles), VLEACH modeling was not considered for this site. However, as stated previously, it will be considered in future deliverables. No modifications have been made to the document in response to this comment.*

f. Based upon the future use of this Site (commercial/industrial) it is expected that Site activities will not exacerbate the conditions in the soil.

Response: *Agreed. No modifications have been made to the document in response to this comment.*

13. Page 4. 1st full paragraph. This paragraph does not seem quite correct in light of the further information provided for uranium. As things stand, uranium as a radionuclide fails PRG comparisons and background comparisons.

Response: *Additional discussion on uranium has been added to this paragraph on page 8.*

14. Page 4, last paragraph, first sentence. It is not clear that this is accurate. The depth to groundwater is similar across the site, however, groundwater has been impacted across the BMI complex. The relevant issue here appears to be the low concentrations in the soil, in which case there is very limited source material for contamination in groundwater. The depth then helps support that argument, rather than the other way around. Beta-BHC appears as a potential problem across the site when SSL comparisons are made. This could be noted in the discussion (that the SSL for beta-BHC is very low, and hard to achieve anywhere at this site, and explain that SSLs are known to be very conservative). An alternative is to refine the model of transport to groundwater in this area using, for example, VLEACH.

Response: *Additional discussion on impacts to groundwater has been added to this paragraph, reflective of this comment, on page 6.*

15. Page 5, asbestos paragraph. More explanation is appropriate here, since amphibole was collected prior to remediation. Otherwise, what is stated here contradicts what is stated earlier.

Response: *Additional discussion on both amphibole and chrysotile detections, and the remedial measures taken to address these detections has been added to this paragraph on pages 6 and 7.*

16. Page 7. It appears as if mercury exceeds background as well, and should be carried into the screening risk assessment.

Response: *Mercury was inadvertently left out of the background comparison analysis. It has been added in for the revised technical memorandum. It should be noted that the mercury results presented on Table 1 are in units of ug/kg, not mg/kg as are the other metals. Results of the background comparison for mercury indicate that it does not exceed background levels.*

17. Page 7. Also, niobium should be considered to be less than background for the same reasoning that is used for platinum and selenium. In general the decision logic for the background comparisons should be consistent across metals and radionuclides.

Response: *Both platinum and selenium had no detected results in the site data, while both had detected results in the background data. Therefore, they were not considered to be above background at the site. Niobium on the other had, had no detected results in the background data, but had detected results in the site data (similar to chromium VI). Therefore, it was considered to be above background at the site (similar to chromium VI). To consider these all the same would not be following the same decision logic as implied in this comment. No modifications have been made to the document in response to this comment.*

18. Page 7. As noted in the general comments, more analysis, explanation and discussion is needed regarding uranium and the other radionuclides. It is not reasonable that uranium exceeds background and thorium and radium do not, given the likelihood of secular equilibrium.

Response: *As noted in response to comment #5 above, text has been added to pages 4 and 8 discussing the uranium analysis issue, with reference to the uranium technical memorandum provided in Attachment D.*

19. Page 7. The meaning of the following sentence is not clear "Although the comparison statistics indicate that these metals levels at the property are above background, the cumulative probability plots and box-and-whisker plots indicate that for several of these metals, the property and background datasets are most likely representative of a single population". Some more information needs to be provided to justify a conclusion that background comparisons fail statistically, but the property and background distributions come from the same population. For example, small analytical differences could be mentioned, or small differences might be related to geologic or depth differences as seen in the background dataset. And, the conclusion could be tied back to the CSM (that these chemicals are not expected to be found as contaminants).

Response: *Agreed. Text reflecting this comment has been added to page 8 of the document.*

20. Page 10, Review Criterion 3 and 4. It does not appear that the analytical methods are sufficiently sensitive for some of the metals. For example, the antimony data exhibit about 10 high values that exceed background, exceed SSLs, and otherwise create issues for data analysis.

Response: *BEC is working to address the detection limit issue for the project in general. No modifications have been made to the document in response to this comment.*

21. Page 10, Review Criterion 3. In addition, issues have been identified associated with the radionuclide analysis, as described in the general comment above. Different methods were used for thorium and uranium, creating differences in activities for radionuclides that are, arguably, in secular equilibrium. In addition, the work plan called for 10% analysis of radium by alpha-spec methods, which have not been performed.

Response: *As noted in response to comments #5 and #18 above, text has been added to page 4 discussing the uranium analysis issue, with reference to the uranium technical memorandum provided in Attachment D.*

22. Data adequacy section. The formula used is questionable, despite its publication in USEPA documents. The multiplier of 1.16 is based on some simulations that were performed at PNNL to evaluate the difference in power between parametric tests and non-parametric tests. On average in the simulations the difference was a factor of 1.16. This does not mean that this multiplier is appropriate for the characteristics of the data presented here. Because the multiplier is included, some of the statements made are not strictly correct. The test is not based on averages. It is based on the Wilcoxon Rank Sum test, which is a non-parametric test (although the basis of the formula depends on the standard test for normality, the 1.16 multiplier came from simulations of the nonparametric test). The use of z in this formula is also suspect, since its use implies a known standard deviation. The standard deviation is estimated here, in which case t should be used instead of z, and the formula should be based on a t-test instead of a z-test. Finally, results of 0 are not recommended. The raw results are decimal, and are, presumably rounded. It is not appropriate to round any results down, because at least the number on the raw result is needed to prove data adequacy under the assumptions made. That is, the minimum possible integer response should be 1. None of these comments or observations appears to make any substantial difference to the general conclusion that there are enough data, given the assumptions of the model. However, it would be preferable if the statistical analysis and explanation was tightened. These issues must be addressed prior to submittal of future Deliverables.

Response: *As noted in this comment, this formula was used, as published in USEPA documents. However, the formula has been replaced on page 15 by that used by Neptune and Company in the 2006 BEC TRECO risk assessment. Zero values in the table have been changed to 1. This issue is being evaluated and will be addressed prior to submittal of future deliverables.*

23. Data adequacy section. Also, since asbestos was a driver for action at this site, some calculations should be presented to verify that sufficient asbestos data have been collected.

Response: *Calculations for data adequacy for asbestos have been added to Table 4 and referenced in the text on page 15. Although there are insufficient samples to achieve a lxl0-6 RME risk for amphiboles, no long amphibole fibers were found throughout the property following remediation.*

24. Page 15 determination of EPCs. In the middle of the paragraph a statement is made that UCLs were computed. This does not appear to be the case. In addition, it appears initially as if all analytes were evaluated in this way, whereas, asbestos is not. In fact, the approach taken with asbestos to use analytical sensitivity is much more like using a UCL for the other ana1ytes. A clearer distinction could be made.

Response: *The following sentence on page 17 has been changed from "For the 95 percent UCL concentration approach, the 95 percent UCL <u>was</u> computed in order to represent the area-wide exposure point concentrations." to "For the 95 percent UCL concentration approach, the 95 percent UCL <u>is typically</u> computed in order to represent the area-wide exposure point concentrations." A sentence has been added on page 17 stating "Therefore, asbestos exposure point concentrations are different than those for the other COPCs."*

25. Uncertainty analysis. One more type of uncertainty, or bias, has been introduced in this risk assessment. That is, the use of maximum concentrations across both parcels. Using maxima is clearly conservative, but it is also conservative to apply the maximum to both parcels simultaneously. This could be discussed.

Response: *See response to comment #6 above.*

26. Uncertainty analysis. Some discussion of some of the specific uncertainties should be provided in this section.

Response: *Discussions on specific uncertainties associated with the screening-level health risk assessments have been added to pages 20 and 21. Namely, the issue of using maximum concentrations across both Parcels A and B, use of the original surface soil data following remediation, and the use of corrected uranium isotope data have been discussed.*

27. Page 19, 3rd paragraph. "The risk estimates are based on reasonable maximum exposure scenarios," This statement is not strictly true given the use of maximum concentrations in the screening risk assessment. These are not based on a reasonable exposure scenario, instead they are based on a very conservative exposure scenario.

Response: *Although the concentrations are maximum concentrations, the remainder of the exposure parameters are considered reasonable maximum, thus perhaps a more appropriate term would be to characterize the entire exposure as reasaonable worst case, which USEPA generally considers above the 90th percentile, but below the 98th percentile (above the 98th*

percentile is considered maximum exposure). The text has been revised to read "The risk estimates are based on reasonable worst-case exposure scenarios, which results in estimates of the potential high-end risks associated with the property, which are more conservative than a reasonable maximum exposure scenario."

28. Page 19, risk results. The risk results are different if uranium as a radionuclide is included. Some changes to the text are appropriate.

Response: *The text has been changed on page 22 to reflect the inclusion of the uranium risk results.*

29. Page 20, Summary. "Based on the results of the 2007 investigation, this data review, and the screening-level health risk assessment, there is no evidence to conclude that the Tronox Parcels A and B property is contaminated. In summary, BEC concludes that an NFAD for the property is warranted". This should be reworded. There is evidence of contamination, it is just that the concentrations levels are not at levels of concern for human health risk for the industrial scenario. Some chemicals exhibit concentrations greater than background, and some organic chemicals have been detected. In addition the RME risk for amphibole is 5xl0-6, which is based on zero detects of amphibole fibers, and, apparently, insufficient samples to achieve lxl0-6 risk.

Response: *The text on page 23 has been revised, reflective of this comment.*

30. Figure 4. The term "clean" should be clarified. That is, the site was cleaned because of asbestos contamination. As currently used, an implication is that the areas are clean for all chemicals.

Response: *Figure 4 has been replaced with that in the subsequent asbestos technical memorandum. This figure only refers to the areas remediated for asbestos.*

31. Table 1. Results for the pre-and post-remediation asbestos data are not presented in this table, although the main text suggests that they are.

Response: *Reference to Attachment C, which provides the pre- and post-remediation asbestos data is provided on page 3 of the document.*

32. Table 2 seems like it should be broken out into two separate tables. In addition, mercury appears elevated relative to background, however is not presented in Table 2.

Response: *See response to comment #16 regarding mercury. Table 2 has been separated into Tables 2 and 3 in the revised technical memorandum.*

33. Electronic mail (e-mail) containing boxplots, the boxplot for tin appears to contain an error in presentation.

Response: *The boxplot for tin has been corrected. In addition, boxplots are provided in Attachment E of the revised technical memorandum.*

34. Uranium Isotope Data Review for 2007 Tronox A/B Investigation, we note also that much of the needed discussion/explanation about radionuclide issues at this site are discussed in the uranium technical memorandum. Perhaps some discussion is needed with NDEP, but it does not seem unreasonable to conclude that the radionuclide activities at this site are similar to background. The only case based on the raw data for which background comparisons fail is uranium as a metal, and, whereas the failure is statistically significant, the difference in activities between site uranium and background uranium activities is small. If uranium is included in the risk assessment, then the risk (radionuclide and non-radionuclide summed, per the risk assessment technical memorandum) is 4xl0-6. However, it is 1xl0-6 if uranium is not included, and it is not clear that it needs to be included. We also note that, whereas, these issues are addressed in the memorandum, the issue concerning gamma-spec analysis for radium is not fully resolved and must be resolved in future investigations.

Response: *BEC concurs with the comment above relating to uranium. Regarding future radium analyses, BEC will attempt to analyze for radium 226 and 228 using separation methods 903.1 and 904, as opposed to the gamma method 901.1.The project QAPP is being modified to reflect this methodology.*

Basic Environmental
COMPANY

TECHNICAL MEMORANDUM

To: Shannon Harbour (NDEP)

From: Ranajit Sahu (BEC)

cc: Brian Rakvica (NDEP)
Jim Najima (NDEP)
Teri Copeland
Paul Black (Neptune and Co.)

Date: February 11, 2008~~December 6, 2007~~

Subject: Technical Memorandum – Data Review for 2007 Tronox Parcels A/B Investigation, BMI Industrial Complex, Clark County, Nevada, Revision 1

Introduction

The objective of this Technical Memorandum is to present the results of the Phase 2 soil investigation Basic Environmental Company (BEC) and Tronox performed for the Tronox Parcels "A" and "B" (portions of APN Nos. 178-01-401-001, 178-12-101-002, 178-12-201-006, and 178-12-601-005). Parcels A and B will collectively be referred to as the Site for the purposes of this Data Review Technical Memorandum. The Site is located north of Warm Springs Road, 1/4 mile west of the intersection with Boulder Highway, in Henderson, Nevada. Figure 1 illustrates the location of the subject Site relative to the Tronox property. Figures 2 and 3 show details of Parcels A and B themselves. It should be noted that the Nevada Pick-A-Part facility is not a part of the Site.

This revision of the Data Review Technical Memorandum, Revision 1, incorporates comments received from the NDEP, dated January 10, 2008, on Revision 0 of the report, dated December 6, 2007. The NDEP comments and BRC's response to these comments are included in Attachment A. Also included in Attachment A is a redline/strikeout version of the text showing the revisions from the December 6, 2007 version of the technical memorandum.

The Site, which represents a portion of the Tronox property, is comprised of primarily of vacant land, and includes an area in the northeast corner of the Parcel formerly leased by Lavern Vohs. BEC also recognizes that other historic uses/disposals on or near the Site may have occurred. A Phase 1 investigation has been performed on the Site. The Phase 1 investigation, Site visits and historical aerial photographs analysis indicate the presence of certain debris, gravel, fill and

concrete/asphalt piles, an abandoned baghouse of unknown origin, and multiple five gallon pails of what appears to be oil to be located on the Site. In addition, there are at least two "homeless" camps that may or may not be currently in use on the Site. Given the vicinity of BMI Industrial Companies, it is also possible that the Site or portions thereof could also have been indirectly impacted by such operations. Legal descriptions of the properties are included in Attachment B.

Therefore, this current investigation was conducted to provide data to confirm existing data and fill identified data gaps with regards to possible contaminant distribution on this property. The sampling was conducted in accordance to the NDEP-approved *Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization* (BEC 2007). The Site investigation involved collection of random soil matrix samples placed within a 4-acre grid across the Site. The grid was modified from a square grid pattern based on the following: 1) started the grid along the western parcel boundary (for each parcel independently), 2) combined partial grids with either other partial grids or whole grids (which resulted in irregular shaped grid cells), and 3) made all grids approximately four acres in size. Grid sizes ranged from 1.2 to 4.5 acres. The random sample locations were supplemented with judgmental sampling locations targeting specific site features (e.g., miscellaneous pile locations). The rationale for the various judgmental sampling locations is provided below:

- Parcel A, grid cell 'A-A3' – gravel pile location;
- Parcel A, grid cell 'A-A2' – historical northwestern ditch;
- Parcel A, grid cell 'A-C3' – abandoned baghouse of unknown origin;
- Parcel B, grid cell 'B-A4' – debris pile location;
- Parcel B, grid cell 'B-A4' – fill pile location;
- Parcel B, grid cell 'B-B2' – concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' – concrete/asphalt pile location;
- Parcel B, grid cell 'B-C2' – debris pile location; and
- Parcel B, grid cell 'B-A4' – multiple five gallon pails of what appears to be waste oil.

Soil borings were advanced with a hollow-stem auger to a total depth of 10 feet below ground surface (bgs). Soil samples were collected at approximately zero (i.e., surface) and 10 feet bgs. The Site investigation involved collecting enough samples for completion of a statistically sufficient ~~robust~~ assessment of chemical distribution, and if desired, to provide a robust data set upon which to perform a screening-level human health risk assessment.

Parcel A and the adjacent Parcel B were not directly used for any manufacturing or waste disposal activities. They are located north of the BMI facilities, and adjacent to other industrial properties. Based on the data collected, a No Further Action Determination (NFAD) is being

sought from the NDEP in order to support future industrial/commercial use on this Site. No residential use is planned. Specifically, this technical memorandum includes the following primary tasks:

- Summary of data~~, including comparisons to risk-based screening levels (RBSLs)~~;
- Statistical comparison to background concentrations;
- Data usability evaluation;
- Data adequacy evaluation; and
- Screening-level health risk assessment.

Each of these tasks is discussed below.

Data Summary

Sixty-four (64) samples were collected from 32 sample locations. Sample locations for this current investigation are shown on Figures 2 and 3. Results of the investigation are presented in Attachment C~~Attachment A~~, and electronically on CD. All data have been validated per the NDEP-approved *Data Validation Summary Report* (DVSR) (BEC and ERM 2007; approved in letter from Shannon Harbour of the NDEP to Susan Crowley, dated December 6, 2007).

Following the first round of sampling, surface soil from several areas of the property, around sample locations TSB-AJ-03, TSB-AR-06, TSB-AR-08, TSB-AR-09, TSB-AR-10, TSB-~~-~~AR-~~-~~12, TSB-AR-13, TSB-AR-14, TSB-BJ-02, TSB-BR-05 was scraped and removed due to the detection of long amphibole asbestos fibers at these locations.~~(see Figure 4).~~ Post-scrape samples were collected and analyzed for asbestos from 10 locations within these areas. During the second round of sampling, a single long amphibole asbestos fiber was detected in sample TSB-BR-05-PS. Therefore, further scraping around this location was performed. In addition, sample locations TSB-AR-11 and TSB-BJ-01 contained 8 and 19 long chrysotile asbestos fibers, respectively. Therefore, further scraping around these locations was also performed. Final samples were collected from locations TSB-BR-05, TSB-AR-11, and TSB-BJ-01 following the second and third scrapings. Figure 4 shows all areas of surface soil that were scraped and removed. Based on this, the original surface sample data for asbestos from these locations were removed from further evaluation and the re-sampled asbestos results are ~~were~~ used instead. Both pre-scrape and post-scrape asbestos results are included in Attachments C and D.

The consequences of the asbestos remediation are that the new surface layer of the Site could have different concentrations of chemicals than those that were measured prior to remediation. However, because there are no historical uses of the Site, it is reasonable to assume that the concentration distribution has not changed in any important way. It might also be reasonable to assume that concentrations are now lower for some chemicals (*e.g.*, dioxins), because of the removal of some soil. Although a quantitative evaluation of the depth-profile of the chemicals has not been conducted, a qualitative review of the data indicate that generally volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were primarily detected in surface soil only (for example, 1,3-dichlorobenzene, 1,4-dichlorobenzene, benzo[a]pyrene, benzo[a]anthracene, benzo[b]fluoranthene, hexachlorobenzene), while concentrations are not appreciably different with depth for those chemicals detected in both surface and subsurface soil. A review of the data in Attachment C indicates that it is reasonable to assume that the previous samples are still representative of current conditions. Therefore, because only asbestos was re-analyzed for in the post-scrape samples, the original measured surface soil data at the Site for all other chemicals is retained for the evaluations conducted below.

The results also indicated that uranium isotope analytical results are biased low in comparison to the 2005 shallow soil background dataset, as presented in the *Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity* (BRC and TIMET 2007). A comparison of the methods used for preparation and analysis indicate that the primary difference between the background and Site uranium isotope data is that the sample preparation method in the background dataset used a total dissolution method, while the Site dataset used a nitric acid preparation method. Because of the incompatibility between the two datasets, two approaches were developed to account for and correct this low bias associated with the Site uranium isotope data. The two approaches are similar, in that they both base the re-calculation of the Site uranium isotope activities on the use of the uranium metal analytical results. These approaches and re-calculations are presented in detail in Attachment E. The recommended approach provides a reasonable means to correct for the low-biased measured uranium isotope data, to obtain a Site dataset that is compatible with the shallow soil background dataset, without being overly conservative. The corrected uranium isotope data were used in the evaluations and comparisons discussed below.

Using the compound-specific information presented in Table 2 of the Quality Assurance Project Plan (QAPP; BRC, ERM and MWH 2007a), the comparison~~screening~~ levels for each chemical included in the investigation were compiled and compared. Specific soil comparison~~screening~~ levels used for this effort were as follows:

- ~~RBSLs, for the purposes of this evaluation~~ U.S. Environmental Protection Agency (USEPA) Region 9 industrial soil Preliminary Remediation Goals (PRGs) (USEPA 2004a)~~)~~ ~~were used~~; and

- Soil screening levels (SSLs) protective of groundwater assuming ~~a~~ dilution attenuation factors (DAFs) of 1 and ~~factor (DAF) of~~ 20 (USEPA 2004a).

A DAF of one is used when little or no dilution or attenuation of soil leachate concentrations is expected. Although the property is greater than 30 acres, because of the depth to groundwater (approximately 25 to 30 feet bgs) and the absence of fractured media or karst topography, consistent with USEPA (2002a) recommendations, SSLs using a DAF of 20 were also considered appropriate for comparison~~screening~~ purposes for the property. A summary of the data for the property, including identification of number of instances that chemical concentrations exceed each of the comparison levels~~the concentration to screening level ratios~~ are listed in Table 1, and summarized below.

Except as discussed below, there are no chemicals or instances where concentrations exceed comparison~~screening~~ levels. Although there are numerous instances where arsenic and radionuclides exceed the USEPA Region 9 industrial PRG, there are no instances where arsenic and only a few instances where~~or~~ any radionuclides exceeded their respective 2005 shallow soil background levels~~ presented in the *Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity* (BRC and TIMET 2007)~~, and, as evaluated further below.

Dioxins/furans toxic equivalency quotients (TEQs) were compared to the Agency for Toxic Substances and Disease Registry (ATSDR) action level of 1.0 parts per billion (ppb; ATSDR 1997). The ATSDR action level is used to identify where potential health effects may be of concern at a site. There were no instances where dioxins/furans TEQs exceeded this level.

In addition, although there are some instances where ~~volatile organic compounds (~~VOCs~~)~~ have been detected, as noted above there are no instances of a VOC exceeding the USEPA Region 9 industrial PRG. However, USEPA Region 9 PRGs do not account for potential migration of VOCs from the subsurface into indoor air. In general USEPA does not recommend evaluating the indoor air exposure pathway using soil matrix data (USEPA 2002b). Because no potential source areas were identified at the Site, soil vapor data were not collected. The indoor air exposure pathway is not considered a pathway of concern because 1) VOCs were detected only sporadically, and no hot spots were identified (see Determination of Exposure Point

Concentrations section below); 2) the levels are generally below USEPA Region 9 industrial PRGs, recognizing that these values do not account for indoor air exposures; and 3) no potential sources of VOCs were identified on the property, and the data support this conclusion.

Depth~~Given the depth~~ to groundwater at the property is (approximately 25 to 30 feet bgs, as measured at monitoring wells H-49A [26.8 feet bgs], H-56A [24.4 feet bgs], and H-58A [30.2 feet bgs]). There are several instances where cadmium and beta-BHC exceed their USEPA SSLs. For beta-BHC, most of these instances were in surface soil, with only five samples collected at 10 feet bgs above the USEPA SSL with a highest concentration of 0.038 mg/kg versus the SSLs of 0.003 and 0.0001 mg/kg (for SSL DAF 1 and 20, respectively). The DAF of 1 for beta-BHC is extremely low and is often exceeded by non-detects as well. There is a known source of beta-BHC in soil and ~~]), migration of chemicals at the property to~~ groundwater off-Site and the concentrations of this compound at this Site are considered insignificant relative to upgradient data. If beta-BHC were to leach to groundwater it is unlikely that the contribution from this Site could be detected.

Based upon a review of available groundwater data in the region, cadmium does not appear to be leaching to groundwater and is not a concern at this time. It is also noted that there are only three locations above the SSL DAF 1 and these concentrations are only marginally elevated (0.59 mg/kg maximum versus an SSL of 0.4 mg/kg). All cadmium detections are well below the SSL DAF 20 (8 mg/kg). If cadmium were to leach to groundwater it is expected that this matter could be addressed by the existing groundwater treatment system, as necessary.

In addition, given the discussion above, there is no indication that concentrations increase with depth, further supporting the conclusion that the site is not a likely source of impacts to groundwater. This is further supported by the low level of detected chemicals most associated with potential groundwater impacts (*e.g.*, VOCs, some organochlorine pesticides). In addition, a review of Tronox Phase A data collected deeper than 10 feet bgs (from 15 to 25 feet bgs) further support this conclusion as the results from deeper samples are generally consistent with those collected from surface to 10 feet bgs.~~Although there are several instances where beta-BHC exceeded the USEPA SSL, most of these instances were in surface soil, with only five samples collected at 10 feet bgs above the USEPA SSL with a highest concentration of 0.038 mg/kg versus the SSL of 0.003 mg/kg.~~ Therefore, potential impacts to groundwater, and subsequent groundwater exposures were not further evaluated. It should be noted that

development of the property will not preclude future groundwater investigation or remediation activities that may need to be conducted by BEC.

Several monitoring wells are located within these properties, which are used by several of the BMI plant operating companies. For example, Tronox collected a groundwater sample from monitoring well M95 during it's recent (December 2006) Phase A source area investigation. Low parts per billion (ppb) levels of several ~~volatile organic compounds (~~VOCs~~)~~ were detected in this sample. Chloroform was detected at 350 ppb. In addition, Stauffer Management Company LLC (Stauffer), Montrose Chemical Corporation of California (Montrose), Syngenta Crop Protection, Inc., and Pioneer Americas, LLC (the Companies) conducted quarterly groundwater samples from three monitoring wells within the property (H-49A, H-56A, and H-58A). Similar results were found to the Tronox sampling event, that is, low ppb levels of VOCs. No chemicals, including VOCs, were found at levels in wells within the Site higher than wells located upgradient of Parcels A and B in any of the previous sampling events. This suggests that there are not any on-Site sources of groundwater impacts.

This includes the potential vapor intrusion to indoor air from groundwater exposure pathway. The chloroform plume associated with the industrial facilities lies primarily to the east of the Site. Given levels of VOCs detected in groundwater beneath the site are generally lower (for example, 350 ppb chloroform at M95 versus 1,400 ppb at PC67 to the east) than those within this plume, the Site is immediately downgradient of the groundwater treatment system, and depth to groundwater is greater at the Site than locations to the northeast, it is likely that vapor intrusion impacts and concerns from groundwater are less than those associated with the chloroform plume.

Following remediation there~~There~~ were 23~~67~~ chrysotile asbestos fibers detected from throughout the property, with nine~~36~~ of these long fibers (see Attachment D). There were no amphibole asbestos fibers detected from throughout the property. There are no comparison~~screening~~ levels available for asbestos. Asbestos is further evaluated in the screening-level health risk assessment.

Conceptual Site Model

The conceptual site model (CSM) is used to describe relationships between chemicals and potentially exposed human receptor populations, thereby delineating the relationships between the suspected sources of chemicals identified at the property, the mechanisms by which the chemicals might be released and transported in the environment, and the means by which the

receptors could come in contact with the chemicals. The CSM provides a basis for defining data quality objectives and developing exposure scenarios.

The CSM considers current and potential future land-use conditions. Currently, the property is undeveloped. Current receptors that may use the property include on-site trespassers. Therefore, current exposures to native soils at the property are likely to be minimal. In addition, exposures to future on-site workers will be much greater than current exposures. For example, future receptors include commercial/industrial workers who are assumed to be exposed to soil at the property for 250 days per year for 25 years which is much greater than any current exposures.

USEPA (1989) guidance states that potential future land use should be considered in addition to current land use when evaluating the potential for human exposure at a site. Therefore, the CSM also considers other future land-uses. For example, the CSM includes the planned use of the property for redevelopment into commercial use. The potentially exposed populations and their potential routes of exposure are presented in Figure 5.

Potential Source Areas

As discussed above nine areas were identified in the Sampling and Analysis Plan that warranted further investigation. These areas are shown on Figures 2 and 3. Judgemental soil samples were collected from each of these areas.

Potential Human Exposure Scenarios

Given the planned development of the property, potential human receptors include on-site construction workers, on-site indoor commercial workers, on-site outdoor maintenance workers, and on-site visitors. However, as discussed below, not all of these receptors are evaluated in the screening-level health risk assessment. Potential migration pathways, exposure pathways, and routes of exposure are shown on Figure 5.

Although several potential human receptors may occur on the property in the future, the screening-level health risk assessment focuses on the commercial/industrial receptor. This receptor is considered to have the highest level of exposure at the property, as supported by the comparison~~risk-based screening~~ levels that have been developed in the project QAPP (BRC, ERM and MWH 2007a). Other receptors generally have lower exposures, and thus lower risk estimates. Therefore, risk estimates generated for commercial/industrial receptors will be protective of other potential receptors at the property. The only exception to this is

construction worker exposures to asbestos. This is because asbestos risks are only evaluated for the dust inhalation exposure pathway, with construction activities generating more dust than under normal circumstances. Therefore, the screening-level health risk assessment also evaluates the construction worker receptor for asbestos exposures.

Evaluation of Concentrations Relative to Background Conditions

The comparison of property-related soil concentrations to background levels was conducted using the existing, shallow soils background data set presented in the *Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity* (BRC and TIMET 2007). Background comparisons were performed using the Quantile test, Slippage test, the *t*-test, and the Wilcoxon Rank Sum test with Gehan modification. The computer statistical software program, Guided Interactive Statistical Decision Tools (GISdT®; Neptune and Company 2007), was used to perform all statistical comparisons. A summary of the results of this evaluation, including summary statistics, is presented in Tables 2 and 3.~~.~~

The results of this comparison indicate that levels of cadmium, total chromium, hexavalent chromium, lead, molybdenum, niobium, potassium, sodium, tin, titanium, and uranium exceed background levels. Although the comparison statistics indicate that these metals levels at the property are above background, small analytical differences or small differences related to geologic or depth differences as seen in the background dataset may be responsible for these results. Given that these chemicals are not expected to be found as contaminants at the Site, it is likely that~~cumulative probability plots and box-and-whisker plots indicate that for several of these metals,~~ the property and background datasets are ~~most likely~~ representative of a single population. However, as discussed below, these metals are considered in the screening-level health risk assessment. Cumulative probability plots and boxplots are presented in Attachment F.

In addition, background comparisons indicate that uranium isotope levels exceed background levels, while none of the other radionuclides fail background comparisons at all. In fact, some of the site radionuclides appear to be slightly lower than background. It might be reasonable to assume that the differences are the result of minor analytical differences, and that all radionuclides are at background concentrations. However, the uranium isotopes are considered in the screening-level health risk assessment.

Data Usability Evaluation

The primary objective of the data review and usability evaluation was to identify appropriate data for use in the screening-level health risk assessment. The analytical data were reviewed for applicability and usability following procedures in the *Guidance for Data Usability in Risk Assessment (Part A)* (USEPA 1992a) and USEPA (1989). A quality assurance/quality control (QA/QC) review of the analytical results was conducted during the sampling events. According to the USEPA Data Usability Guidance, there are six principal evaluation criteria by which data are judged for usability in risk assessment. The six criteria are:

- availability of information associated with site data;
- documentation;
- data sources;
- analytical methods and detection limits;
- data review; and
- data quality indicators, including precision, accuracy, representativeness, comparability, and completeness.

A summary of these six criteria for determining data usability is provided below.

Criterion I – Availability of Information Associated with Site Data

The usability analysis of the site characterization data requires the availability of sufficient data for review. The required information is available from documentation associated with the site data and data collection efforts. The following lists the information sources and the availability of such information for the data usability process:

- A property description provided in the NDEP-approved Sampling and Analysis Plan (BEC 2007) identifies the location and features of the property, the characteristics of the vicinity, and contaminant transport mechanisms.
- A site map with sample locations is provided in Figures 2 and 3.
- Sampling design and procedures were provided in the NDEP-approved Sampling and Analysis Plan (BEC 2007).

- Analytical methods and detection limits are provided in Attachment C~~A~~.
- A complete data set is provided in Attachment C~~A~~.
- A narrative of qualified data is provided with each analytical data package, the laboratory provided a narrative of QA/QC procedures and results. These narratives are included as part of the NDEP-approved DVSR (BEC and ERM 2007).
- QC results are provided by the laboratory, including blanks, replicates, and spikes. The laboratory QC results are included as part of the NDEP-approved DVSR (BEC and ERM 2007).
- Data flags used by the laboratory were defined adequately as part of the NDEP-approved DVSR (BEC and ERM 2007).
- Electronic files containing the raw data made available by the laboratory are included as part of the NDEP-approved DVSR (BEC and ERM 2007).

Criterion II – Documentation Review

The objective of the documentation review is to confirm that the analytical results provided are associated with a specific sample location and collection procedure, using available documentation. For the purposes of this data usability analysis, the chain-of-custody forms prepared in the field were reviewed and compared to the analytical data results provided by the laboratory to ensure completeness of the data set. Based on the documentation review, all samples analyzed by the laboratory were correlated to the correct geographic location at the property. Field procedures included documentation of sample times, dates and locations, other sample specific information such as depth bgs were also recorded. Information from field forms generated during sample collection activities was imported into the project database.

The analytical data were reported in a format that provides adequate information for evaluation, including appropriate quality control measures and acceptance criteria. Each laboratory report describes the analytical method used, provides results on a sample by sample basis along with sample specific detection limits, and provides the results of appropriate quality control samples such as laboratory control spike samples, sample surrogates and internal standards (organic analyses only), and matrix spike samples. All laboratory reports, except for asbestos, provided the documentation required by USEPA's Contract Laboratory Program (USEPA 2003a, 2004b,c) which includes chain of custody records, calibration data, QC results for blanks, duplicates, and

spike samples from the field and laboratory, and all supporting raw data generated during sample analysis. Reported sample analysis results were imported into the project database.

The recommended method for providing asbestos data which are useful for risk assessment purposes was performed by EMSL Analytical Inc in Westmont, New Jersey. This laboratory is not currently certified in the State of Nevada, but has California and national accreditation for asbestos analysis.

To interpret measurements of asbestos in soils, it is necessary to establish the relationship between the asbestos concentrations observed in soils and concentrations that will occur in air when such soil is disturbed by natural or anthropogenic forces. This is because asbestos is a hazard when inhaled (see, for example, Berman and Crump 2001; USEPA 2003b). In fact, the Modified Elutriator Method (Berman and Kolk 2000), which was the method employed to perform the analyses presented in this report, was designed specifically to facilitate prediction of airborne asbestos exposures based on bulk measurements (see, for example, Berman and Chatfield 1990).

The Modified Elutriator Method incorporates collection of samples that are re-suspended and then forced through an airway and filter. Asbestos structures are isolated and concentrated as part of the respirable dust fraction of a sample and analytical measurements are reported as the number of asbestos structures per mass of respirable dust in the sample. These are precisely the dimensions required to combine such measurements with published dust emission and dispersion models to convert them to asbestos emission and dispersion estimates. Thus, because published dust emission and dispersion models can be used to address many of the exposure pathways of interest in this study, these can be combined with measurements from the Modified Elutriator Method to predict airborne exposures and assess the attendant risks.

Criterion III –Data Sources

The review of data sources is performed to determine whether the analytical techniques used in the site characterization process are appropriate for risk assessment purposes. The data collection activities were developed to characterize a broad spectrum of chemicals potentially present on the property, including asbestos, VOCs, ~~semi-volatile organic compounds (~~SVOCs~~)~~, metals, radionuclides, dioxins/furans, asbestos, polynuclear aromatic hydrocarbons (PAHs), organo-chlorine pesticides (OCPs), and petroleum hydrocarbons.

The State of Nevada is in the process of certifying the laboratories used to generate the analytical data. As such, standards of practice in these laboratories follow the quality program developed by the Nevada Revised Statutes (NRS) and are within the guidelines of the analytical methodologies established by the USEPA. Based on the review of the available information, the data sources for chemical and physical parameter measurements are adequate for use in a risk assessment.

Criterion IV – Analytical Methods and Detection Limits

In addition to the appropriateness of the analytical techniques evaluated as part of Criterion III, it is necessary to evaluate whether the detection limits are low enough to allow adequate characterization of risks. At a minimum, this data usability criterion can be met through the determination that routine USEPA and U.S. Department of Energy (DOE) reference analytical methods were used in analyzing samples collected from the property. Attachment C~~Attachment A~~ identifies the USEPA and DOE methods that were used in conducting the laboratory analysis of soil samples. Each of the identified USEPA methods are considered the most appropriate method for the respective constituent class and each was approved by NDEP as part of the Sampling and Analysis Plan (BEC 2007).

Laboratory reporting limits were based on those outlined in the reference method, the Sampling and Analysis Plan, and the *BRC Closure Plan* (BRC, ERM, and DBSA 2007). In accordance with respective laboratory standard operating procedures (SOPs), the analytical processes included performing instrument calibration, laboratory method blanks, and other verification standards used to ensure quality control during the analyses of collected samples.

The range of detection limits achieved in field samples was compared to USEPA Region 9 industrial PRGs (USEPA 2004a). Although n-nitrosodi-n-propylamine had a number of reporting limits that exceeded its respective PRGs, none of the method detection limits were above industrial PRGs. beta-BHC and several SVOCs had method detection limits above the USEPA SSLs; however, given the discussion provided previously, migration of chemicals at the property to groundwater is considered unlikely. Therefore, the detection limits are considered adequate for risk assessment purposes.

Criterion V – Data Review

The data review portion of the data usability process focuses primarily of the quality of the analytical data received from the laboratory. Soil and soil vapor sample data were subject to data

validation. A DVSR was prepared as a separate deliverable (BEC and ERM 2007). The analytical data were validated according to the internal procedures using the principles of USEPA National Functional Guidelines (USEPA 1999, 2001, 2002c, 2004b,c) and were designed to ensure completeness and adequacy of the data set. Any analytical errors and/or limitations in the data have been addressed and an explanation for data qualification provided in the respective data tables. The results of ERM's data review for these issues are presented in the DVSR and are summarized below.

Although certain laboratory limits, such as percent recovery (PR) and relative percent difference (RPD) between sample and duplicate, were exceeded for 53 compounds or analyses, as identified by the laboratory (and confirmed during ERM's review of the data), there does not appear to be a wide-spread effect on the quality of the analytical results. Furthermore, based on a review of the laboratory narratives (provided in the laboratory reports in the DVSR), the laboratory does not believe that the observed exceedances of laboratory criteria represent a concern.

For 1,740 out of 16,498 analytical results, quality criteria were not met and various data qualifiers were added to indicate limitations and/or bias in the data. The definitions for the data qualifiers, or data validation flags, used during validation are those defined in SOP-40 (BRC, ERM and MWH 2007b) and the project QAPP (BRC, ERM and MWH 2007a). Sample results were rejected based on findings of serious deficiencies in the ability to properly collect or analyze the sample and meet QC criteria. Only one analytical result (TPH as diesel at sample location TSB-AR-07-10 at 10 feet bgs) was rejected in the entire dataset. Only rejected data were considered unusable for decision-making purposes and rejected analytical results are not used in the screening-level health risk assessment. Sample results qualified as estimated were affected by special circumstances and are likely to be quantitatively biased to some degree; estimated analytical results are used in the screening-level health risk assessment. Data qualified as anomalous represents an analyte or compound that was not detected above the sample quantitative limit and such data are used in the screening-level health risk assessment. These data usability decisions follow the guidelines provided in the *Guidance for Data Usability in Risk Assessment (Part A)* (USEPA 1992a).

Criterion VI – Data Quality Indicators

Data quality indicators (DQIs) are used to verify that sampling and analytical systems used in support of project activities are in control and the quality of the data generated for this project is appropriate for making decisions affecting future activities. The DQIs address the field and analytical data quality aspects as they affect uncertainties in the data collected for site

characterization and risk assessment. The DQIs include precision, accuracy, representativeness, comparability, and completeness (PARCC). The project QAPP provides the definitions and specific criteria for assessing DQIs using field and laboratory QC samples and is the basis for determining the overall quality of the data set. Data validation activities included the evaluation of PARCC parameters, and all data not meeting the established PARCC criteria were qualified during the validation process using the guidelines presented in the *National Functional Guidelines for Laboratory Data Review, Organics and Inorganics and Dioxin/Furans* (USEPA 1999, 2001, 2002c, 2004d). Detailed discussion of and tables with specific exceedances, with respect to precision and accuracy, is provided in the DVSR (BEC and ERM 2007).

Representativeness is the degree to which data accurately and precisely represent a characteristic of the population at a sampling point or an environmental condition (USEPA 2002c). There is no standard method or formula for evaluating representativeness, which is a qualitative term. Representativeness is achieved through selection of sampling locations that are appropriate relative to the objective of the specific sampling task, and by collection of an adequate number of samples from the relevant types of locations. The sampling locations were selected randomly in order to adequately assess the exposure areas. The samples were analyzed for a broad spectrum of analyses across the property. Samples were delivered to the laboratory in coolers with ice to minimize the loss of analytes. At times the samples were received outside the recommended temperature range or were analyzed beyond the holding time. Sample specific results are discussed in the DVSR.

Completeness is commonly expressed as a percentage of measurements that are valid and usable relative to the total number of measurements made. Analytical completeness is a measure of the number of overall accepted analytical results, including estimated values, compared to the total number of analytical results requested on samples submitted for analysis after review of the analytical data. Some of the data were eliminated due to data usability concerns. The percent completeness for the property is 99.9 percent.

Comparability is a qualitative characteristic expressing the confidence with which one dataset can be compared with another. The desire for comparability is the basis for specifying the analytical methods; these methods are generally consistent with those used in previous investigations of the property. The comparability goal is achieved through using standard techniques to collect and analyze representative samples and reporting analytical results in appropriate units.

Data Adequacy

Sample size calculations were conducted for four analytes (arsenic, 2,3,7,8-tetrachlorodibenzo-*p*-dioxin [2,3,7,8-TCDD], beta-BHC, and chrysotile asbestos~~benzo(a)pyrene~~) for the property. The formula used here for calculation of sample size is based on a non-parametric test (the Wilcoxon signed rank test), and on simulation studies performed by Pacific Northwest National Laboratories that formed the basis for an approximate formula that is based on the normal distribution. Essentially, the formula is the one that would be used if a normal-based test were being performed, but an adjustment is made (multiply by 1.16) to account for the intent to perform a non-parametric test. ~~The sample size calculations used a formula that accommodates data that are not normally distributed (USEPA 2002d, 2007a).~~ The formula is as follows~~used was~~:

$$n = 1.16\left[\frac{s^2}{\Delta^2}(z_{1-\alpha} + z_{1-\beta(\mu)})^2 + 0.5z_{1-\alpha}^2\right]$$

~~$n = 1.16 \times (0.25)\, z^{2}_{1-\alpha} + 2\,(z_{1-\alpha} + z_{1-\beta})^{2}\ \sigma^{2}\ /(\mathrm{MDD})^{2}$~~

where~~:~~

n = number of samples

~~s = estimated α = alpha decision error (Type I);~~

~~β = beta decision error (Type II);~~

~~σ =~~ standard deviation of concentrations/fibers~~; and~~

Δ = width of the gray region (the difference between the threshold value in stated in the hypothesis and the point at which β is specified)

α = significance level or Type I error tolerance

β (μ) = Type II error tolerance; and

z = quantile from the standard normal distribution

~~MDD = minimum detectable difference.~~

~~This test is based on comparing an average concentration to an analyte-specific threshold (*i.e.*, RBSL or background).~~ For each chemical, inputs for the calculations include an estimate of the variance from the measured data, a desired significance level, and desired power of the test that must be specified at a concentration of interest (which determines the tolerable difference from the threshold value). The calculations provided here cover a range of Type I and Type II error

tolerances, and the point at which the Type II error is specified. Results are presented in Table 4~~.3.~~ In Table 4~~Table 3~~, various combinations of input values are used, including: values of α of 5%, 10% and 15%; values of β of 15%, 20%, and 25%; and a gray region of width 10%, 20% and 30% of the threshold level. It is clear from Table 4~~3~~ that the number of samples collected is adequate for the property.

Screening-Level Health Risk Assessment

The comparison~~comparisons to screening~~ levels in the Data Review section above do not take into account cumulative effects, nor do they consider all potential exposure pathways (for example, the indoor air pathway). Therefore, the purpose of the screening-level health risk assessment is to determine if chemical concentrations in property soils are: (1) either representative of background conditions; or (2) do not pose an unacceptable risk to human health and the environment under current and anticipated future use conditions.

Human health risks are represented by estimated theoretical upper-bound cancer risks and non-cancer hazards derived in accordance with standard USEPA methods. The acceptable risk levels defined by USEPA for the protection of human health, and following those discussed previously with NDEP, are:

1. For non-carcinogenic compounds, the acceptable criterion is a cumulative hazard index (HI) of one or less. If the screening HI is determined to be greater than 1.0, target organ-specific HIs will be calculated for primary and secondary organs. The final risk goal will be to achieve target organ-specific non-carcinogenic HIs of less than 1.0; and

2. For known or suspected chemical and radionuclide carcinogens, the acceptable ceiling for a cumulative incremental lifetime cancer risk (ILCR) ranges from 10^{-6} to 10^{-4}. The risk goal established by the NDEP is 10^{-6}.

3. Where background levels exceed risk level goals, metals and radionuclides in Site soils are targeted to have risks no greater than those associated with background conditions.

4. For asbestos, calculations are based upon cancer criterion and a risk goal of 10^{-6}.

This screening-level health risk assessment follows the basic procedures outlined in USEPA *Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual* (RAGS; USEPA 1989). Other guidance documents were also consulted for the screening-level health risk assessment.

Selection of Chemicals of Potential Concern

The broad suite of analytes sampled for was the initial list of chemicals of potential concern (COPCs) at the property. However, in order to ensure that a risk assessment focuses on those substances that contribute the greatest to the overall risk (USEPA 1989); only one procedure was used to eliminate the chemicals for quantitative evaluation in the screening-level health risk assessment:

- identification of chemicals with detected levels which are at or less than background concentrations (where applicable).

The procedure for evaluating chemicals relative to background conditions was presented above.

Another criterion that may warrant chemical reduction is the frequency of detection. In general, chemicals exhibiting a low frequency of detection will not contribute significantly to the risk estimates. USEPA (1989) suggests that chemicals with a frequency of detection less than or equal to five percent, with the exception of metals, known human carcinogens, and persistent, bioaccumulative, and toxic (PBT) chemicals as defined by the USEPA PBT program (USEPA 2007b), may be considered for elimination. However, no chemicals were eliminated from further evaluation based on the frequency of detection criteria.

Determination of Exposure Point Concentrations

A representative exposure concentration is a COPC-specific and media-specific concentration value. In risk assessment, these exposure concentrations are values incorporated into the exposure assessment equations from which potential baseline human exposures are calculated. Due to the uncertainty associated with determining the true average concentration at a site, where direct measurements of the site average are unavailable, the USEPA recommends using the lower of the maximum detected concentration or the 95 percent upper confidence limit (UCL) as the concentration of a chemical to which an individual could be exposed over time (USEPA 1992b). For the 95 percent UCL concentration approach, the 95 percent UCL is typically~~was~~ computed in order to represent the area-wide exposure point concentrations. The 95 percent UCL is defined as the value that, when calculated repeatedly for randomly drawn subsets of site data, equals or exceeds the true mean 95 percent of the time (USEPA 1992b). The purpose for using the 95 percent UCL is to take into account the different concentrations a person may be exposed to on any given day. That is, an individual will be exposed to a range

of concentrations that exist at an exposure area, from non-detect to the maximum concentration, over an entire exposure period.

However, while it may be more realistic to develop exposure concentrations consistent with the proposed development of the Site, the maximum concentration was selected as the exposure point concentration for each COPC, regardless of location, for evaluating Site risks in order to identify the worst-case risks for the Site. It is conservatively assumed that individuals will be exposed to a consistent maximum COPC concentration in soil, based on the assumptions used in the assessment, regardless of where they are on the Site. That is, fluctuations in chemical concentrations, either spatially or temporally, are not considered.

The exposure point concentrations for asbestos were based on the pooled analytical sensitivity of the dataset. Therefore, asbestos exposure point concentrations are determined differently than those for the other COPCs. The pooled analytical sensitivity was calculated as follows:

$$Pooled\ Analytical\ Sensitivity = 1/\left[\sum_i (1/analytical\ sensitivity\ for\ trial\ i)\right]$$

Two estimates of the asbestos concentration were evaluated, best estimate and upper bound as defined in the draft methodology (USEPA 2003b). The best estimate concentration is similar to a central tendency estimate, while the upper bound concentration is comparable to a reasonable maximum exposure estimate. The pooled analytical sensitivity is multiplied by the number of chrysotile or amphibole structures to estimate concentration:

$$\text{Estimated Bulk Concentration } (10^6 \text{ s/gPM10}) = \text{Long fiber count} \times \text{Pooled analytical sensitivity}$$

For the best estimate, the number of fibers measured is incorporated into the calculation above. The upper bound of the asbestos concentration was also evaluated. It is calculated as the 95 percent UCL of the Poisson distribution where the mean equals the number of structures detected. In EXCEL, the following equation may be employed to calculate this value:

$$\text{95\% UCL of Poisson Distribution } (10^6 \text{ s/gPM10}) = \text{CHIINV}(1 - \alpha, 2 \times (\text{Long fiber count} + 1)/2)$$

This value is then multiplied by the pooled analytical sensitivity to estimate the upper bound concentration. The intent of the risk assessment methodology was to predict the risk associated with airborne asbestos.

In order to quantify the airborne asbestos concentration, the estimated dust levels or particulate emission factors were used:

$$\text{Estimated Airborne Concentration } (s/cm^3) = \text{Estimated bulk concentration } (10^6 \text{ s/gPM10}) \times \text{Estimated dust level } (ug/cm^3)$$

Risk Assessment Methodology

The method used in this screening-level health risk assessment consists of a simple comparison of maximum detected concentrations to USEPA Region 9 industrial PRGs. Several chemicals have both cancer and non-cancer toxicity criteria. For these chemicals USEPA calculates PRGs for both cancer and non-cancer endpoints; however only the lower value is published in its PRG table. The other value is included in a separate spreadsheet table. This other value is shown on Table 1 as the 'Secondary Industrial PRG' and is included in the screening-level risk assessment calculations.

Methods for Assessing Non-Cancer Health Effects

In this assessment, adverse non-cancer health effects were characterized by comparing the maximum measured soil concentrations with an exposure level at which no adverse health effects are expected to occur for a long period of exposure (i.e., USEPA Region 9 PRGs). Maximum measured soil concentrations and PRGs are compared by dividing the maximum measured soil concentration by the PRG, as shown below:

$$Hazard\ Quotient = \frac{Maximum\ Measured\ Soil\ Concentration}{Industrial\ Soil\ PRG}$$

If a person's representative exposure concentration is less than the PRG (i.e., if the hazard quotient is less than one), the chemical is considered unlikely to pose a significant non-cancer health hazard to individuals under the given exposure conditions assumed in the exposure parameters assumed in deriving the applicable PRG.

In accordance with standard risk assessment protocol, the hazard quotients for multiple chemicals are summed to determine whether the cumulative effect poses a potential health concern. The sum of the hazard quotients is known as a hazard index (HI).

$$Hazard\ Index = \sum Hazard\ Quotients$$

An HI less than 1.0 indicates the exposure is unlikely to be associated with a potential health concern.

Methods for Assessing Cancer Risks

Carcinogenic risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of a chemical exposure. When utilizing PRGs, carcinogenic risks are evaluated much in the same manner as hazard quotients.

$$Cancer\ Risk = \frac{Maximum\ Mesured\ Soil\ Concentration}{Industrial\ Soil\ PRG} \times 10^{-6}$$

In this fashion the PRG converts a measured concentration to incremental risk of an individual developing cancer. Because cancer risks are averaged over a person's lifetime, longer term exposure to a carcinogen will result in higher risks than shorter term exposure to the same carcinogen, if all other exposure assumptions are constant.

It is assumed that cancer risks from various exposure routes are additive. Thus, the result of the assessment is a high-end estimate of the total carcinogenic risk.

$$Total\ Carcinogenic\ Risk = \sum Risk_{individual\ \ chemicals}$$

Upper-bound carcinogenic risk estimates were compared to the USEPA acceptable risk range of 1 in 10,000 (10^{-4}) and 1 in 1 million (10^{-6}) and NDEP's acceptable level of 10^{-6}. If the estimated risk falls within or below this risk range, the chemical is considered unlikely to pose an unacceptable carcinogenic risk to individuals under the given exposure conditions. A risk level of 1×10^{-5} (1 E-5) represents a probability of one in 100,000 that an individual could develop cancer from exposure to the potential carcinogen under a defined set of exposure assumptions.

Uncertainty Analysis

Risk estimates are values that have uncertainties associated with them. These uncertainties, which arise at every step of a risk assessment, are evaluated to provide an indication of the uncertainty associated with a risk estimate. Risk assessments are not intended to estimate actual risks to a receptor associated with exposure to chemicals in the environment. In fact, estimating actual risks is impossible because of the variability in the exposed or potentially exposed populations. Therefore, risk assessment is a means of estimating the probability that an adverse health effect (*e.g.*, cancer, impaired reproduction) will occur in a receptor in order to assist in decision making regarding the protection of human health. The multitude of conservative assumptions used in risk assessments guard against underestimation of risks.

Risk estimates are calculated by combining site data, assumptions about individual receptor's exposures to impacted media, and toxicity data. The uncertainties in this screening-level health risk assessment can be grouped into three main categories that correspond to these steps:

- Uncertainties in environmental sampling and analysis
- Uncertainties in assumptions concerning exposure scenarios
- Uncertainties in toxicity data and dose-response extrapolations

Some of the specific uncertainties associated with this screening-level health risk assessment are discussed below.

The use of maximum concentrations across both Parcels A and B causes an unusual form of conservatism in the results. That is, if a similar risk assessment had been performed separately for Parcels A and B, then these screening risk assessments would produce lower risks. The maximum concentration must be less in one area than in the other, for each chemical in turn.

The use of maximum concentrations also assumes that individuals will be exposed to a consistent maximum concentration regardless of where they are on the Site. That is, fluctuations in chemical concentrations, either spatially or temporally, are not considered.

The uranium isotope analyses are different between the background and Site datasets. The primary difference between the background and Site uranium isotope data is that the sample preparation method in the background dataset used a total dissolution method, while the Site dataset used a nitric acid preparation method. Because of incompatibility between the two datasets, an approach was used to account for and correct the low bias associated with the Site uranium isotope data. The approach used to ratio up uranium isotope concentrations is somewhat crude and may overstate the concentrations. It is anticipated that since thorium and radium isotopes are consistent with background, it is likely that actual uranium isotopic concentrations are also consistent with background. However, in the interest of completing the NFAD for the Parcels A and B, the "corrected" uranium data were used.

Because of the surface soil remediation for asbestos, the new surface layer of the Site could have different chemical concentrations than those that were measured prior to remediation. Because only asbestos was re-analyzed for in the post-scrape samples, the original measured surface soil data at the Site for all other chemicals was retained for further evaluation. However, because there are no historical uses of the Site, and based on the depth profiles of the chemicals, it is reasonable to assume that the concentration distribution did not change in any

important way. It might also be reasonable to assume that concentrations are now lower for some chemicals (*e.g.*, dioxins), because of the removal of some soil.

Overall, the exposure assumptions and toxicity criteria are considered conservative and the risk estimates calculated in this screening-level health risk assessment are likely to overestimate rather than underestimate potential risks.

Screening-Level Health Risk Assessment Results

This screening-level health risk assessment has evaluated potential risks to human health associated with chemicals detected in soil at the Tronox Parcels A and B located within the Tronox property in Clark County, Nevada. The calculated theoretical upper-bound ILCRs and non-cancer health effects are presented in Table 1. Asbestos risk calculations are presented in Table 5.~~4.~~ All calculation spreadsheets for this screening-level health risk assessment are included in Attachment C.~~A.~~

The risk estimates are based on reasonable worst-case~~maximum~~ exposure scenarios, which results in estimates of the potential ~~reasonable maximum, or~~ high-end~~,~~ risks associated with the property, which are more conservative than a reasonable maximum exposure scenario. The total cumulative non-cancer HI for future commercial/industrial receptors at the property is 0.27, which is below the target HI of 1.0. Because the total cumulative HI is below 1.0, the potential for adverse health effects is considered unlikely.

The total theoretical upper-bound ILCR for future commercial/industrial receptors at the property for non-radionuclides is 1×10^{-6}. The ILCR is equal to the risk goal of 1×10^{-6}. Because the total theoretical upper-bound ILCR is equal to the risk goal, these results indicate that future receptor exposures at the property should not result in unacceptable non-radionuclide carcinogenic risks.

The total theoretical upper-bound ILCR for future commercial/industrial receptors at the property for radionuclides is 3×10^{-6}. Although the ILCR is above the risk goal of 1×10^{-6}; this is comparable to the theoretical upper-bound ILCR for background levels of the uranium isotopes of 3×10^{-6}. Therefore, these results indicate that future receptor exposures at the property should not result in unacceptable radionuclide carcinogenic risks.

The estimated risks for death from lung cancer or mesothelioma for asbestos exposures to outdoor maintenance worker receptors were below 1×10^{-6}. For construction workers, the best estimate and upper bound concentrations of asbestos range from 1×10^{-7} to 8×10^{-7} for

chrysotile fibers, and from zero to 5×10^{-6} for amphibole fibers. No long amphibole structures have been detected at the property. The upper bound estimated risk for death from lung cancer or mesothelioma is associated with the UCL of the Poisson distribution which assumes the mean amphibole concentration is equal to three long amphibole structures per cubic centimeter. However, the high-end risk estimate for deaths from lung cancer or mesothelioma of 5×10^{-6} is an overly conservative value for the following reasons:

- It is based on a 95 percent UCL of the Poisson distribution of three long amphibole structures although ~~only~~ no long amphibole structures have been detected at the property following remediation; and

- The values from Tables 8-2 of USEPA (2003a) should only be used for structures longer than 10 µm and thinner than 0.4 µm; and are recommended only for constant lifetime exposures, not short term exposures such as construction activities.

Thus, the results of the screening-level health risk assessment indicate that exposures to chemicals in soil at the property should not result in adverse health effects to all future on-site receptors.

Summary

Based on the results of the 2007 investigation, this data review, and the screening-level health risk assessment, concentration levels of chemicals at ~~there is no evidence to conclude that~~ the Tronox Parcels A and B property are not at levels of concern for human health risk for an industrial scenario.~~is contaminated.~~ In summary, BEC concludes that an NFAD for the property is warranted.

REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Dioxin and Dioxin-Like Compounds in Soil, Part 1: ATSDR Interim Policy Guideline. U.S. Department of Health and Human Services, Atlanta, GA.

Basic Environmental Company (BEC). 2007. Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization, Tronox Parcels "A" and "B" Site, Henderson, Nevada (Revision 1).

Basic Environmental Company (BEC) and ERM. 2007. Data Validation Summary Report, Tronox Parcels A/B Investigation August-September 2007, BMI Industrial Complex, Clark County, Nevada. November.

Basic Remediation Company (BRC), ERM, and Daniel B. Stephens & Associates, Inc. (DBS&A). 2007. BRC Closure Plan, BMI Common Areas, Clark County, Nevada. May.

Basic Remediation Company (BRC), ERM, and MWH. 2007a. BRC Quality Assurance Project Plan. BMI Common Areas, Clark County, Nevada. August.

Basic Remediation Company (BRC), ERM, and MWH. 2007b. BRC Field Sampling and Standard operating Procedures. BMI Common Areas, Clark County, Nevada. August.

Basic Remediation Company (BRC) and TIMET. 2007. Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity. Prepared by Tetra Tech and MWH.

Berman, D.W. and Chatfield, E.J. 1990. Interim Superfund Method for the Determination of Asbestos in Ambient Air. Part 2: Technical Background Document, Office of Solid Waste and Remedial Response, U.S. EPA, Washington, D.C., EPA/540/2-90/005b, May.

Berman, D.W. and Kolk, A. 2000. Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material. May (Revision 1).

Berman, D.W. and Crump, K.S. 2001. Technical Support Document for a Protocol to Assess Asbestos-Related Risk. Prepared for Mark Raney, Volpe Center, U.S. Department of Transportation, 55 Broadway, Kendall Square, Cambridge, MA 02142. Under EPA Review.

Neptune and Company. 2007. Guided Interactive Statistical Decision Tools (GIS_dT). www.gisdt.org.

U.S. Environmental Protection Agency (USEPA). 1989. Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response, Washington, D.C. USEPA/540/1-89/002. December.

U.S. Environmental Protection Agency (USEPA). 1992a. Guidance for Data Usability in Risk Assessment. Part A. Office of Emergency and Remedial Response, Washington D.C. Publication 9285.7-09A. PB92-963356. April.

U.S. Environmental Protection Agency (USEPA). 1992b. Guidelines for Exposure Assessment. Federal Register, 57(104):22888-22938. May 29.

U.S. Environmental Protection Agency (USEPA). 1999. National Functional Guidelines for Organic Data Review. EPA 540/R-99-008. OSWER 9240.1-05A-P. October.

U.S. Environmental Protection Agency (USEPA). 2001. National Functional Guidelines for Low-Concentration Organic Data Review. EPA 540-R-00-006. OSWER 9240.1-34. June.

U.S. Environmental Protection Agency (USEPA). 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Office of Solid Waste and Emergency Response, Washington, DC. OSWER 9355.4-24. December.

U.S. Environmental Protection Agency (USEPA). 2002b. Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). Draft Guidance. EPA530-F-02-052. November.

U.S. Environmental Protection Agency (USEPA). 2002b. National Functional Guidelines for Chlorinated Dioxin/Furan Data Review. EPA 540-R-02-003. OSWER 9240.1-37. August.

U.S. Environmental Protection Agency (USEPA). 2002c. Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. Office of Emergency and Remedial Response, Washington, DC. EPA 540-R-01-003. September.

U.S. Environmental Protection Agency (USEPA). 2002d. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. Office of Emergency and Remedial Response, Washington, DC. OSWER9285.6-10. December.

U.S. Environmental Protection Agency (USEPA). 2003a. Contract Laboratory Program Statement of Work for Organic Analysis: Multi-media, Multi-concentration. OLM04.3. Office of Emergency and Remedial Response. March.

U.S. Environmental Protection Agency (USEPA). 2003b. Technical Support Document for a Protocol to Assess Asbestos-Related Risk. Final Draft. Office of Solid Waste and Emergency Response, Washington, DC.

U.S. Environmental Protection Agency (USEPA). 2004a. Region 9 PRGs Table 2004 Update. USEPA Region 9, San Francisco, CA. October.

U.S. Environmental Protection Agency (USEPA). 2004b. Contract Laboratory Program Statement of Work for Organic Analysis: Multi-media, Multi-concentration. SOM01.0. Office of Emergency and Remedial Response. October.

U.S. Environmental Protection Agency (USEPA). 2004c. Contract Laboratory Program Statement of Work for Inorganic Analysis: Multi-media, Multi-concentration. ILM05.3. Office of Emergency and Remedial Response. March.

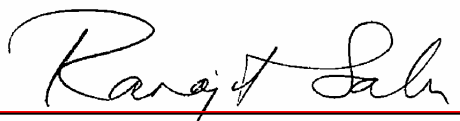
U.S. Environmental Protection Agency (USEPA). 2004d. National Functional Guidelines for Inorganic Data Review. EPA 540-R-04-004. OSWER 9240.1-45. October.

U.S. Environmental Protection Agency (USEPA). 2007a. ProUCL Version 4.0, Technical Guide. Office of Research and Development, Washington, DC. EPA/600/R-07/041. April.

U.S. Environmental Protection Agency (USEPA). 2007b. Persistent Bioaccumulative and Toxic (PBT) Chemical Program. USEPA on-line database: http://www.epa.gov/pbt/.

Attachments: Table 1 – Soil Data and Screening-Level Risk Assessment Results Summary
Table 2 – Site and Background Summary Statistics
Table 3 – Background Comparison Summary
Table 4~~3~~ – Data Adequacy Evaluation
Table 5~~4~~ – Asbestos Risk Summary
Figure 1 – Tronox/BEC Parcel Map with Tronox Source Areas
Figure 2 – Parcel A Sample Locations
Figure 3 – Parcel B Sample Locations
Figure 4 – Areas Remediated for Asbestos
Figure 5 – Conceptual Site Model Diagram for Potential Human Exposures
Attachment A – Tronox/BEC Response to Comments and Redline Version of Text
Attachment B – Legal Descriptions for Tronox Parcels A and B
Attachment C – 2007 Tronox Parcels A/B Investigation Data (Database on CD)
Attachment D – January 9, 2008 Asbestos Data Review for 2007 Tronox Parcels A/B Investigation Memorandum
Attachment E – December 18, 2007 Uranium Isotope Data Review for 2007 Tronox Parcels A/B Investigation Memorandum
Attachment F – Probability Plots and Boxplots

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.



February 11, 2008~~December 6, 2007~~

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2009) Date
BRC Project Manager

ATTACHMENT B

LEGAL DESCRIPTIONS FOR TRONOX PARCELS A AND B

2270 Corporate Circle, Suite 100
Henderson, Nevada 89074-6382
Telephone 702.263.7275
Fax 702.263.7200
www.pbsj.com

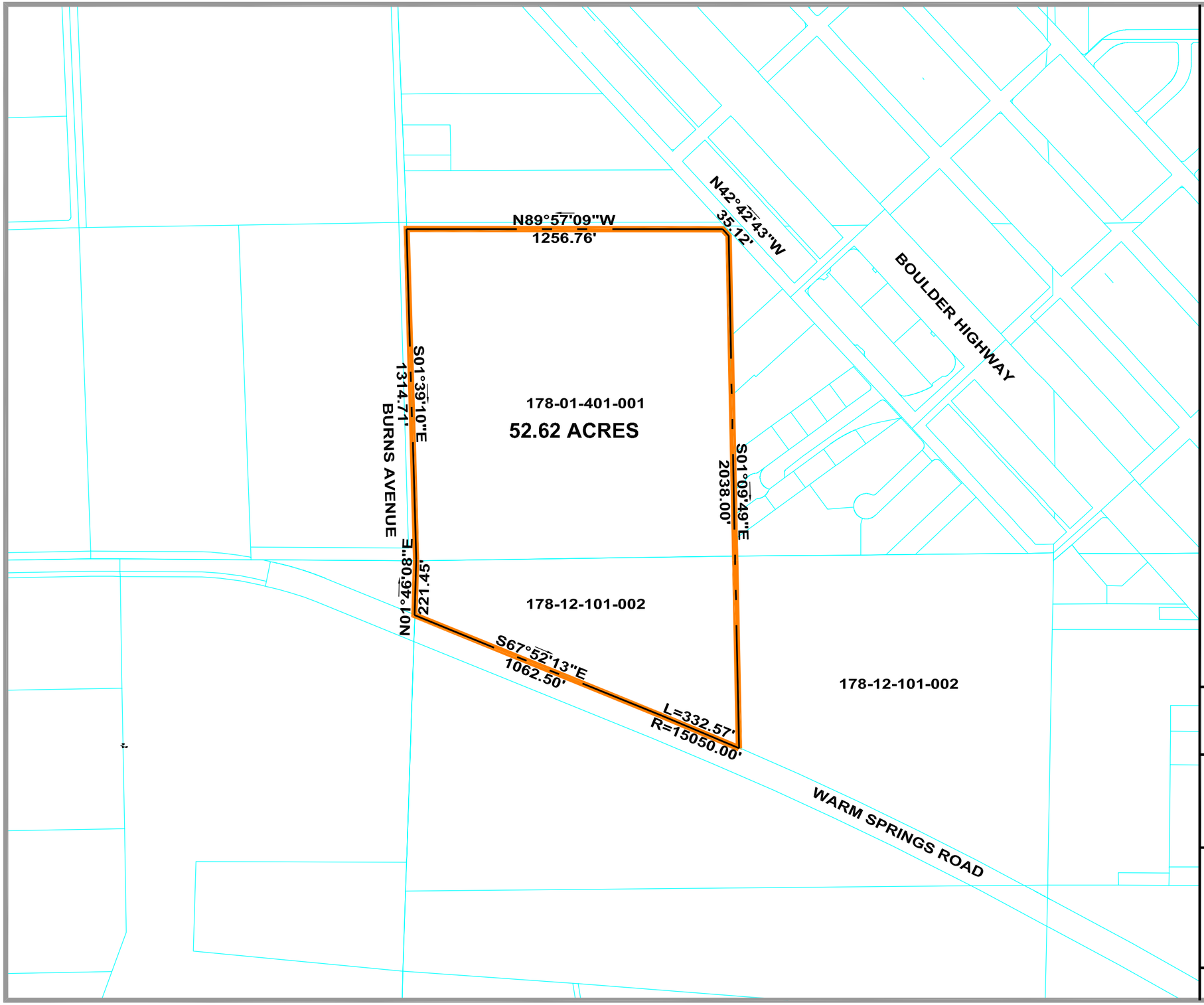
LEGAL DESCRIPTION
FOR TRONOX AREA "A"

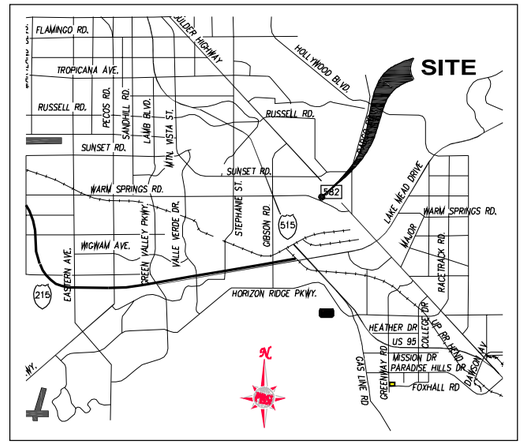
A PORTION OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SECTION 1 AND A PORTION OF THE NORTH HALF (N 1/2) OF SECTION 12 OF TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., CLARK COUNTY, NEVADA, DESCRIBED AS FOLLOWS.

BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 1; THENCE NORTH 01°39'10" WEST, ALONG THE WEST LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4) OF SAID SECTION 1, A DISTANCE OF 1314.71 FEET TO THE NORTH LINE OF SAID SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4); THENCE SOUTH 89°57'09" EAST, DEPARTING SAID WEST LINE AND ALONG SAID NORTH LINE OF THE SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4), 1256.76 FEET; THENCE SOUTH 42°42'43" EAST, DEPARTING SAID NORTH LINE, 35.12 FEET TO THE EAST LINE OF SAID SOUTHWEST QUARTER (SW 1/4) OF THE SOUTHWEST QUARTER (SW 1/4); THENCE SOUTH 01°09'49" EAST, 2038.00 FEET TO THE NORTHERLY RIGHT-OF-WAY OF WARM SPRINGS ROAD, SAME BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE NORTHEASTERLY HAVING A RADIUS OF 15050.00 FEET, A RADIAL LINE TO SAID BEGINNING BEARS NORTH 23°23'45" EAST; THENCE ALONG SAID NORTHERLY RIGHT-OF-WAY AND ALONG SAID CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 01°15'58", AN ARC LENGTH OF 332.57 FEET; THENCE NORTH 67°52'13" WEST, 1062.50 FEET TO THE WEST LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SAID SECTION 12; THENCE NORTH 01°46'08" EAST, DEPARTING SAID RIGHT-OF-WAY AND ALONG SAID WEST LINE, 221.45 FEET TO **THE POINT OF BEGINNING.**

CONTAINING 2,292,314 SQUARE FEET (52.62 ACRES) MORE OR LESS, AS DETERMINED BY COMPUTER METHODS.

BASIS OF BEARINGS:
NORTH 89°00'41" EAST - BEING THE NORTH LINE OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 11, TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., CLARK COUNTY, NEVADA AS SHOWN BY A MAP ON FILE IN THE OFFICE OF THE CLARK COUNTY RECORDER IN BOOK 82, PAGE 71 OF PLATS, OFFICIAL RECORDS.





VICINITY MAP

N.T.S.

LEGEND

PROPERTY LINE

ASSESSORS PARCEL LINES

N

SCALE: 1"=400'

THE LANDWELL COMPANY

PBS&J
2270 Corporate Circle
Suite 100
Henderson, Nevada 89074
Telephone: 702/263-7275
Fax: 702/263-7200
ENGINEERING · PLANNING · SURVEYING · CONSTRUCTION SERVICES

LANDWELL
TRONOX FIGURE "A"

APN: 178-01-401-001 & A PORTION OF 178-12-101-002

GROSS ACREAGE: 52.62 AC

SHEET 1 OF 1 DATE: 05/31/07 PROJECT NUMBER 511729.53 0100

2270 Corporate Circle, Suite 100
Henderson, Nevada 89074-6382
Telephone 702.263.7275
Fax 702.263.7200
www.pbsj.com

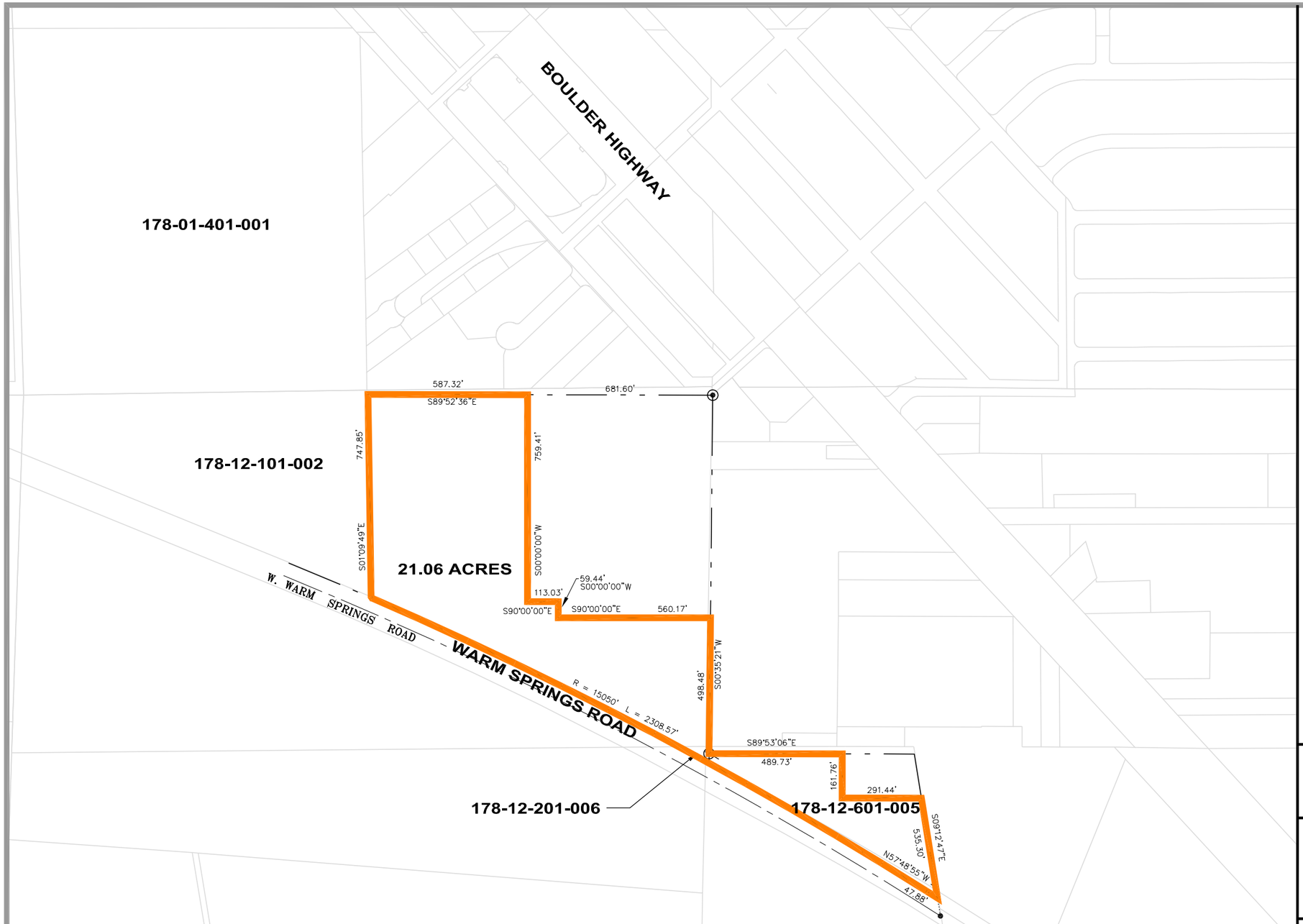
LEGAL DESCRIPTION
FOR TRONOX AREA "B"

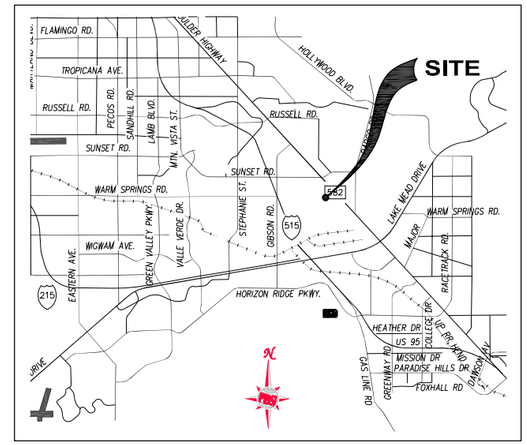
A PORTION OF SECTION 12, TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., CLARK COUNTY, NEVADA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THE NORTHWEST QUARTER (NW 1/4) OF SAID SECTION 12; THENCE NORTH 89°52’36” WEST, ALONG THE NORTH LINE THEREOF, 681.60 FEET TO **THE POINT OF BEGINNING**; THENCE SOUTH 00°00'00" WEST, DEPARTING SAID NORTH LINE, 759.41 FEET; THENCE SOUTH 90°00'00" EAST, 113.03 FEET; THENCE SOUTH 00°00'00" WEST, 59.44 FEET; THENCE SOUTH 90°00'00" EAST, 560.17 FEET TO THE EAST LINE OF SAID NORTHWEST QUARTER (NW 1/4); THENCE SOUTH 00°35'21" WEST, ALONG SAID EAST LINE, 498.48 FEET; THENCE SOUTH 89°53'06" EAST, DEPARTING SAID EAST LINE, 489.73 FEET; THENCE SOUTH 00°00'00" WEST, 161.76 FEET; THENCE SOUTH 89°53'06" EAST, 291.44 FEET; THENCE SOUTH 09°12'47" EAST, 371.37 FEET TO THE NORTHERLY RIGHT-OF-WAY OF WARM SPRINGS ROAD; THENCE NORTH 57°48'55" WEST, ALONG SAID RIGHT-OF-WAY, 47.88 FEET, TO THE BEGINNING OF A TANGENT CURVE CONCAVE SOUTHWESTERLY HAVING A RADIUS OF 15050.00 FEET;, THENCE, ALONG SAID CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 8°47'20", AN ARC LENGTH OF 2308.57 FEET; THENCE NORTH 01°09'49" WEST, DEPARTING SAID RIGHT-OF-WAY, 747.85 FEET; THENCE SOUTH 89°52'36" EAST, 587.32 FEET TO THE **POINT OF BEGINNING**.

CONTAINING 917,428 SQUARE FEET (21.06 ACRES), MORE OR LESS, AS DETERMINED BY COMPUTER METHODS.

BASIS OF BEARINGS:
NORTH 88`58'43" EAST - BEING THE NORTH LINE OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION 11, TOWNSHIP 22 SOUTH, RANGE 62 EAST, M.D.M., CITY OF HENDERSON, CLARK COUNTY, NEVADA AS SHOWN ON THE MAP IN BOOK 97 OF PLATS, PAGE 99, OFFICIAL RECORDS, CLARK COUNTY, NEVADA.





VICINITY MAP

N.T.S.

LEGEND

PROPERTY LINE

ASSESSORS PARCEL LINES

N

SCALE: 1"=400'

THE LANDWELL COMPANY

PBS&J
2270 Corporate Circle
Suite 100
Henderson, Nevada 89074
Telephone: 702/263-7275
Fax: 702/263-7200
ENGINEERING · PLANNING · SURVEYING · CONSTRUCTION SERVICES

LANDWELL
TRONOX FIGURE "B"

APN: 178-12-101-002, 178-12-201-006,
& A PORTION OF 178-12-601-005

GROSS ACREAGE: 21.06± AC

SHEET 1 OF 1 DATE: 12/06/07 PROJECT NUMBER 511729

H:\Projects\1729\Exhibits\Misc Landwell Exhibits\Marketing Exhibits\Londwell-Tronox-Figure B xbt.dwg Layout: 11x17 Dec 06, 2007 - 5:10pm

ATTACHMENT C

2007 TRONOX PARCELS A/B INVESTIGATION DATA
(DATABASE ON CD)

ATTACHMENT D

JANUARY 9, 2008 ASBESTOS DATA REVIEW FOR 2007 TRONOX PARCELS A/B INVESTIGATION MEMORANDUM

Basic Environmental
COMPANY

MEMORANDUM

To: Shannon Harbour (NDEP)

From: Ranajit Sahu (BEC)

cc: Brian Rakvica (NDEP)
Jim Najima (NDEP)
Teri Copeland
Paul Black (Neptune and Co.)

Date: January 9, 2008

Subject: Asbestos Data Review for 2007 Tronox Parcels A/B Investigation, BMI Industrial Complex, Clark County, Nevada

Results of the initial Phase 2 soil investigation performed for the Tronox Parcels "A" and "B" (portions of APN Nos. 178-01-401-001, 178-12-101-002, 178-12-201-006, and 178-12-601-005) indicated the presence of both chrysotile and amphibole long (protocol) asbestos fibers. The asbestos analytical results from the initial round of sampling at the Site are presented below.

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
Initial Sampling Event (Pre-Remedation)					
Amphibole					
TSB-AJ-01	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AJ-01-FD	0	< 2.961 E+6	< 1.093 E+7	2.961 E+6	
TSB-AJ-02	0	< 2.901 E+6	< 1.071 E+7	2.901 E+6	
TSB-AJ-03	1	2.957 E+6	1.647 E+7	2.901 E+6	Yes
TSB-AR-01	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-AR-02	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-03	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AR-04	0	< 2.985 E+6	< 1.101 E+7	2.985 E+6	
TSB-AR-05	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-06	1	2.992 E+6	1.667 E+7	2.992 E+6	Yes
TSB-AR-07	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-08	4	1.188 E+7	1.655 E+7	2.976 E+6	Yes
TSB-AR-09	1	2.991 E+6	1.666 E+7	2.991 E+6	Yes
TSB-AR-10	1	2.975 E+6	1.657 E+7	2.991 E+6	Yes
TSB-AR-11	0	< 2.975 E+6	< 1.098 E+7	2.975 E+6	Yes
TSB-AR-12	1	2.998 E+6	1.670 E+7	2.998 E+6	Yes
TSB-AR-13	1	2.986 E+6	1.663 E+7	2.998 E+6	Yes
TSB-AR-14	2	5.920 E+6	2.137 E+7	2.986 E+6	Yes
TSB-BJ-01	0	< 3.205 E+6	< 1.183 E+7	2.960 E+6	Yes
TSB-BJ-02	0	< 2.959 E+6	< 1.092 E+7	3.205 E+6	Yes

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
Initial Sampling Event (Pre-Remedation)					
TSB-BJ-02 FD	1	2.988 E+6	1.664 E+7	2.959 E+6	Yes
TSB-BJ-03	0	< 2.963 E+6	< 1.093 E+7	2.988 E+6	
TSB-BJ-04	0	< 2.986 E+6	< 1.102 E+7	2.963 E+6	
TSB-BJ-05	0	< 2.745 E+6	< 1.013 E+7	2.986 E+6	
TSB-BJ-06	0	< 2.978 E+6	< 1.099 E+7	2.745 E+6	
TSB-BR-01	0	< 2.762 E+6	< 1.019 E+7	2.978 E+6	
TSB-BR-02	0	< 2.991 E+6	< 1.104 E+7	2.762 E+6	
TSB-BR-03	0	< 2.988 E+6	< 1.103 E+7	2.991 E+6	
TSB-BR-04	0	< 2.958 E+6	< 1.092 E+7	2.988 E+6	
TSB-BR-05	1	2.991 E+6	1.666 E+7	2.958 E+6	Yes
TSB-BR-06	0	< 2.987 E+6	< 1.102 E+7	2.958 E+6	
Chrysotile					
TSB-AJ-01	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AJ-01-FD	0	< 2.961 E+6	< 1.093 E+7	2.961 E+6	
TSB-AJ-02	0	< 2.901 E+6	< 1.071 E+7	2.901 E+6	
TSB-AJ-03	2	5.913 E+6	2.135 E+7	2.901 E+6	Yes
TSB-AR-01	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-AR-02	1	2.976 E+6	1.658 E+7	2.976 E+6	
TSB-AR-03	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-AR-04	0	< 2.985 E+6	< 1.101 E+7	2.985 E+6	
TSB-AR-05	3	8.929 E+6	2.607 E+7	2.976 E+6	
TSB-AR-06	0	< 2.992 E+6	< 1.104 E+7	2.992 E+6	Yes
TSB-AR-07	0	< 2.976 E+6	< 1.098 E+7	2.976 E+6	
TSB-AR-08	6	1.783 E+7	2.145 E+7	2.976 E+6	Yes
TSB-AR-09	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	Yes
TSB-AR-10	0	< 2.975 E+6	< 1.098 E+7	2.975 E+6	Yes
TSB-AR-11	8	2.380 E+7	4.688 E+7	2.975 E+6	Yes
TSB-AR-12	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	Yes
TSB-AR-13	1	2.986 E+6	1.663 E+7	2.998 E+6	Yes
TSB-AR-14	2	5.920 E+6	2.137 E+7	2.960 E+6	Yes
TSB-BJ-01	19	6.090 E+7	9.512 E+7	2.960 E+6	Yes
TSB-BJ-02	5	1.480 E+7	3.447 E+7	2.959 E+6	Yes
TSB-BJ-02 FD	9	2.689 E+7	5.104 E+7	2.959 E+6	Yes
TSB-BJ-03	0	< 2.963 E+6	< 1.093 E+7	2.988 E+6	
TSB-BJ-04	0	< 2.986 E+6	< 1.102 E+7	2.963 E+6	
TSB-BJ-05	3	8.236 E+6	2.405 E+7	2.745 E+6	
TSB-BJ-06	0	< 2.978 E+6	< 1.099 E+7	2.745 E+6	
TSB-BR-01	0	< 2.762 E+6	< 1.019 E+7	2.978 E+6	
TSB-BR-02	0	< 2.991 E+6	< 1.104 E+7	2.762 E+6	
TSB-BR-03	0	< 2.988 E+6	< 1.103 E+7	2.991 E+6	
TSB-BR-04	2	5.917 E+6	2.136 E+7	2.988 E+6	
TSB-BR-05	3	8.974 E+6	2.621 E+7	2.958 E+6	Yes
TSB-BR-06	0	< 2.987 E+6	< 1.102 E+7	2.958 E+6	

Following this initial round of sampling, surface soil (4 to 6 inches) from several areas of the property, around sample locations TSB-AJ-03, TSB-AR-06, TSB-AR-08, TSB-AR-09, TSB-AR-10, TSB-AR-12, TSB-AR-13, TSB-AR-14, TSB-BJ-02, TSB-BR-05 was scraped and removed (Figure 1 [see Figure 4 of main technical memorandum]). Post-scrape samples were collected and analyzed for asbestos from 10 locations within these areas. Based on this, the original surface sample data for asbestos from these locations were removed from further evaluation and the re-sampled asbestos results were used instead. The asbestos analytical results from this second round of sampling at the Site are presented below.

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
First Post-Scrape Sampling Event					
Amphibole					
TSB-AJ-03-PS	0	< 1.797 E+6	< 6.632 E+6	1.797 E+6	
TSB-AR-06-PS	0	< 2.979 E+6	< 1.099 E+7	2.979 E+6	
TSB-AR-08-PS	0	< 2.493 E+6	< 1.106 E+7	2.493 E+6	
TSB-AR-09-PS	0	< 2.980 E+6	< 1.100 E+7	2.849 E+6	
TSB-AR-10-PS	0	< 2.849 E+6	< 1.051 E+7	2.849 E+6	
TSB-AR-12-PS	0	< 2.991 E+6	< 1.104 E+7	2.849 E+6	
TSB-AR-13-PS	0	< 2.993 E+6	< 1.105 E+7	2.993 E+6	
TSB-AR-14-PS	0	< 2.921 E+6	< 1.078 E+7	2.921 E+6	
TSB-BJ-02-PS	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-BR-05-PS	1	2.998 E+6	< 1.670 E+7	2.998 E+6	Yes
Chrysotile					
TSB-AJ-03-PS	0	< 1.797 E+6	< 6.632 E+6	1.797 E+6	
TSB-AR-06-PS	0	< 2.979 E+6	< 1.099 E+7	2.979 E+6	
TSB-AR-08-PS	0	< 2.493 E+6	< 1.106 E+7	2.493 E+6	
TSB-AR-09-PS	0	< 2.980 E+6	< 1.100 E+7	2.849 E+6	
TSB-AR-10-PS	0	< 2.849 E+6	< 1.051 E+7	2.849 E+6	
TSB-AR-12-PS	0	< 2.991 E+6	< 1.104 E+7	2.849 E+6	
TSB-AR-13-PS	0	< 2.993 E+6	< 1.105 E+7	2.993 E+6	
TSB-AR-14-PS	0	< 2.921 E+6	< 1.078 E+7	2.921 E+6	
TSB-BJ-02-PS	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	
TSB-BR-05-PS	0	< 2.998 E+6	< 1.106 E+7	2.998 E+6	Yes

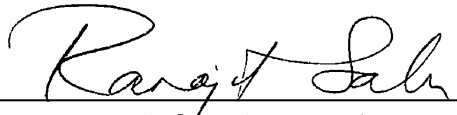
A single long amphibole asbestos fiber was detected in sample TSB-BR-05-PS during this second round of sampling. Therefore, further scraping around this location was performed. In addition, sample locations TSB-AR-11 and TSB-BJ-01 contained 8 and 19 long chrysotile asbestos fibers, respectively. Therefore, further scraping around these locations was also performed. Final samples were collected from locations TSB-BR-05, TSB-AR-11, and TSB-BJ-01 following the second and third scrapings. Figure 1 shows all areas of surface soil

that were scraped and removed. The asbestos analytical results from this final round of sampling at the Site are presented below.

Sample ID	Long Protocol Asbestos Fibers	Mean Concentration	95% UCL Concentration	Analytical Sensitivity	Excavated?
Second and Third Post-Scrape Sampling Event					
Amphibole					
TSB-BR-05-PS2	0	< 2.993 E+6	< 1.104 E+7	2.993 E+6	
TSB-AR-11-PS	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-BJ-01-PS	0	< 2.243 E+6	< 8.277 E+6	2.243 E+6	
Chrysotile					
TSB-BR-05-PS2	0	< 2.993 E+6	< 1.104 E+7	2.993 E+6	
TSB-AR-11-PS	0	< 2.991 E+6	< 1.104 E+7	2.991 E+6	
TSB-BJ-01-PS	0	< 2.243 E+6	< 8.277 E+6	2.243 E+6	

All the asbestos laboratory reports, both pre- and post-scrape samples, are included in Attachment C-1. Asbestos risk calculations based on the final post-scrape asbestos analytical results are presented in Table 1 [see Table 5 of the main technical memorandum]. The results of the asbestos risk calculations indicate that exposures to asbestos in soil at the property should not result in adverse health effects to all future on-site receptors. Based on the results of these final sampling events, all asbestos impacted soil at the Site has been remediated.

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.



January 9, 2007

Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2009) Date
BRC Project Manager

ATTACHMENT D-1

ASBESTOS LABORATORY REPORTS

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/13/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/15/2007
Date Completed	11/13/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0024
Field Subsample#	TSB-AJ-01
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	65
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	9.98
<3/8" Not Used (g)	368.7
<3/8" In Tumbler(g)	51.99
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000152

		Protocol Structures
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Total Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/14/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/16/2007
Date Completed	11/13/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0025
Field Subsample#	TSB-AJ-01-FD
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	73
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	32.35
<3/8" Not Used (g)	355.18
<3/8" In Tumbler(g)	50.8
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000137

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.961E+06	< 1.093E+07
Long Chrysotile Protocol Structures	< 2.961E+06	< 1.093E+07
Total Amphibole Protocol Structures	< 2.961E+06	< 1.093E+07
Long Amphibole Protocol Structures	< 2.961E+06	< 1.093E+07
Long Asbestos Protocol Structures	< 2.961E+06	< 1.093E+07
Total Asbestos Protocol Structures	< 2.961E+06	< 1.093E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.961E+06	1.093E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/15/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/17/2007
Date Completed	11/14/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0026
Field Subsample#	TSB-AJ-02
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	88
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	32.35
<3/8" Not Used (g)	355.18
<3/8" In Tumbler(g)	50.8
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000116

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	2	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	2	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	5.802E+06	2.095E+07
Long Chrysotile Protocol Structures	< 2.901E+06	< 1.071E+07
Total Amphibole Protocol Structures	< 2.901E+06	< 1.071E+07
Long Amphibole Protocol Structures	< 2.901E+06	< 1.071E+07
Long Asbestos Protocol Structures	< 2.901E+06	< 1.071E+07
Total Asbestos Protocol Structures	5.802E+06	2.095E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.901E+06	1.071E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/6/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/29/2007
Date Completed	11/1/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0014
Field Subsample#	TSB-AJ-03
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	63
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	16.86
<3/8" Not Used (g)	387.51
<3/8" In Tumbler(g)	48.37
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000159

Asbestos Analysis Results

		Total	Protocol Structures Long(>10um)
No.of Chrysotile Asbestos Structures		3	2
No.of Amphibole Asbestos Structures		2	1
Amphibole Mineral Type(s)	Amosite		
Total Asbestos Structures		5	3

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	8.870E+06	2.590E+07
Long Chrysotile Protocol Structures	5.913E+06	2.135E+07
Total Amphibole Protocol Structures	5.913E+06	2.135E+07
Long Amphibole Protocol Structures	2.957E+06	1.647E+07
Long Asbestos Protocol Structures	8.870E+06	3.444E+07
Total Asbestos Protocol Structures	1.478E+07	2.590E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.957E+06	1.091E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	12/1/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	11/29/2007
Date Completed	12/1/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0003
Field Subsample#	TSB-AJ-03-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	77
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	84.23
<3/8" Not Used (g)	1379.84
<3/8" In Tumbler(g)	49.6
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000214

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 1.797E+06	< 6.632E+06
Long Chrysotile Protocol Structures	< 1.797E+06	< 6.632E+06
Total Amphibole Protocol Structures	< 1.797E+06	< 6.632E+06
Long Amphibole Protocol Structures	< 1.797E+06	< 6.632E+06
Long Asbestos Protocol Structures	< 1.797E+06	< 6.632E+06
Total Asbestos Protocol Structures	< 1.797E+06	< 6.632E+06
Estimated Analytical Sensitivity: (s/gPM10)	1.797E+06	6.632E+06

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/16/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/25/2007
Date Completed	11/15/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0030
Field Subsample#	TSB-AR-01
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	60
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	17.9
<3/8" Not Used (g)	361.31
<3/8" In Tumbler(g)	43.76
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000165

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	2.991E+06	1.666E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	2.991E+06	1.666E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/15/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/19/2007
Date Completed	11/14/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0028
Field Subsample#	TSB-AR-02
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	107
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	35.41
<3/8" Not Used (g)	360.7
<3/8" In Tumbler(g)	46.79
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000093

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	1
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	2.976E+06	1.658E+07
Long Chrysotile Protocol Structures	2.976E+06	1.658E+07
Total Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Asbestos Protocol Structures	2.976E+06	1.658E+07
Total Asbestos Protocol Structures	2.976E+06	1.658E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.976E+06	1.098E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/15/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/18/2007
Date Completed	11/14/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0027
Field Subsample#	TSB-AR-03
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	76
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	24.76
<3/8" Not Used (g)	384.44
<3/8" In Tumbler(g)	54.99
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000130

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Total Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/16/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/22/2007
Date Completed	11/15/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0029
Field Subsample#	TSB-AR-04
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	82
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	77.98
<3/8" Not Used (g)	306.24
<3/8" In Tumbler(g)	43.65
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000121

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.985E+06	< 1.101E+07
Long Chrysotile Protocol Structures	< 2.985E+06	< 1.101E+07
Total Amphibole Protocol Structures	< 2.985E+06	< 1.101E+07
Long Amphibole Protocol Structures	< 2.985E+06	< 1.101E+07
Long Asbestos Protocol Structures	< 2.985E+06	< 1.101E+07
Total Asbestos Protocol Structures	< 2.985E+06	< 1.101E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.985E+06	1.101E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/16/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/25/2007
Date Completed	11/16/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0031
Field Subsample#	TSB-AR-05
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	50
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	17.9
<3/8" Not Used (g)	361.31
<3/8" In Tumbler(g)	43.76
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000199

		Protocol Structures
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	4	3
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	4	3

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	1.191E+07	3.048E+07
Long Chrysotile Protocol Structures	8.929E+06	2.607E+07
Total Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Asbestos Protocol Structures	8.929E+06	2.607E+07
Total Asbestos Protocol Structures	1.191E+07	3.048E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.976E+06	1.098E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/13/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/11/2007
Date Completed	11/12/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0022
Field Subsample#	TSB-AR-06
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	101
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	17.12
<3/8" Not Used (g)	374.04
<3/8" In Tumbler(g)	49.04
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000098

Asbestos Analysis Results	**Total**	**Protocol Structures Long(>10um)**
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	2	1
Amphibole Mineral Type(s)		
Total Asbestos Structures	2	1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.992E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.992E+06	< 1.104E+07
Total Amphibole Protocol Structures	5.984E+06	2.160E+07
Long Amphibole Protocol Structures	2.992E+06	1.667E+07
Long Asbestos Protocol Structures	2.992E+06	1.667E+07
Total Asbestos Protocol Structures	5.984E+06	2.160E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.992E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	12/5/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	12/3/2007
Date Completed	12/4/2007
Analyst	Debbie Little
Lab Sample#	040729231-0010
Field Subsample#	TSB-AR-06-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.012
Number of Grid Openings Scanned	89
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	103.16
<3/8" Not Used (g)	1109.47
<3/8" In Tumbler(g)	60.2
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000121

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.979E+06	< 1.099E+07
Long Chrysotile Protocol Structures	< 2.979E+06	< 1.099E+07
Total Amphibole Protocol Structures	< 2.979E+06	< 1.099E+07
Long Amphibole Protocol Structures	< 2.979E+06	< 1.099E+07
Long Asbestos Protocol Structures	< 2.979E+06	< 1.099E+07
Total Asbestos Protocol Structures	< 2.979E+06	< 1.099E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.979E+06	1.099E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/13/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/12/2007
Date Completed	11/12/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0023
Field Subsample#	TSB-AR-07
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	93
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	35.14
<3/8" Not Used (g)	364.26
<3/8" In Tumbler(g)	59.9
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000107

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	2.976E+06	1.658E+07
Long Chrysotile Protocol Structures	< 2.976E+06	< 1.098E+07
Total Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.976E+06	< 1.098E+07
Long Asbestos Protocol Structures	< 2.976E+06	< 1.098E+07
Total Asbestos Protocol Structures	2.976E+06	1.658E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.976E+06	1.098E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/7/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/27/2007
Date Completed	11/6/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0015
Field Subsample#	TSB-AR-08
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	89
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	22.83
<3/8" Not Used (g)	387.24
<3/8" In Tumbler(g)	43.46
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000112

		Total	Protocol Structures Long(>10um)
Asbestos Analysis Results			
No.of Chrysotile Asbestos Structures		11	6
No.of Amphibole Asbestos Structures		4	4
Amphibole Mineral Type(s)	Amosite/Actinolite		
Total Asbestos Structures		15	10

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	3.268E+07	2.603E+07
Long Chrysotile Protocol Structures	1.783E+07	2.145E+07
Total Amphibole Protocol Structures	1.188E+07	2.145E+07
Long Amphibole Protocol Structures	1.188E+07	1.655E+07
Long Asbestos Protocol Structures	2.971E+07	3.461E+07
Total Asbestos Protocol Structures	4.457E+07	2.603E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.971E+06	1.096E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	12/1/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	11/30/2007
Date Completed	12/1/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0004
Field Subsample#	TSB-AR-08-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	99
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	160.59
<3/8" Not Used (g)	1257.68
<3/8" In Tumbler(g)	55.2
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000120

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.493E+06	< 9.199E+06
Long Chrysotile Protocol Structures	< 2.493E+06	< 9.199E+06
Total Amphibole Protocol Structures	< 2.493E+06	< 9.199E+06
Long Amphibole Protocol Structures	< 2.493E+06	< 9.199E+06
Long Asbestos Protocol Structures	< 2.493E+06	< 9.199E+06
Total Asbestos Protocol Structures	< 2.493E+06	< 9.199E+06
Estimated Analytical Sensitivity: (s/gPM10)	2.493E+06	9.199E+06

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/12/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/10/2007
Date Completed	11/11/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0021
Field Subsample#	TSB-AR-09
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	75
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	12.55
<3/8" Not Used (g)	358.15
<3/8" In Tumbler(g)	50.48
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000132

Asbestos Analysis Results

		Total	Protocol Structures Long(>10um)
No.of Chrysotile Asbestos Structures		0	0
No.of Amphibole Asbestos Structures		1	1
Amphibole Mineral Type(s)	Actinolite		
Total Asbestos Structures		1	1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	2.991E+06	1.666E+07
Long Amphibole Protocol Structures	2.991E+06	1.666E+07
Long Asbestos Protocol Structures	2.991E+06	1.666E+07
Total Asbestos Protocol Structures	2.991E+06	1.666E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	12/5/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	12/2/2007
Date Completed	12/3/2007
Analyst	Debbie Little
Lab Sample#	040729231-0009
Field Subsample#	TSB-AR-09-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.012
Number of Grid Openings Scanned	97
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	115.66
<3/8" Not Used (g)	1120.46
<3/8" In Tumbler(g)	57.48
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000111

		Protocol Structures
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.980E+06	< 1.100E+07
Long Chrysotile Protocol Structures	< 2.980E+06	< 1.100E+07
Total Amphibole Protocol Structures	< 2.980E+06	< 1.100E+07
Long Amphibole Protocol Structures	< 2.980E+06	< 1.100E+07
Long Asbestos Protocol Structures	< 2.980E+06	< 1.100E+07
Total Asbestos Protocol Structures	< 2.980E+06	< 1.100E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.980E+06	1.100E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/9/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/5/2007
Date Completed	11/8/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0019
Field Subsample#	TSB-AR-10
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	76
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	35.39
<3/8" Not Used (g)	360
<3/8" In Tumbler(g)	51.71
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000131

Asbestos Analysis Results

		Total	Protocol Structures Long(>10um)
No.of Chrysotile Asbestos Structures		0	0
No.of Amphibole Asbestos Structures		1	1
Amphibole Mineral Type(s)	Amosite		
Total Asbestos Structures		1	1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.975E+06	< 1.098E+07
Long Chrysotile Protocol Structures	< 2.975E+06	< 1.098E+07
Total Amphibole Protocol Structures	2.975E+06	1.657E+07
Long Amphibole Protocol Structures	2.975E+06	1.657E+07
Long Asbestos Protocol Structures	2.975E+06	1.657E+07
Total Asbestos Protocol Structures	2.975E+06	1.657E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.975E+06	1.098E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	12/5/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	11/30/2007
Date Completed	12/4/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0005
Field Subsample#	TSB-AR-10-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	105
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	142.9
<3/8" Not Used (g)	1129.19
<3/8" In Tumbler(g)	54.99
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000099

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.849E+06	< 1.051E+07
Long Chrysotile Protocol Structures	< 2.849E+06	< 1.051E+07
Total Amphibole Protocol Structures	< 2.849E+06	< 1.051E+07
Long Amphibole Protocol Structures	< 2.849E+06	< 1.051E+07
Long Asbestos Protocol Structures	< 2.849E+06	< 1.051E+07
Total Asbestos Protocol Structures	< 2.849E+06	< 1.051E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.849E+06	1.051E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/17/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/1/2007
Date Completed	10/16/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0016
Field Subsample#	TSB-AR-11
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	76
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	26.95
<3/8" Not Used (g)	371.2
<3/8" In Tumbler(g)	48.52
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000131

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	13	8
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	13	8

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	3.867E+07	6.613E+07
Long Chrysotile Protocol Structures	2.380E+07	4.688E+07
Total Amphibole Protocol Structures	< 2.975E+06	< 1.098E+07
Long Amphibole Protocol Structures	< 2.975E+06	< 1.098E+07
Long Asbestos Protocol Structures	2.380E+07	4.688E+07
Total Asbestos Protocol Structures	3.867E+07	6.613E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.975E+06	1.098E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	1/9/2008
Project Name	BEC PARCELS A and B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040800079

Date Started	1/5/2008
Date Completed	1/8/2008
Analyst	Baojia Ke
Lab Sample#	040800079-0002
Field Subsample#	TSB-AR-11-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	100
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	52.74
<3/8" Not Used (g)	745.31
<3/8" In Tumbler(g)	60.15
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000099

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/12/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/9/2007
Date Completed	11/9/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0020
Field Subsample#	TSB-AR-12
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	95
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	18.25
<3/8" Not Used (g)	366.3
<3/8" In Tumbler(g)	48.9
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000104

Asbestos Analysis Results

		Total	Protocol Structures Long(>10um)
No.of Chrysotile Asbestos Structures		0	0
No.of Amphibole Asbestos Structures		2	1
Amphibole Mineral Type(s)	Actinolite		
Total Asbestos Structures		2	1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	5.995E+06	2.158E+07
Long Amphibole Protocol Structures	2.998E+06	1.670E+07
Long Asbestos Protocol Structures	2.998E+06	1.670E+07
Total Asbestos Protocol Structures	5.995E+06	2.164E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	12/5/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	12/1/2007
Date Completed	12/4/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0008
Field Subsample#	TSB-AR-12-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	90
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	109.34
<3/8" Not Used (g)	1373.23
<3/8" In Tumbler(g)	54.52
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000110

		Protocol Structures
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/9/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/4/2007
Date Completed	11/8/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0018
Field Subsample#	TSB-AR-13
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	87
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	14.07
<3/8" Not Used (g)	372.61
<3/8" In Tumbler(g)	42.1
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000114

Asbestos Analysis Results

		Total	Protocol Structures Long(>10um)
No.of Chrysotile Asbestos Structures		1	1
No.of Amphibole Asbestos Structures		1	1
Amphibole Mineral Type(s)	Amosite		
Total Asbestos Structures		2	2

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	2.986E+06	1.663E+07
Long Chrysotile Protocol Structures	2.986E+06	1.663E+07
Total Amphibole Protocol Structures	2.986E+06	1.663E+07
Long Amphibole Protocol Structures	2.986E+06	1.663E+07
Long Asbestos Protocol Structures	5.972E+06	2.156E+07
Total Asbestos Protocol Structures	5.972E+06	2.156E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.986E+06	1.102E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/30/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	11/28/2007
Date Completed	11/29/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0007
Field Subsample#	TSB-AR-13-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	102
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	95.3
<3/8" Not Used (g)	1203.01
<3/8" In Tumbler(g)	60.93
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000097

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.993E+06	< 1.105E+07
Long Chrysotile Protocol Structures	< 2.993E+06	< 1.105E+07
Total Amphibole Protocol Structures	< 2.993E+06	< 1.105E+07
Long Amphibole Protocol Structures	< 2.993E+06	< 1.105E+07
Long Asbestos Protocol Structures	< 2.993E+06	< 1.105E+07
Total Asbestos Protocol Structures	< 2.993E+06	< 1.105E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.993E+06	1.105E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/8/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	10/3/2007
Date Completed	11/7/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0017
Field Subsample#	TSB-AR-14
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	69
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	24.27
<3/8" Not Used (g)	344.33
<3/8" In Tumbler(g)	41.99
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000145

		Total	Protocol Structures Long(>10um)
Asbestos Analysis Results			
No.of Chrysotile Asbestos Structures		7	2
No.of Amphibole Asbestos Structures		2	2
Amphibole Mineral Type(s)	Amosite		
Total Asbestos Structures		9	4

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	2.072E+07	4.268E+07
Long Chrysotile Protocol Structures	5.920E+06	2.137E+07
Total Amphibole Protocol Structures	5.920E+06	2.137E+07
Long Amphibole Protocol Structures	5.920E+06	2.137E+07
Long Asbestos Protocol Structures	1.184E+07	3.031E+07
Total Asbestos Protocol Structures	2.664E+07	5.056E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.960E+06	1.092E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/30/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	11/27/2007
Date Completed	11/29/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0006
Field Subsample#	TSB-AR-14-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	78
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	86.95
<3/8" Not Used (g)	1208.19
<3/8" In Tumbler(g)	56.63
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000130

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.921E+06	< 1.078E+07
Long Chrysotile Protocol Structures	< 2.921E+06	< 1.078E+07
Total Amphibole Protocol Structures	< 2.921E+06	< 1.078E+07
Long Amphibole Protocol Structures	< 2.921E+06	< 1.078E+07
Long Asbestos Protocol Structures	< 2.921E+06	< 1.078E+07
Total Asbestos Protocol Structures	< 2.921E+06	< 1.078E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.921E+06	1.078E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/6/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/21/2007
Date Completed	11/5/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0012
Field Subsample#	TSB-BJ-01
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	84
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	37.95
<3/8" Not Used (g)	356.43
<3/8" In Tumbler(g)	46.79
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000110

Asbestos Analysis Results	**Total**	**Protocol Structures Long(>10um)**
No.of Chrysotile Asbestos Structures	31	19
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	31	19

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	9.936E+07	1.410E+08
Long Chrysotile Protocol Structures	6.090E+07	9.512E+07
Total Amphibole Protocol Structures	< 3.205E+06	< 1.183E+07
Long Amphibole Protocol Structures	< 3.205E+06	< 1.183E+07
Long Asbestos Protocol Structures	6.090E+07	9.512E+07
Total Asbestos Protocol Structures	9.936E+07	1.410E+08
Estimated Analytical Sensitivity: (s/gPM10)	3.205E+06	1.183E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	1/7/2008
Project Name	BEC PARCELS A and B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040800079

Date Started	1/3/2008
Date Completed	1/7/2008
Analyst	Baojia Ke
Lab Sample#	040800079-0001
Field Subsample#	TSB-BJ-01-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	81
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	24.37
<3/8" Not Used (g)	647.47
<3/8" In Tumbler(g)	54.59
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000163

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.243E+06	< 8.277E+06
Long Chrysotile Protocol Structures	< 2.243E+06	< 8.277E+06
Total Amphibole Protocol Structures	< 2.243E+06	< 8.277E+06
Long Amphibole Protocol Structures	< 2.243E+06	< 8.277E+06
Long Asbestos Protocol Structures	< 2.243E+06	< 8.277E+06
Total Asbestos Protocol Structures	< 2.243E+06	< 8.277E+06
Estimated Analytical Sensitivity: (s/gPM10)	2.243E+06	8.277E+06

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/6/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/18/2007
Date Completed	10/26/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0010
Field Subsample#	TSB-BJ-02
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	72
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	17.82
<3/8" Not Used (g)	346.66
<3/8" In Tumbler(g)	47.17
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000139

Asbestos Analysis Results

	Total	Protocol Structures Long(>10um)
No.of Chrysotile Asbestos Structures	7	5
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	7	5

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	2.071E+07	4.267E+07
Long Chrysotile Protocol Structures	1.480E+07	3.447E+07
Total Amphibole Protocol Structures	< 2.959E+06	< 1.092E+07
Long Amphibole Protocol Structures	< 2.959E+06	< 1.092E+07
Long Asbestos Protocol Structures	1.480E+07	3.447E+07
Total Asbestos Protocol Structures	2.071E+07	4.267E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.959E+06	1.092E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/6/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/19/2007
Date Completed	11/1/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0011
Field Subsample#	TSB-BJ-02 FD
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	84
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	49.12
<3/8" Not Used (g)	308.28
<3/8" In Tumbler(g)	47.62
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000118

		Total	Protocol Structures Long(>10um)
Asbestos Analysis Results			
No.of Chrysotile Asbestos Structures		16	9
No.of Amphibole Asbestos Structures		3	1
Amphibole Mineral Type(s)	Amosite/Tremolite		
Total Asbestos Structures		19	10

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	4.781E+07	7.764E+07
Long Chrysotile Protocol Structures	2.689E+07	5.104E+07
Total Amphibole Protocol Structures	8.963E+06	2.617E+07
Long Amphibole Protocol Structures	2.988E+06	1.664E+07
Long Asbestos Protocol Structures	2.988E+07	5.495E+07
Total Asbestos Protocol Structures	5.677E+07	8.867E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.988E+06	1.103E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/30/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	11/28/2007
Date Completed	11/30/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0002
Field Subsample#	TSB-BJ-02-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	83
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	156.68
<3/8" Not Used (g)	1098.11
<3/8" In Tumbler(g)	47.82
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000119

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Amphibole Protocol Structures	< 2.998E+06	< 1.106E+07
Long Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Total Asbestos Protocol Structures	< 2.998E+06	< 1.106E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/16/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/12/2007
Date Completed	10/15/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0003
Field Subsample#	TSB-BJ-03
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	68
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	72.23
<3/8" Not Used (g)	341.02
<3/8" In Tumbler(g)	50.79
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000147

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	2.963E+06	1.650E+07
Long Chrysotile Protocol Structures	< 2.963E+06	< 1.093E+07
Total Amphibole Protocol Structures	< 2.963E+06	< 1.093E+07
Long Amphibole Protocol Structures	< 2.963E+06	< 1.093E+07
Long Asbestos Protocol Structures	< 2.963E+06	< 1.093E+07
Total Asbestos Protocol Structures	2.963E+06	1.650E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.963E+06	1.093E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/18/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/13/2007
Date Completed	10/17/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0016
Field Subsample#	TSB-BJ-04
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	91
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	19.89
<3/8" Not Used (g)	338.56
<3/8" In Tumbler(g)	48.1
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000109

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	1	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	1	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	2.986E+06	1.663E+07
Long Chrysotile Protocol Structures	< 2.986E+06	< 1.102E+07
Total Amphibole Protocol Structures	< 2.986E+06	< 1.102E+07
Long Amphibole Protocol Structures	< 2.986E+06	< 1.102E+07
Long Asbestos Protocol Structures	< 2.986E+06	< 1.102E+07
Total Asbestos Protocol Structures	2.986E+06	1.663E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.986E+06	1.102E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/3/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/5/2007
Date Completed	10/2/2007
Analyst	Brad Ross
Lab Sample#	040721499-0001
Field Subsample#	TSB-BJ-05
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	87
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	15.32
<3/8" Not Used (g)	344.18
<3/8" In Tumbler(g)	68.86
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000124

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	6	3
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	6	3

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	1.647E+07	3.591E+07
Long Chrysotile Protocol Structures	8.236E+06	2.405E+07
Total Amphibole Protocol Structures	< 2.745E+06	< 1.013E+07
Long Amphibole Protocol Structures	< 2.745E+06	< 1.013E+07
Long Asbestos Protocol Structures	8.236E+06	2.405E+07
Total Asbestos Protocol Structures	1.647E+07	3.591E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.745E+06	1.013E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/6/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/24/2007
Date Completed	11/5/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0013
Field Subsample#	TSB-BJ-06
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	65
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	23.77
<3/8" Not Used (g)	349.48
<3/8" In Tumbler(g)	46.63
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000153

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.978E+06	< 1.099E+07
Long Chrysotile Protocol Structures	< 2.978E+06	< 1.099E+07
Total Amphibole Protocol Structures	< 2.978E+06	< 1.099E+07
Long Amphibole Protocol Structures	< 2.978E+06	< 1.099E+07
Long Asbestos Protocol Structures	< 2.978E+06	< 1.099E+07
Total Asbestos Protocol Structures	< 2.978E+06	< 1.099E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.978E+06	1.099E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/2/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/6/2007
Date Completed	10/1/2007
Analyst	Brad Ross
Lab Sample#	040721499-0002
Field Subsample#	TSB-BR-01
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	71
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	35.19
<3/8" Not Used (g)	364.51
<3/8" In Tumbler(g)	53.8
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000151

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.762E+06	< 1.019E+07
Long Chrysotile Protocol Structures	< 2.762E+06	< 1.019E+07
Total Amphibole Protocol Structures	< 2.762E+06	< 1.019E+07
Long Amphibole Protocol Structures	< 2.762E+06	< 1.019E+07
Long Asbestos Protocol Structures	< 2.762E+06	< 1.019E+07
Total Asbestos Protocol Structures	< 2.762E+06	< 1.019E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.762E+06	1.019E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/2/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/10/2007
Date Completed	10/1/2007
Analyst	Brad Ross
Lab Sample#	040721499-0005
Field Subsample#	TSB-BR-02
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	66
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	9.07
<3/8" Not Used (g)	355.25
<3/8" In Tumbler(g)	48.93
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000150

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.991E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.991E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.991E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/4/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/7/2007
Date Completed	10/3/2007
Analyst	Brad Ross
Lab Sample#	040721499-0006
Field Subsample#	TSB-BR-03
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	84
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	14.33
<3/8" Not Used (g)	351.18
<3/8" In Tumbler(g)	51.32
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000118

	Protocol Structures	
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	< 2.988E+06	< 1.103E+07
Long Chrysotile Protocol Structures	< 2.988E+06	< 1.103E+07
Total Amphibole Protocol Structures	< 2.988E+06	< 1.103E+07
Long Amphibole Protocol Structures	< 2.988E+06	< 1.103E+07
Long Asbestos Protocol Structures	< 2.988E+06	< 1.103E+07
Total Asbestos Protocol Structures	< 2.988E+06	< 1.103E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.988E+06	1.103E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	10/17/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/11/2007
Date Completed	10/16/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0007
Field Subsample#	TSB-BR-04
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	71
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	20.82
<3/8" Not Used (g)	366.57
<3/8" In Tumbler(g)	51.02
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000141

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	4	2
No.of Amphibole Asbestos Structures	1	0
Amphibole Mineral Type(s)		
Actinolite		
Total Asbestos Structures	5	2

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	1.183E+07	3.029E+07
Long Chrysotile Protocol Structures	5.917E+06	2.136E+07
Total Amphibole Protocol Structures	2.958E+06	1.648E+07
Long Amphibole Protocol Structures	< 2.958E+06	< 1.092E+07
Long Asbestos Protocol Structures	5.917E+06	2.136E+07
Total Asbestos Protocol Structures	1.479E+07	3.446E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.958E+06	1.092E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/6/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/14/2007
Date Completed	10/19/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0008
Field Subsample#	TSB-BR-05
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	99
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	18.6
<3/8" Not Used (g)	349.97
<3/8" In Tumbler(g)	48.09
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000100

		Total	Protocol Structures Long(>10um)
Asbestos Analysis Results			
No.of Chrysotile Asbestos Structures		7	3
No.of Amphibole Asbestos Structures		1	1
Amphibole Mineral Type(s)	Actinolite		
Total Asbestos Structures		8	4

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	2.094E+07	4.314E+07
Long Chrysotile Protocol Structures	8.974E+06	2.621E+07
Total Amphibole Protocol Structures	2.991E+06	1.666E+07
Long Amphibole Protocol Structures	2.991E+06	1.666E+07
Long Asbestos Protocol Structures	1.197E+07	3.063E+07
Total Asbestos Protocol Structures	2.393E+07	4.715E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.991E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/30/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040729231

Date Started	11/28/2007
Date Completed	11/30/2007
Analyst	Baojia Ke
Lab Sample#	040729231-0001
Field Subsample#	TSB-BR-05-PS
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	95
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	78.44
<3/8" Not Used (g)	1183.23
<3/8" In Tumbler(g)	51.96
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000104

Asbestos Analysis Results

		Total	Protocol Structures Long(>10um)
No.of Chrysotile Asbestos Structures		0	0
No.of Amphibole Asbestos Structures		1	1
Amphibole Mineral Type(s)	Tremolite		
Total Asbestos Structures		1	1

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Long Chrysotile Protocol Structures	< 2.998E+06	< 1.106E+07
Total Amphibole Protocol Structures	2.998E+06	1.670E+07
Long Amphibole Protocol Structures	2.998E+06	1.670E+07
Long Asbestos Protocol Structures	2.998E+06	1.670E+07
Total Asbestos Protocol Structures	2.998E+06	1.670E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.998E+06	1.106E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	12/11/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT 006 90 73.00
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040730135

Date Started	12/7/2007
Date Completed	12/10/2007
Analyst	Debbie Little
Lab Sample#	040730135-0001
Field Subsample#	TSB-BR-05-PS 2
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.012
Number of Grid Openings Scanned	134
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	47.08
<3/8" Not Used (g)	1064.31
<3/8" In Tumbler(g)	54.07
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000080

	Total	Protocol Structures Long(>10um)
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	0	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	0	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations Mean	95% UCL
Total Chrysotile Protocol Structures	< 2.993E+06	< 1.104E+07
Long Chrysotile Protocol Structures	< 2.993E+06	< 1.104E+07
Total Amphibole Protocol Structures	< 2.993E+06	< 1.104E+07
Long Amphibole Protocol Structures	< 2.993E+06	< 1.104E+07
Long Asbestos Protocol Structures	< 2.993E+06	< 1.104E+07
Total Asbestos Protocol Structures	< 2.993E+06	< 1.104E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.993E+06	1.104E+07

EMSL Analytical Inc.
107 Haddon Avenue
Westmont, NJ 08108
Contacts: Stephen Siegel, CIH
Phone:856-858-4800 Fax:856-858-4960

Report Date	11/6/2007
Project Name	BEC PARCELS A AND B SAMPLING EVENT
Methods	Draft Modified Elutriator Method for the Determination of Asbestos in Soils and Bulk Material Method (dated May 23, 2000, Revision 1)
EMSL Order ID	040721449

Date Started	9/17/2007
Date Completed	10/25/2007
Analyst	Baojia Ke
Lab Sample#	040721499-0009
Field Subsample#	TSB-BR-06
Field Preparation Technique	N/A
Sample Drying	Yes
Sample Splitting	No
Other	N/A

TEM Analysis

Effective Area of Analytical Filter (sq mm)	385 (IST)
Magnification	19,000 X
Grid Opening Area (sq mm)	0.013
Number of Grid Openings Scanned	67
Asbestos Structure Size and Type Categories of Interest	Protocol Fiber >5um Length <0.5um Diameter Amphiboles/Chrysotile Long Fiber >10um Length <0.5um Diameter Amphiboles/Chrysotile
Minimum Acceptable Structure Identification Category	>5um Length <0.5um Diameter

Dust Generator-Total Dried Sample Weights

>3/8" (g)	9.72
<3/8" Not Used (g)	362.72
<3/8" In Tumbler(g)	59.88
Air Flow Rate Through ME opening of Dust Generator (ml/min)	1430
Air Flow Rate Through IST opening of Dust Generator (ml/min)	72
Estimated Total Air Flow Rate Through Elutriator (ml/min)	1502

Filters from the IST opening of Dust Generator of the Elutriator

Mass of Respirable Dust on Filter(g)	0.000148

		Protocol Structures
	Total	**Long(>10um)**
Asbestos Analysis Results		
No.of Chrysotile Asbestos Structures	2	0
No.of Amphibole Asbestos Structures	0	0
Amphibole Mineral Type(s)		
Total Asbestos Structures	2	0

ESTIMATED ASBESTOS CONCENTRATIONS (s/gPM10)

	Concentrations	
	Mean	**95% UCL**
Total Chrysotile Protocol Structures	5.973E+06	2.156E+07
Long Chrysotile Protocol Structures	< 2.987E+06	< 1.102E+07
Total Amphibole Protocol Structures	< 2.987E+06	< 1.102E+07
Long Amphibole Protocol Structures	< 2.987E+06	< 1.102E+07
Long Asbestos Protocol Structures	< 2.987E+06	< 1.102E+07
Total Asbestos Protocol Structures	5.973E+06	2.156E+07
Estimated Analytical Sensitivity: (s/gPM10)	2.987E+06	1.102E+07

ATTACHMENT E

DECEMBER 18, 2007 URANIUM ISOTOPE DATA REVIEW FOR 2007 TRONOX PARCELS A/B INVESTIGATION MEMORANDUM

Basic Environmental
COMPANY

MEMORANDUM

To: Shannon Harbour (NDEP)

From: Ranajit Sahu (BEC)

cc: Brian Rakvica (NDEP)
Jim Najima (NDEP)
Paul Black (Neptune and Co.)

Date: December 18, 2007

Subject: Uranium Isotope Data Review for 2007 Tronox Parcels A/B Investigation, BMI Industrial Complex, Clark County, Nevada

Results of the initial Phase 2 soil investigation performed for the Tronox Parcels "A" and "B" (Site; portions of APN Nos. 178-01-401-001, 178-12-101-002, 178-12-201-006, and 178-12-601-005) indicated that uranium isotope analytical results were biased low in comparison to the 2005 shallow soil background dataset. A comparison of the methods used for preparation and analysis of the radionuclides for both the 2005 shallow soil background dataset, and 2007 Tronox Phase 2 Parcels A/B dataset are presented below.

		Radionuclide			
Dataset	**Parameter**	Th-228, -230, 232	U-234, -235, -238	Ra-226	Ra-228
2007 Tronox A/B	Digestion Method	RICH-RC-5032 (Total Dissolution)	RICH-RC-5013 (HNO3 Leach)	--- (Gamma)	--- (Gamma)
	Analytical Method	RICH-RC-5087 (HASL 300 Th Mod)	RICH-RC-5067 (HASL 300 U Mod)	RICH-RC-5017 (EPA 901.1)	RICH-RC-5017 (EPA 901.1)
	Analysis Date	Sept/Oct 2007	Sept/Oct 2007	Sept/Oct 2007	Sept/Oct 2007
2005 Background	Digestion Method	STL-RC-0004 (Total Dissolution)	STL-RC-0004 (Total Dissolution)	--- (Gamma)	--- (Gamma)
	Analytical Method	DOE A-01-R MOD (HASL 300 Th Mod)	DOE A-01-R MOD (HASL 300 U Mod)	RICH-RC-5005 (EPA 903.1)	RICH-RC-5005 (EPA 904.0)
	Analysis Date	June 2005	June 2005	Dec 2005/ Jan 2006	Dec 2005/ Jan 2006
Comparable?		YES	NO	YES	YES

Based on this comparison, it is evident that the uranium isotope analyses are different between the background and Site datasets; whereas the thorium and radium isotope analyses are considered comparable. The primary difference between the background and Site uranium

isotope data is that the sample preparation method in the background dataset used a total dissolution method, while the Site dataset used a nitric acid preparation method.

Because of incompatibility between the two datasets, two approaches were developed to account for and correct this low bias associated with the Site uranium isotope data. The two approaches are similar, in that they both base the re-calculation of the Site uranium isotope activities on the use of the uranium metal analytical results.

Approach #1 is as follows:

1. Obtain measured results for both Site and background datasets;

2. Obtain sample-specific ratios of each uranium isotope to the uranium metal (analyzed by ICP following a nitric acid digestion) results in the background dataset;

3. Obtain summary statistics, including average, for the background isotope to uranium metal ratios;

4. Apply the isotope-specific average background ratio to the each individual measured Site uranium metal concentration to obtain a sample-specific calculated uranium isotope-specific activity; and

5. Obtain summary statistics, including the maximum calculated isotope-specific activities and use these values in the background comparison and screening-level health risk assessment in place of the previous biased low measured activities.

Approach #2 is as follows:

1. Obtain measured results for both Site and background datasets;

2. Obtain isotope-secific averages for both the Site and background datasets;

3. Obtain sample-specific ratios of each uranium isotope to the uranium metal (analyzed by ICP following a nitric acid digestion) results in both the Site and background datasets;

4. Average the sample-specific uranium isotope to the uranium metal ratios for both the Site and background datasets;

5. Obtain the ratio of the average isotope-specific Site ratios to background ratios (considered a ‘Universal Factor’);

6. Apply the Universal Factor to the measured Site uranium metal concentration to obtain a sample-specific calculated uranium isotope-specific activity; and

7. Obtain summary statistics, including the maximum calculated isotope-specific activities and use these values in the background comparison and screening-level health risk assessment in place of the previous biased low measured activities.

The calculations associated with both of these approaches are included in the attached Excel spreadsheet [on CD]. The recommended approach is Approach #1 as it provides a reasonable means to correct for the low-biased measured uranium isotope data, to obtain a Site dataset that is compatible with the shallow soil background dataset, without being overly conservative.

A comparison of the Approach #1 calculated uranium isotope activities for the Site to the shallow soils background dataset was performed using the methods discussed in the *Technical Memorandum – Data Review for 2007 Tronox Parcels A/B Investigation*. The results of this comparison are presented in the table below.

Dataset	Parameter	Radionuclide (pCi/g)		
		Uranium-233/234	Uranium-235/236	Uranium-238
2005 Background	No. of Detects	61	54	120
	Total Samples	120	120	120
	% Detects	51%	45%	100%
	Minimum Detect	0.53	0.037	0.45
	Maximum Detect	2.84	0.21	2.37
	Median	0.58	0.041	1.02
	Mean	0.89	0.053	1.09
	Standard Deviation	0.59	0.043	0.37
2007 Tronox A/B	No. of Detects*	64	64	64
	Total Samples	64	64	64
	% Detects	100%	100%	100%
	Minimum Detect	0.82	0.050	0.81
	Maximum Detect	3.69	0.22	3.65
	Median	1.19	0.072	1.18
	Mean	1.43	0.086	1.41
	Standard Deviation	0.61	0.037	0.60
t Test	*p* Value	0.00000002	0.00000007	0.000064
	Greater than Background?	YES	YES	YES
Quantile Test	*p* Value	0.0027	NA	0.0041
	Greater than Background?	YES	NO	YES
Slippage Test	*p* Value	0.041	0.35	0.014
	Greater than Background?	NO	NO	YES
WRS Test	*p* Value	0.0000006	0.000053	0.0000020
	Greater than Background?	YES	YES	YES
Comparison Results	Greater than Background?	YES	YES	YES
	Basis	Multiple tests	Multiple tests	Multiple tests

*Number of detects for calculated activities is assumed to be the same as that for uranium metal (100%).

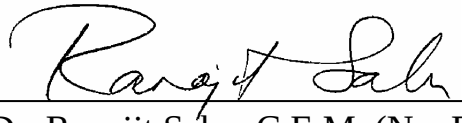
The Tronox approach to ratio up uranium isotpe concetrations is somewhat crude and may overstate the concentrations. Tronox anticipates that since Th and Ra isotopes are consistent with background, it is likely that actual uranium isotopic concentrations are also consistent with background. However, in the interest of completeing the NFAD for the Parcels A and B, Tronox is submitting the "corrected" uranium data.

Based on the comparison, the Site uranium isotope activities are considered above the shallow soil background levels. Therefore, these radionuclides should be included in the screening-level risk assessment performed for the Site. A revised Table 1 [see Table 1 of the main technical memorandum] from the *Technical Memorandum – Data Review for 2007 Tronox Parcels A/B Investigation*, with the uranium isotopes included in the total incremental lifetime cancer risk (ILCR) estimate, using the calculated activities based on Approach #1, is attached.

The total theoretical upper-bound ILCR for future commercial/industrial receptors at the Site, with the calculated activities for the uranium isotopes included, is 4×10^{-6}. This is comparible to the theoretical upper-bound ILCR for background levels of the uranium isotopes of 3×10^{-6}. Given the proposed land use for the Site, these results indicate that future receptor exposures at the Site should not result in unacceptable carcinogenic risks.

Therefore, based on the results of the 2007 investigation, the previous data review, and the revised screening-level health risk assessment, there is no evidence to conclude that the Tronox Parcels A and B property is contaminated. In summary, BEC reiterates that an NFAD for the property is warranted.

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances. I hereby certify that all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein.

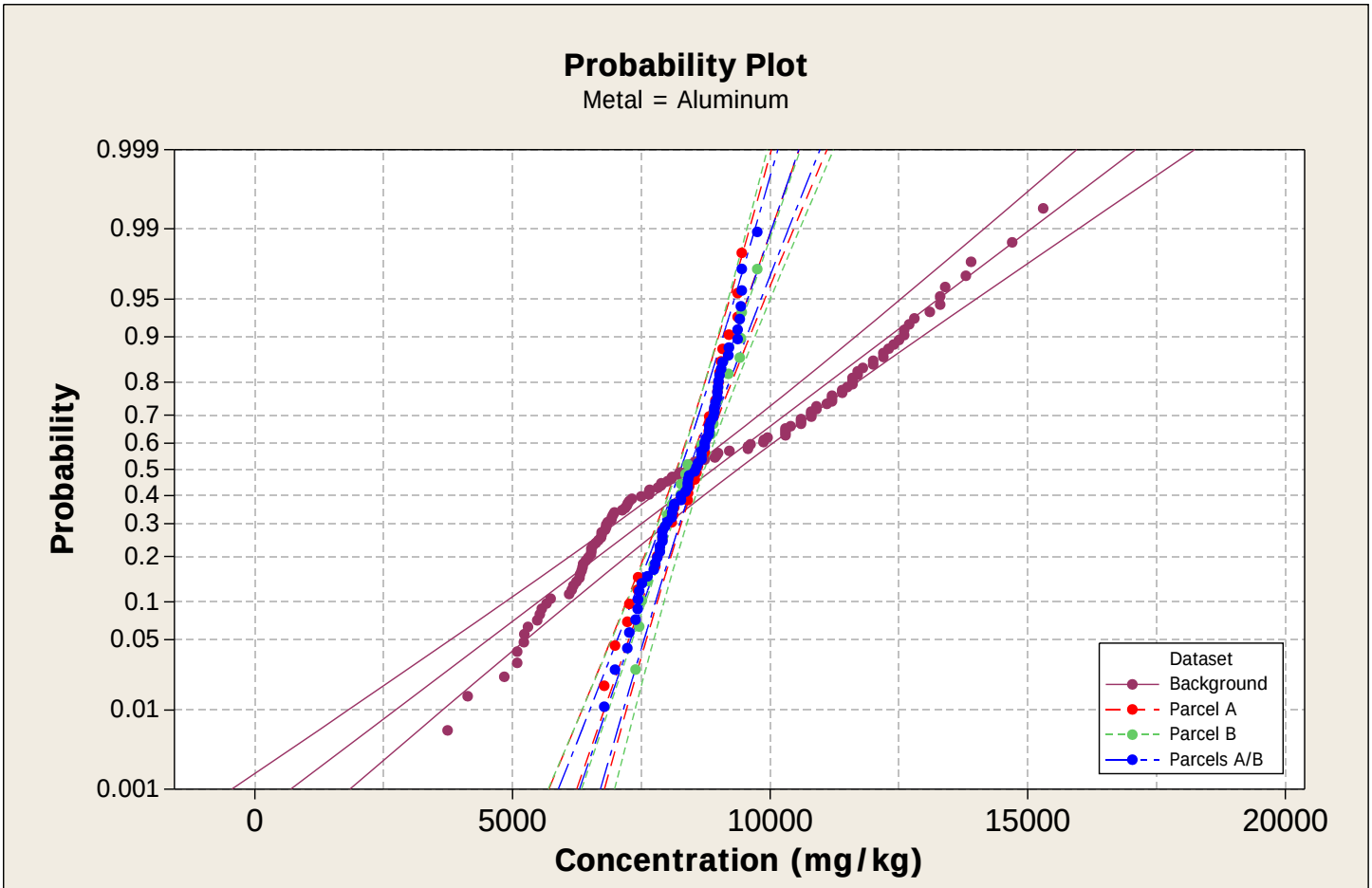


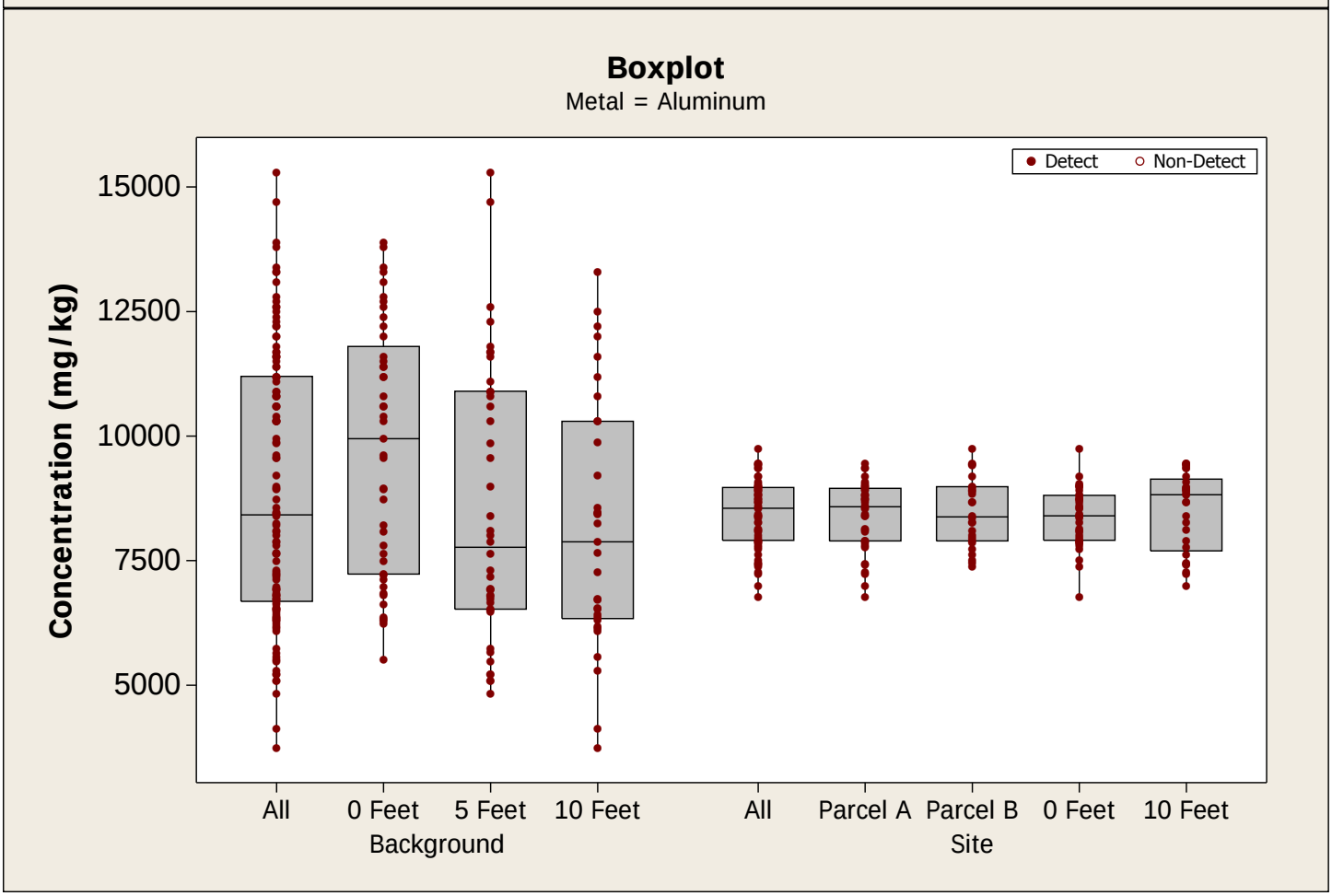
December 18, 2007

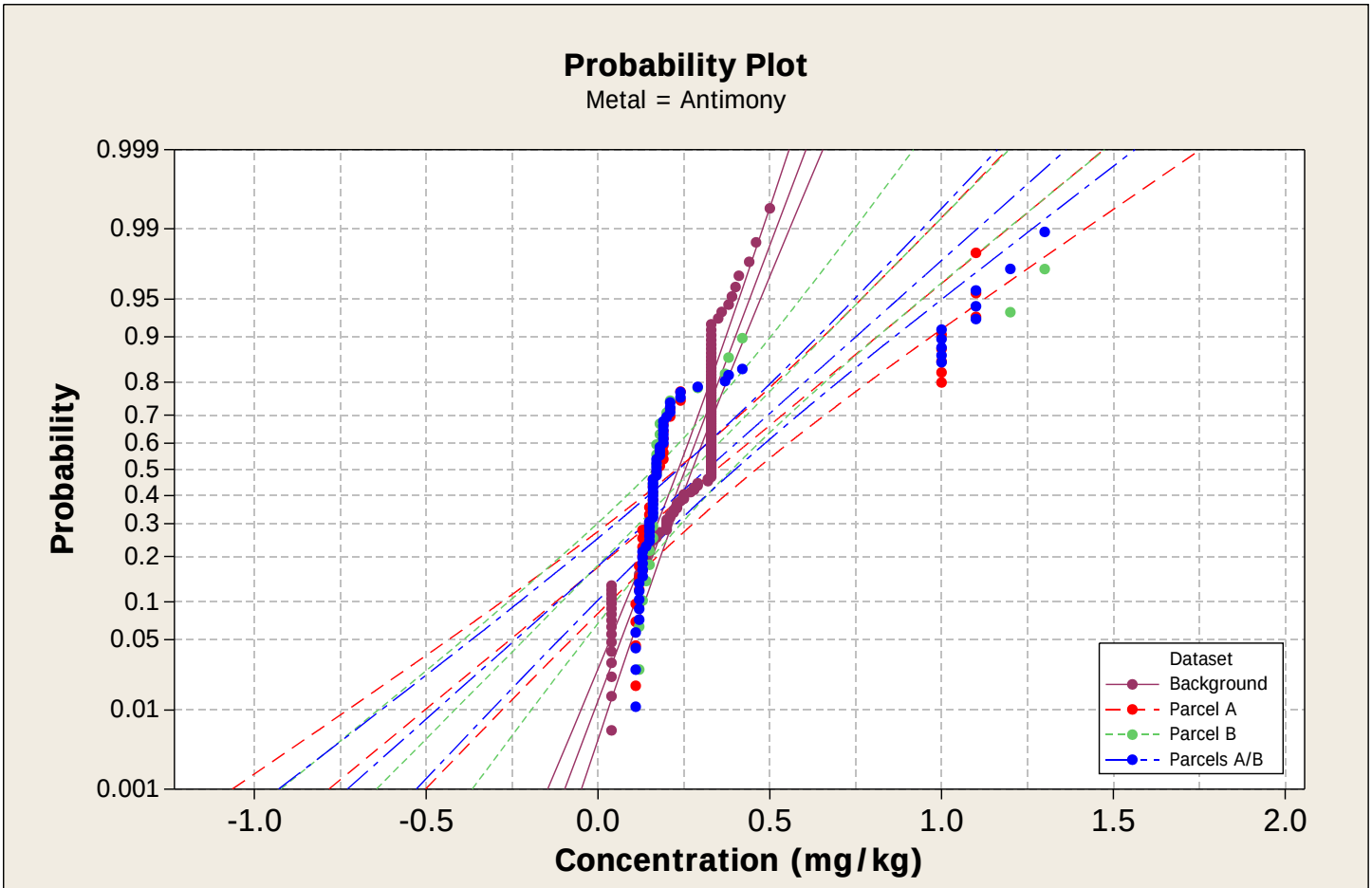
Dr. Ranajit Sahu, C.E.M. (No. EM-1699, Exp. 10/07/2009) Date
BRC Project Manager

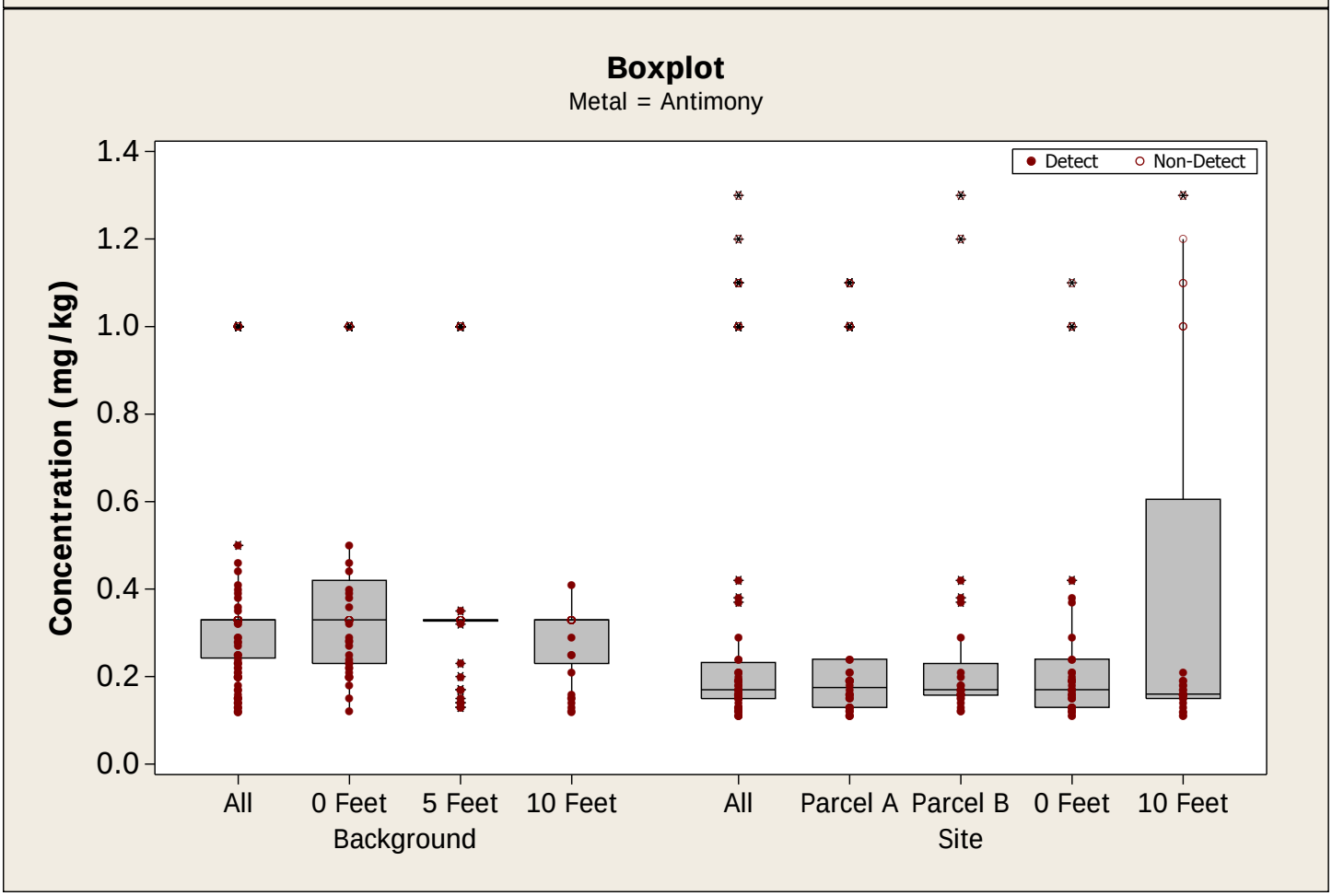
ATTACHMENT F

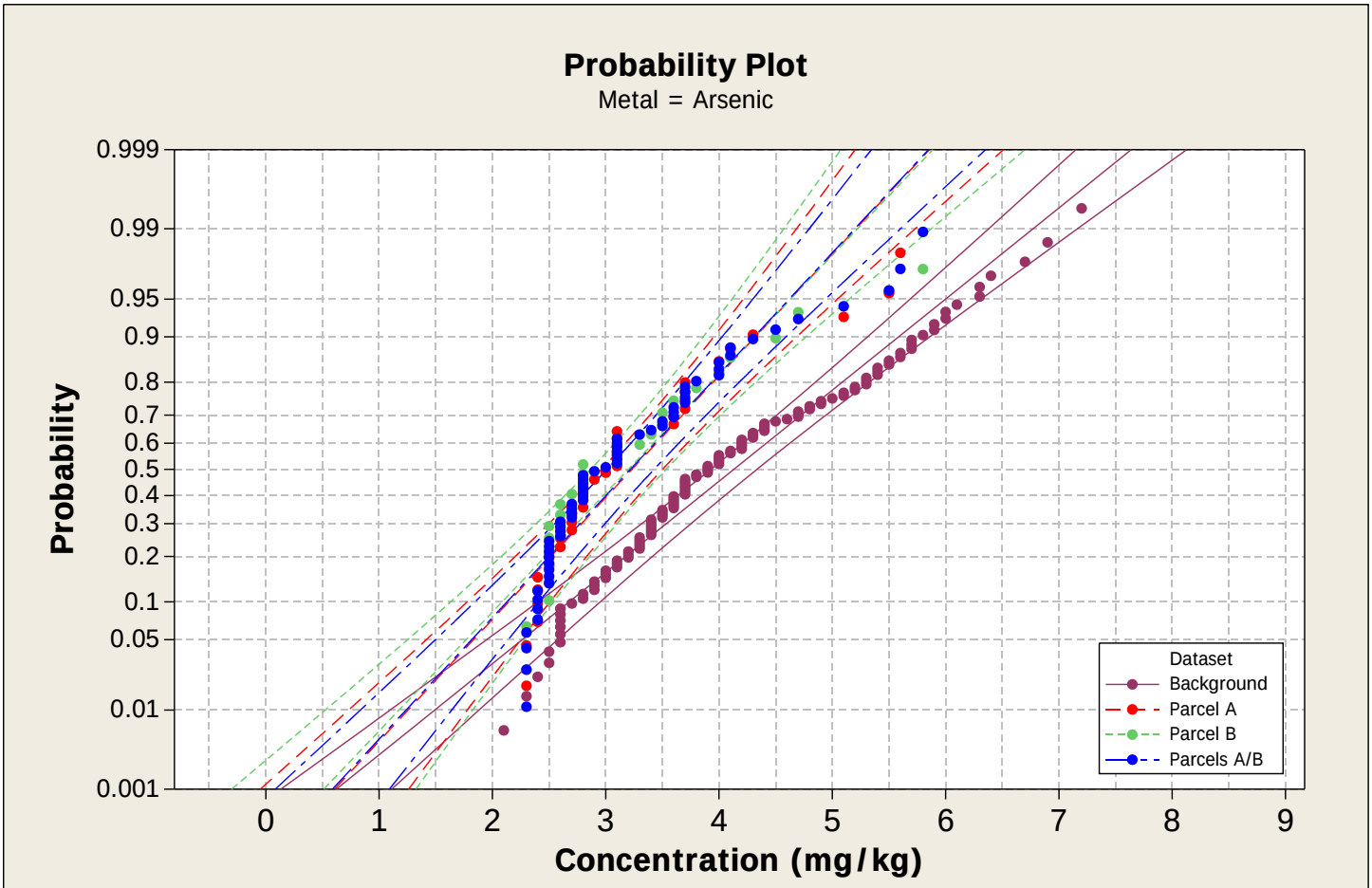
PROBABILITY PLOTS AND BOXPLOTS

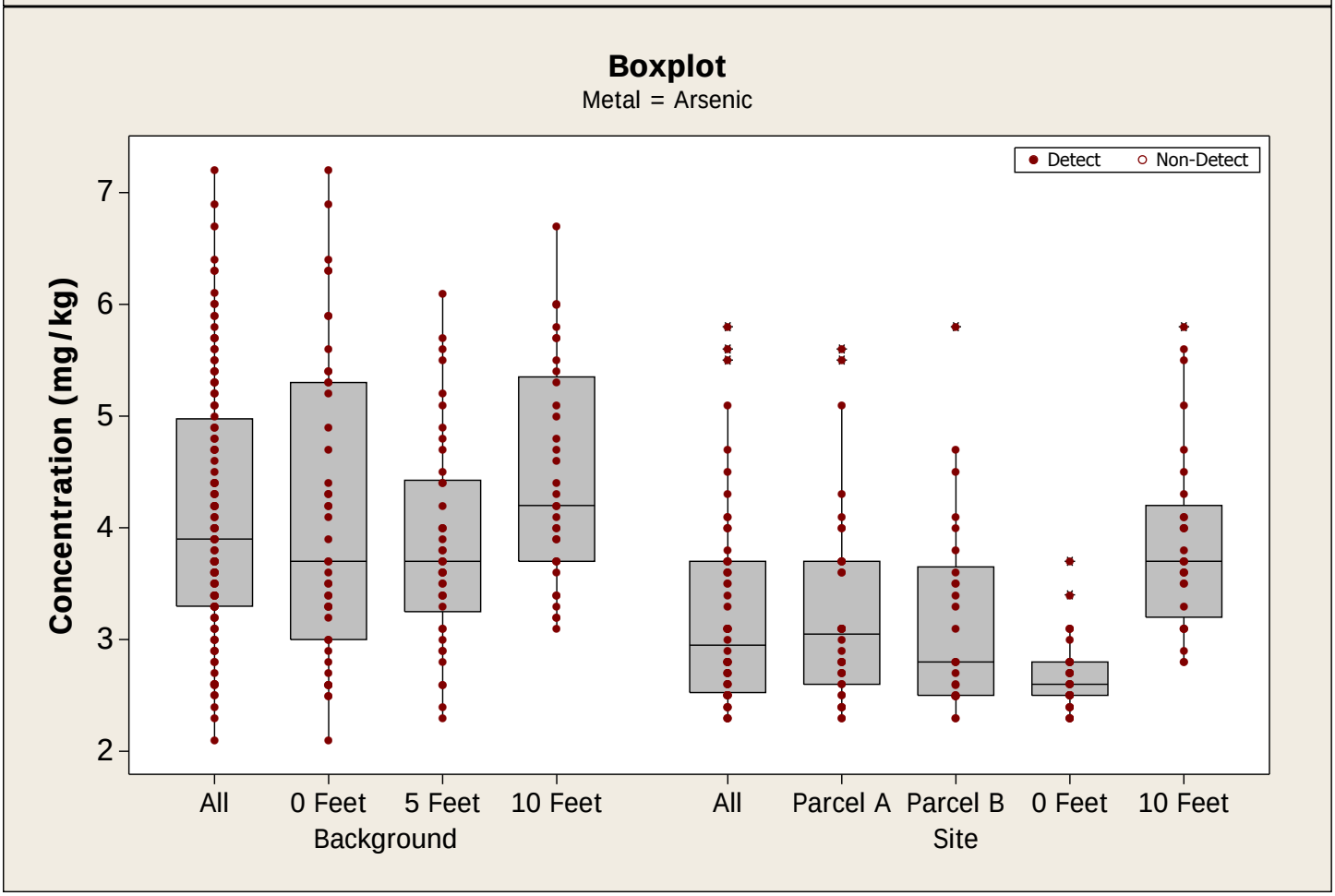

Probability Plot
Metal = Aluminum
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5000
10000
15000
20000
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

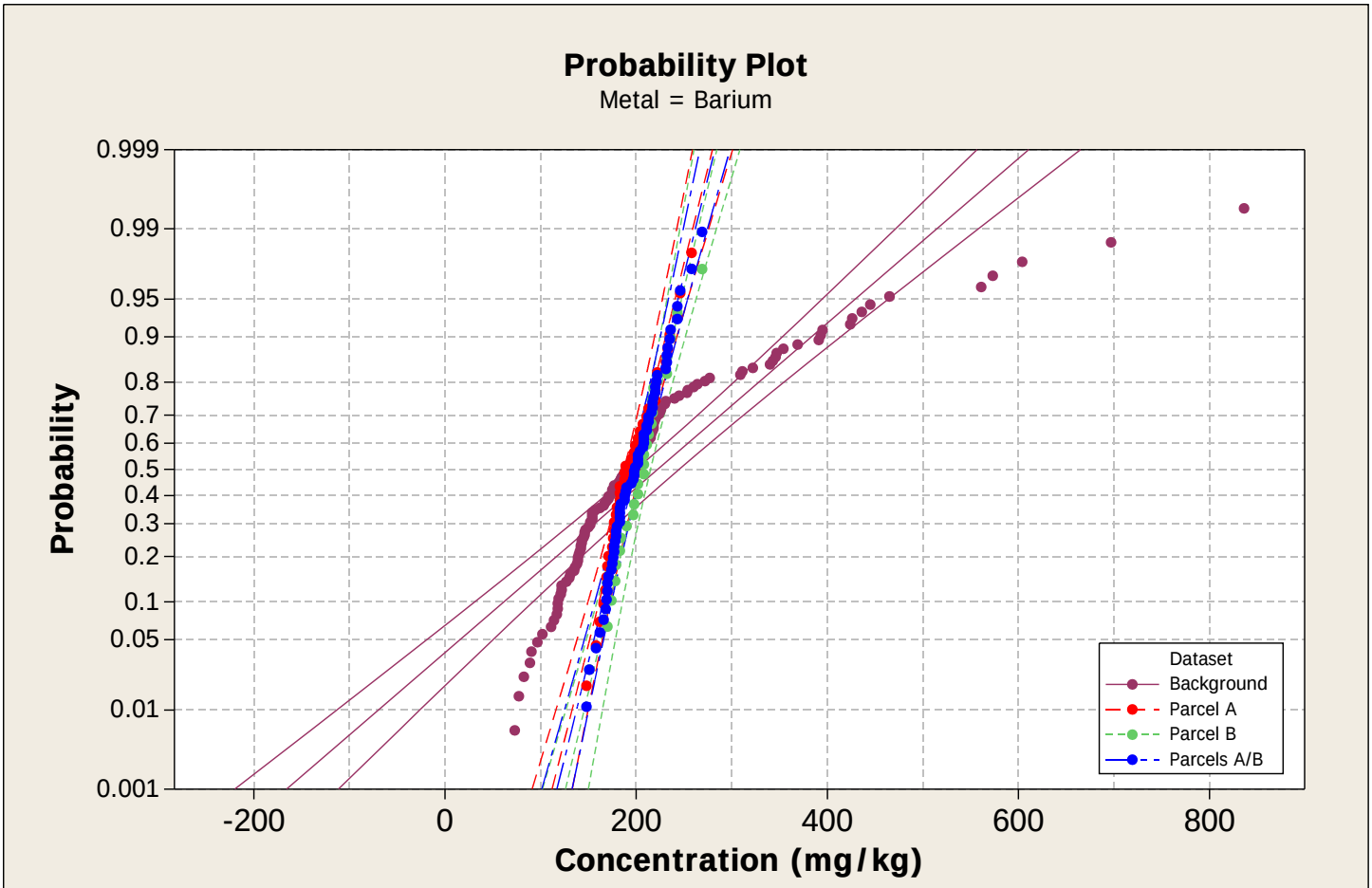

Boxplot
Metal = Aluminum
Concentration (mg/kg)
15000
12500
10000
7500
5000
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

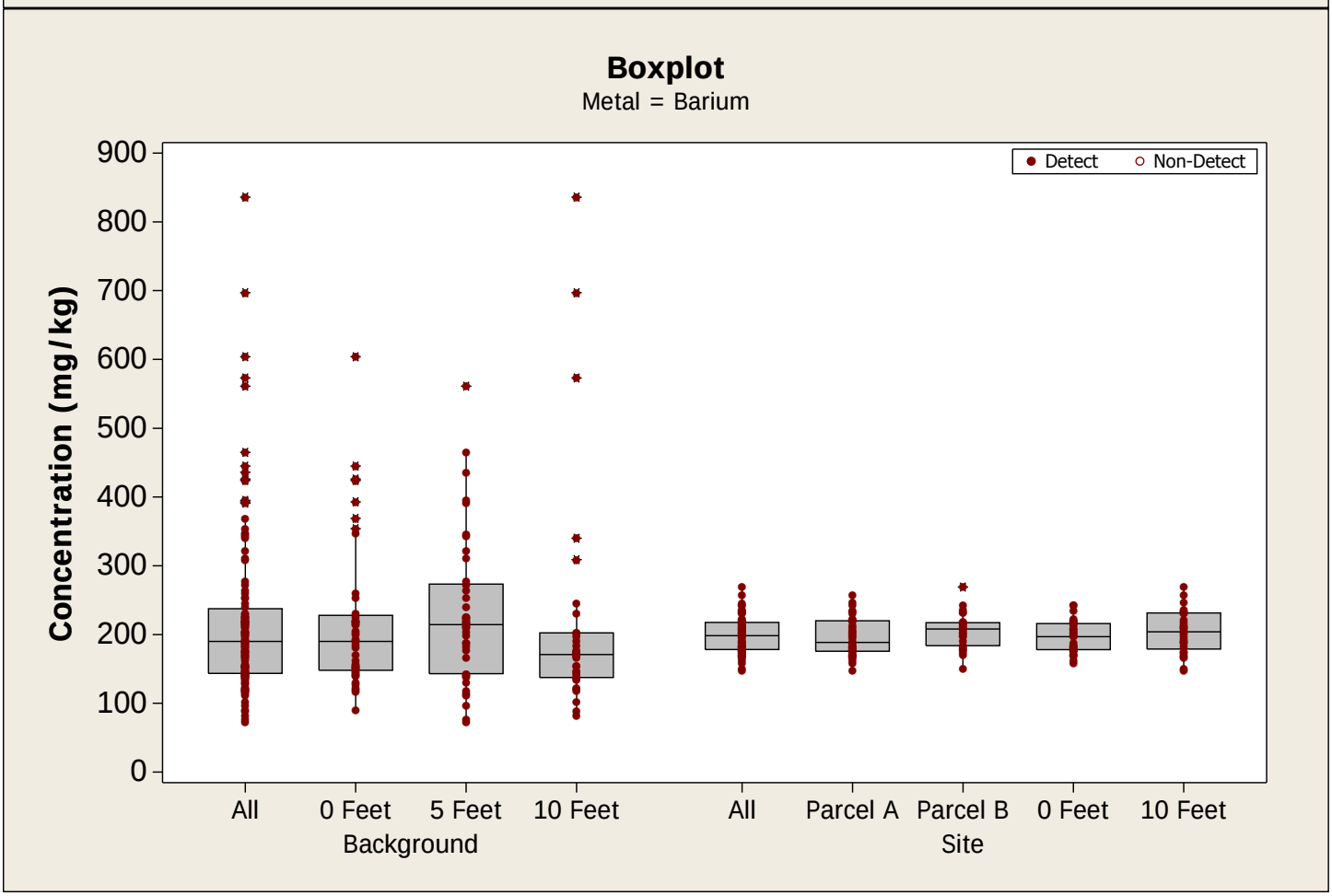

Probability Plot
Metal = Antimony
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

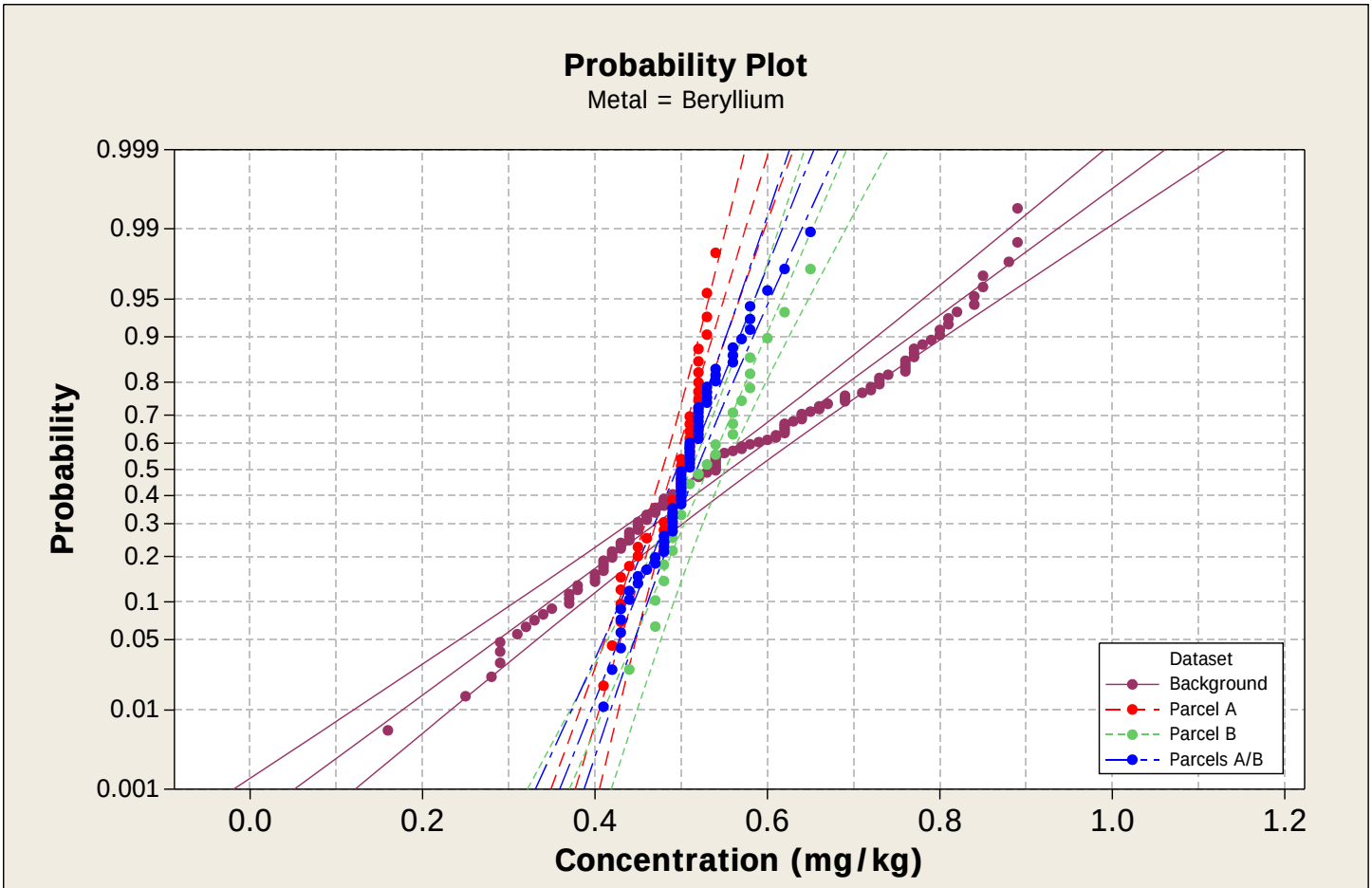

Boxplot
Metal = Antimony
Concentration (mg/kg)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

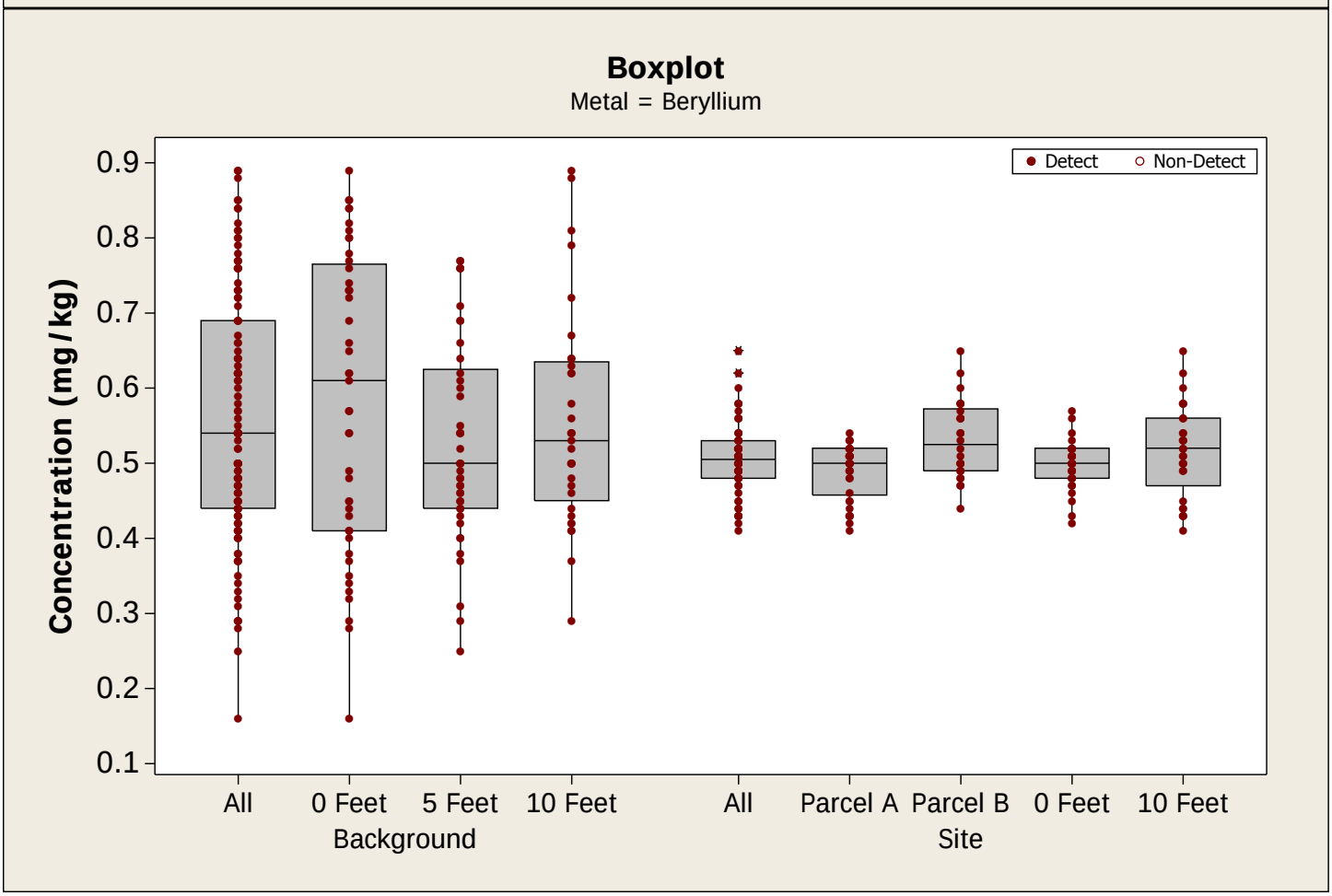

Probability Plot
Metal = Arsenic
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
1
2
3
4
5
6
7
8
9
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

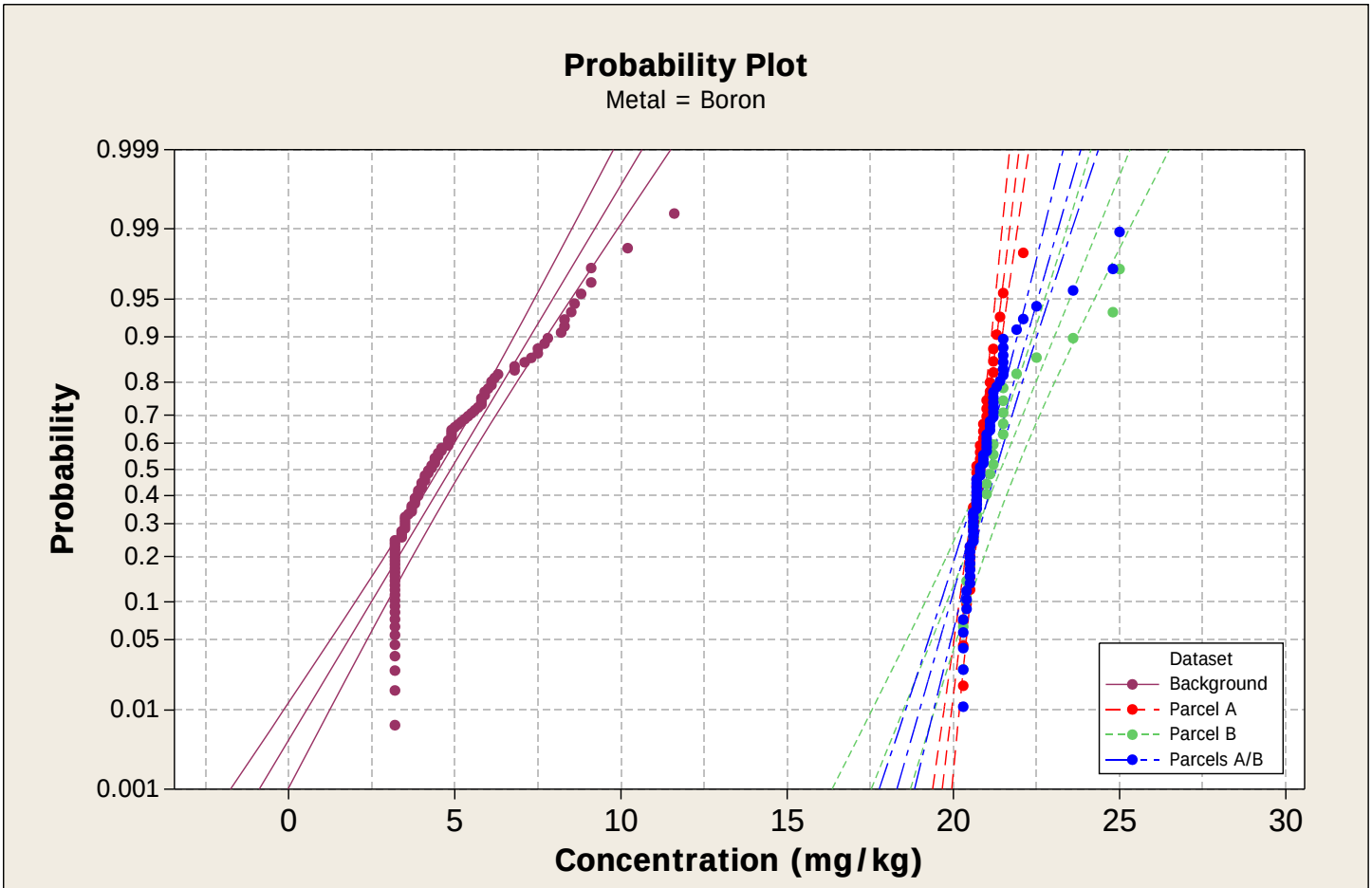

Boxplot
Metal = Arsenic
Concentration (mg/kg)
Detect
Non-Detect
7
6
5
4
3
2
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

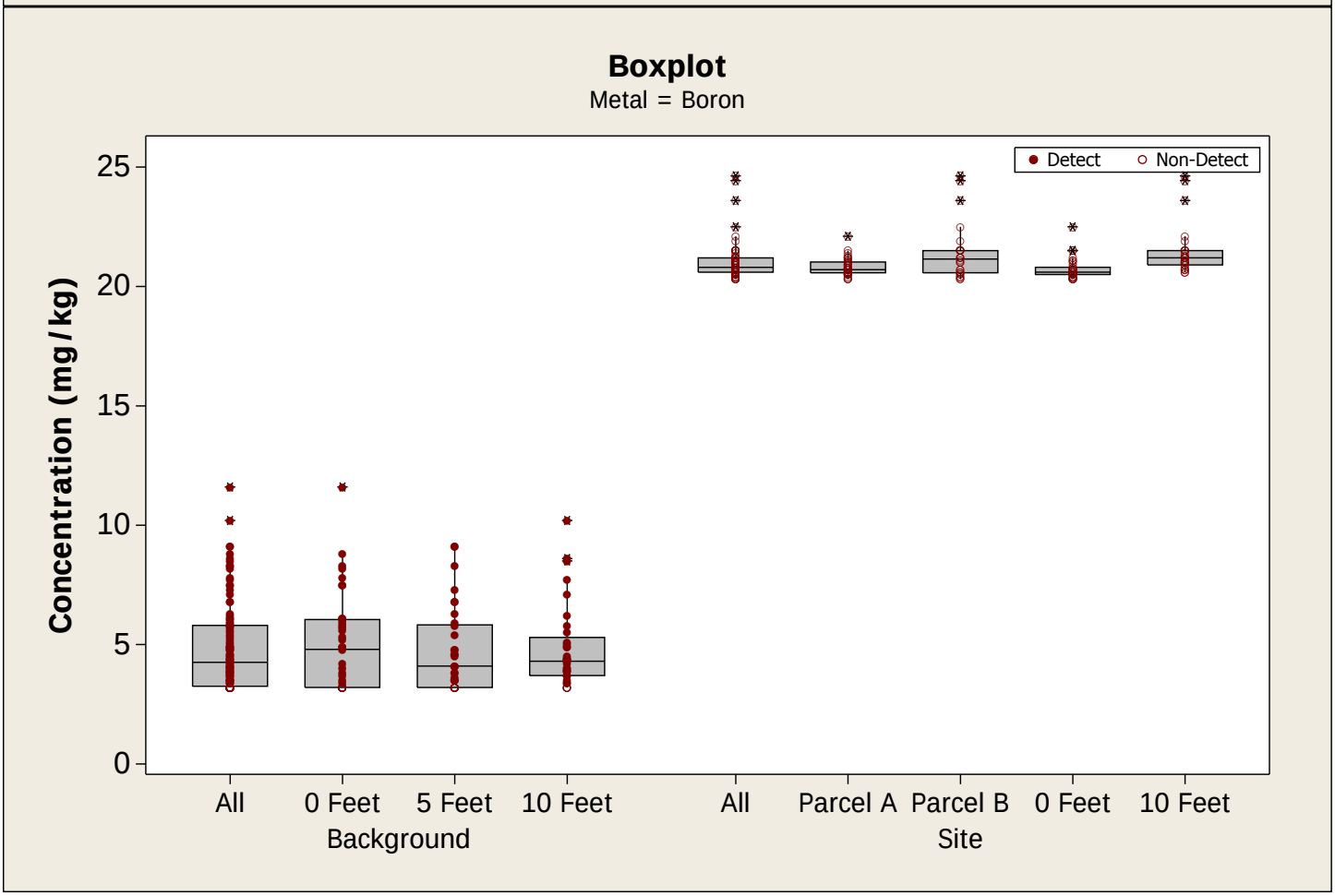

Probability Plot
Metal = Barium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-200
0
200
400
600
800
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

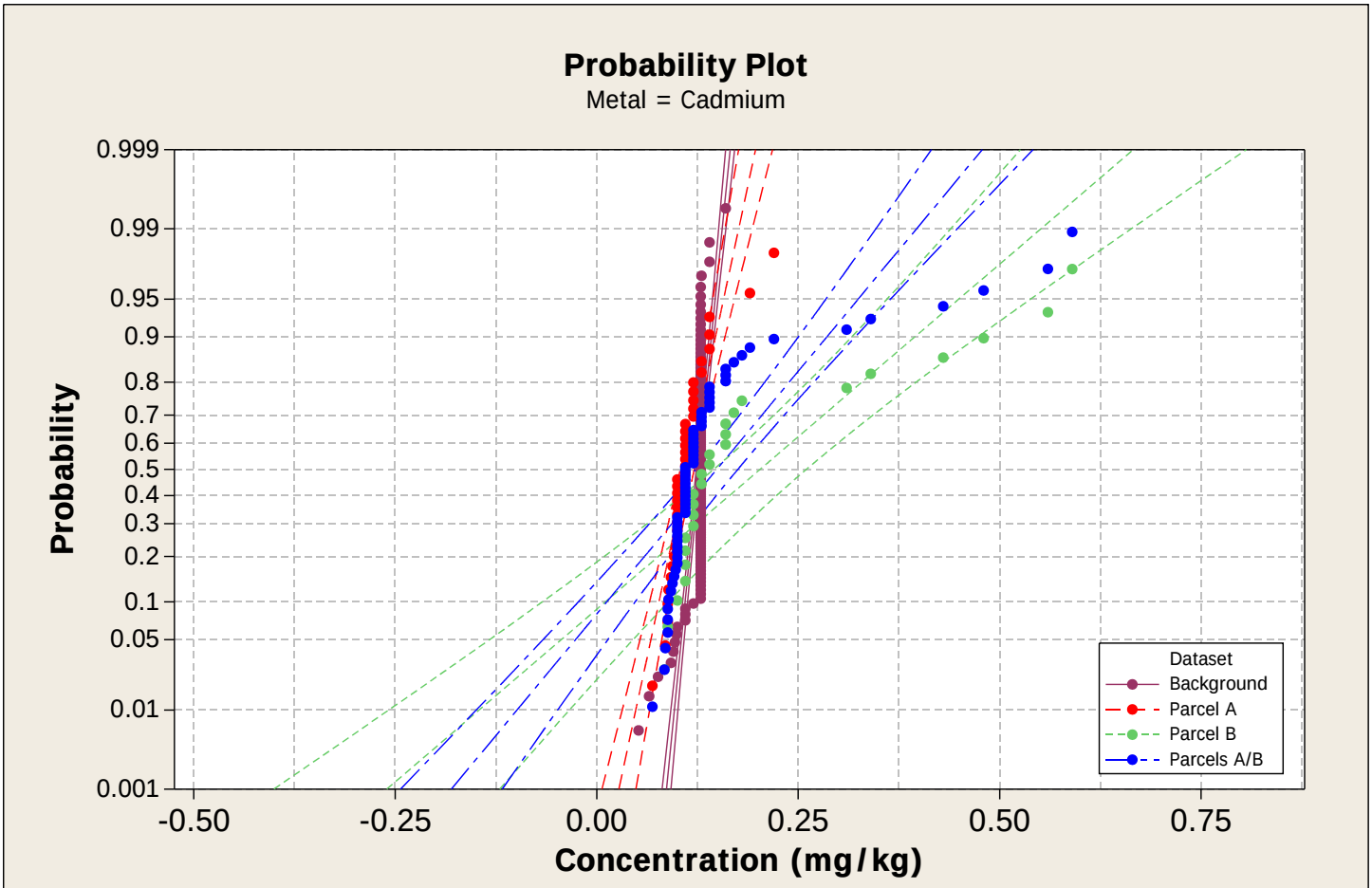

Boxplot
Metal = Barium
Concentration (mg/kg)
900
800
700
600
500
400
300
200
100
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

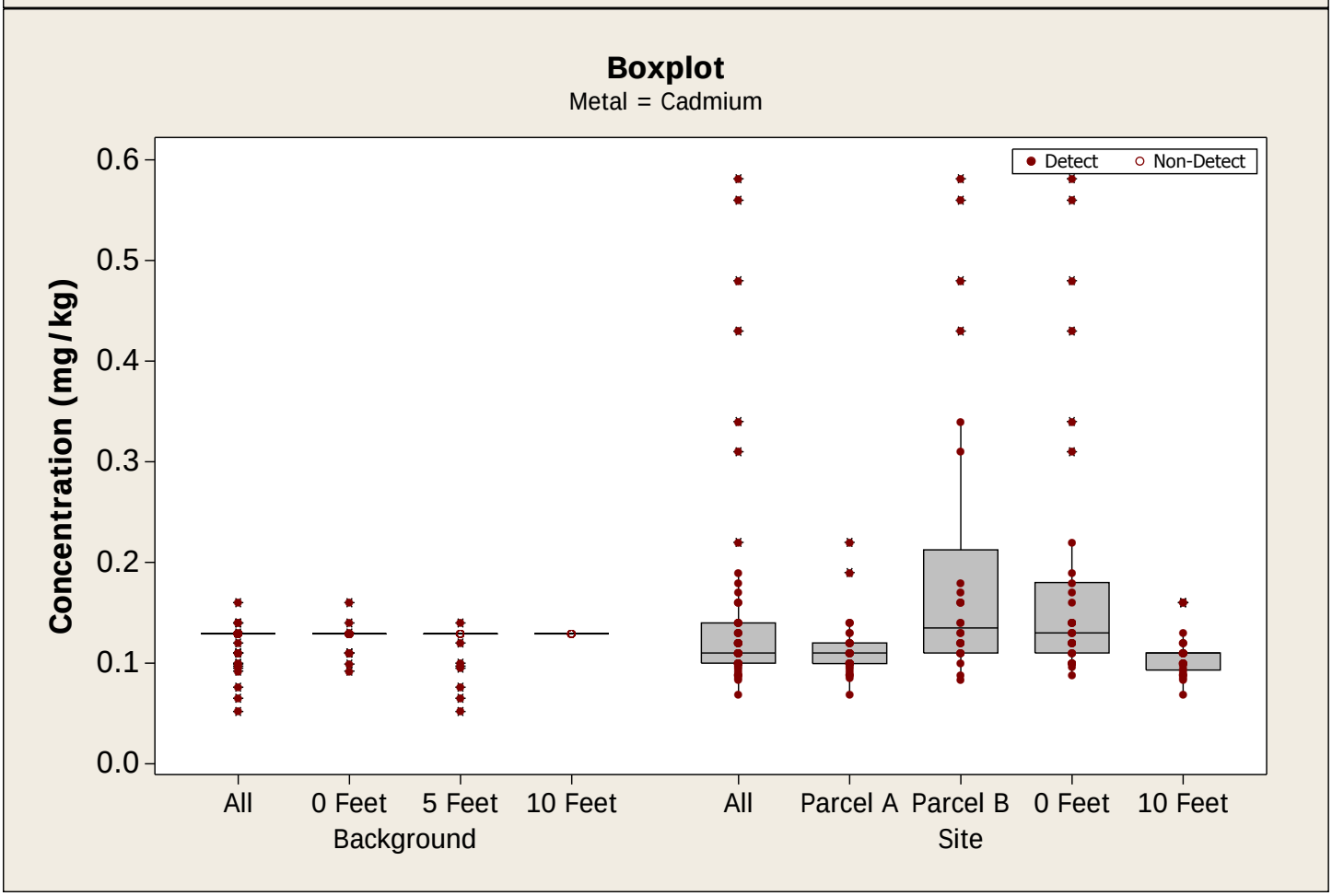

Probability Plot
Metal = Beryllium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.0
0.2
0.4
0.6
0.8
1.0
1.2
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

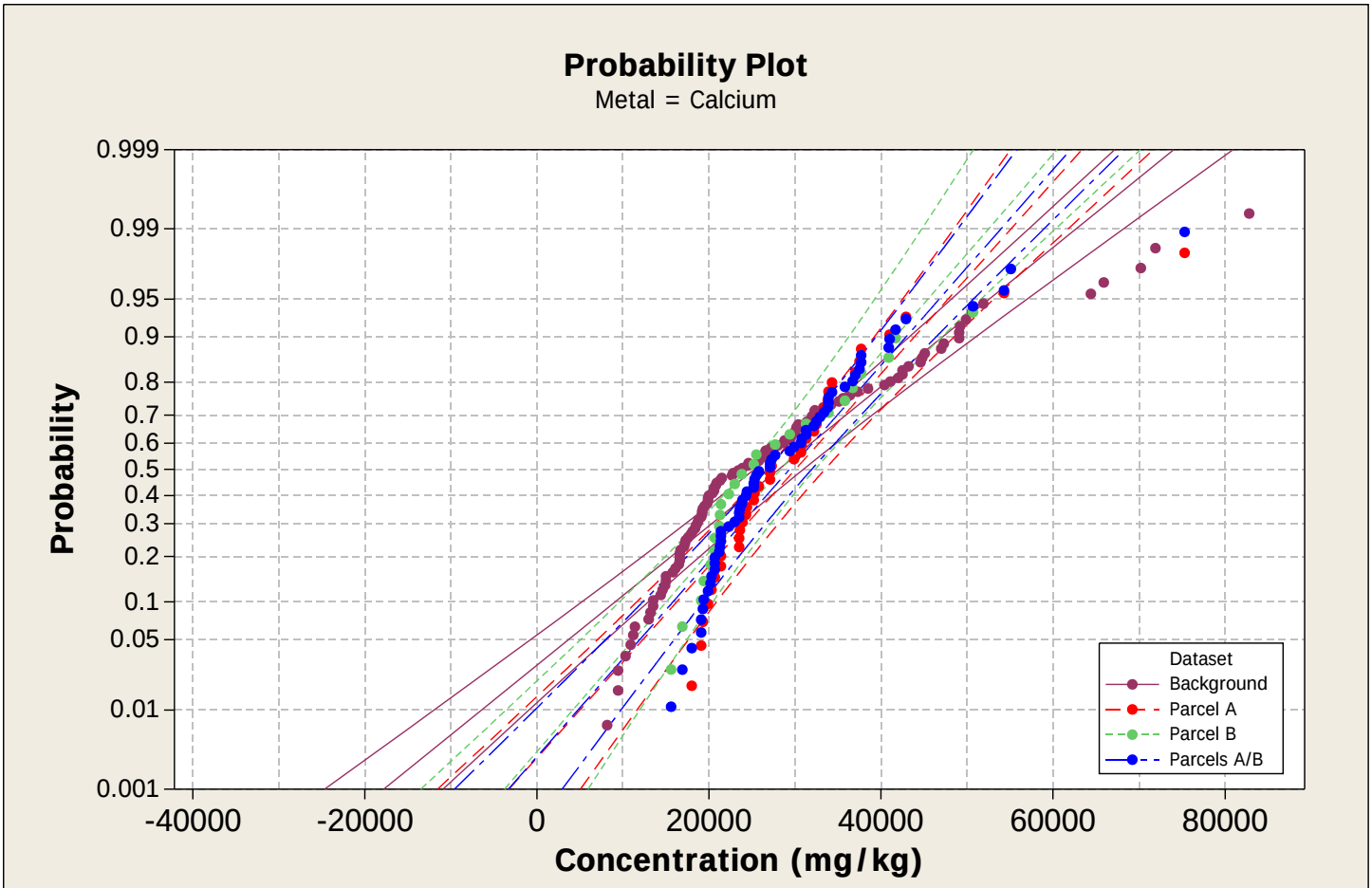

Boxplot
Metal = Beryllium
Concentration (mg/kg)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

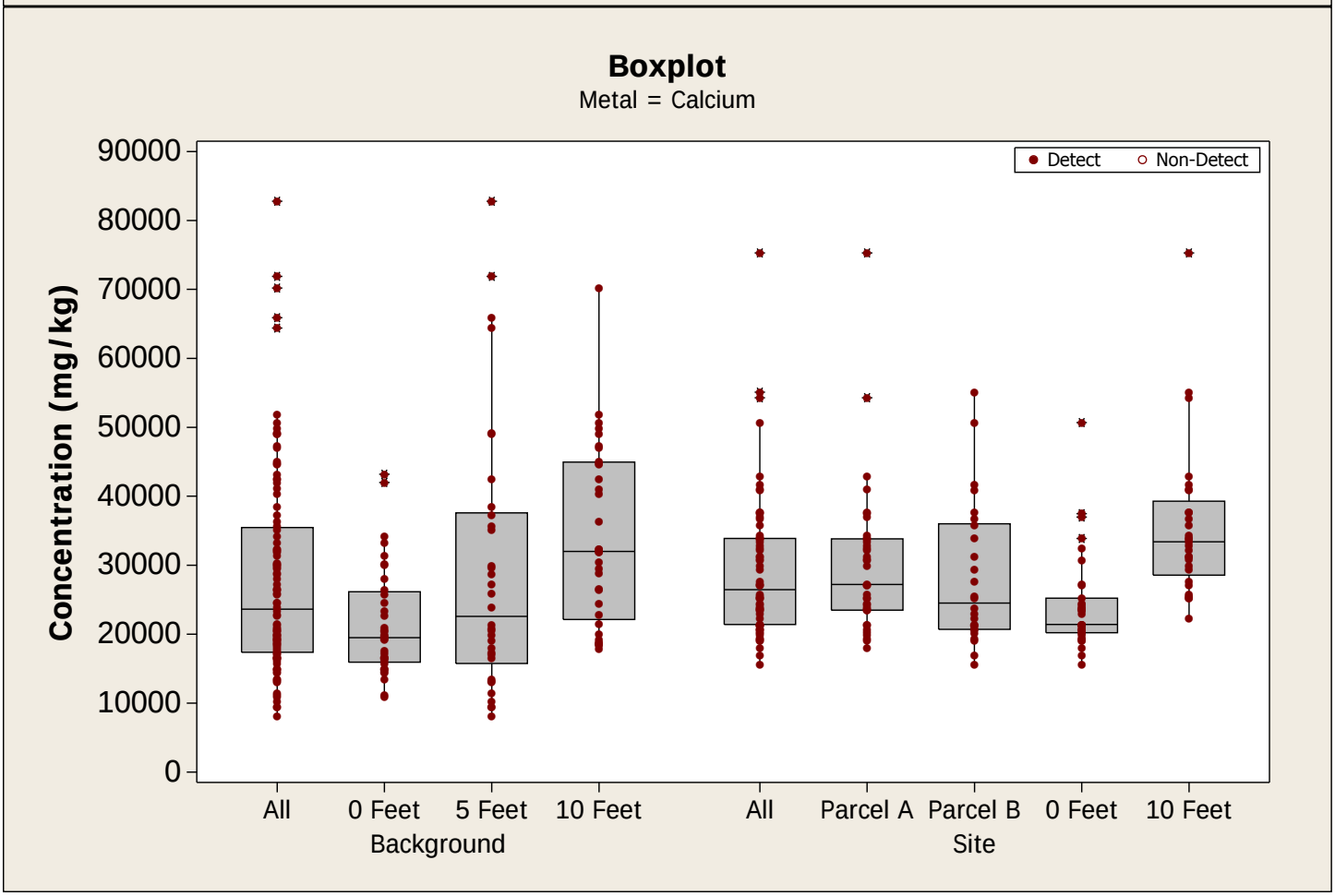

Probability Plot
Metal = Boron
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5
10
15
20
25
30
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

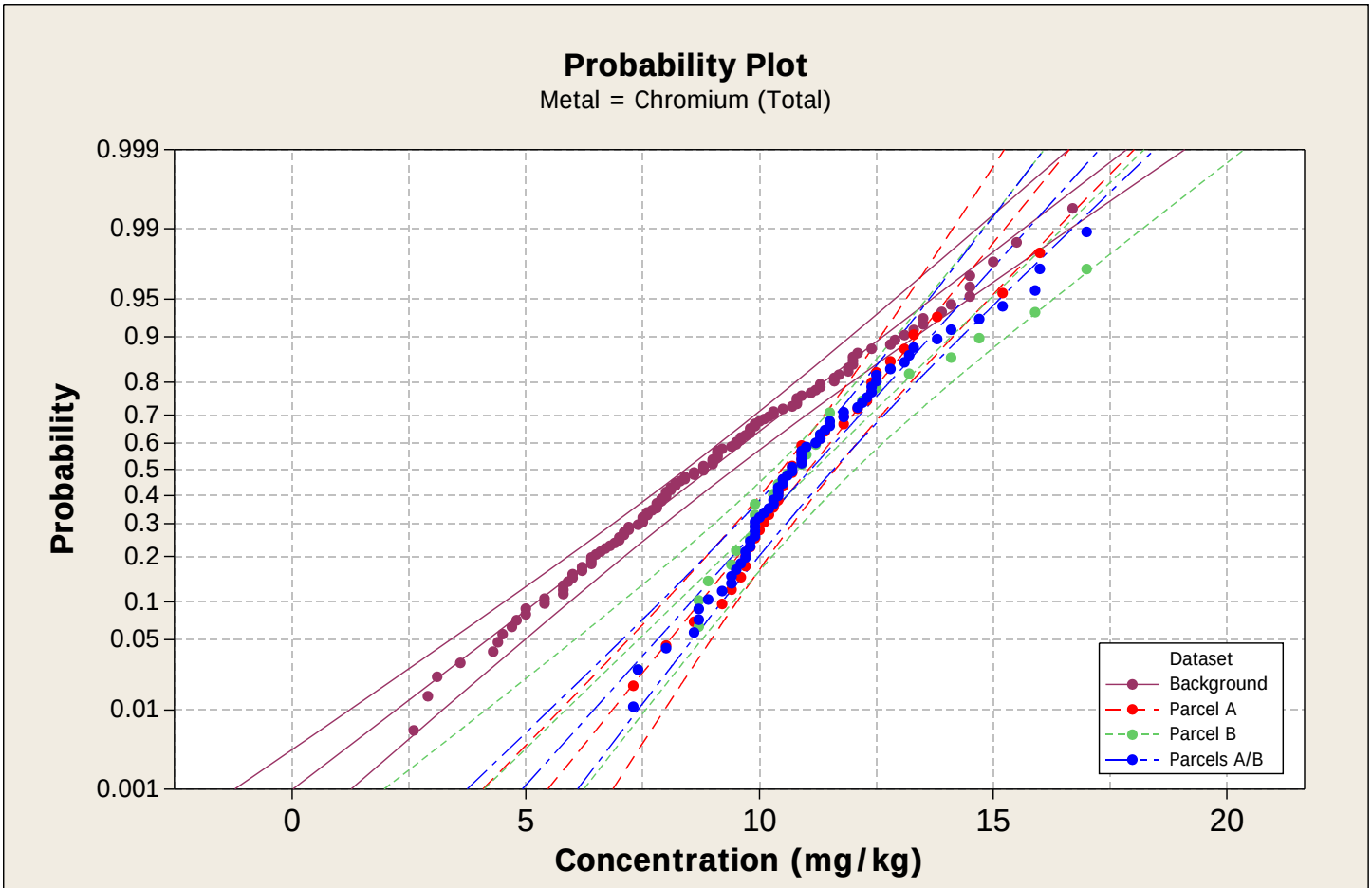

Boxplot
Metal = Boron
Concentration (mg/kg)
25
20
15
10
5
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

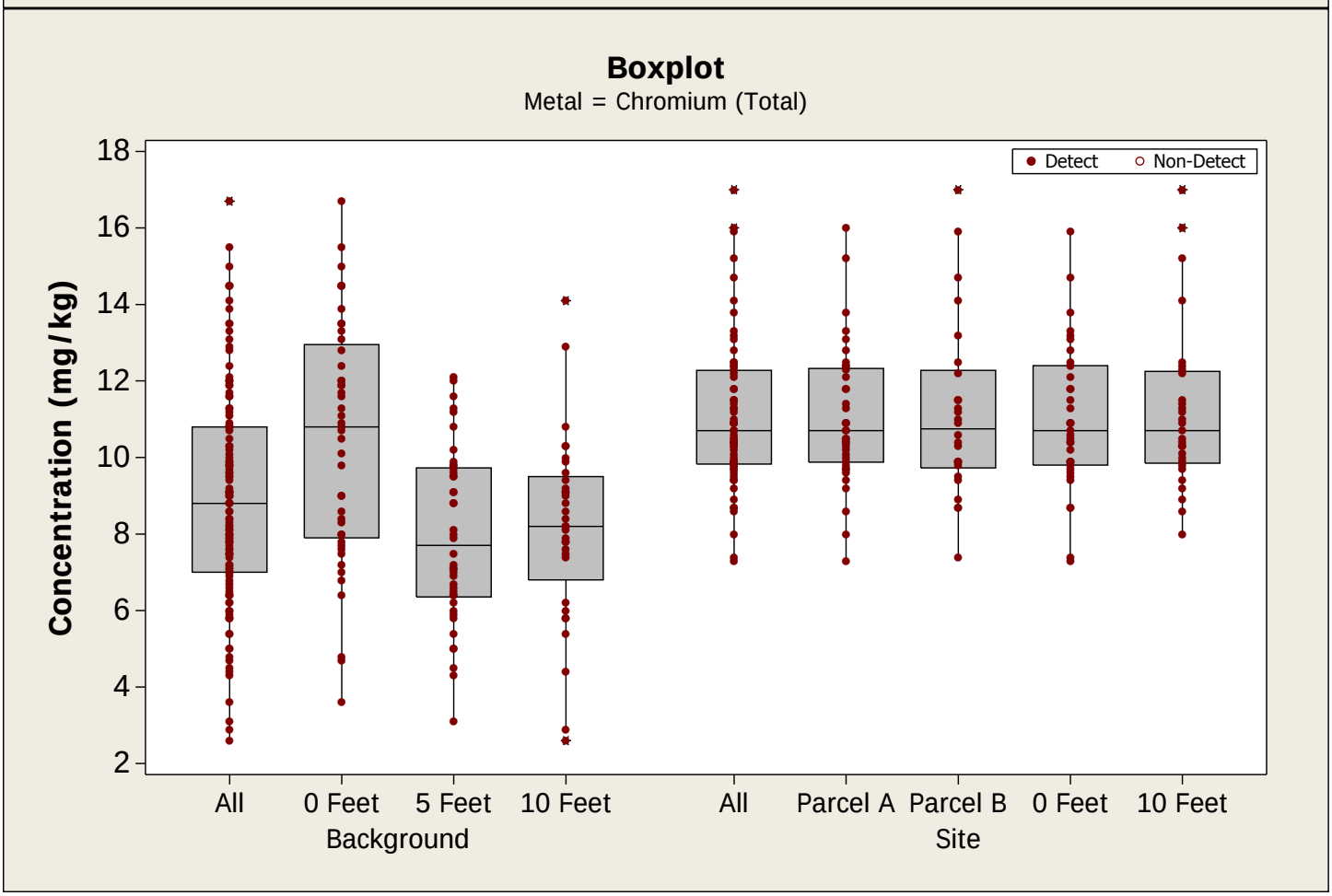

Probability Plot
Metal = Cadmium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.50
-0.25
0.00
0.25
0.50
0.75
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

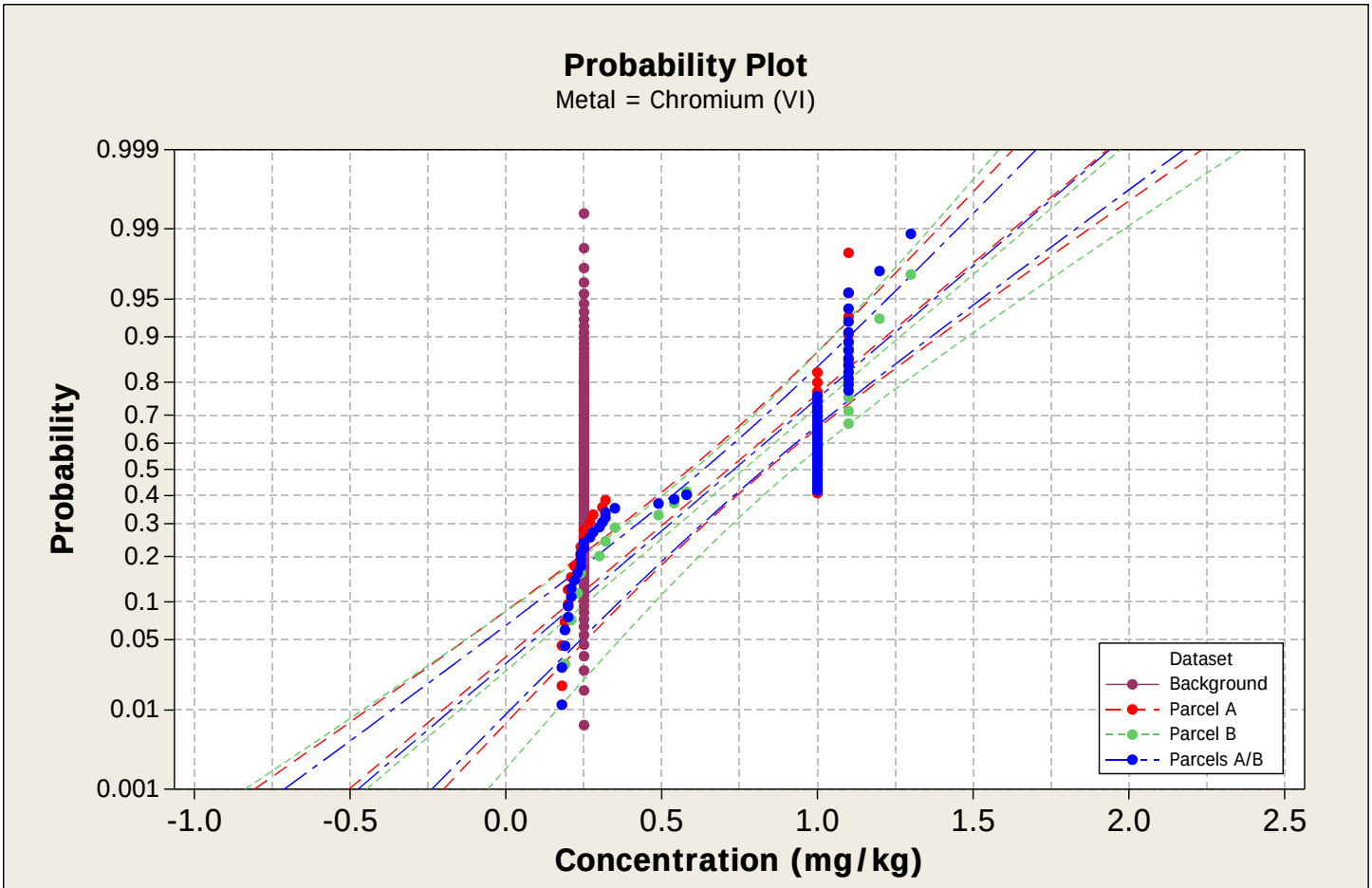

Boxplot
Metal = Cadmium
Concentration (mg/kg)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

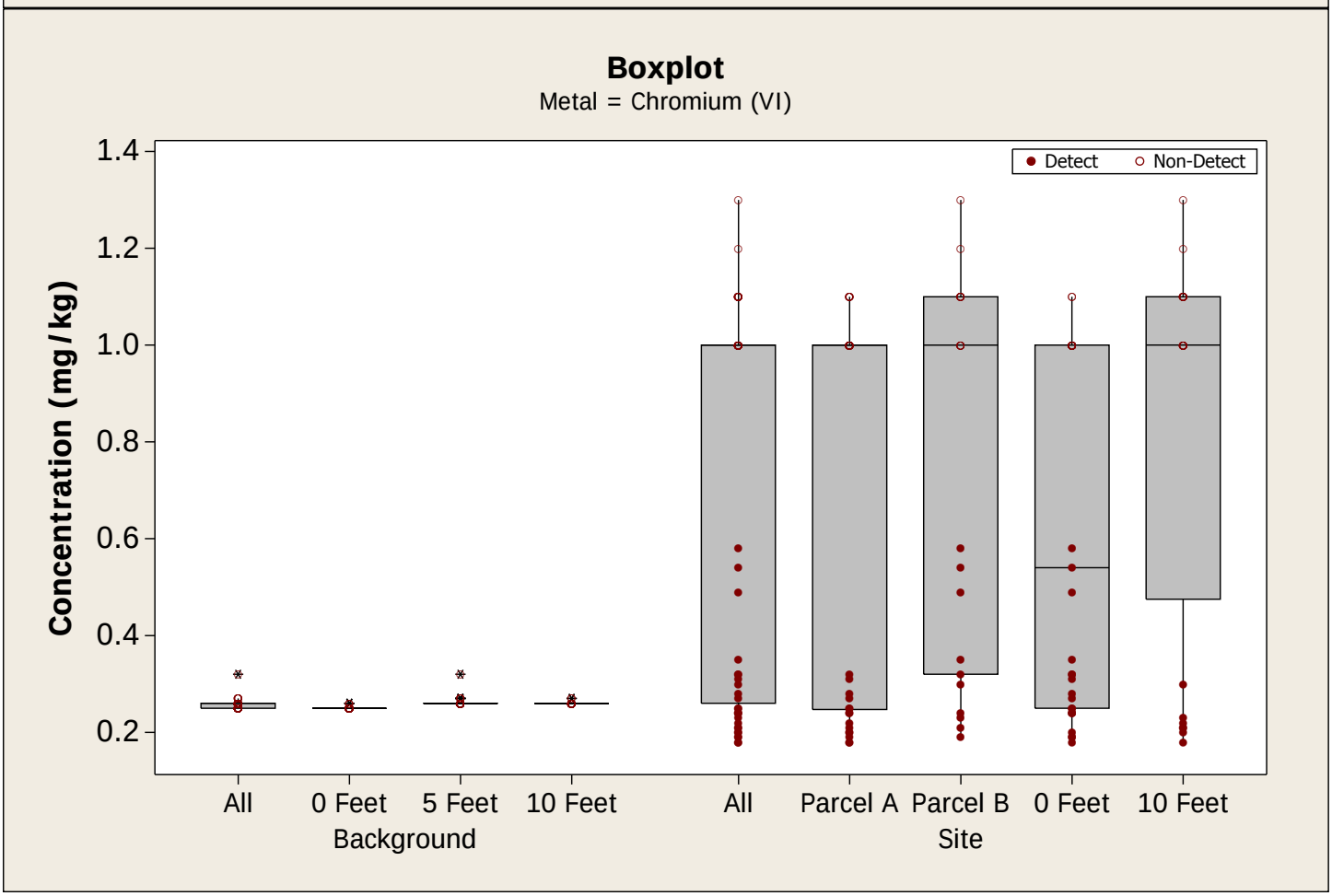

Probability Plot
Metal = Calcium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-40000
-20000
0
20000
40000
60000
80000
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

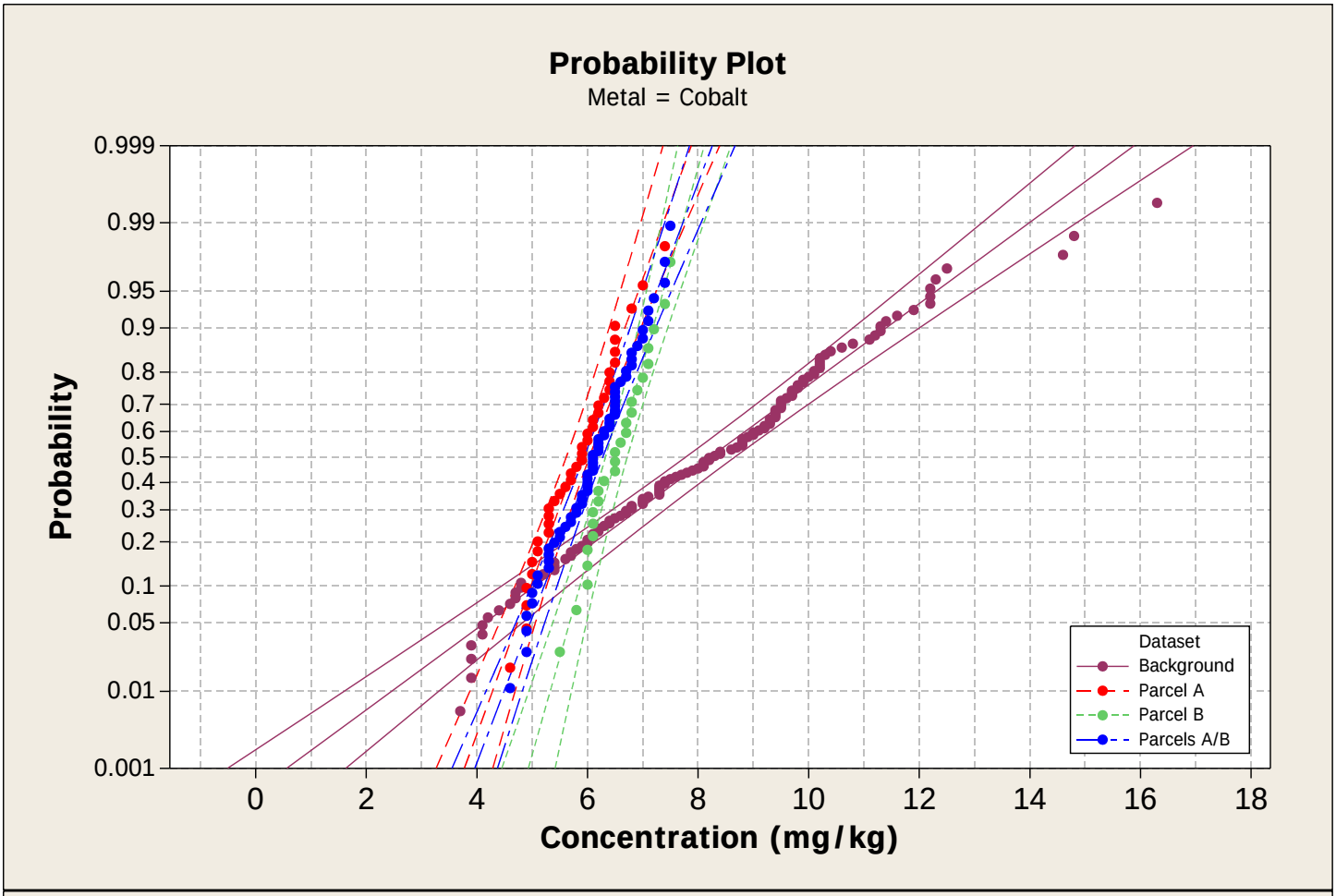

Boxplot
Metal = Calcium
Concentration (mg/kg)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

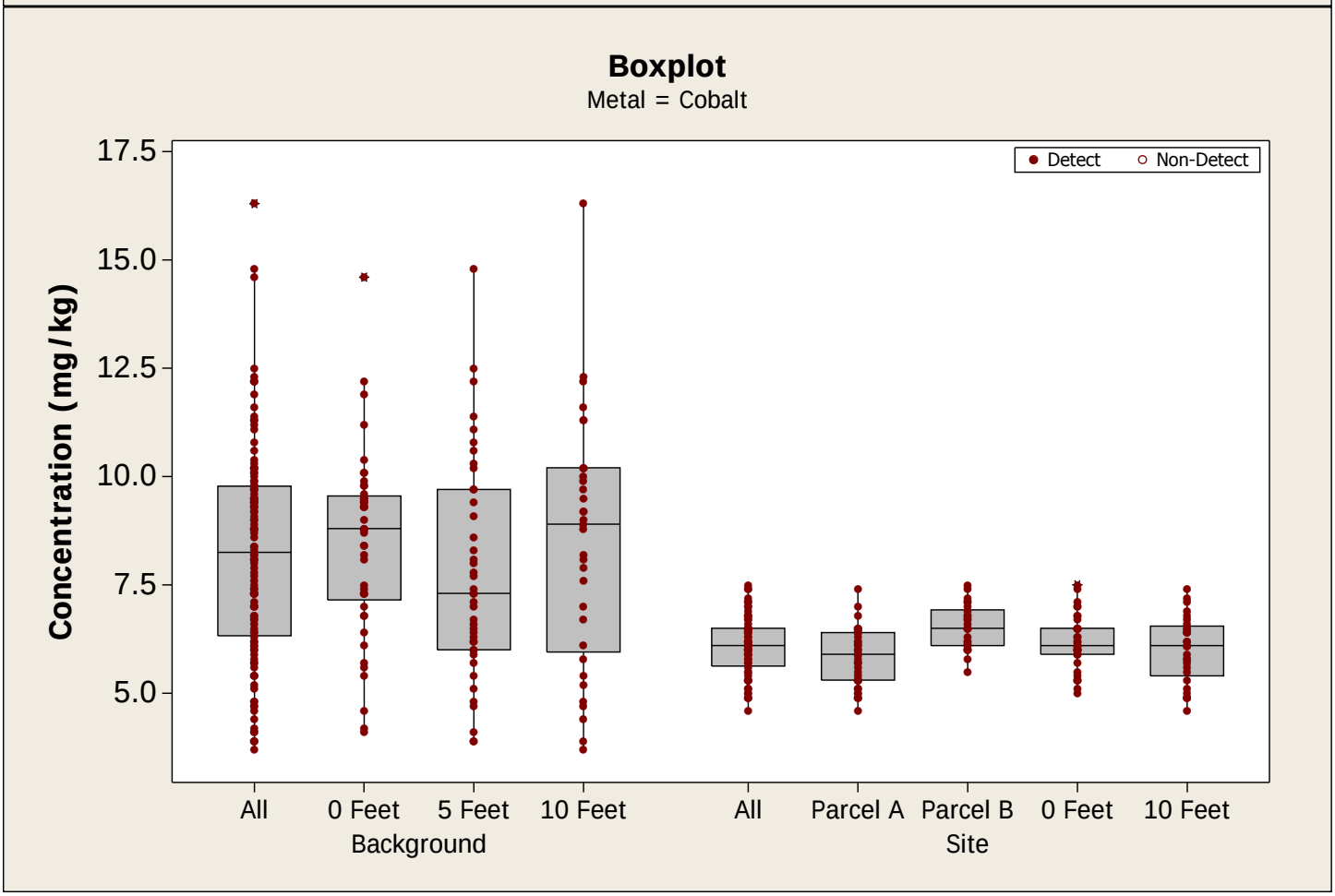

Probability Plot
Metal = Chromium (Total)
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5
10
15
20
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

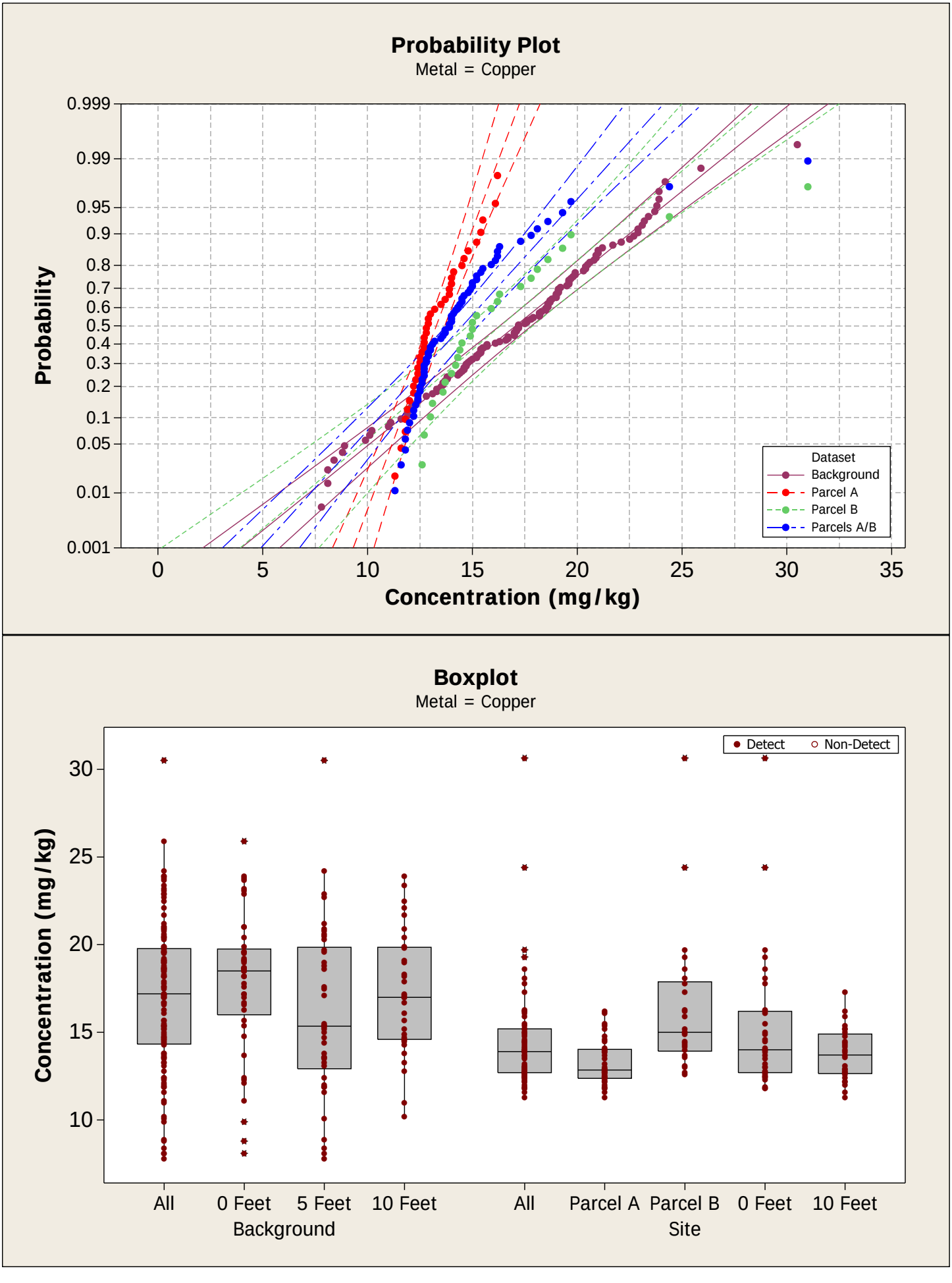

Boxplot
Metal = Chromium (Total)
Concentration (mg/kg)
18
16
14
12
10
8
6
4
2
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

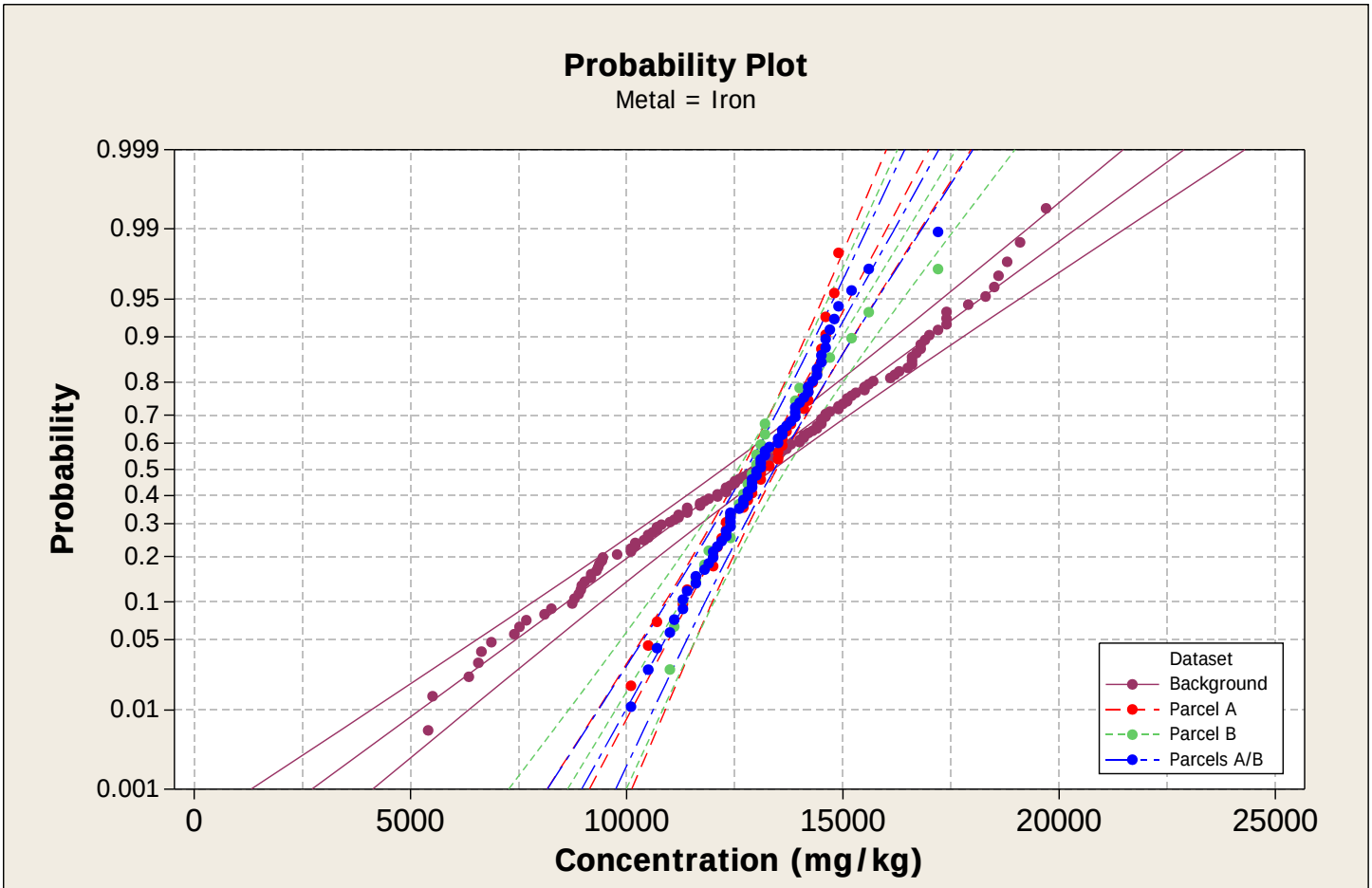

Probability Plot
Metal = Chromium (VI)
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

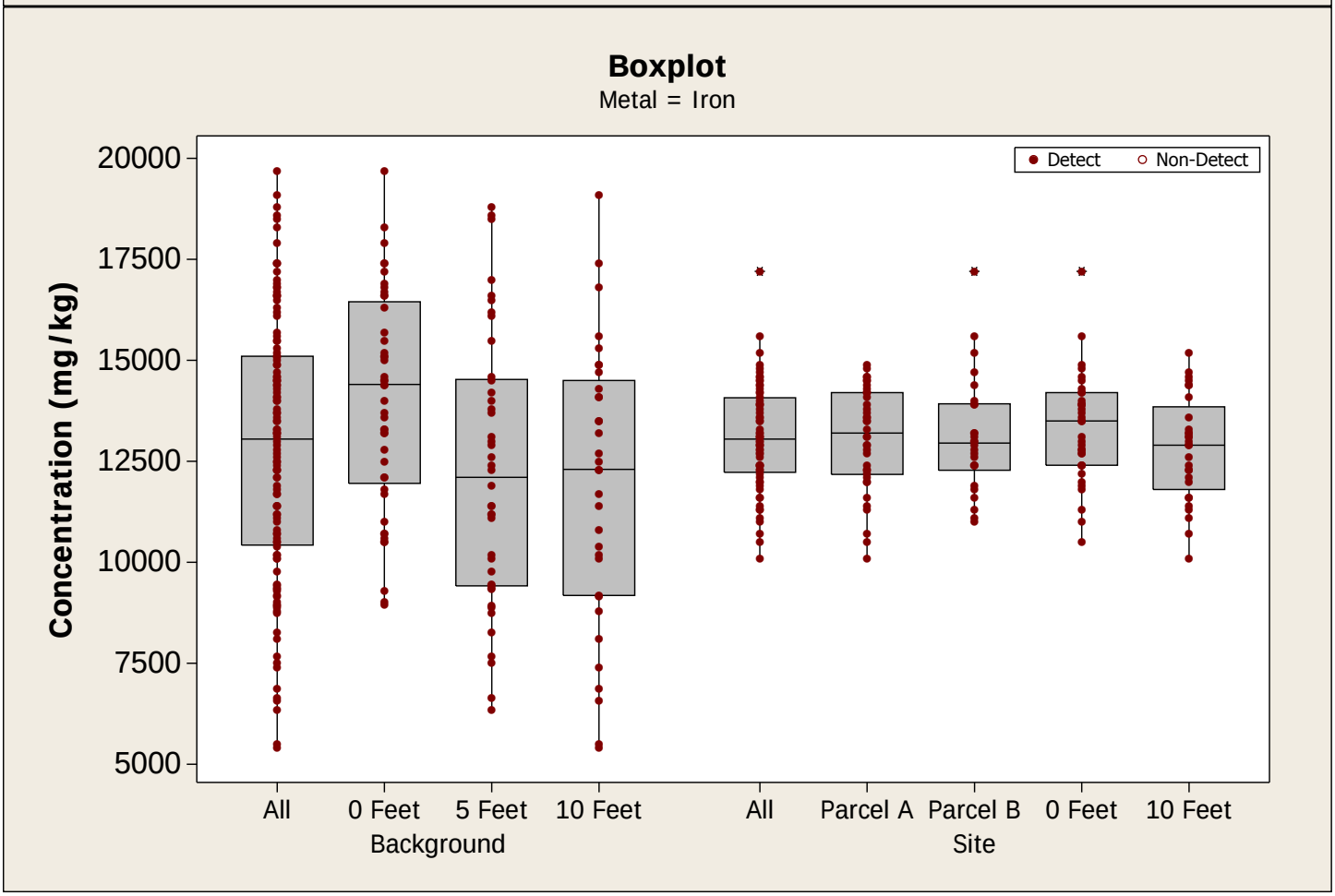

Boxplot
Metal = Chromium (VI)
Concentration (mg/kg)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

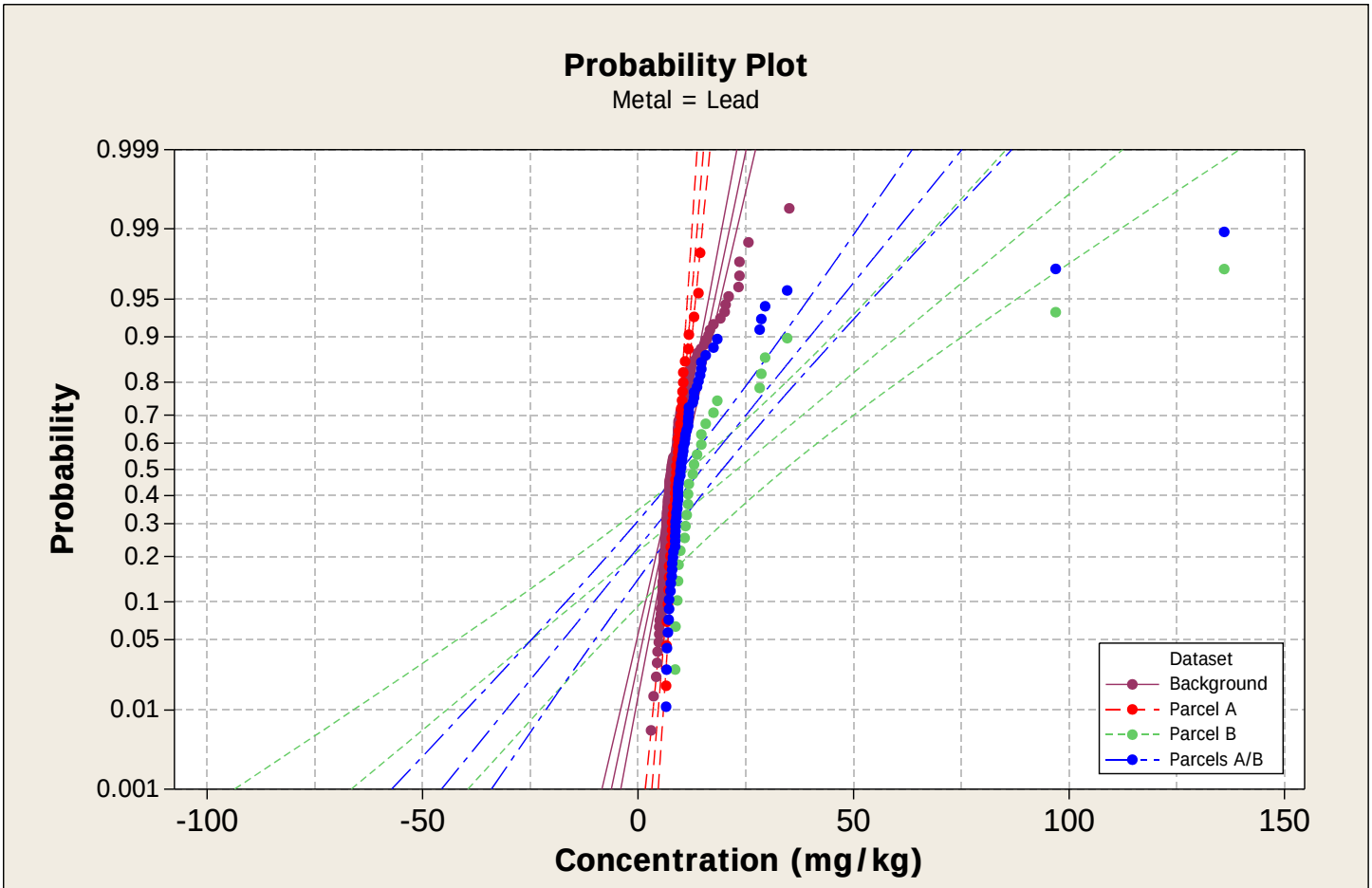

Probability Plot
Metal = Cobalt
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
2
4
6
8
10
12
14
16
18
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

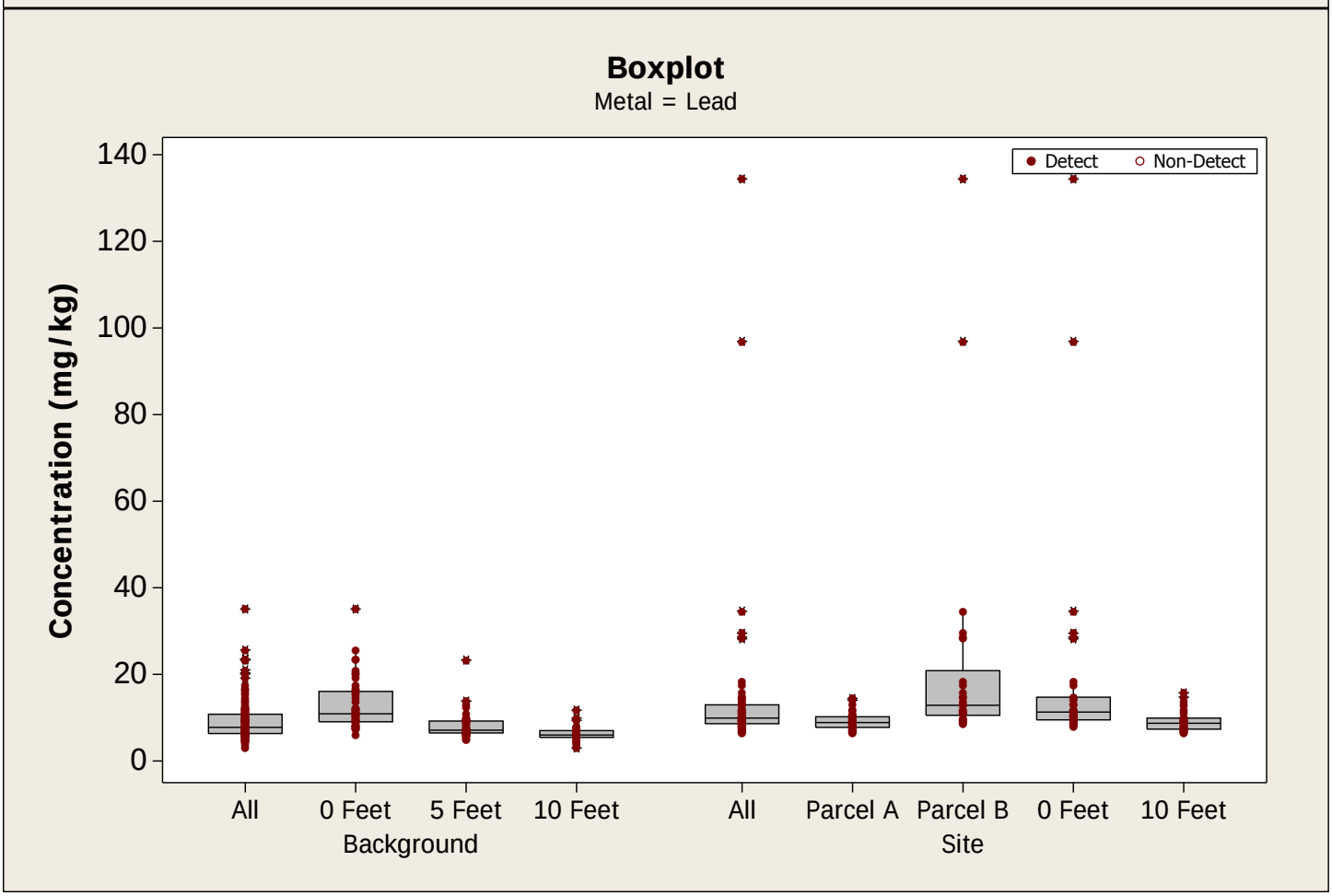

Boxplot
Metal = Cobalt
Concentration (mg/kg)
17.5
15.0
12.5
10.0
7.5
5.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

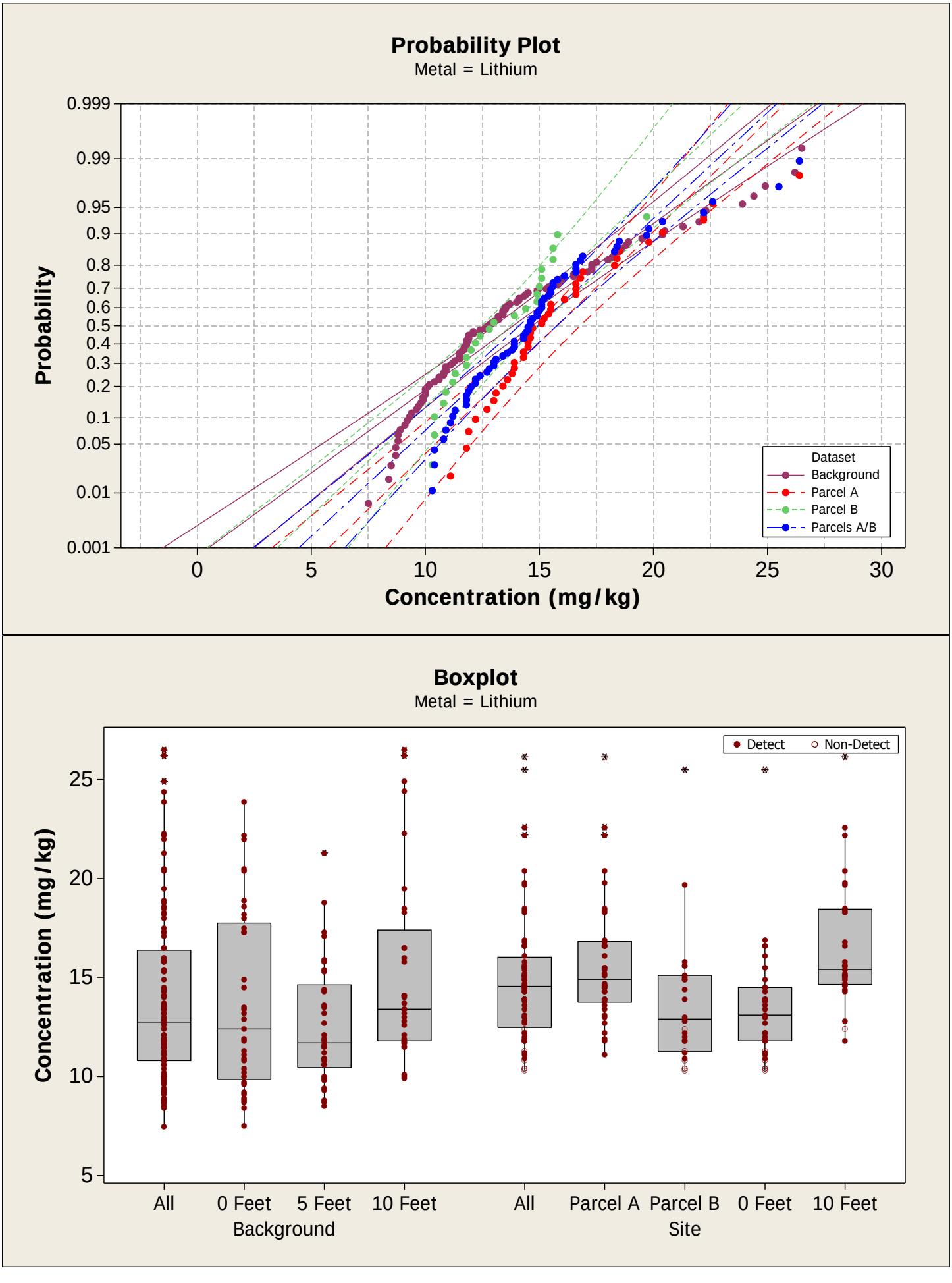

Probability Plot
Metal = Copper
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5
10
15
20
25
30
35
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Metal = Copper
Concentration (mg/kg)
30
25
20
15
10
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

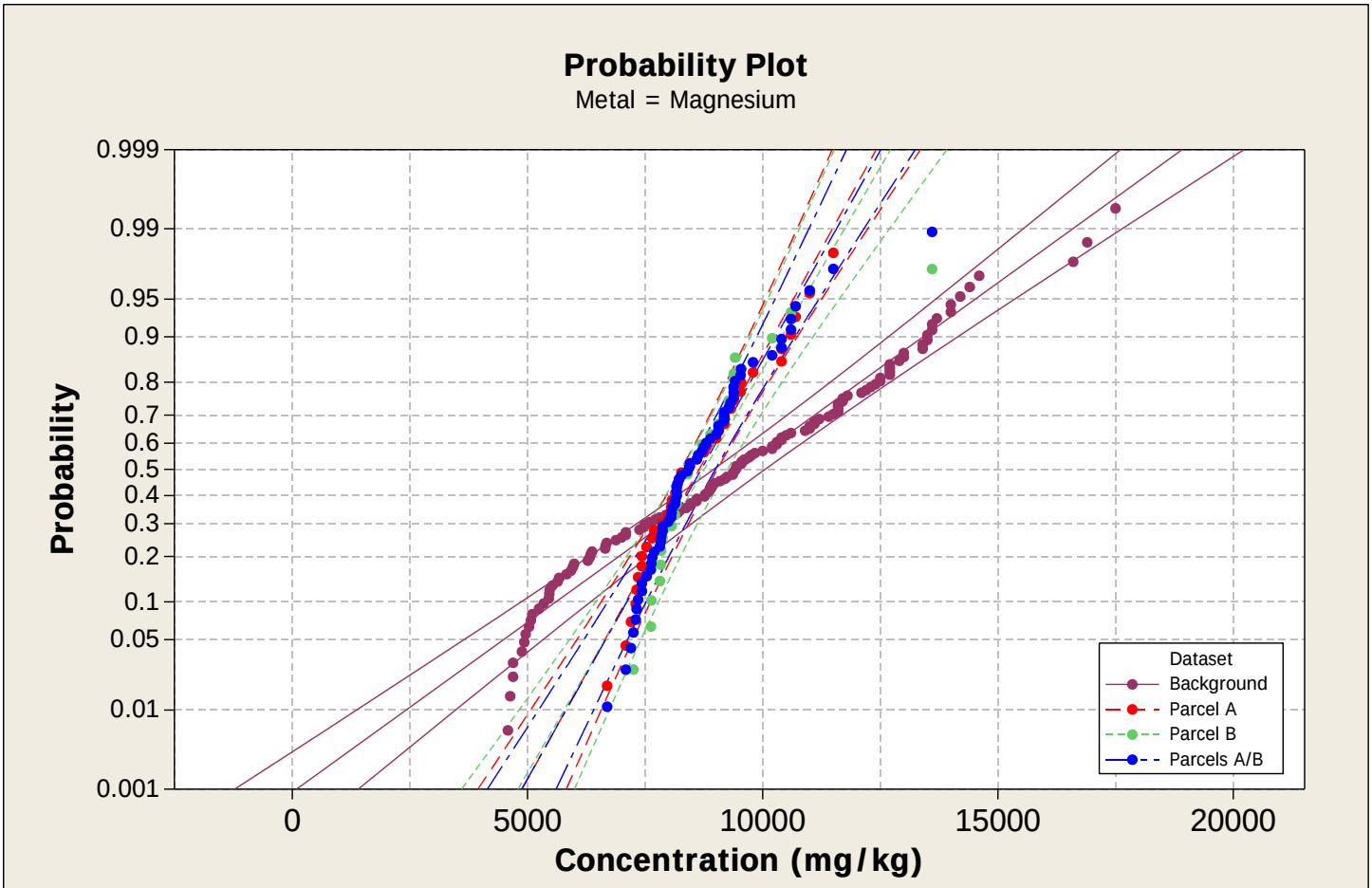

Probability Plot
Metal = Iron
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5000
10000
15000
20000
25000
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

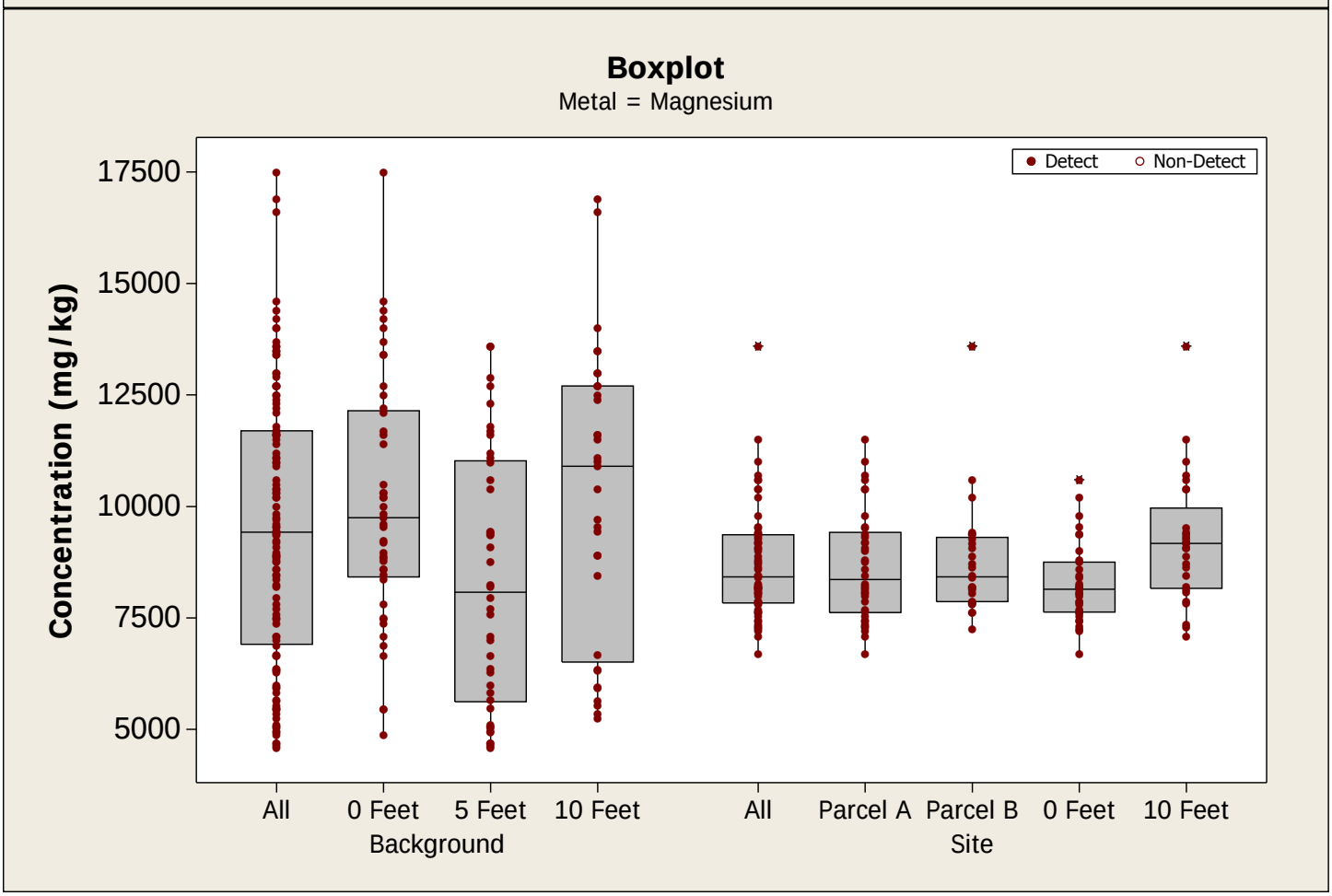

Boxplot
Metal = Iron
Concentration (mg/kg)
20000
17500
15000
12500
10000
7500
5000
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

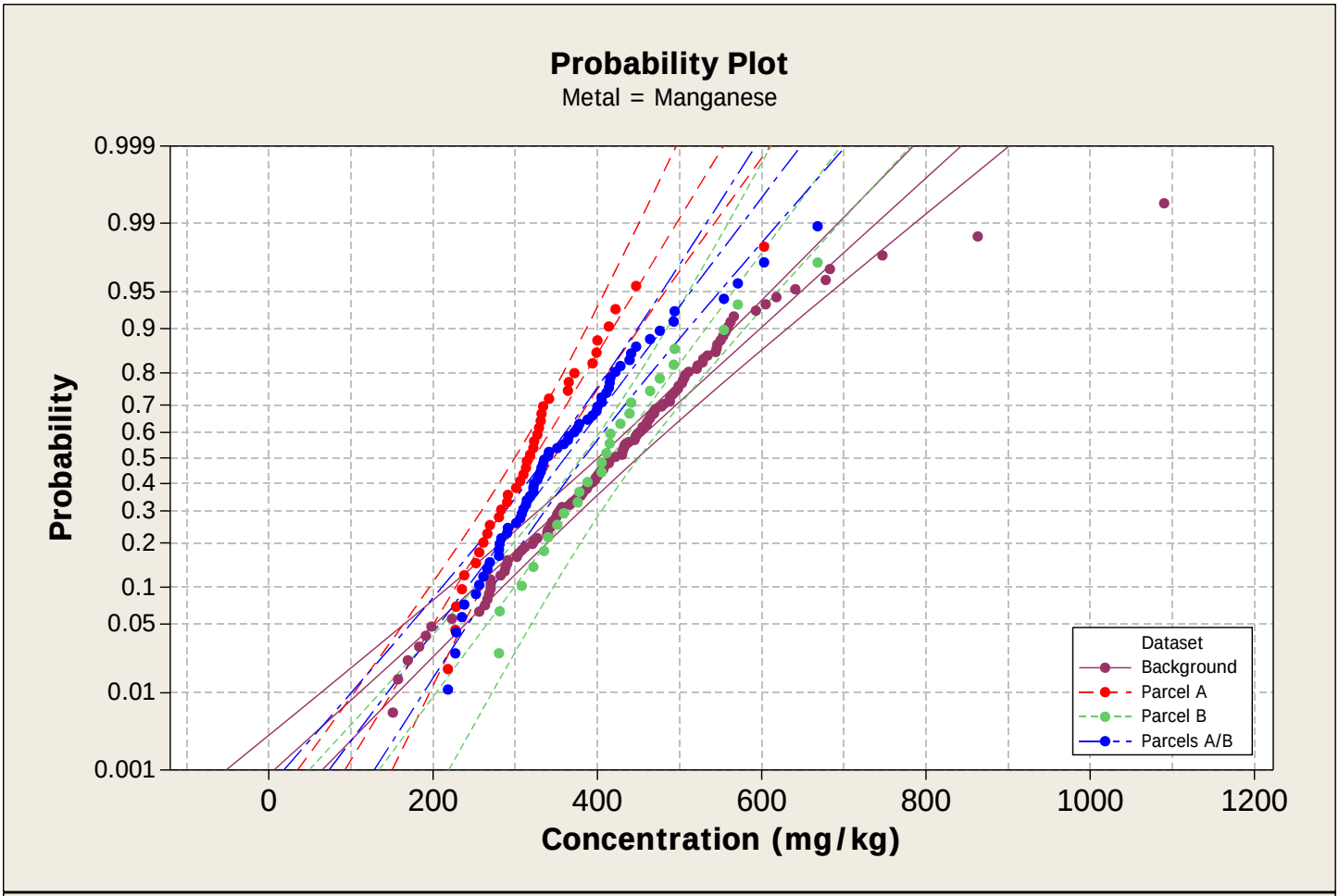

Probability Plot
Metal = Lead
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-100
-50
0
50
100
150
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

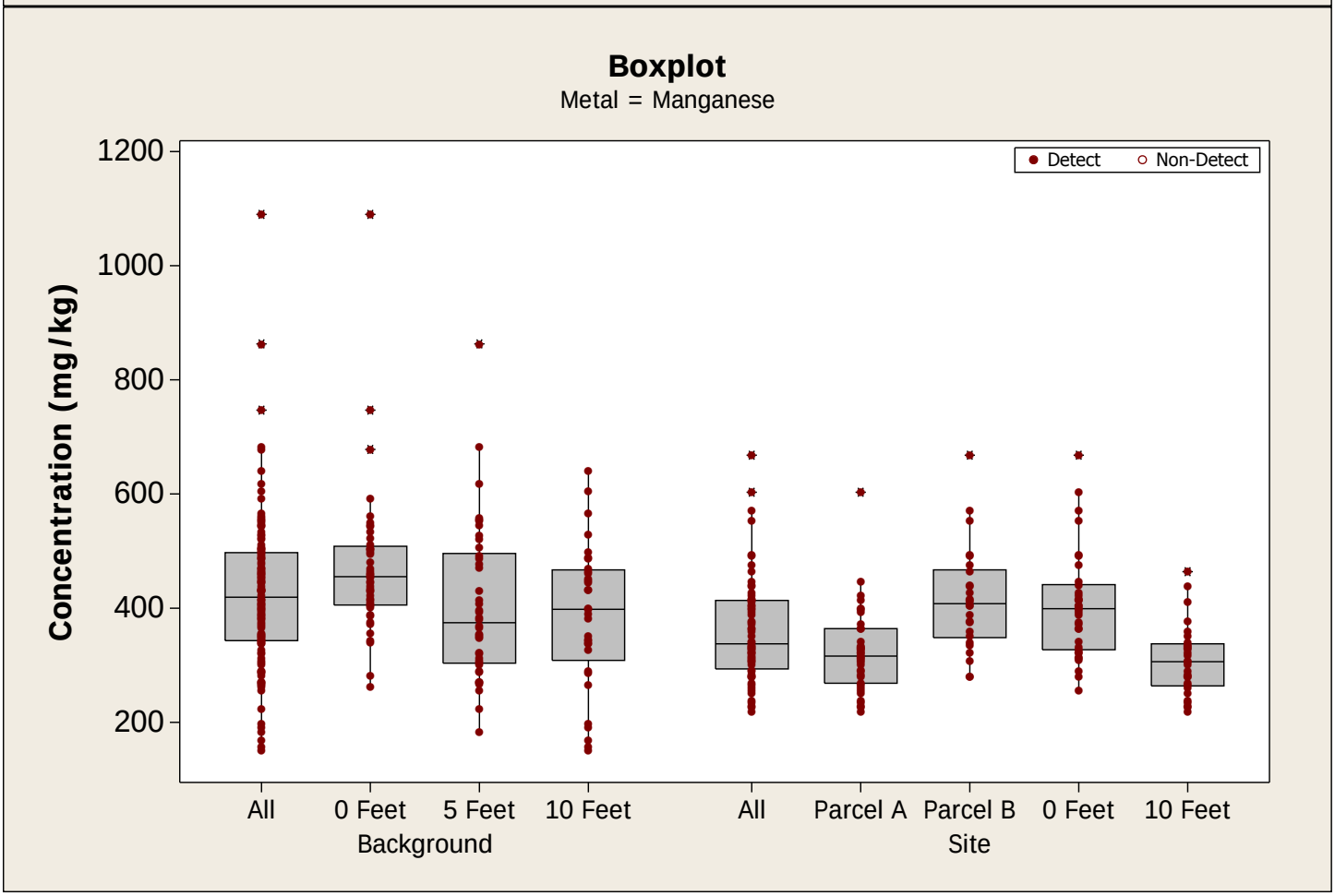

Boxplot
Metal = Lead
Concentration (mg/kg)
140
120
100
80
60
40
20
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

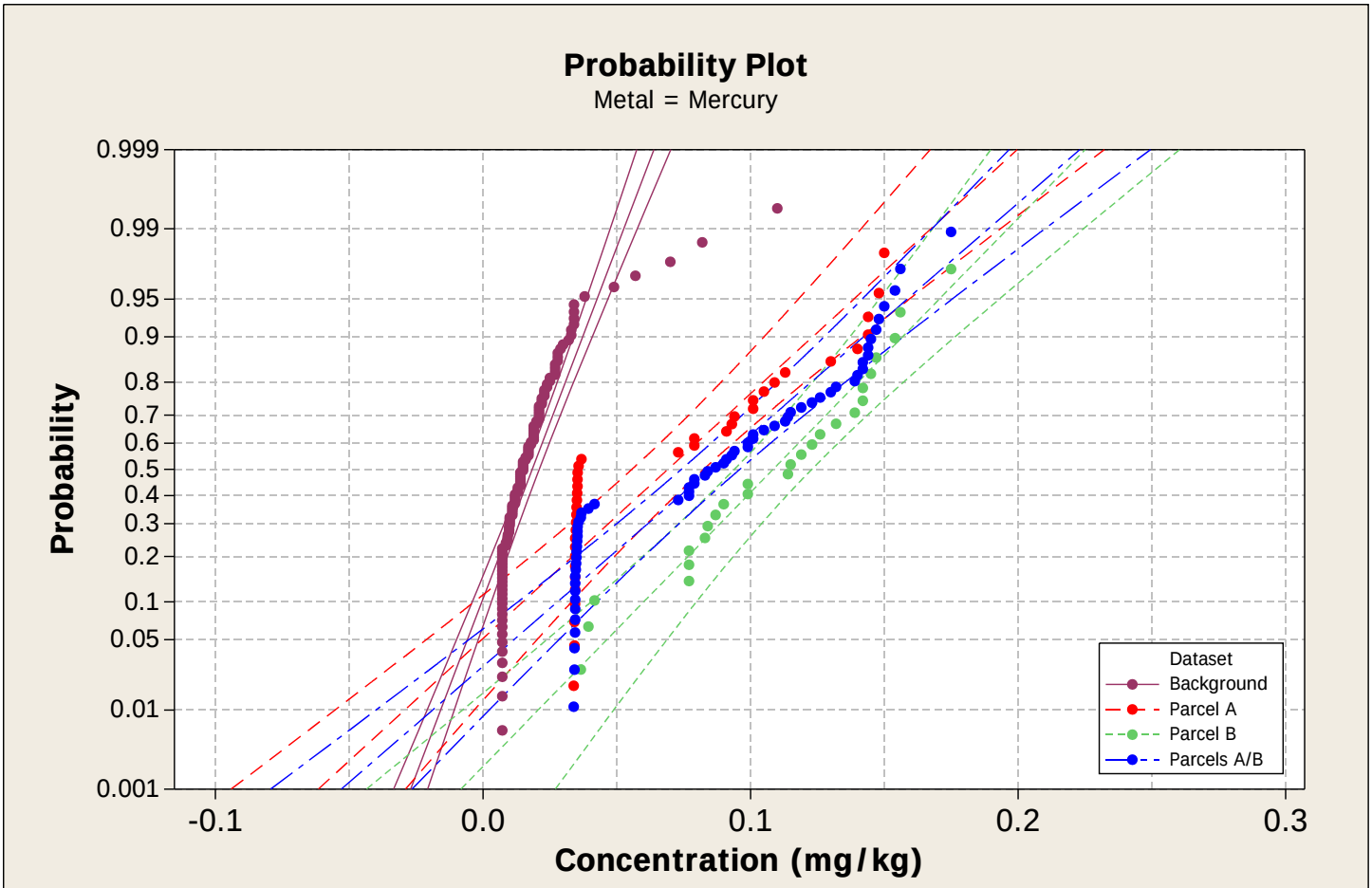

Probability Plot
Metal = Lithium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5
10
15
20
25
30
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Metal = Lithium
Concentration (mg/kg)
25
20
15
10
5
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

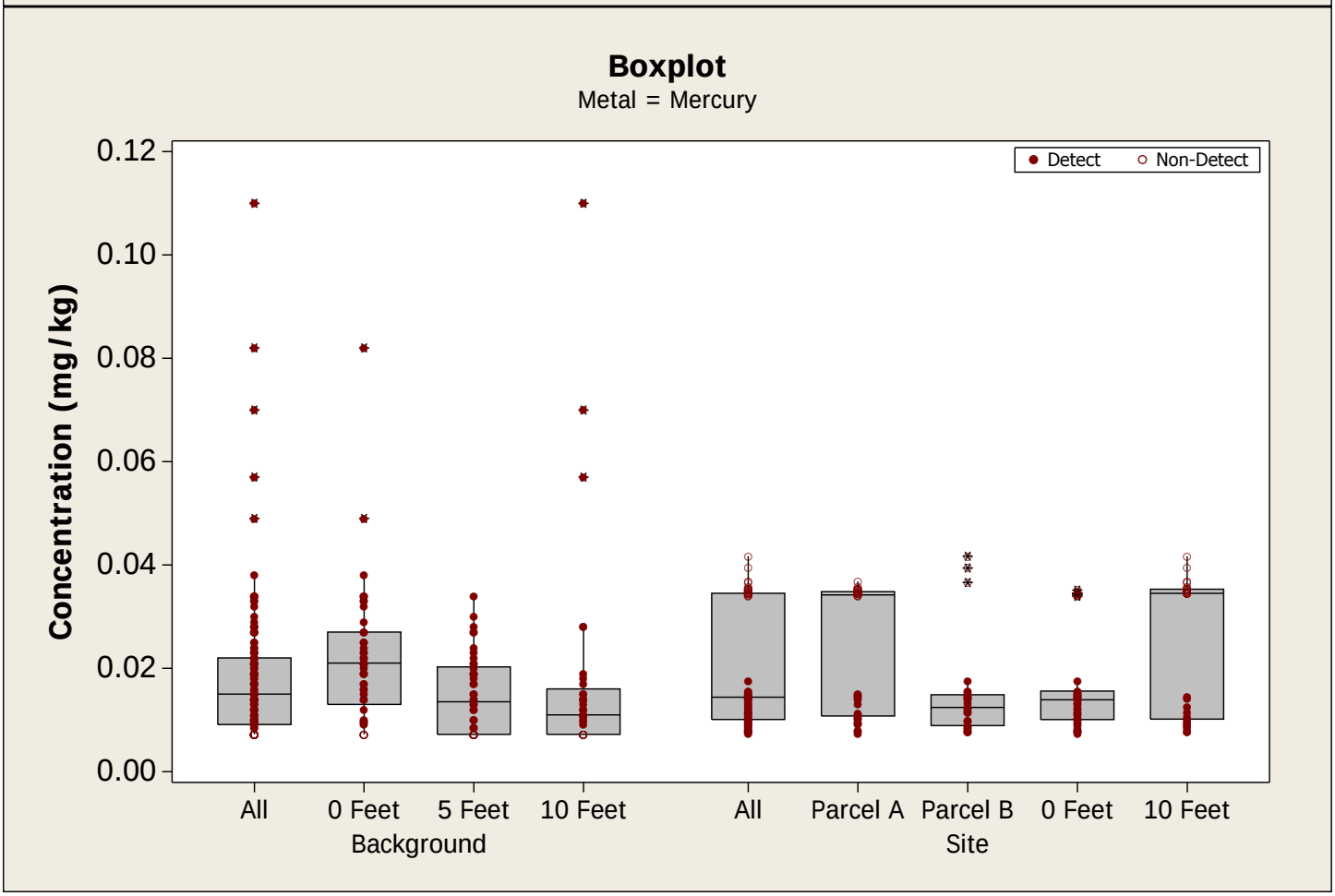

Probability Plot
Metal = Magnesium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5000
10000
15000
20000
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

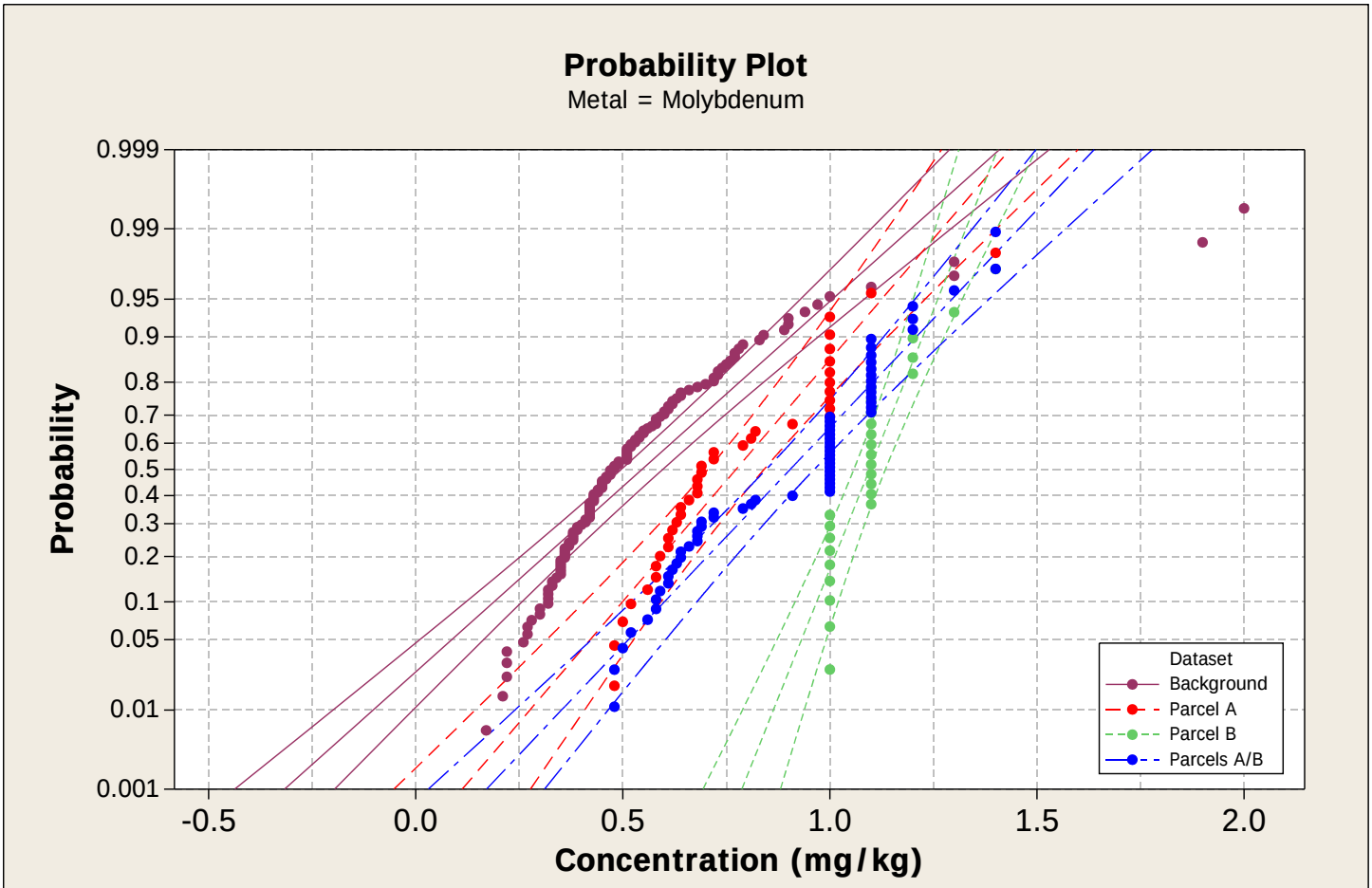

Boxplot
Metal = Magnesium
Concentration (mg/kg)
17500
15000
12500
10000
7500
5000
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

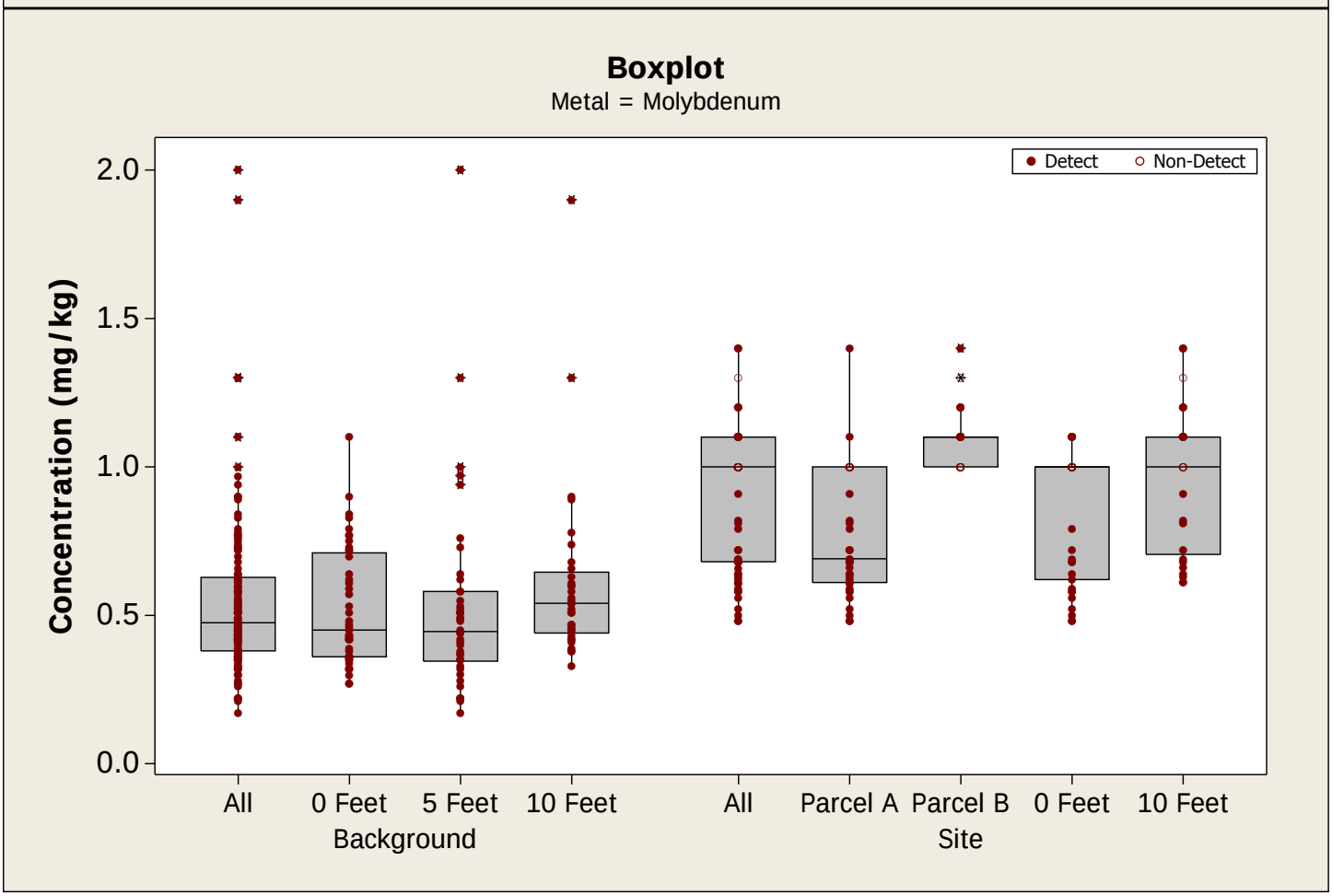

Probability Plot
Metal = Manganese
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
200
400
600
800
1000
1200
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

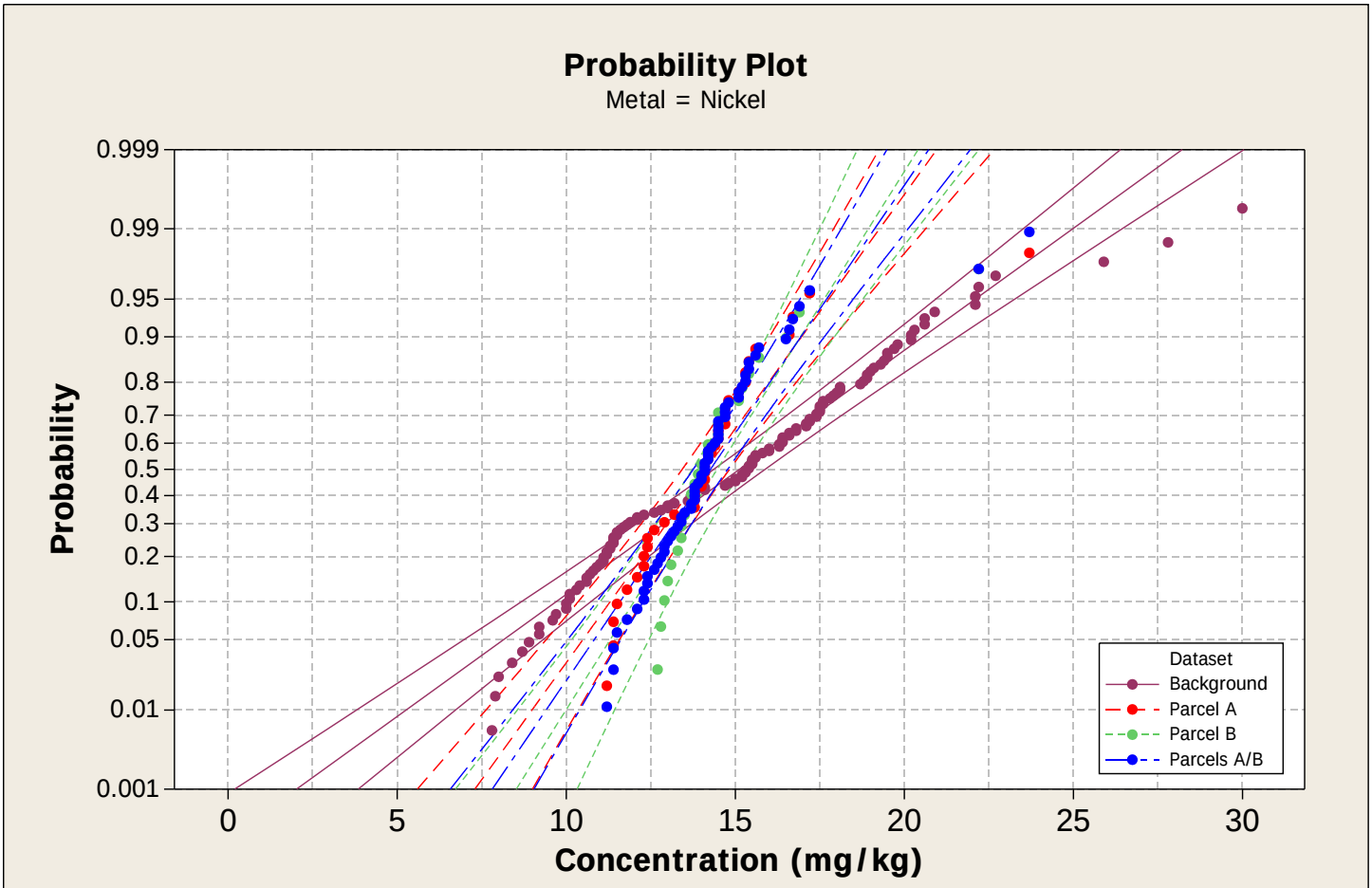

Boxplot
Metal = Manganese
Concentration (mg/kg)
1200
1000
800
600
400
200
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

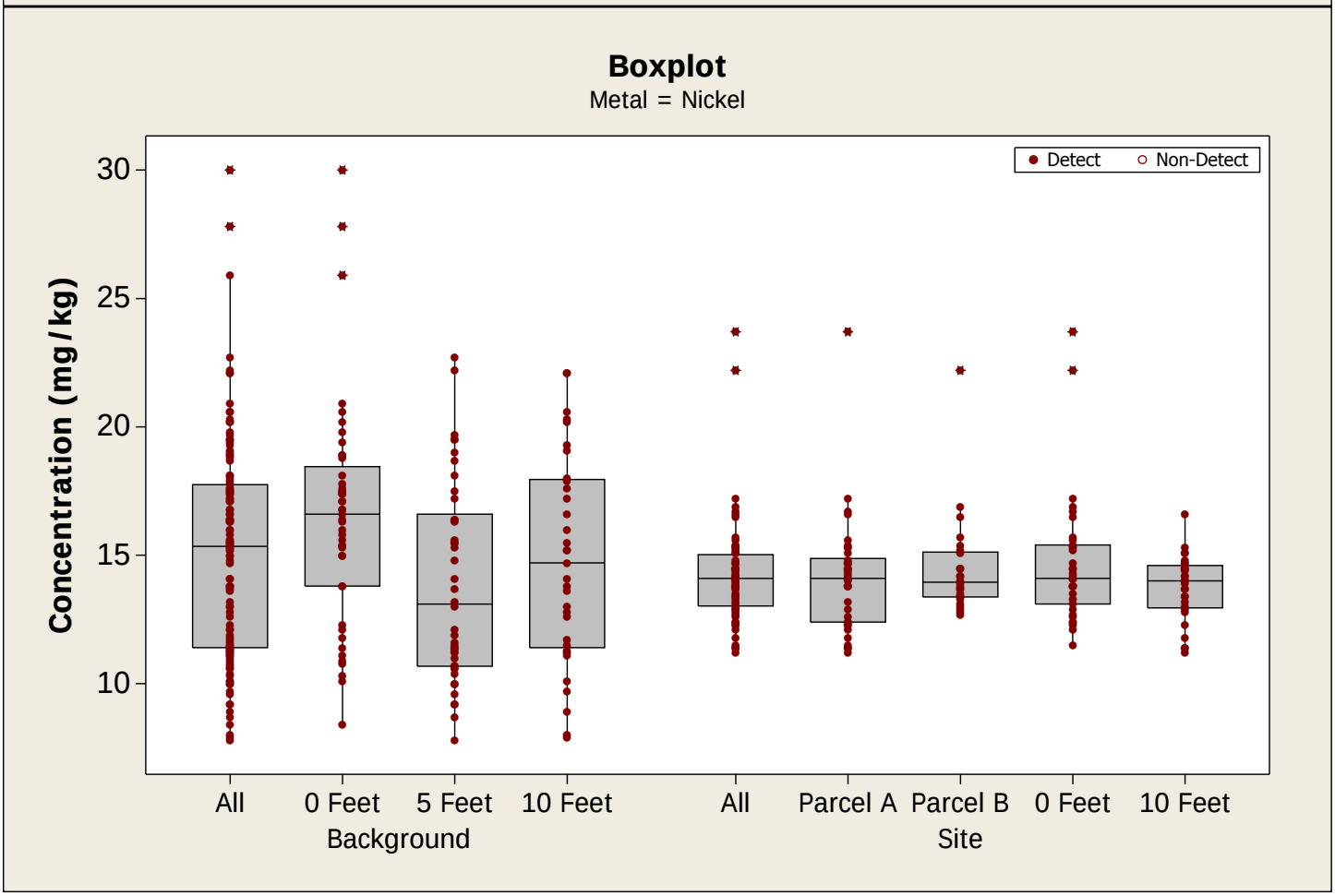

Probability Plot
Metal = Mercury
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.1
0.0
0.1
0.2
0.3
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

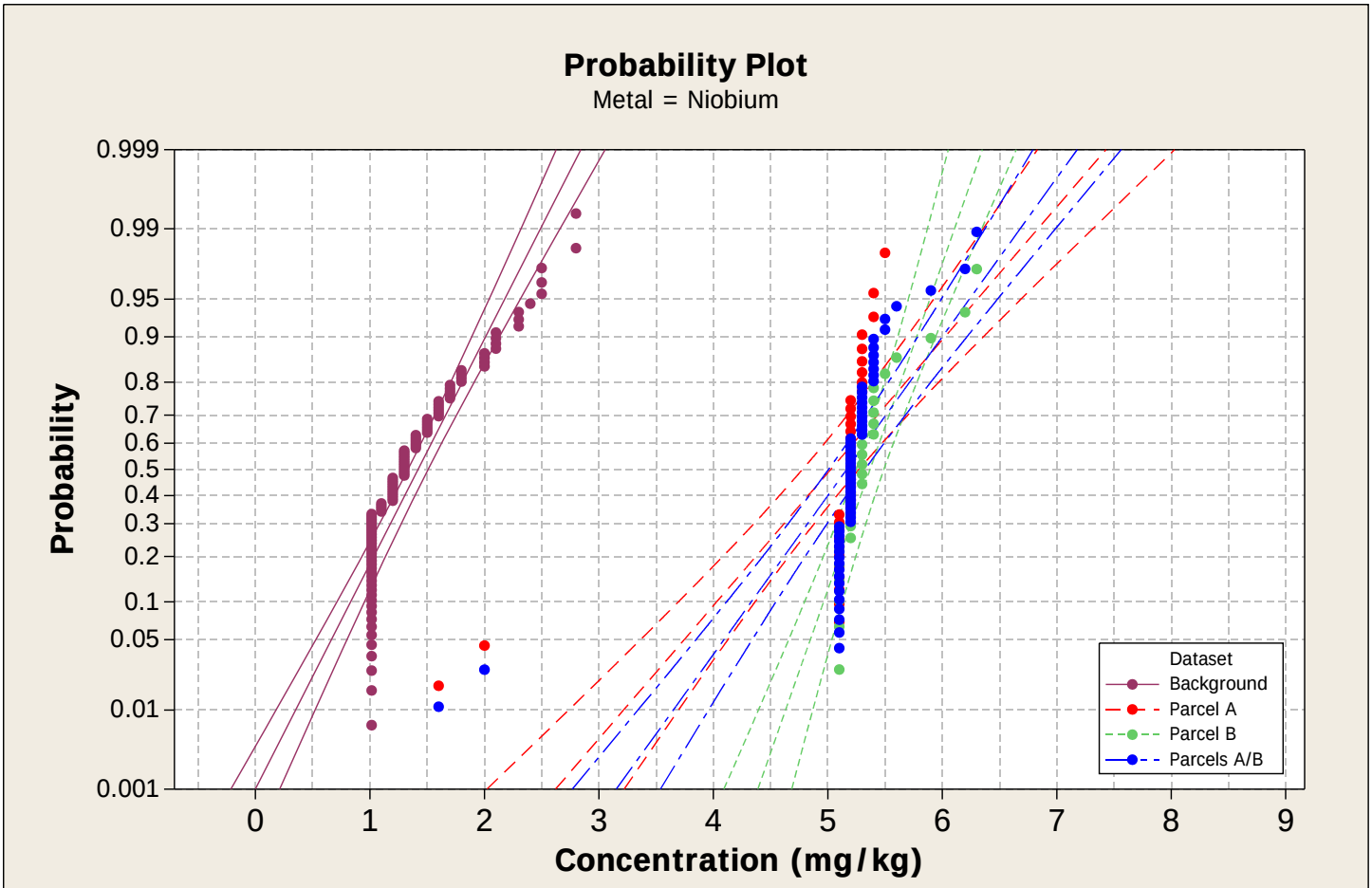

Boxplot
Metal = Mercury
Concentration (mg/kg)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

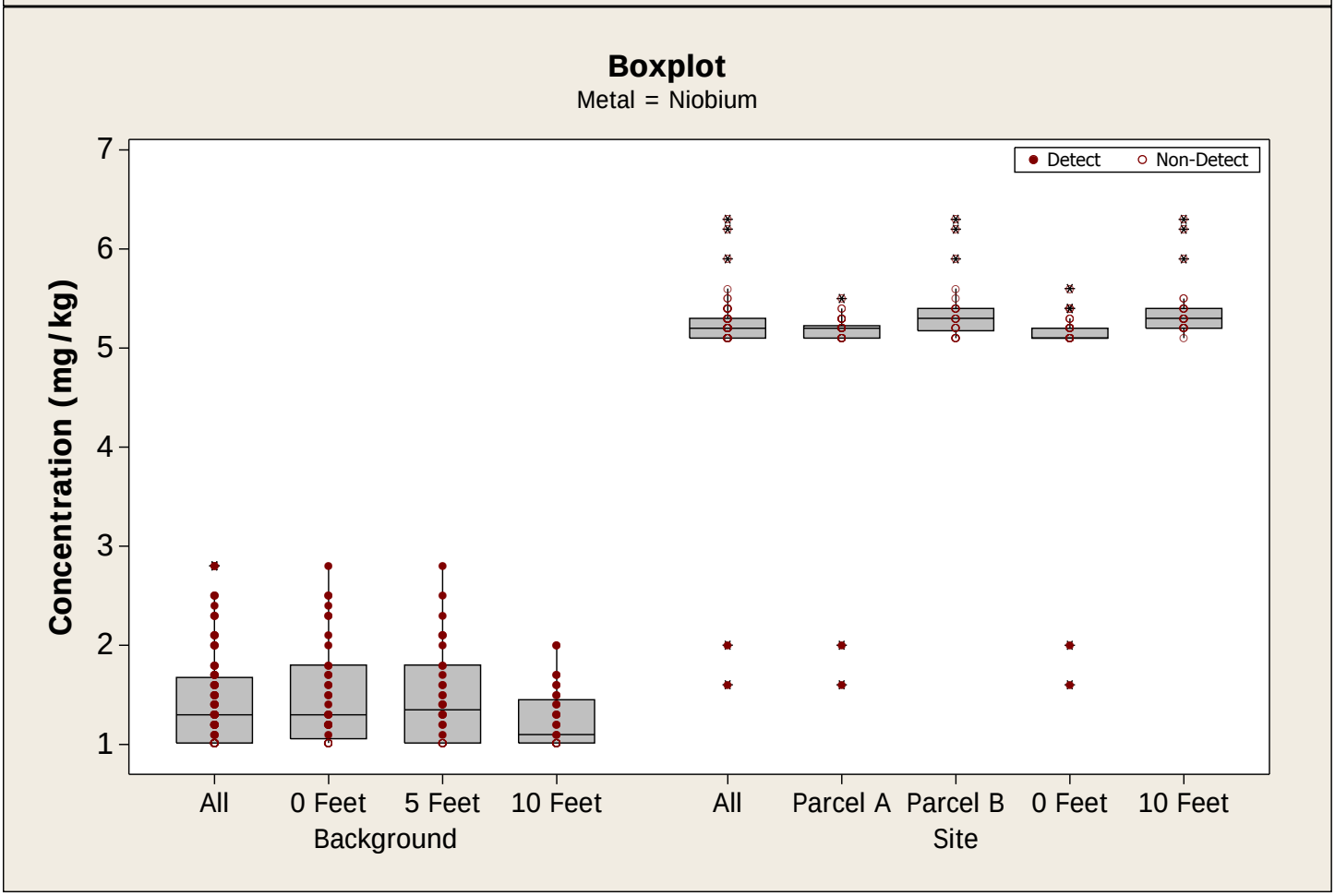

Probability Plot
Metal = Molybdenum
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.5
0.0
0.5
1.0
1.5
2.0
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

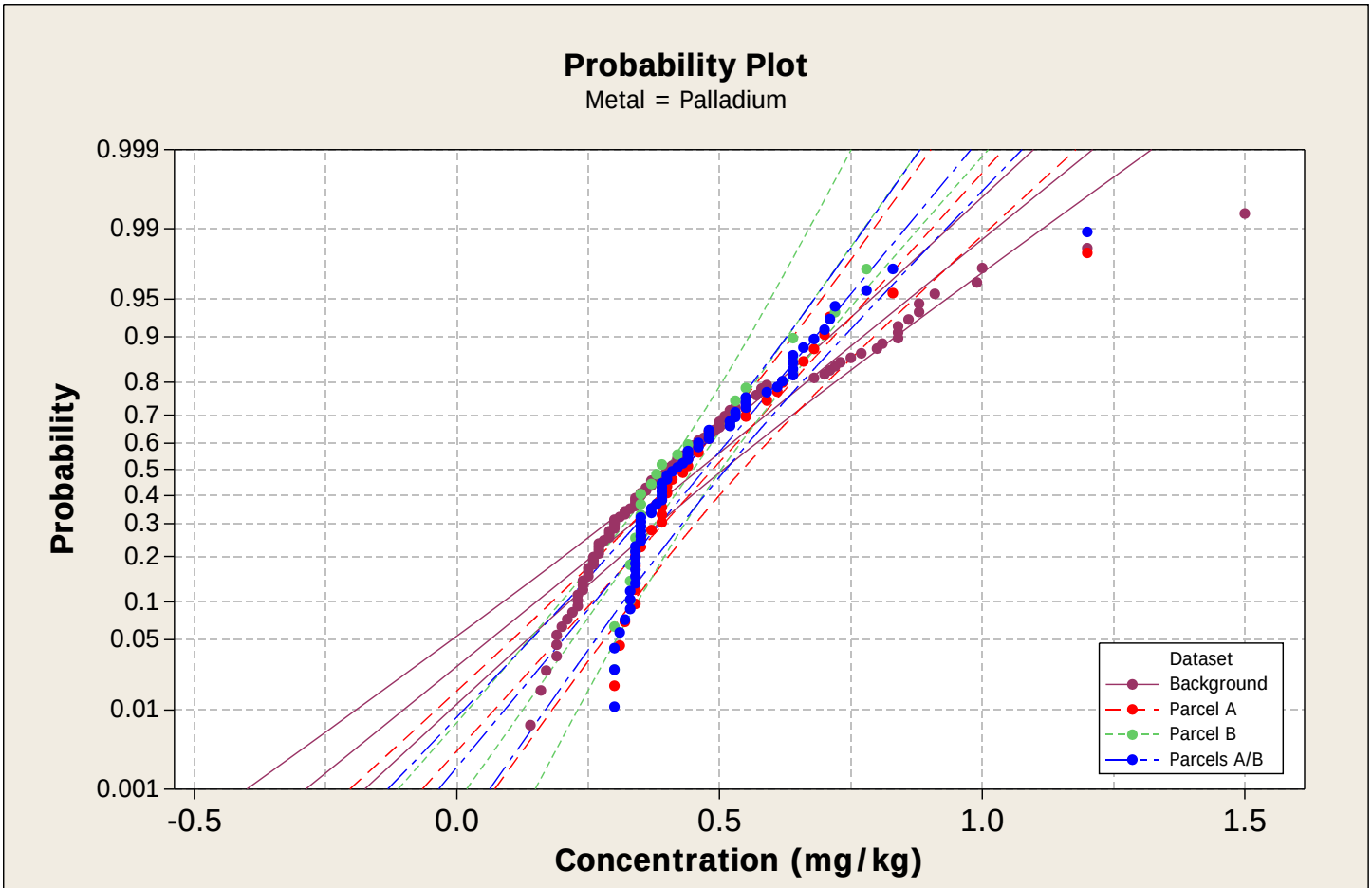

Boxplot
Metal = Molybdenum
Concentration (mg/kg)
2.0
1.5
1.0
0.5
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

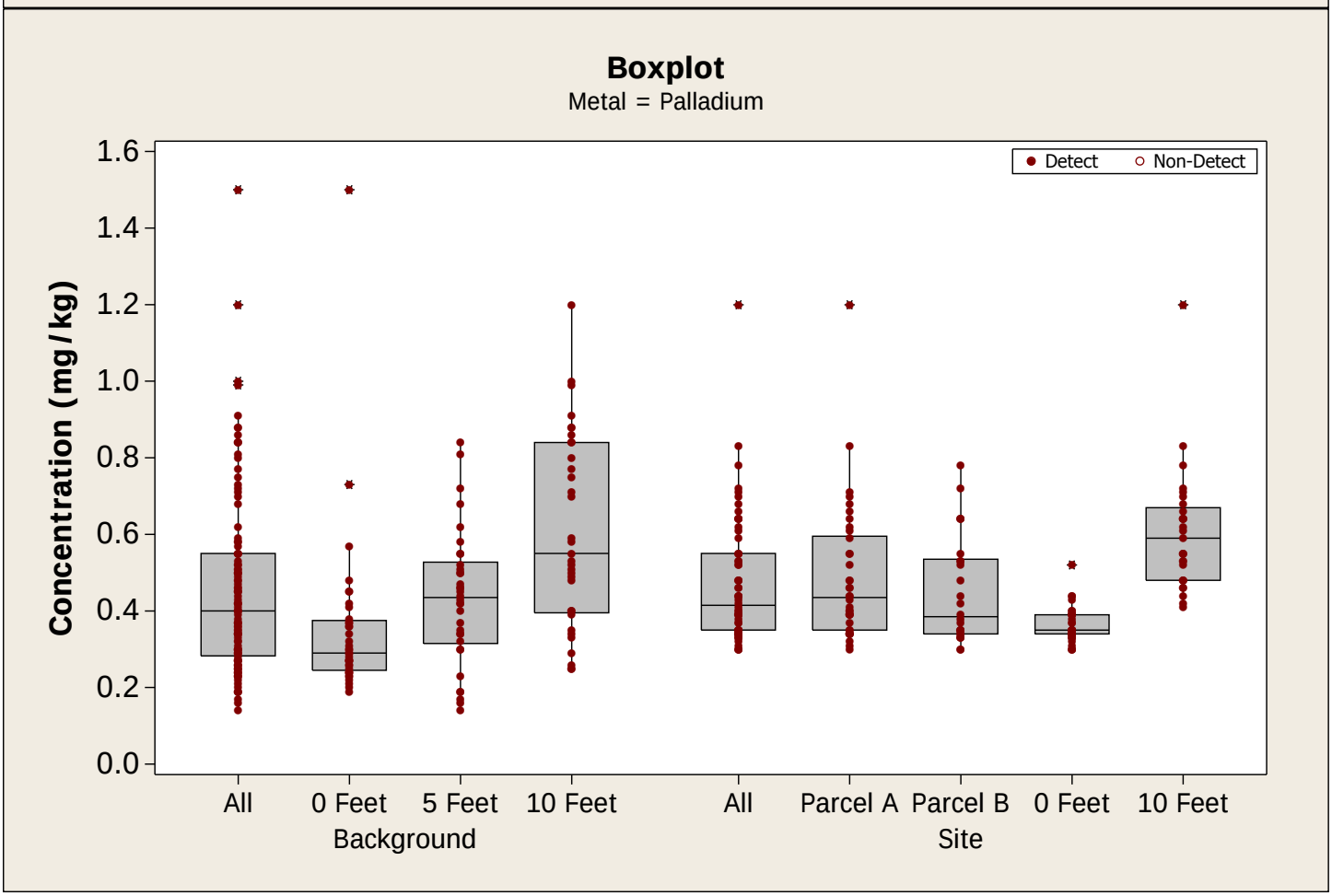

Probability Plot
Metal = Nickel
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
5
10
15
20
25
30
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

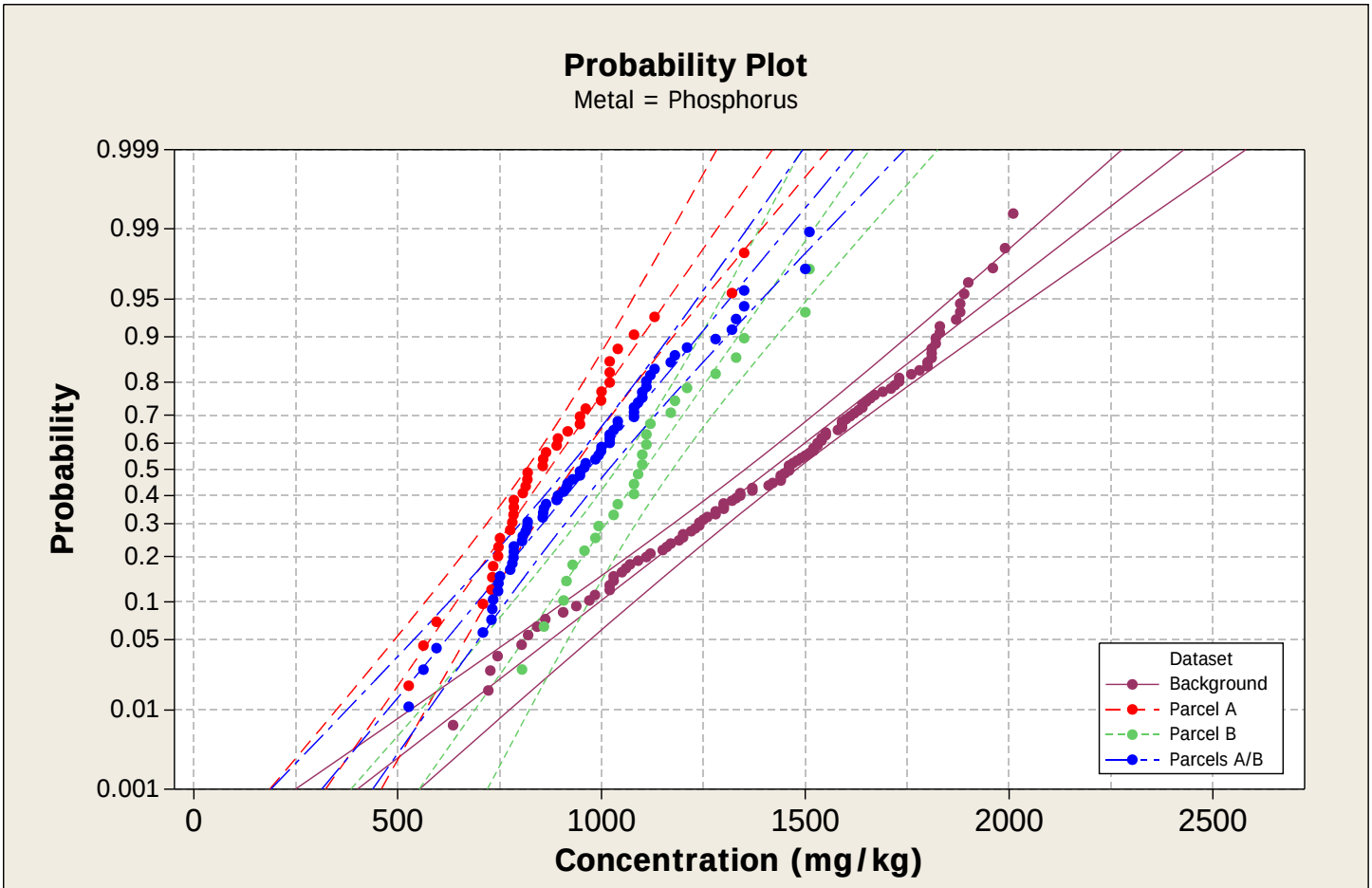

Boxplot
Metal = Nickel
Concentration (mg/kg)
30
25
20
15
10
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

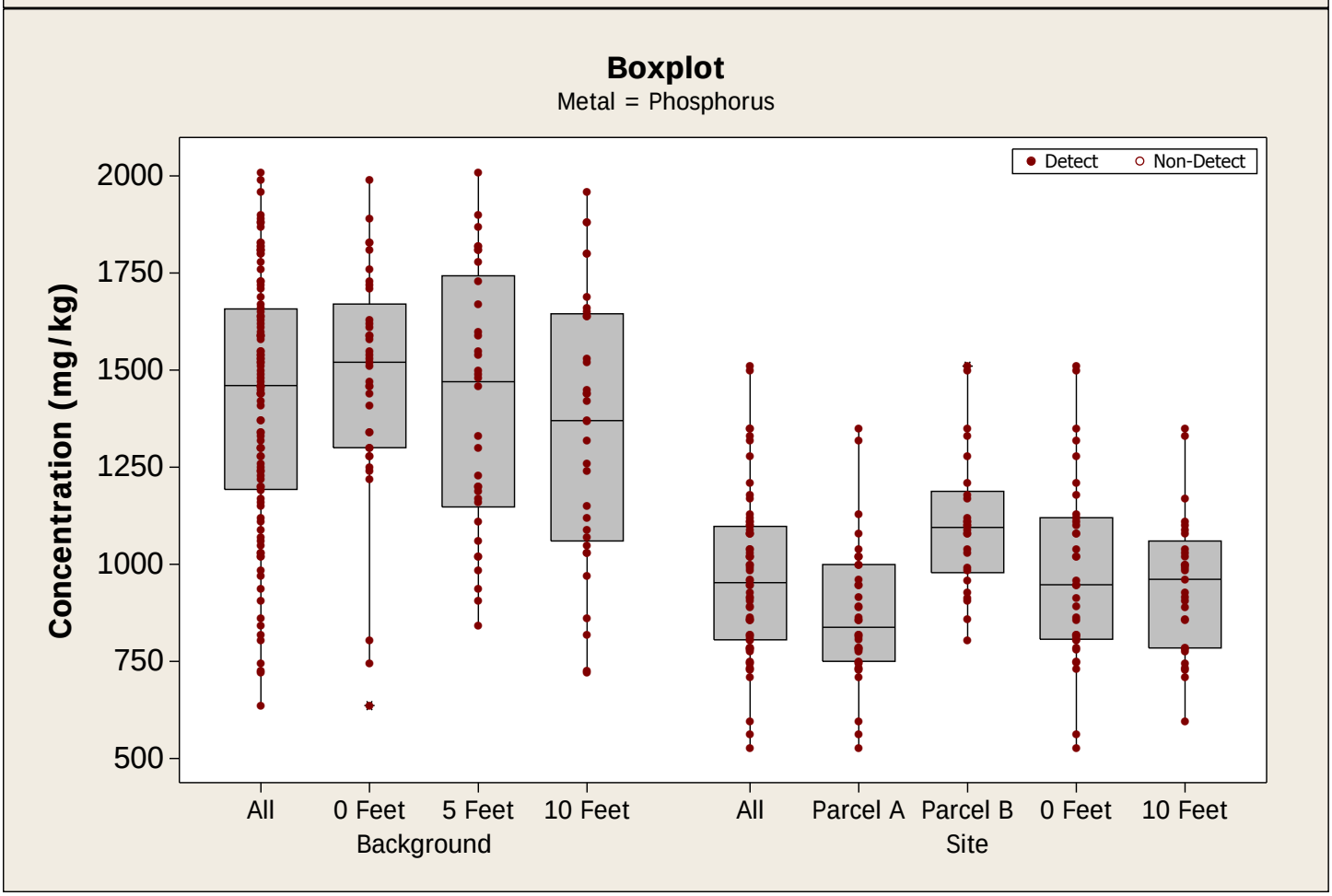

Probability Plot
Metal = Niobium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
1
2
3
4
5
6
7
8
9
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

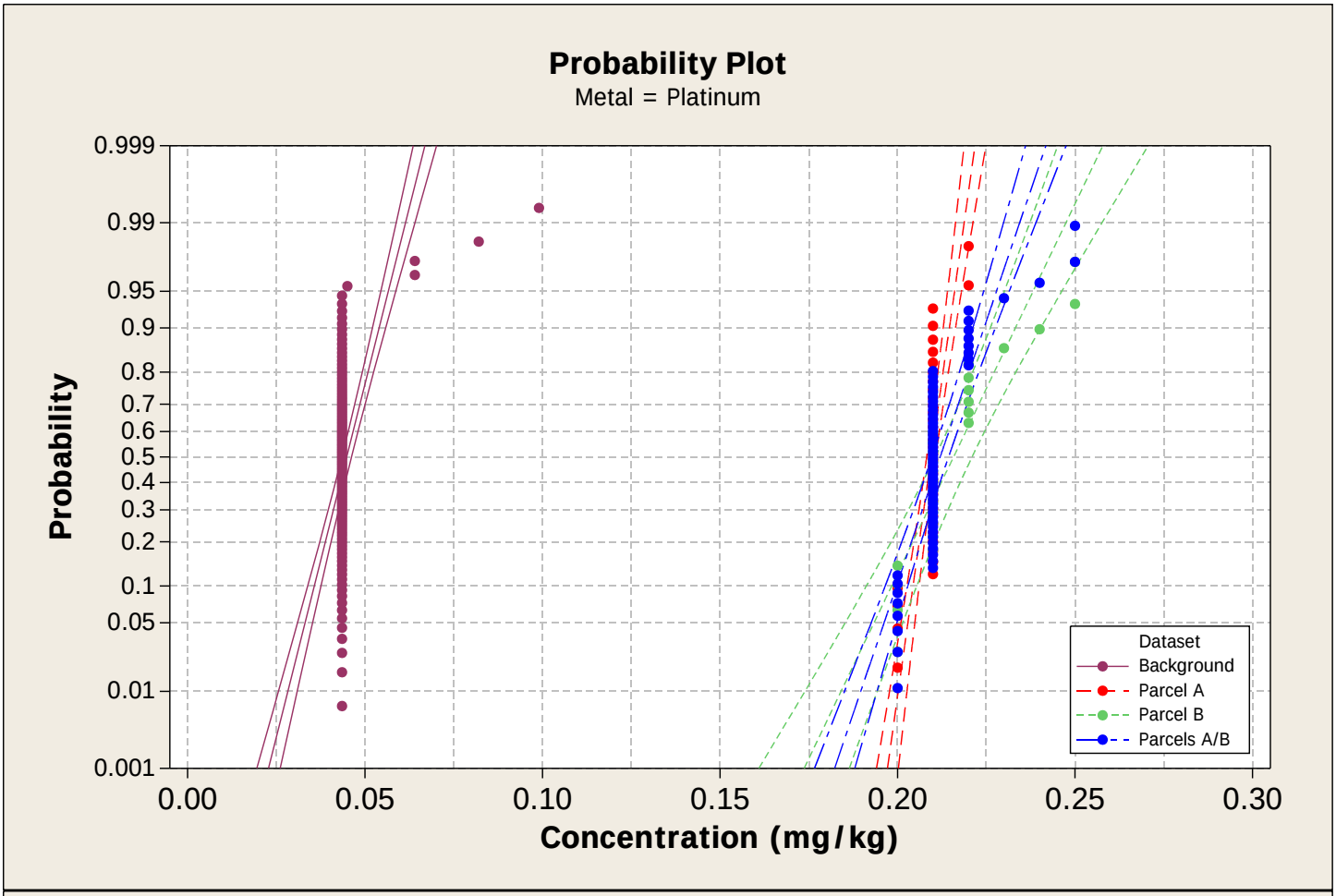

Boxplot
Metal = Niobium
Concentration (mg/kg)
7
6
5
4
3
2
1
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

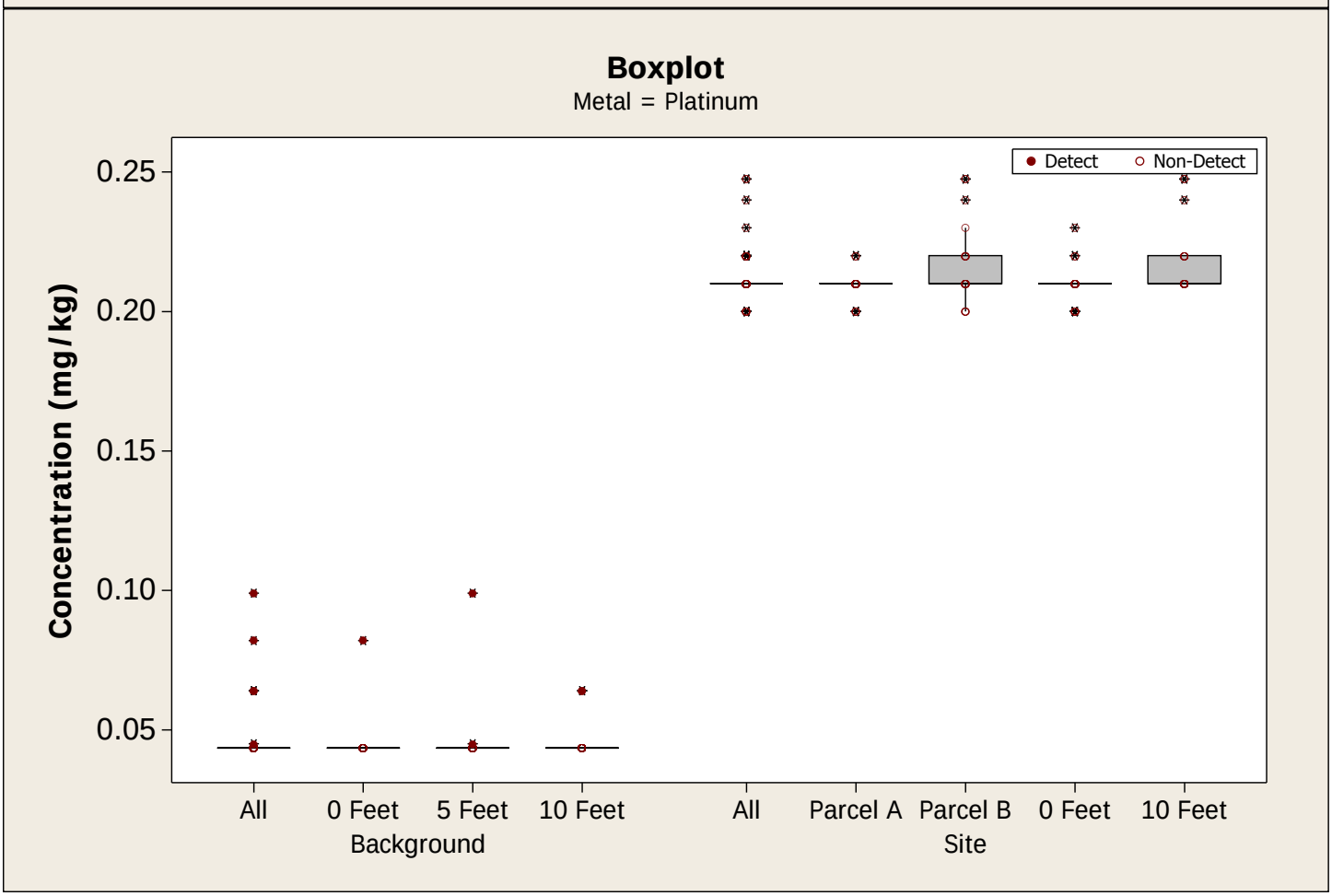

Probability Plot
Metal = Palladium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.5
0.0
0.5
1.0
1.5
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

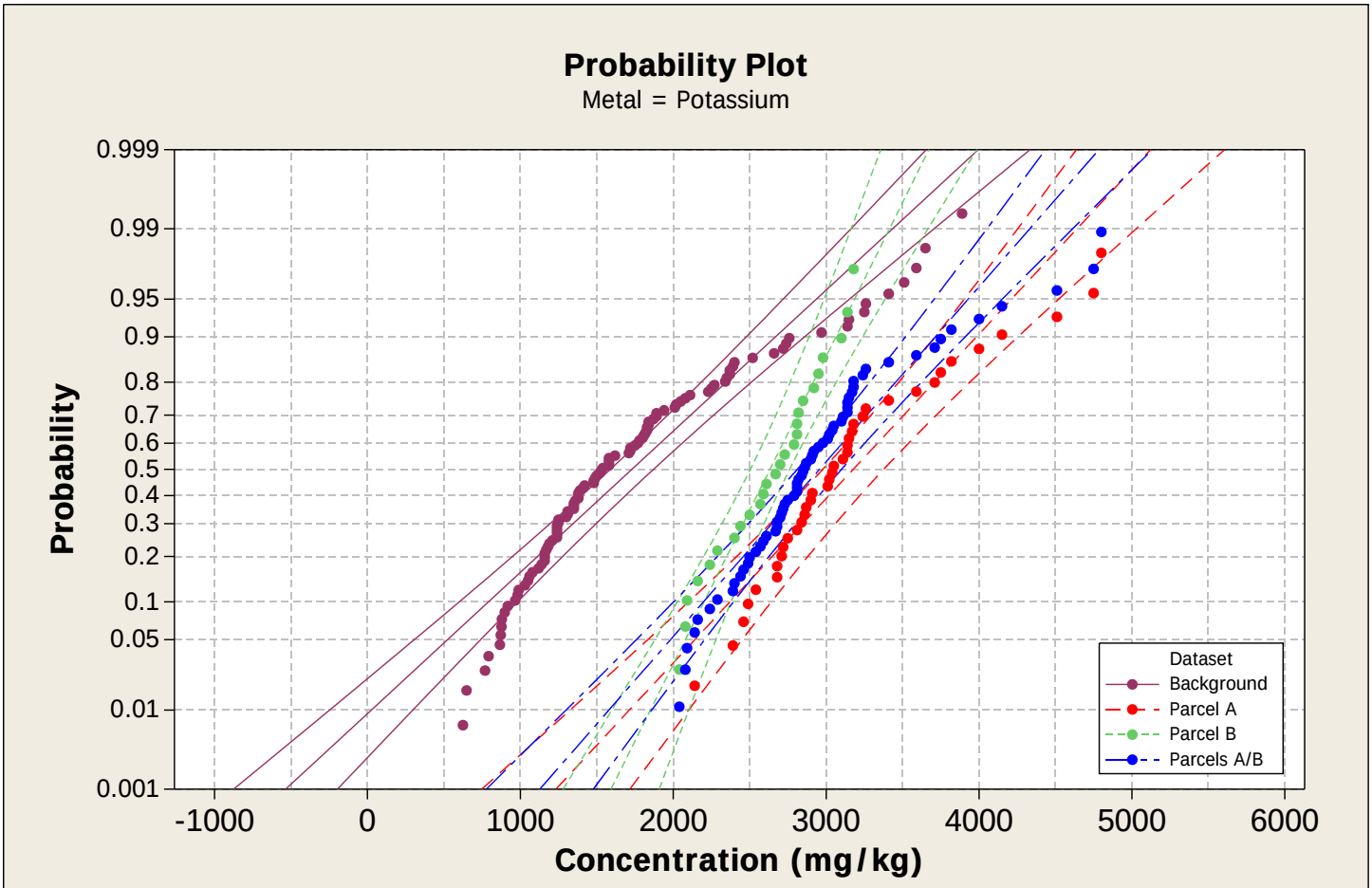

Boxplot
Metal = Palladium
Concentration (mg/kg)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

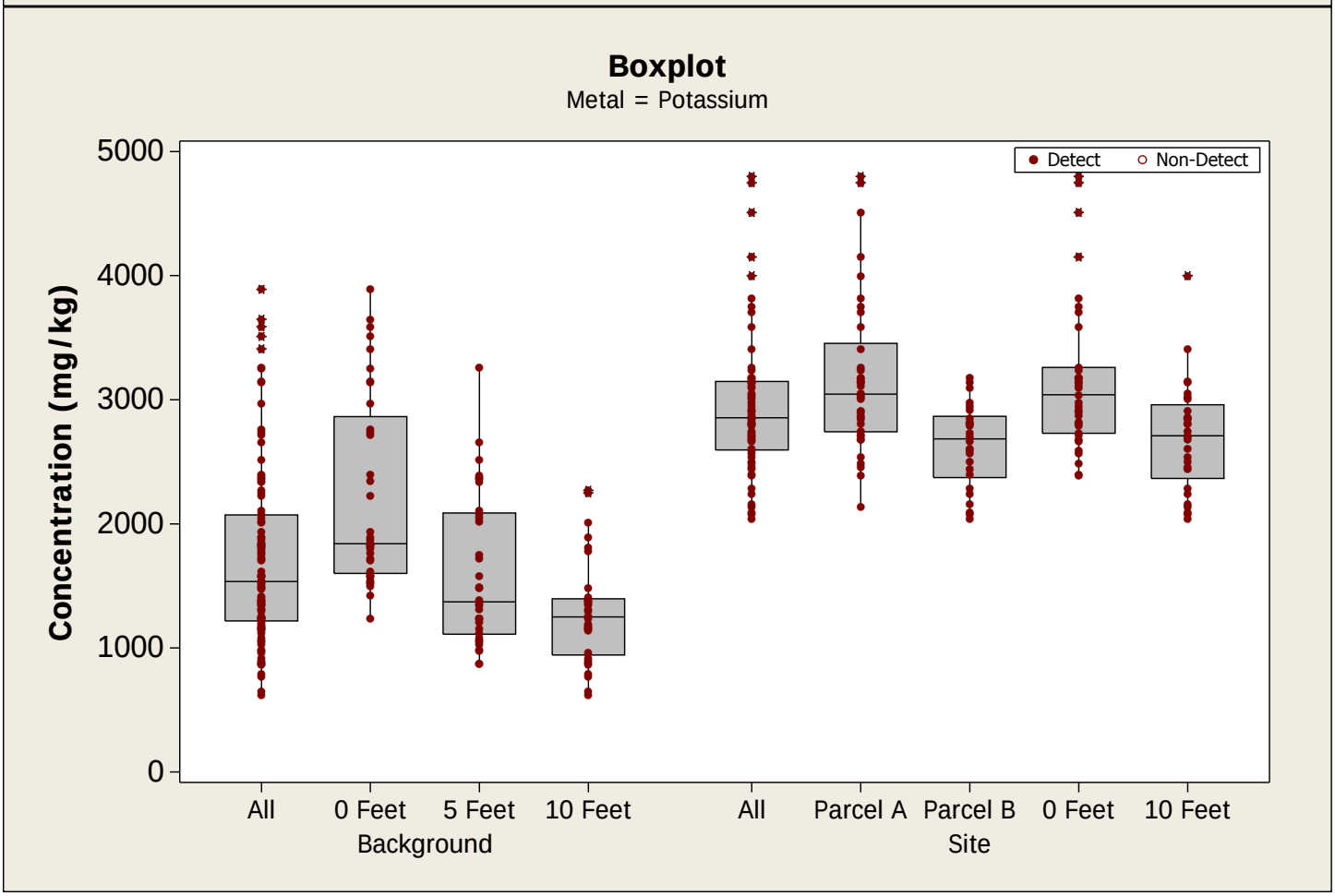

Probability Plot
Metal = Phosphorus
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
500
1000
1500
2000
2500
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

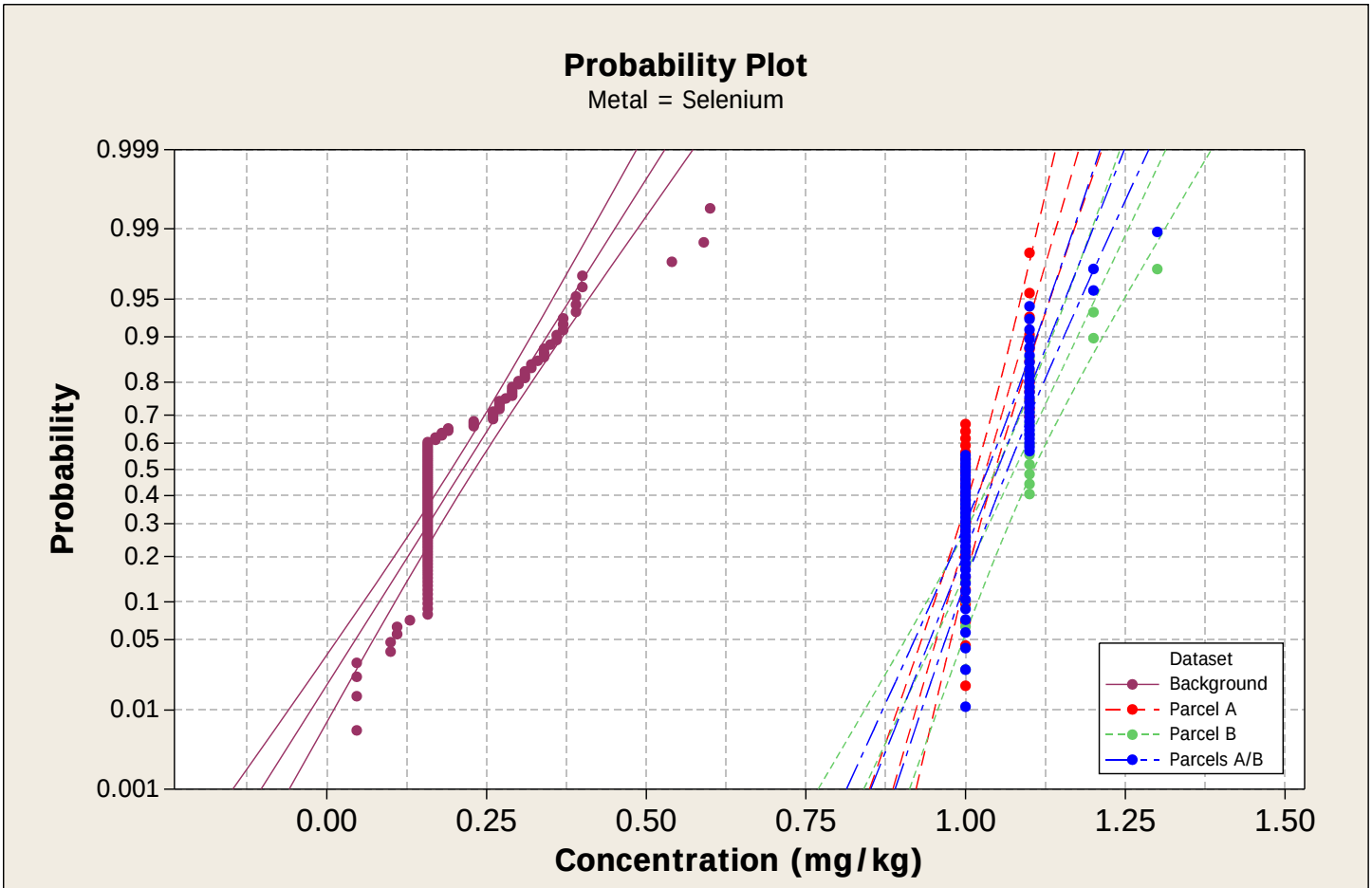

Boxplot
Metal = Phosphorus
Concentration (mg/kg)
2000
1750
1500
1250
1000
750
500
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

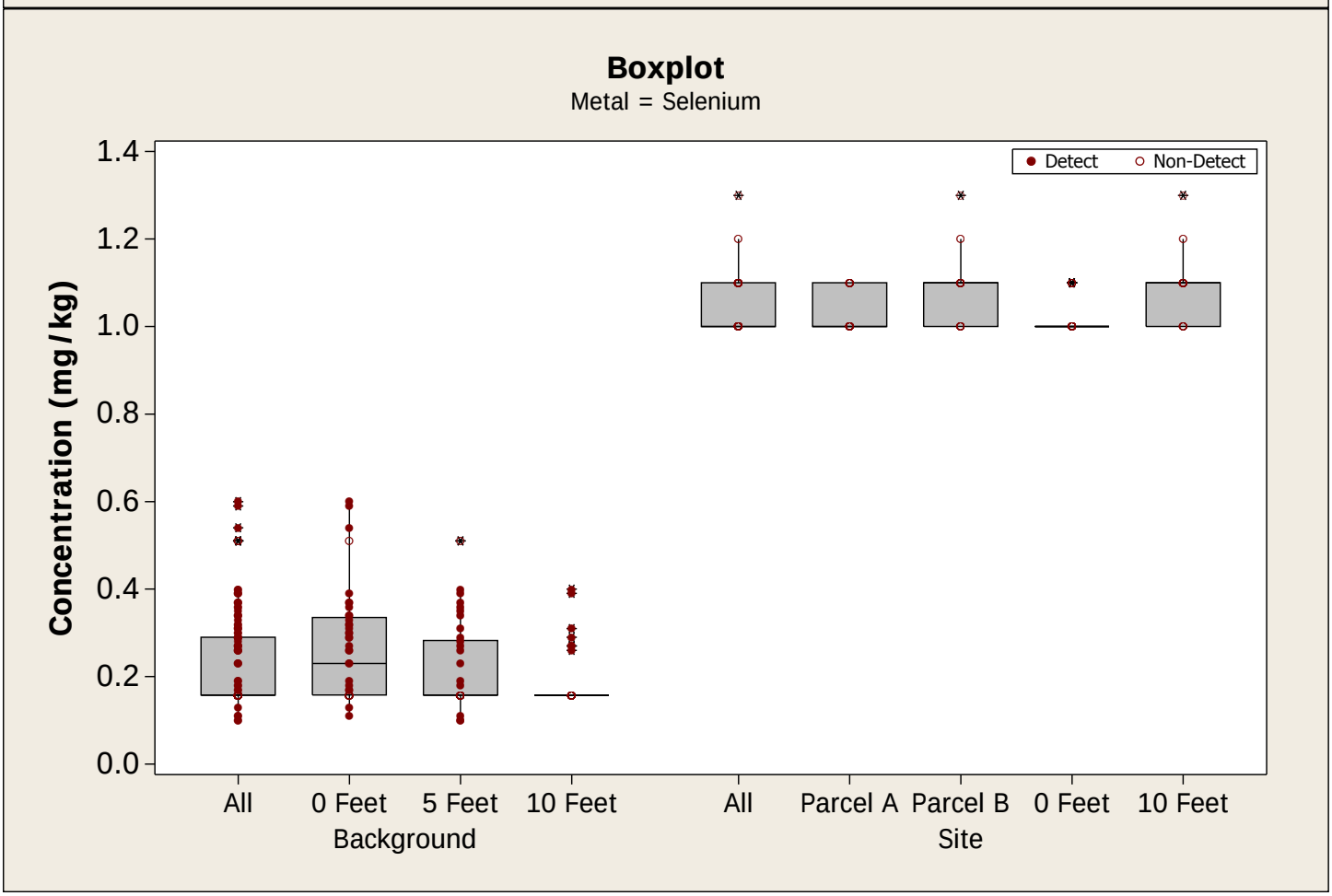

Probability Plot
Metal = Platinum
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

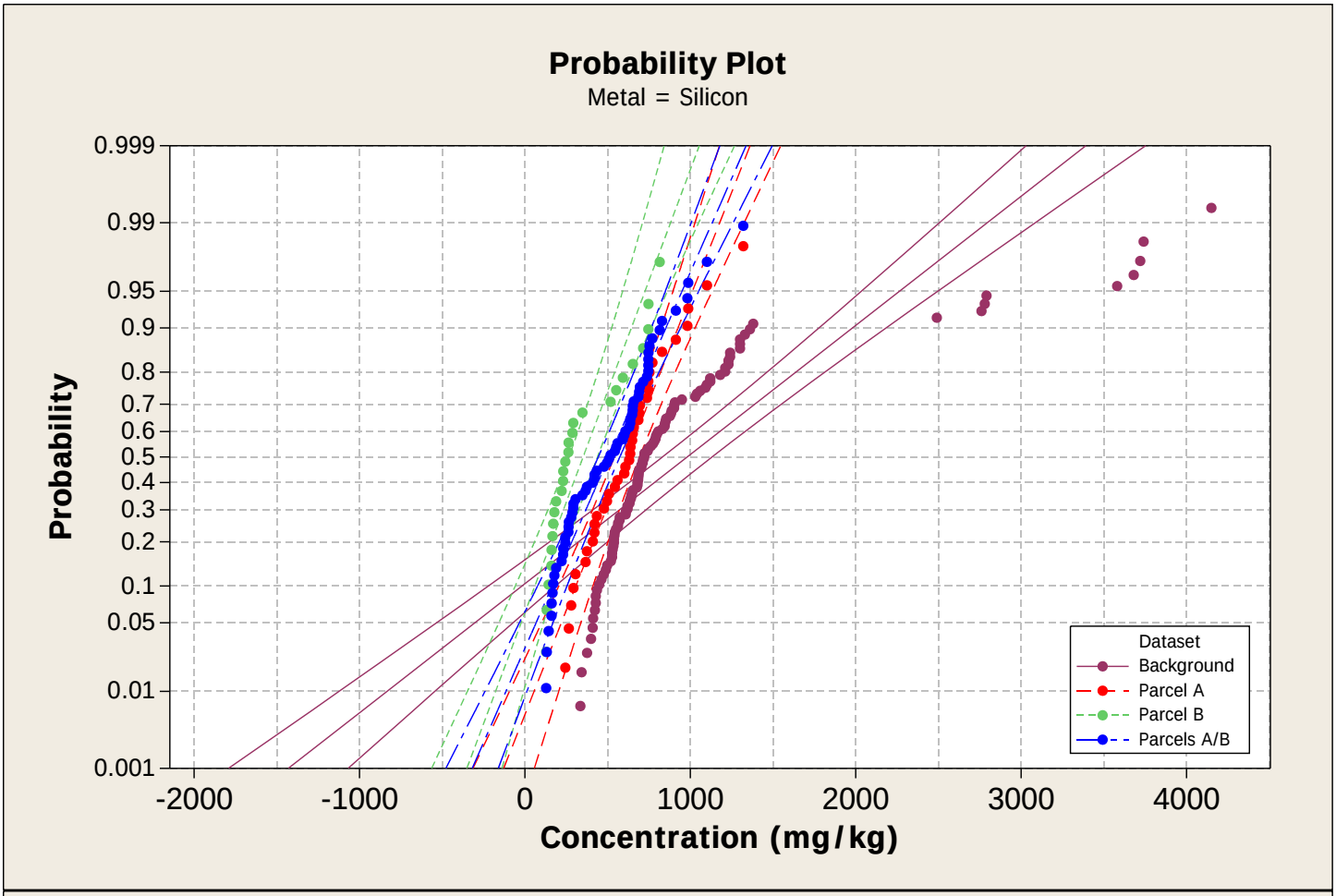

Boxplot
Metal = Platinum
Concentration (mg/kg)
0.25
0.20
0.15
0.10
0.05
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

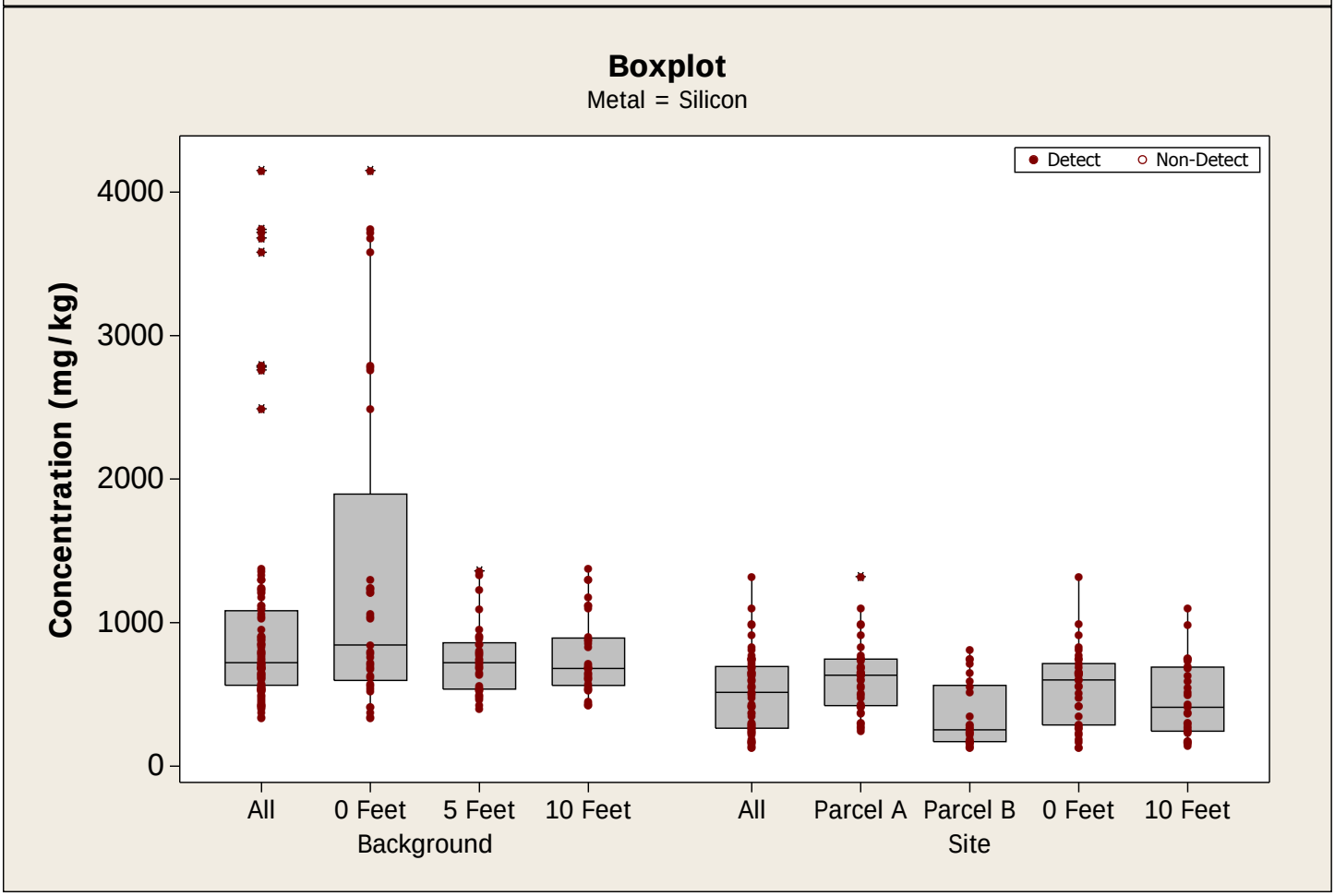

Probability Plot
Metal = Potassium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-1000
0
1000
2000
3000
4000
5000
6000
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

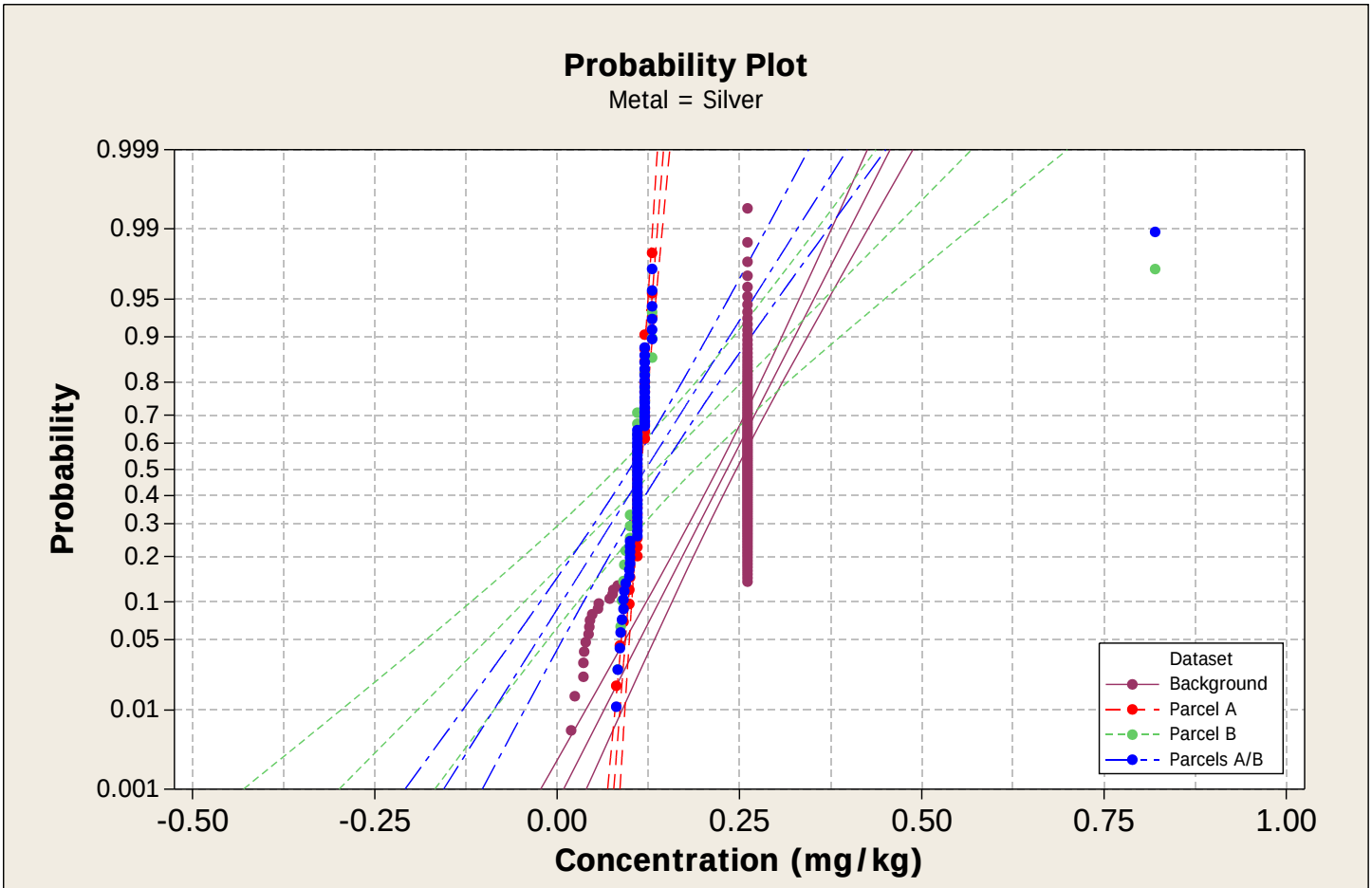

Boxplot
Metal = Potassium
Concentration (mg/kg)
5000
4000
3000
2000
1000
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

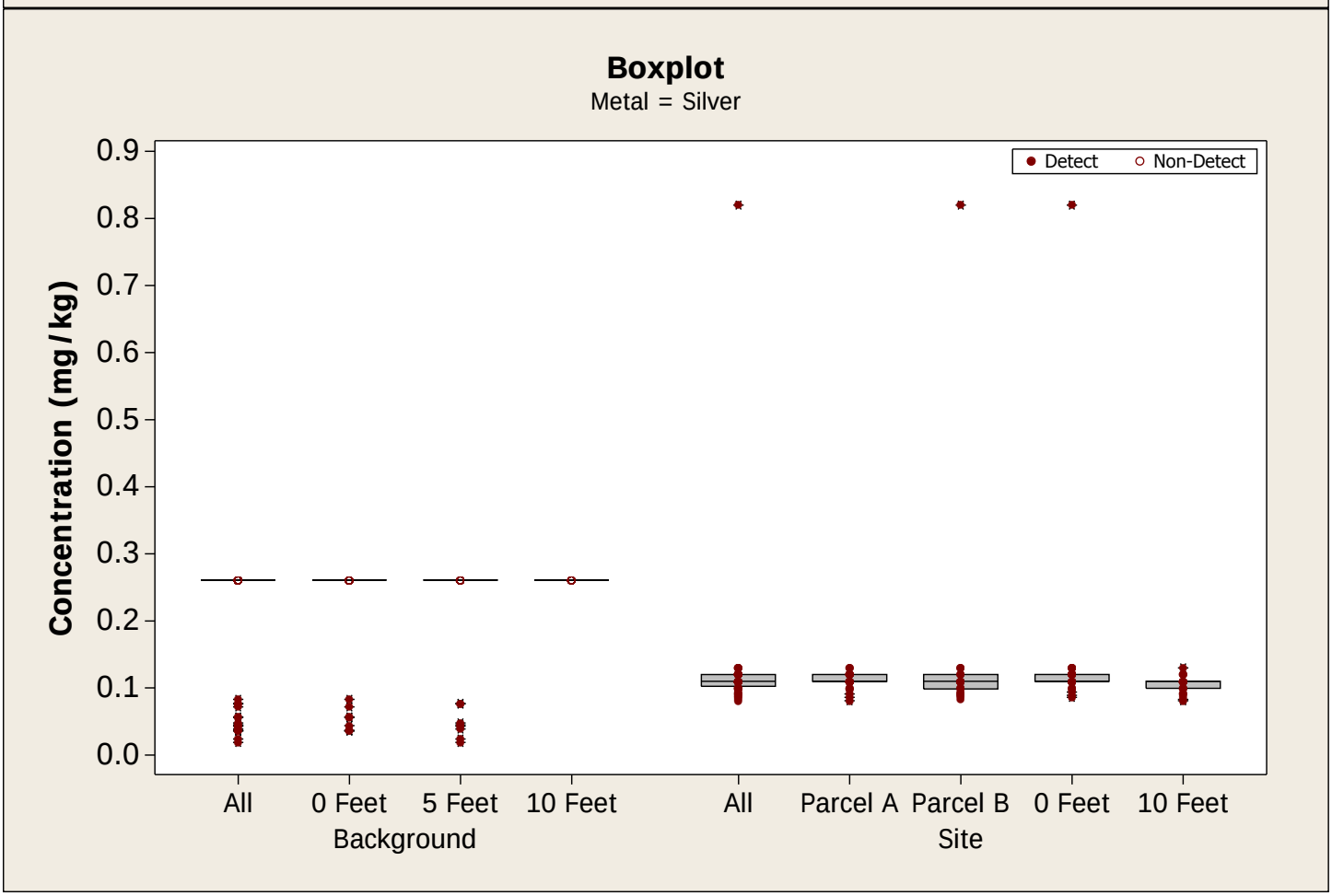

Probability Plot
Metal = Selenium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.00
0.25
0.50
0.75
1.00
1.25
1.50
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

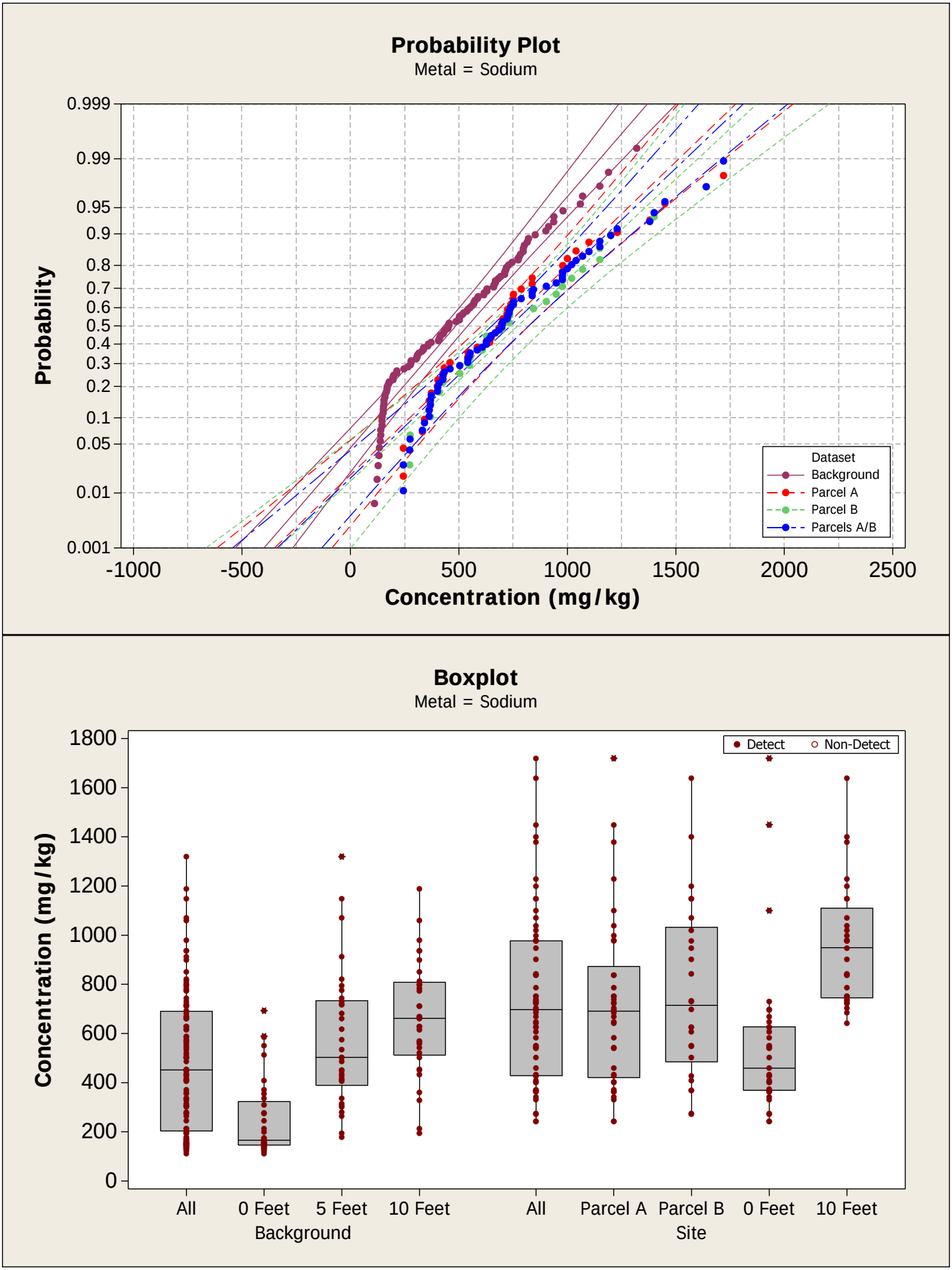

Boxplot
Metal = Selenium
Concentration (mg/kg)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

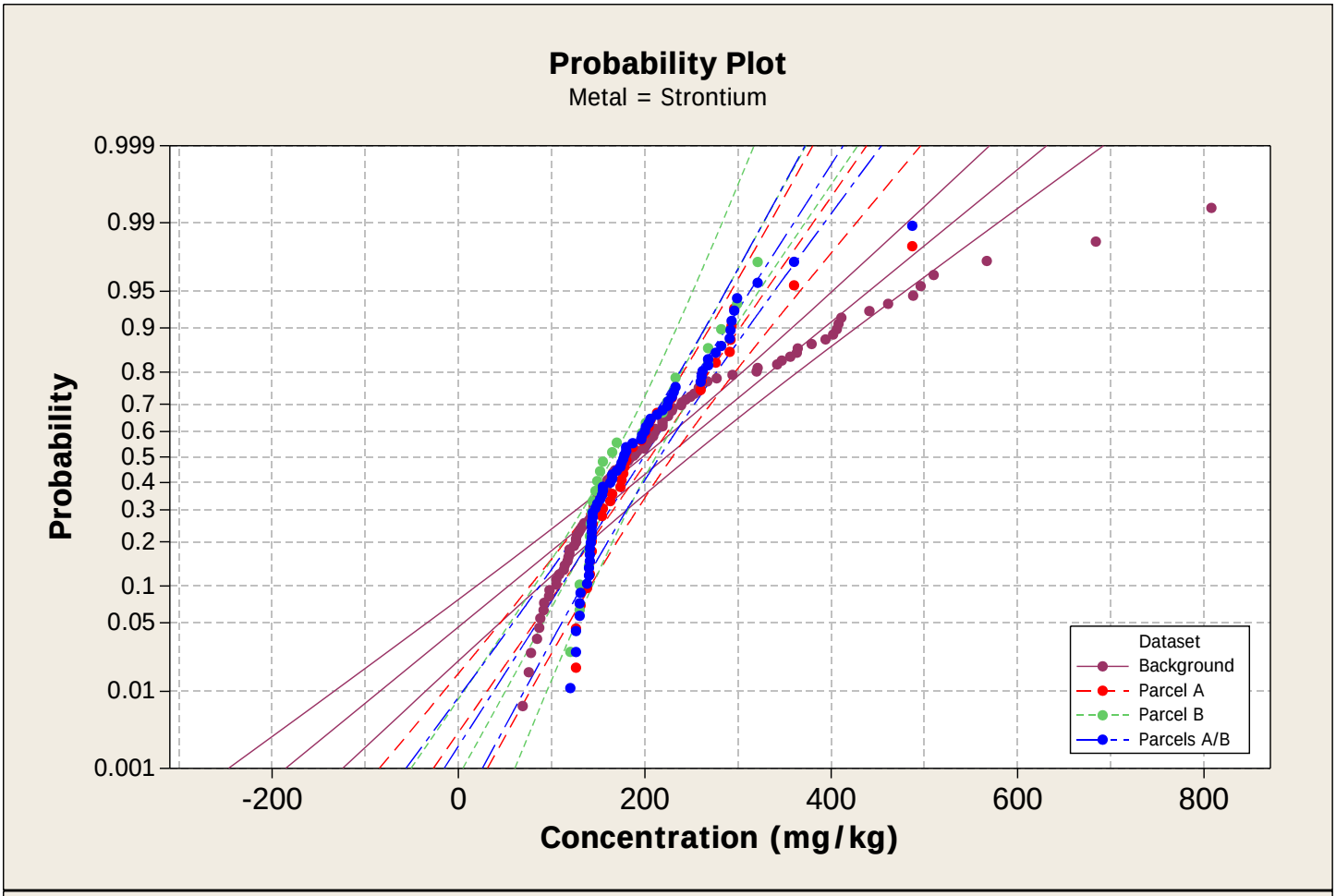

Probability Plot
Metal = Silicon
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-2000
-1000
0
1000
2000
3000
4000
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

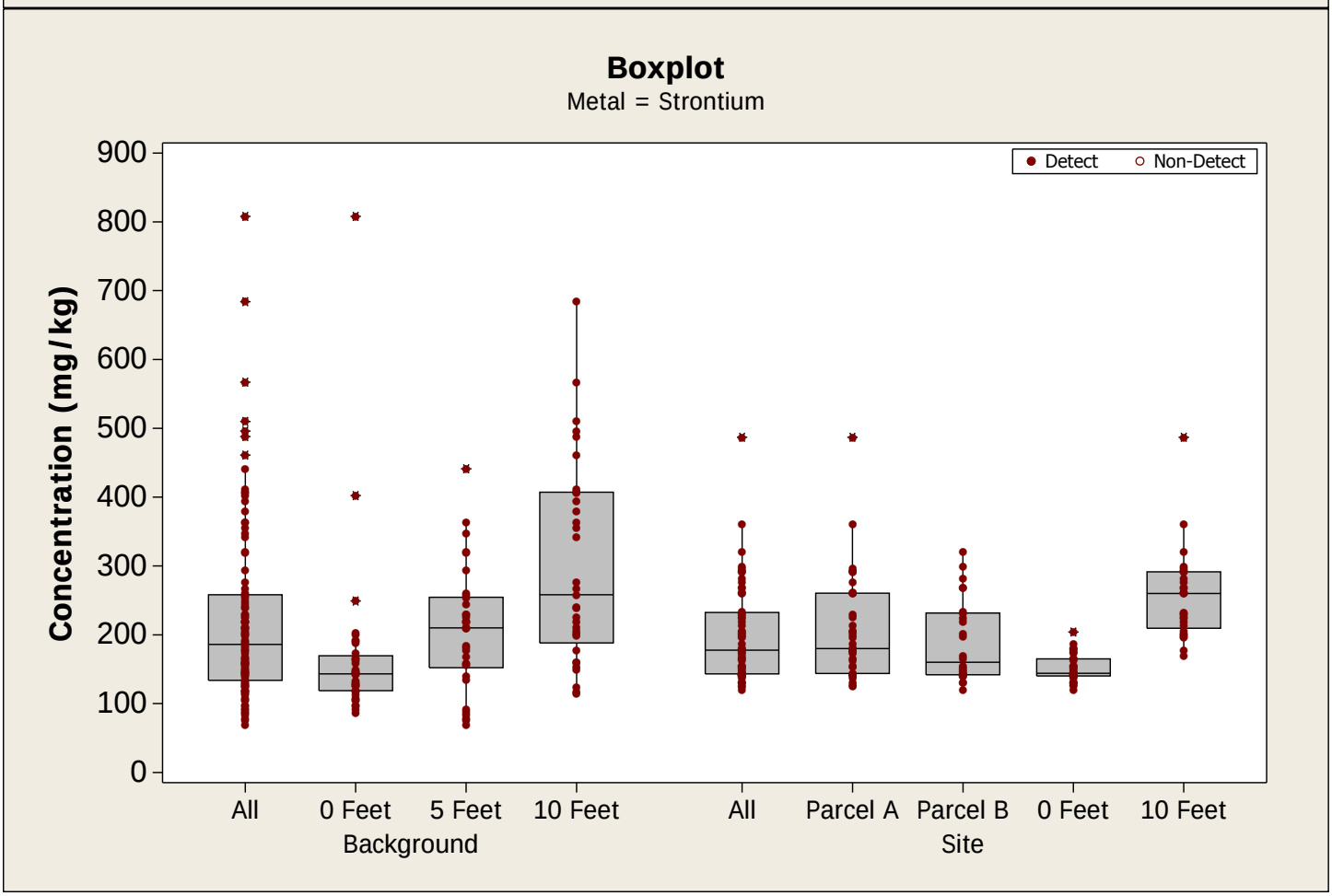

Boxplot
Metal = Silicon
Concentration (mg/kg)
Detect
Non-Detect
4000
3000
2000
1000
0
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

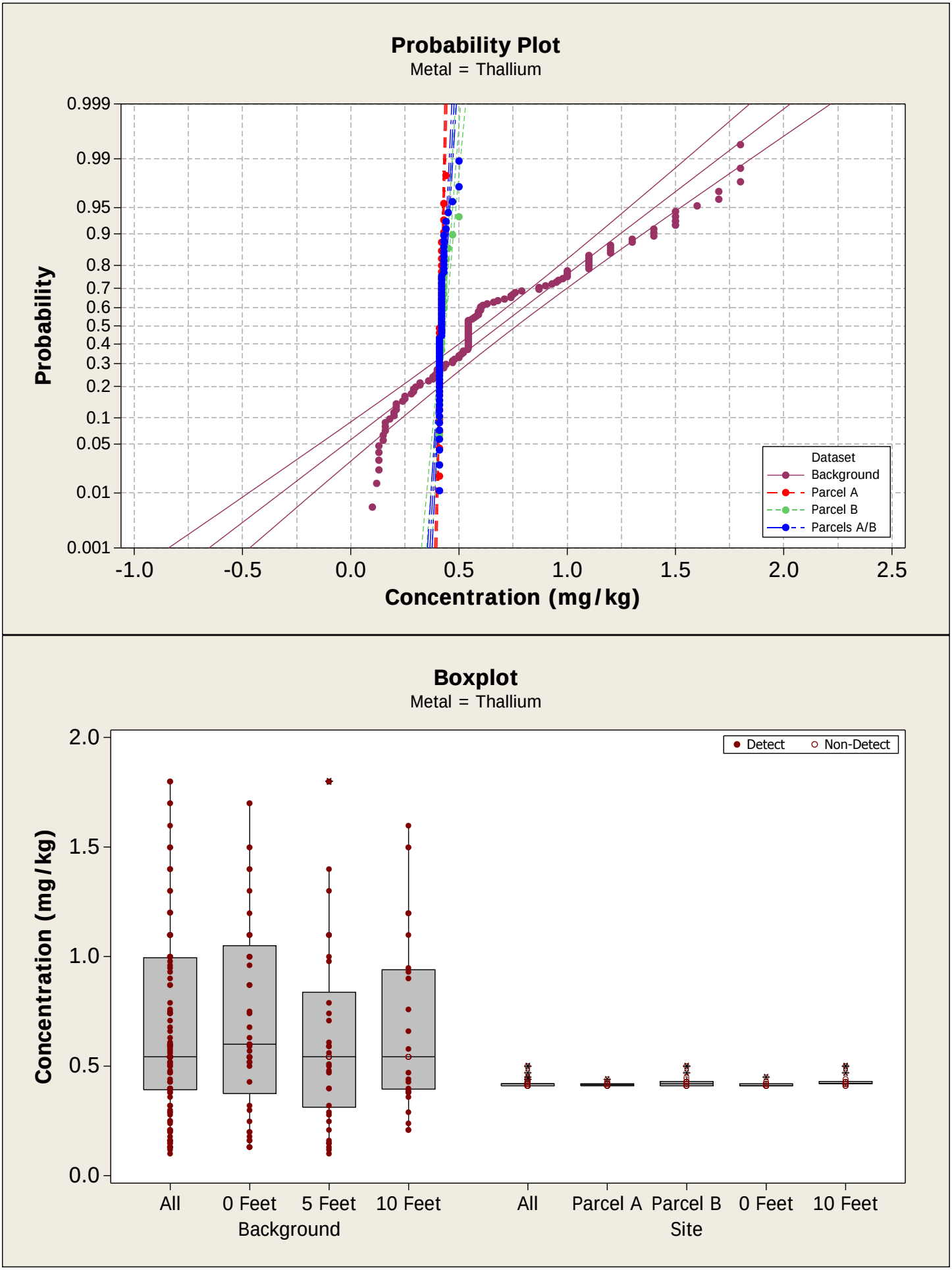

Probability Plot
Metal = Silver
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.50
-0.25
0.00
0.25
0.50
0.75
1.00
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

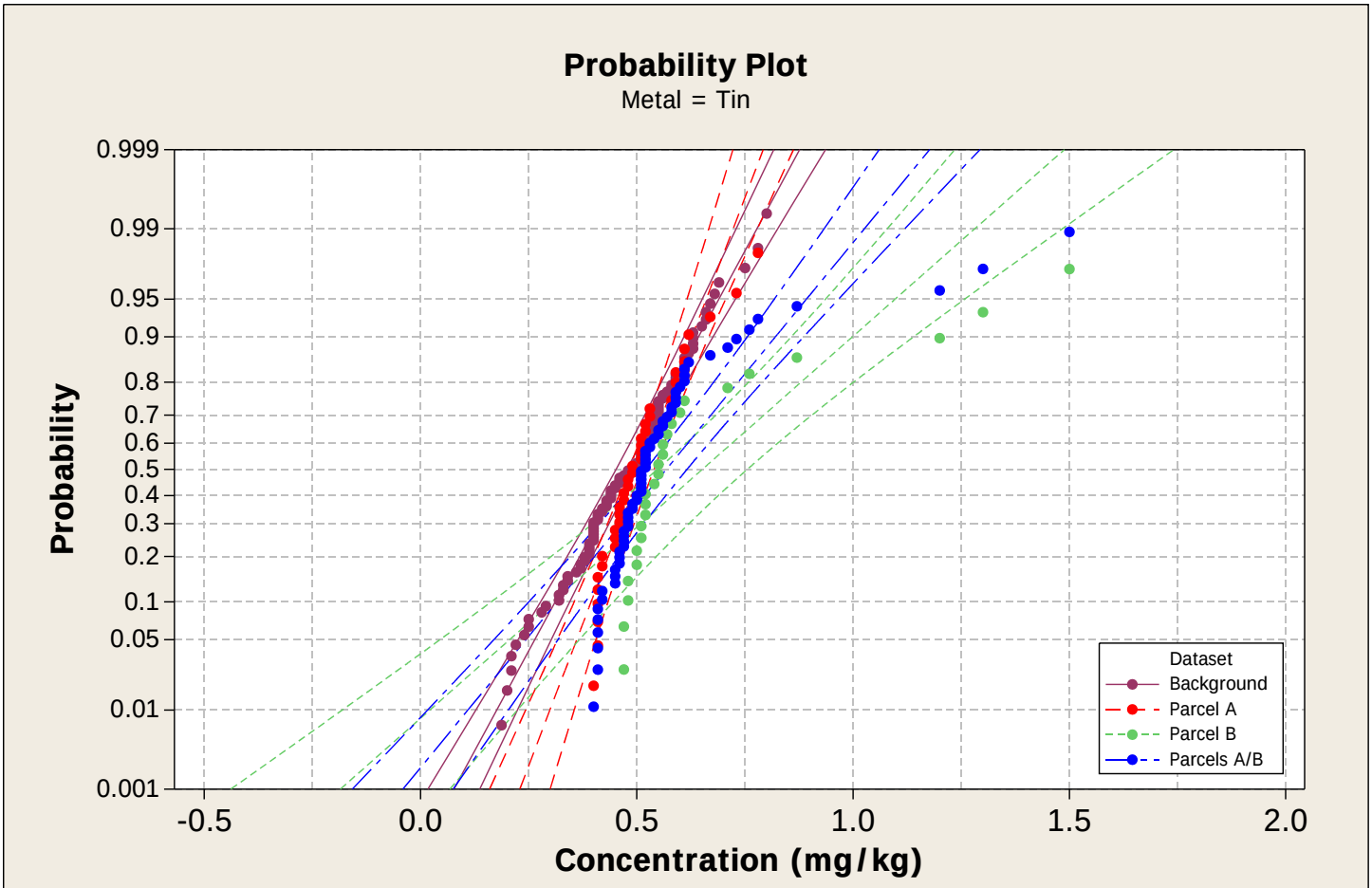

Boxplot
Metal = Silver
Concentration (mg/kg)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

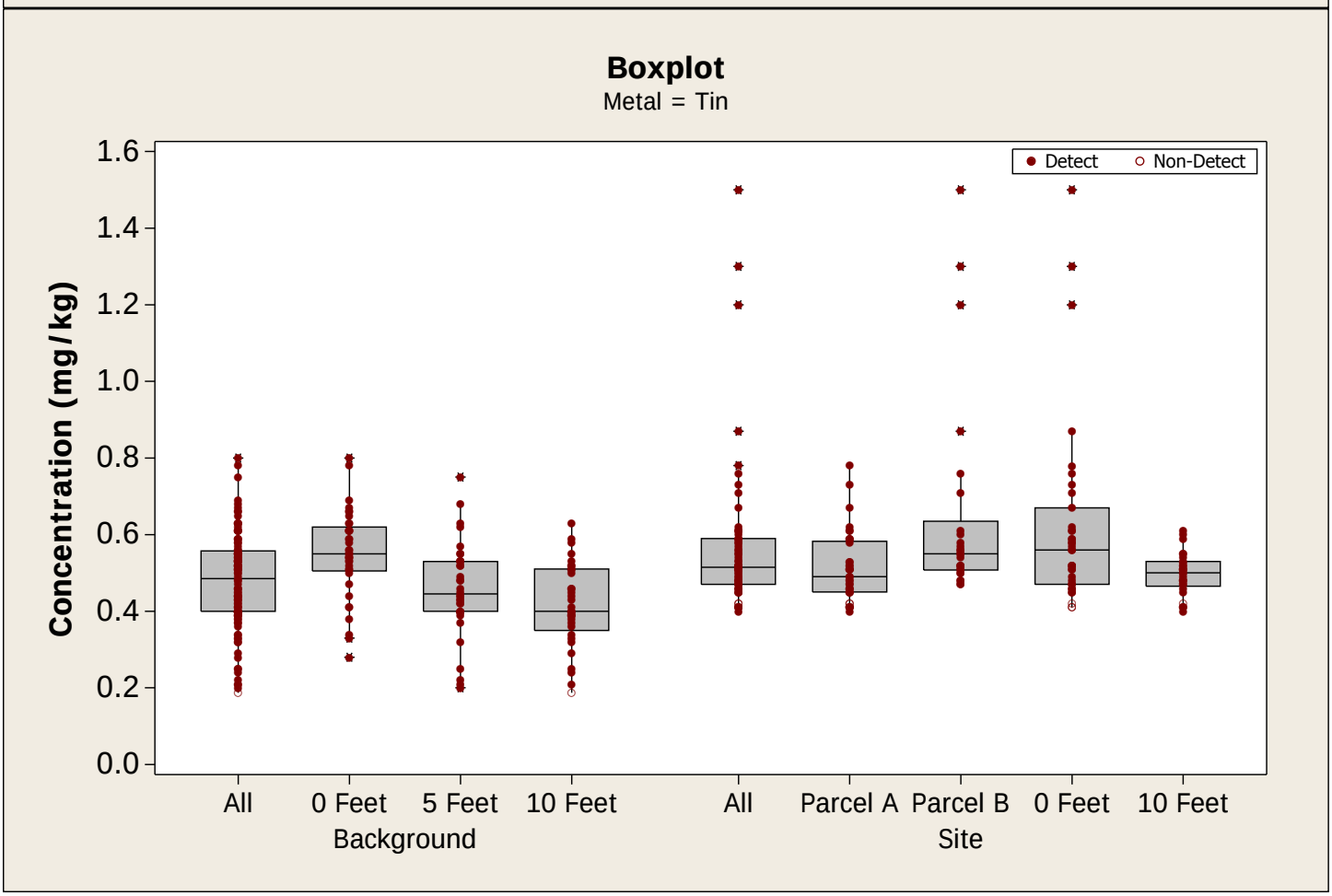

Probability Plot
Metal = Sodium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-1000
-500
0
500
1000
1500
2000
2500
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Metal = Sodium
Concentration (mg/kg)
1800
1600
1400
1200
1000
800
600
400
200
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

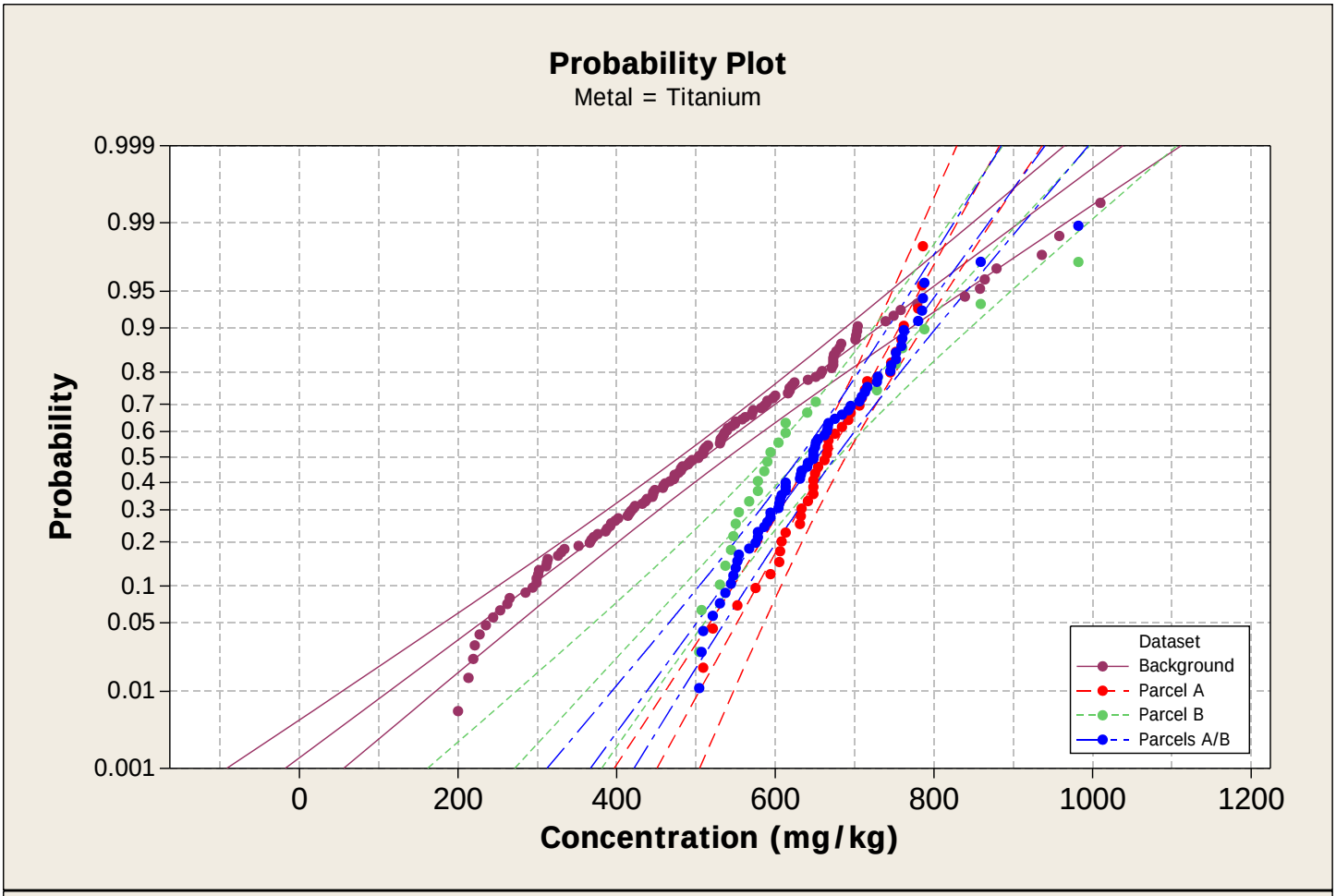

Probability Plot
Metal = Strontium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-200
0
200
400
600
800
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

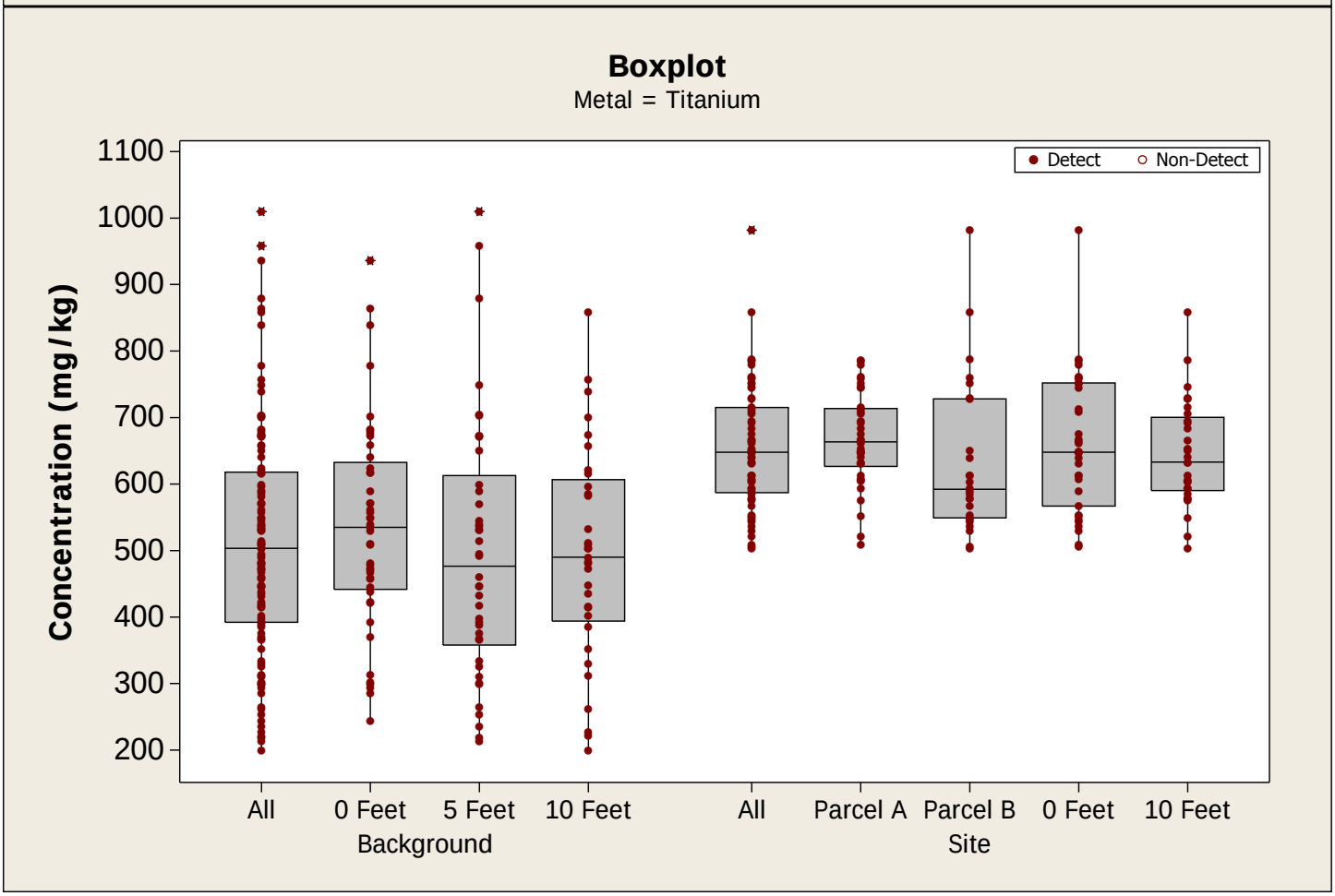

Boxplot
Metal = Strontium
Concentration (mg/kg)
900
800
700
600
500
400
300
200
100
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

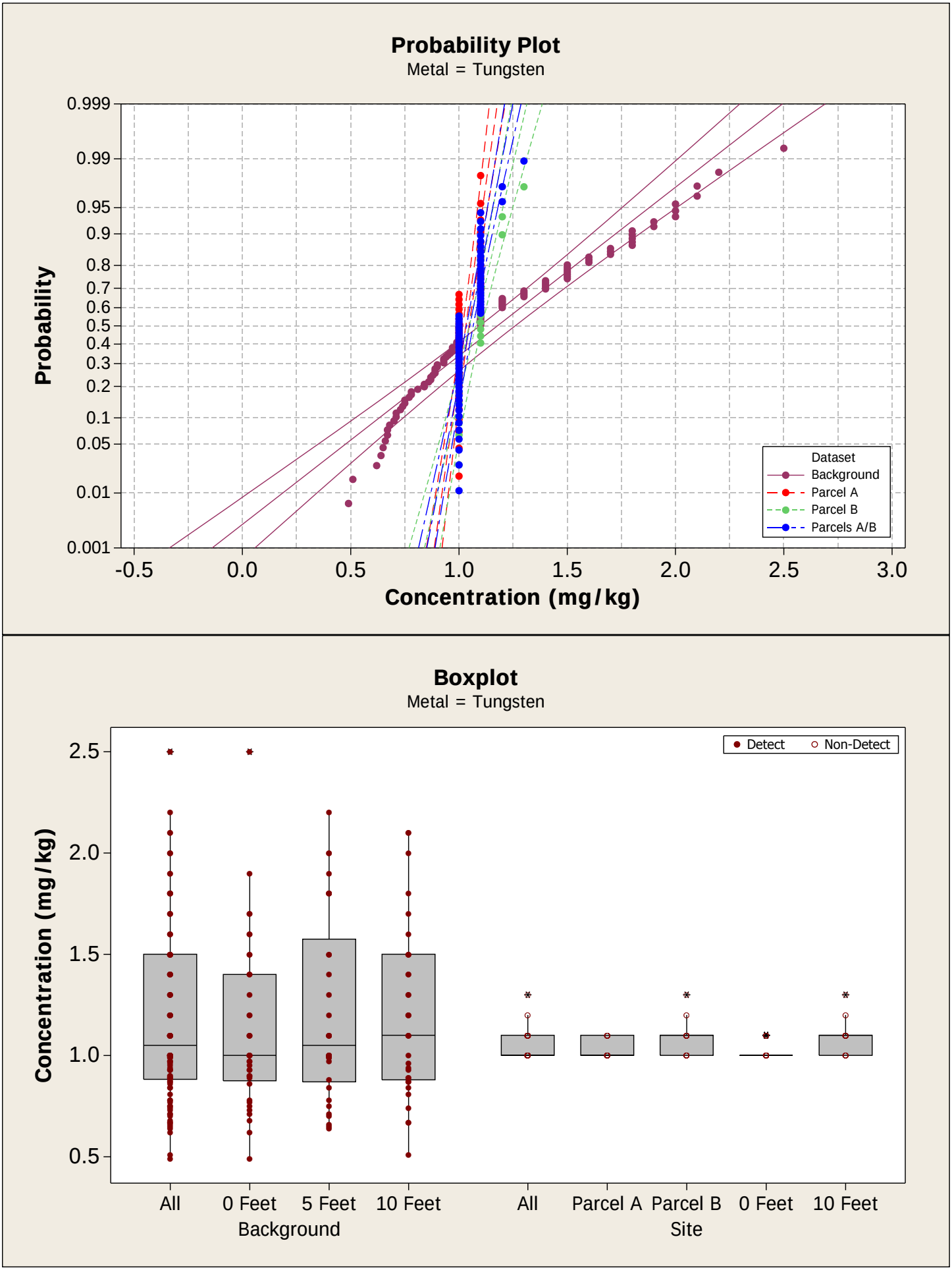

Probability Plot
Metal = Thallium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Metal = Thallium
Concentration (mg/kg)
2.0
1.5
1.0
0.5
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

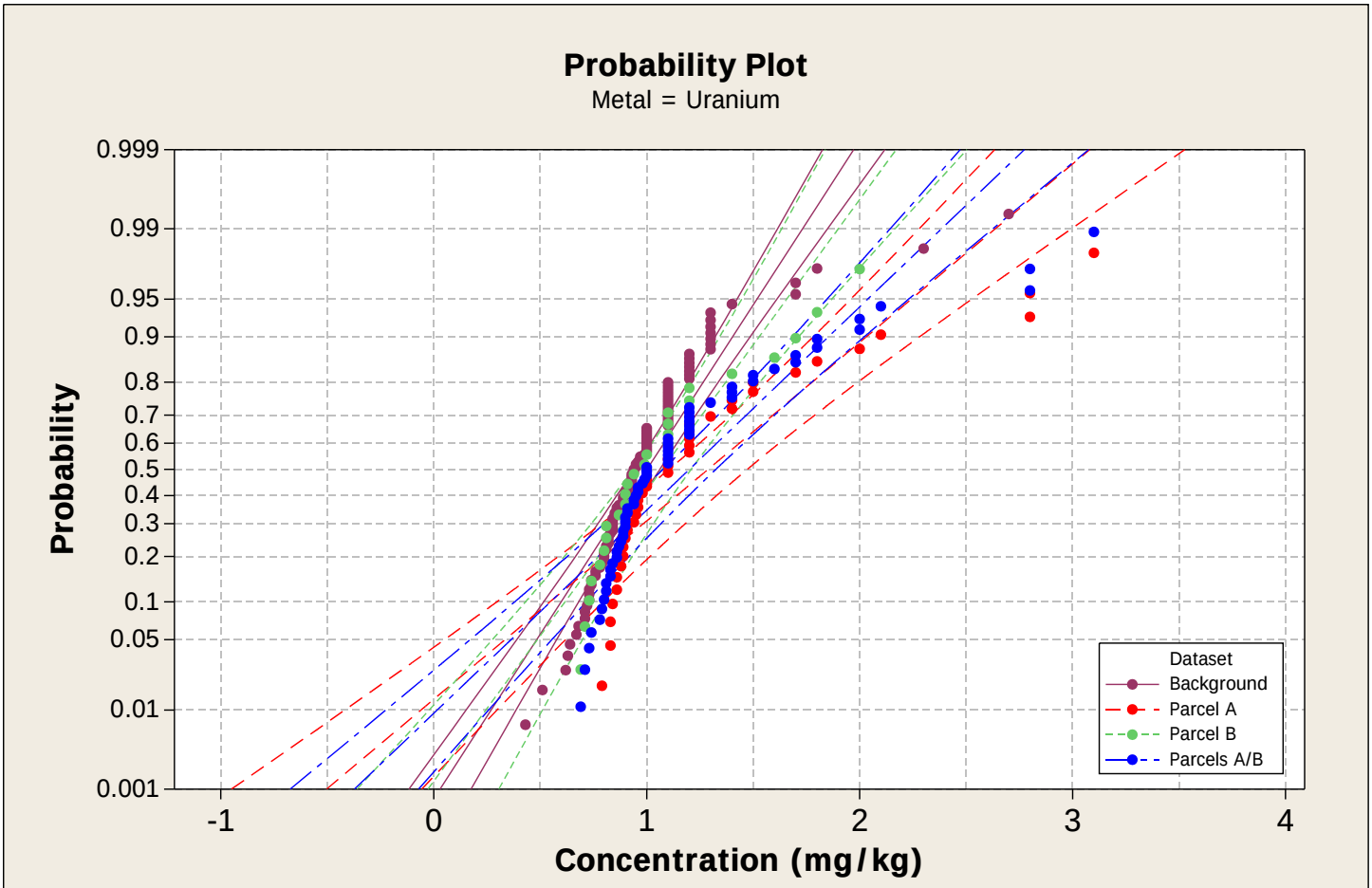

Probability Plot
Metal = Tin
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.5
0.0
0.5
1.0
1.5
2.0
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

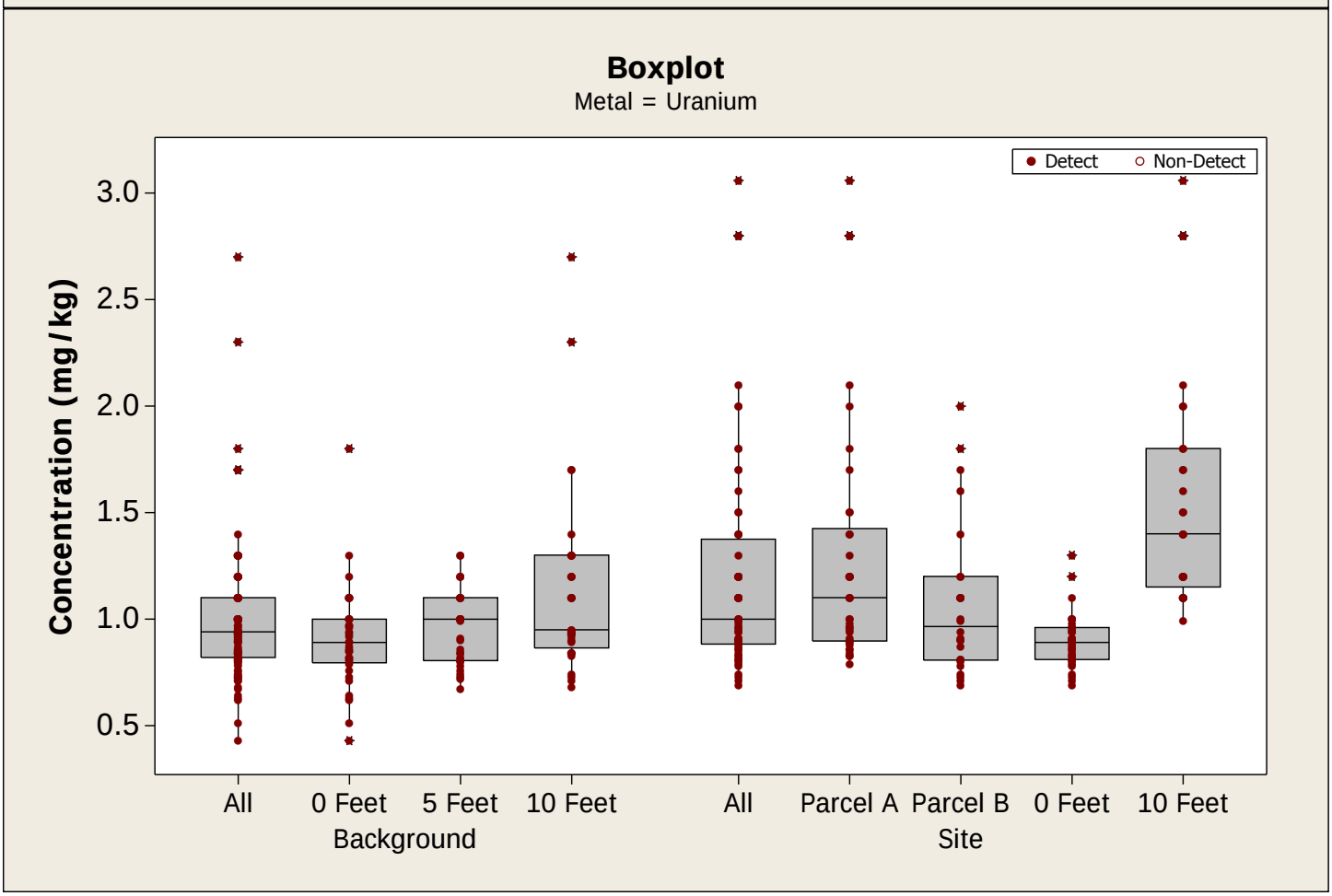

Boxplot
Metal = Tin
Concentration (mg/kg)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

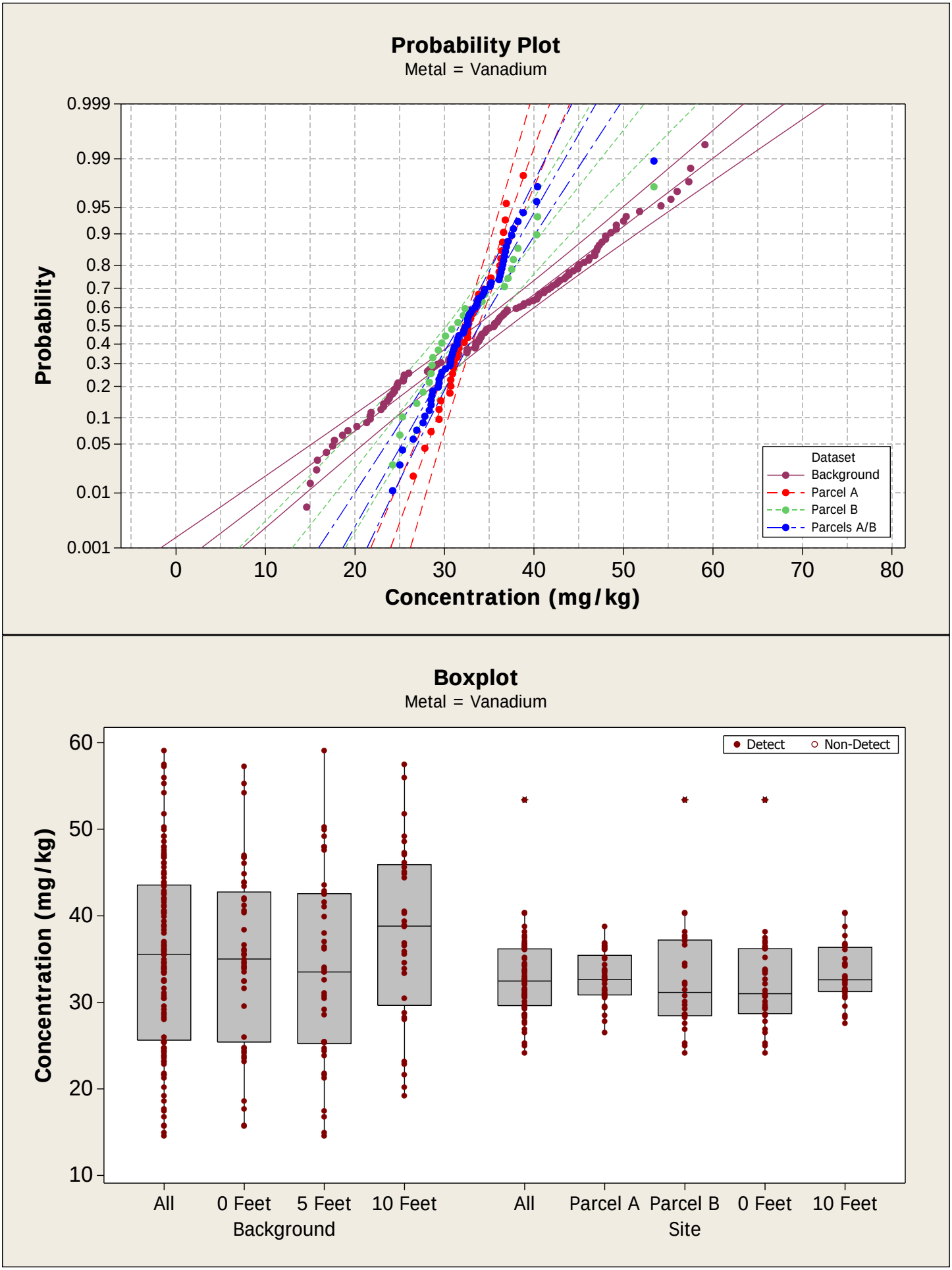

Probability Plot
Metal = Titanium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
200
400
600
800
1000
1200
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

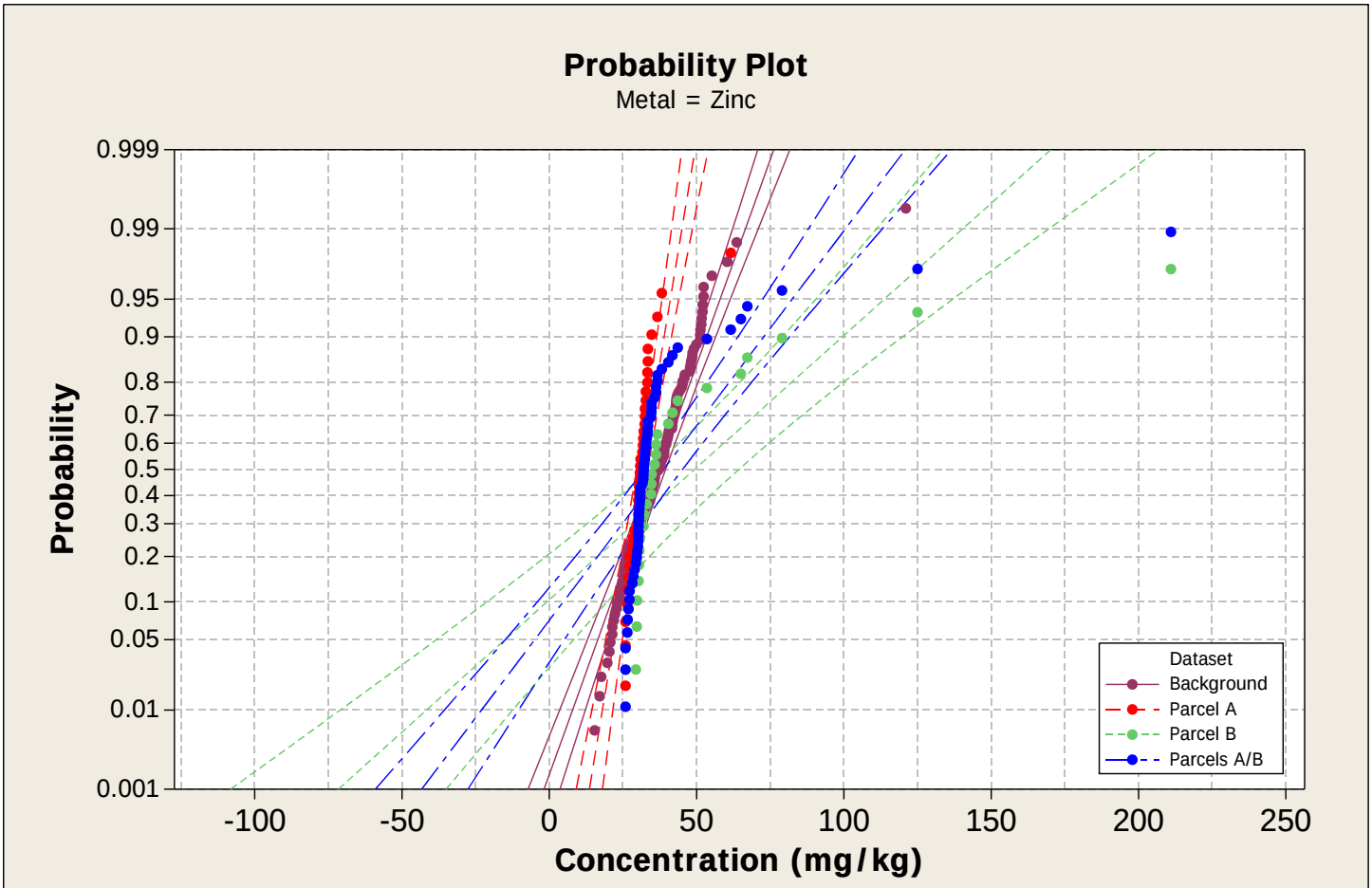

Boxplot
Metal = Titanium
Concentration (mg/kg)
1100
1000
900
800
700
600
500
400
300
200
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

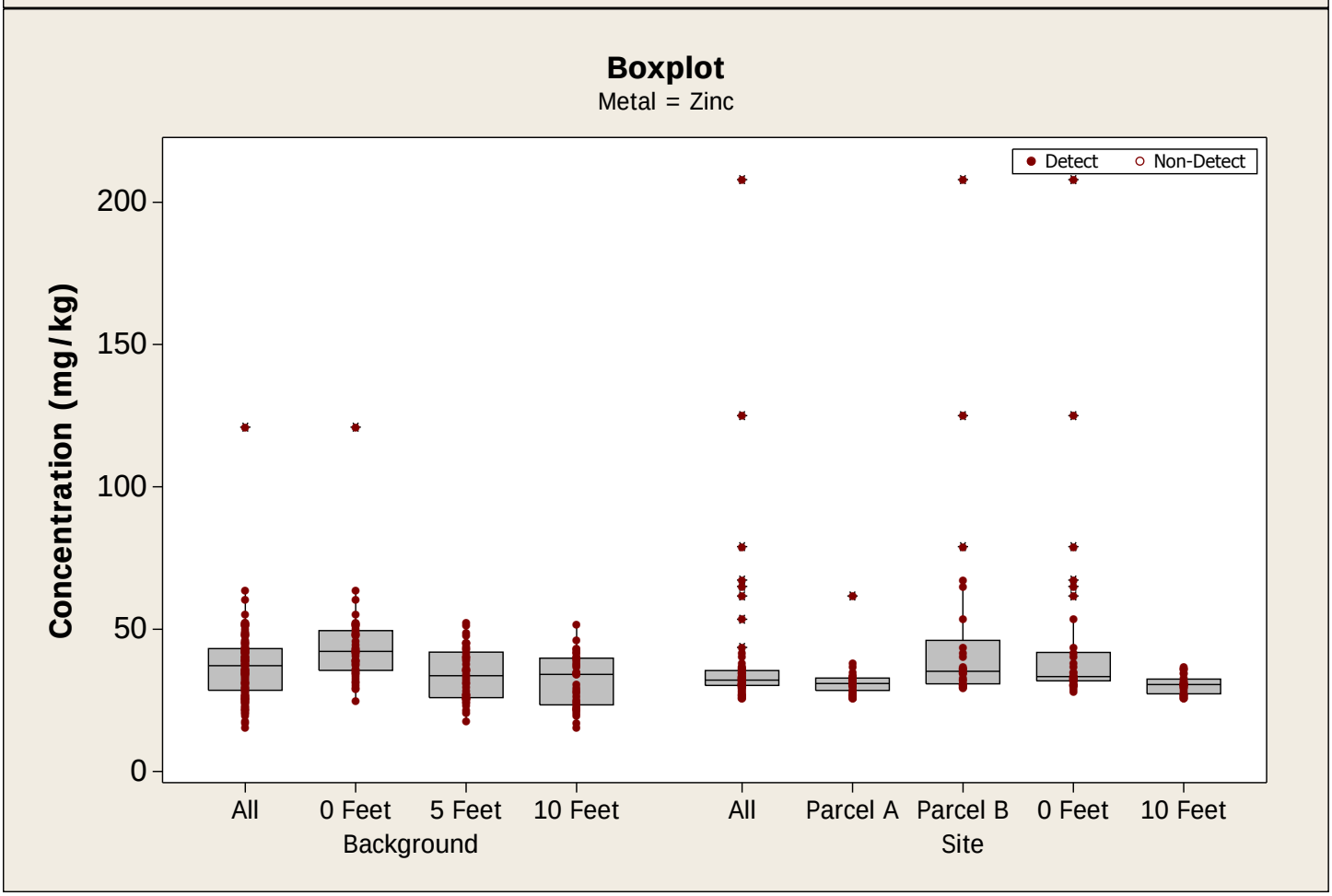

Probability Plot
Metal = Tungsten
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Metal = Tungsten
Concentration (mg/kg)
2.5
2.0
1.5
1.0
0.5
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

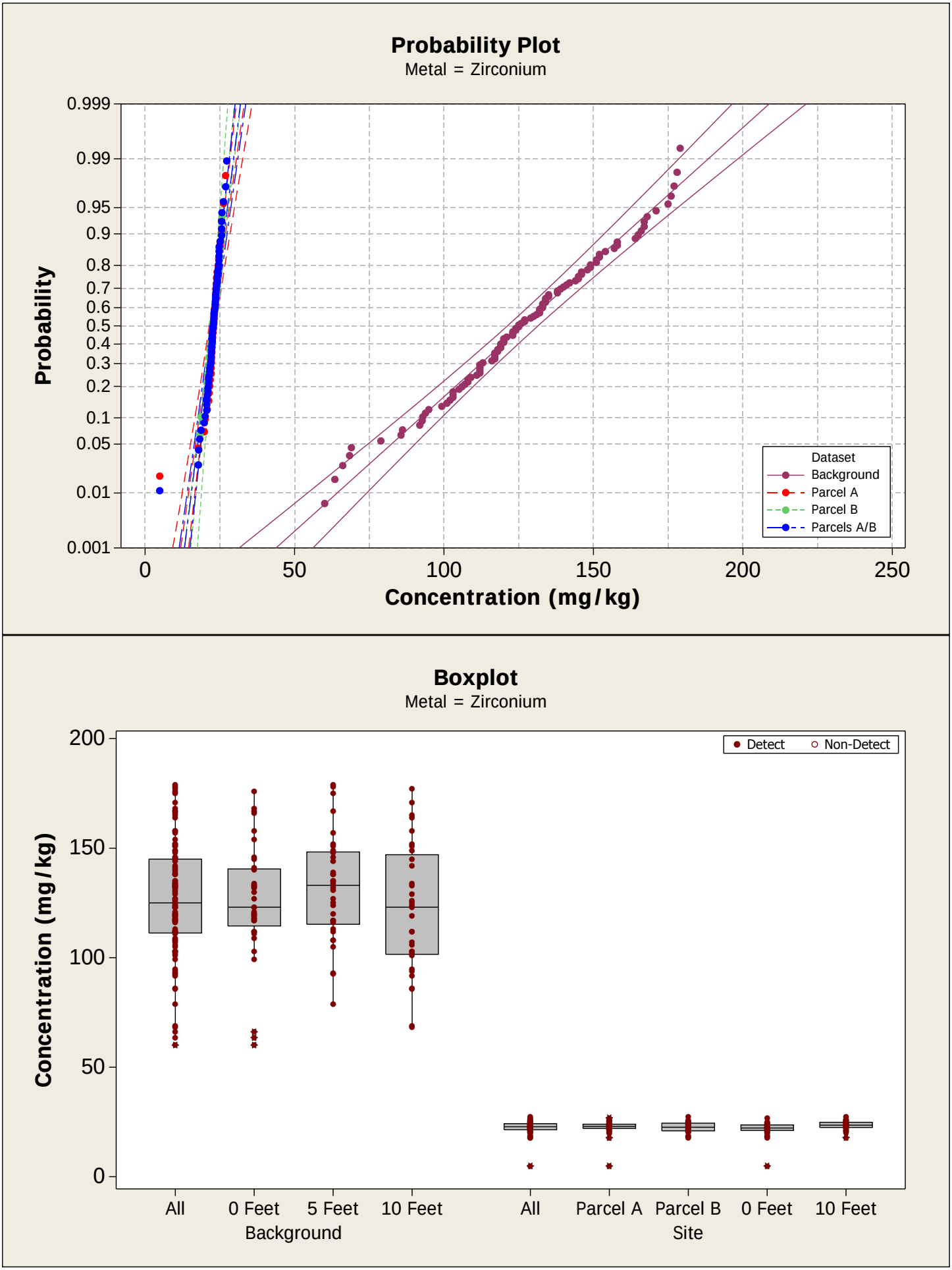

Probability Plot
Metal = Uranium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-1
0
1
2
3
4
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

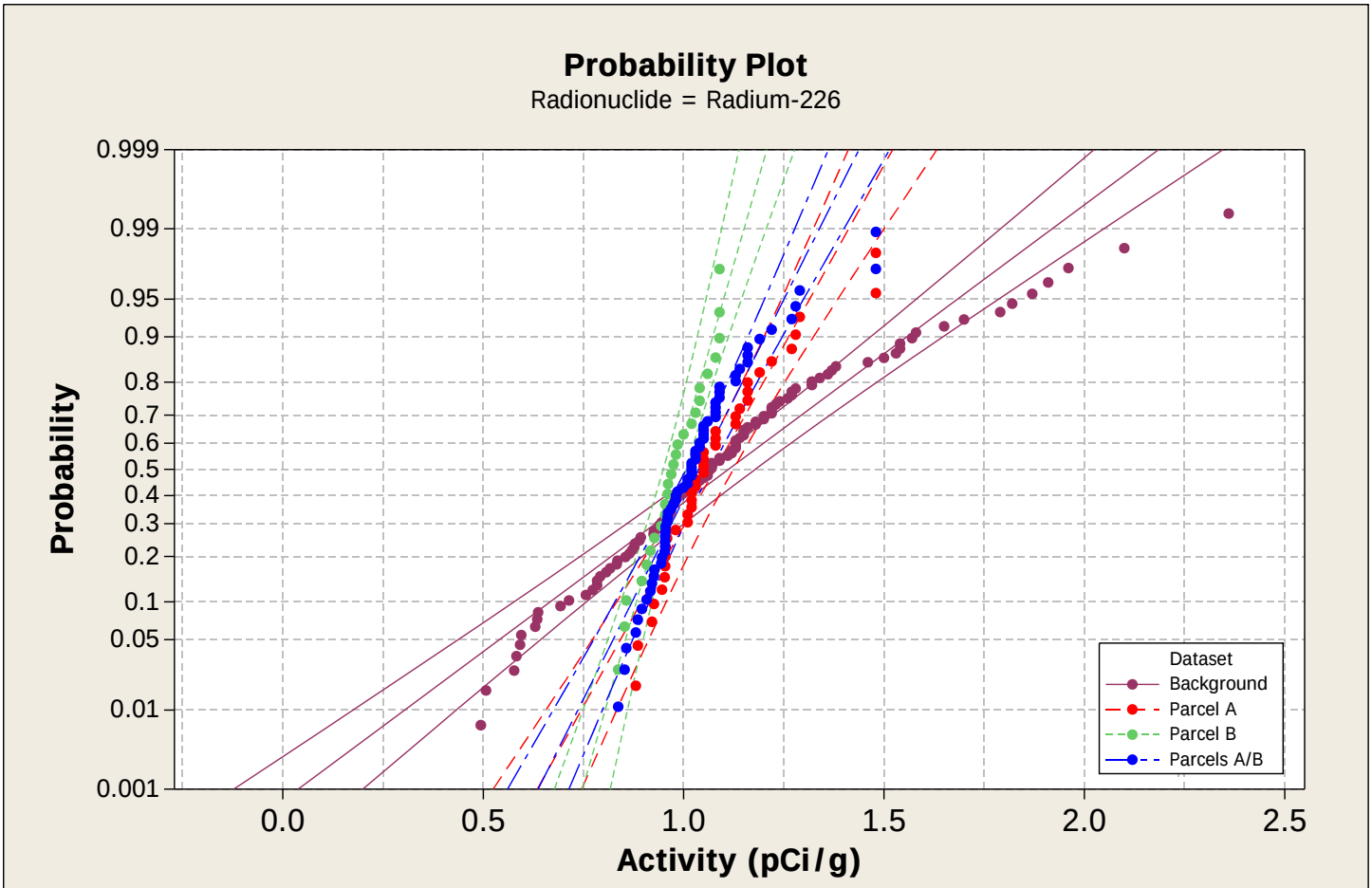

Boxplot
Metal = Uranium
Concentration (mg/kg)
3.0
2.5
2.0
1.5
1.0
0.5
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

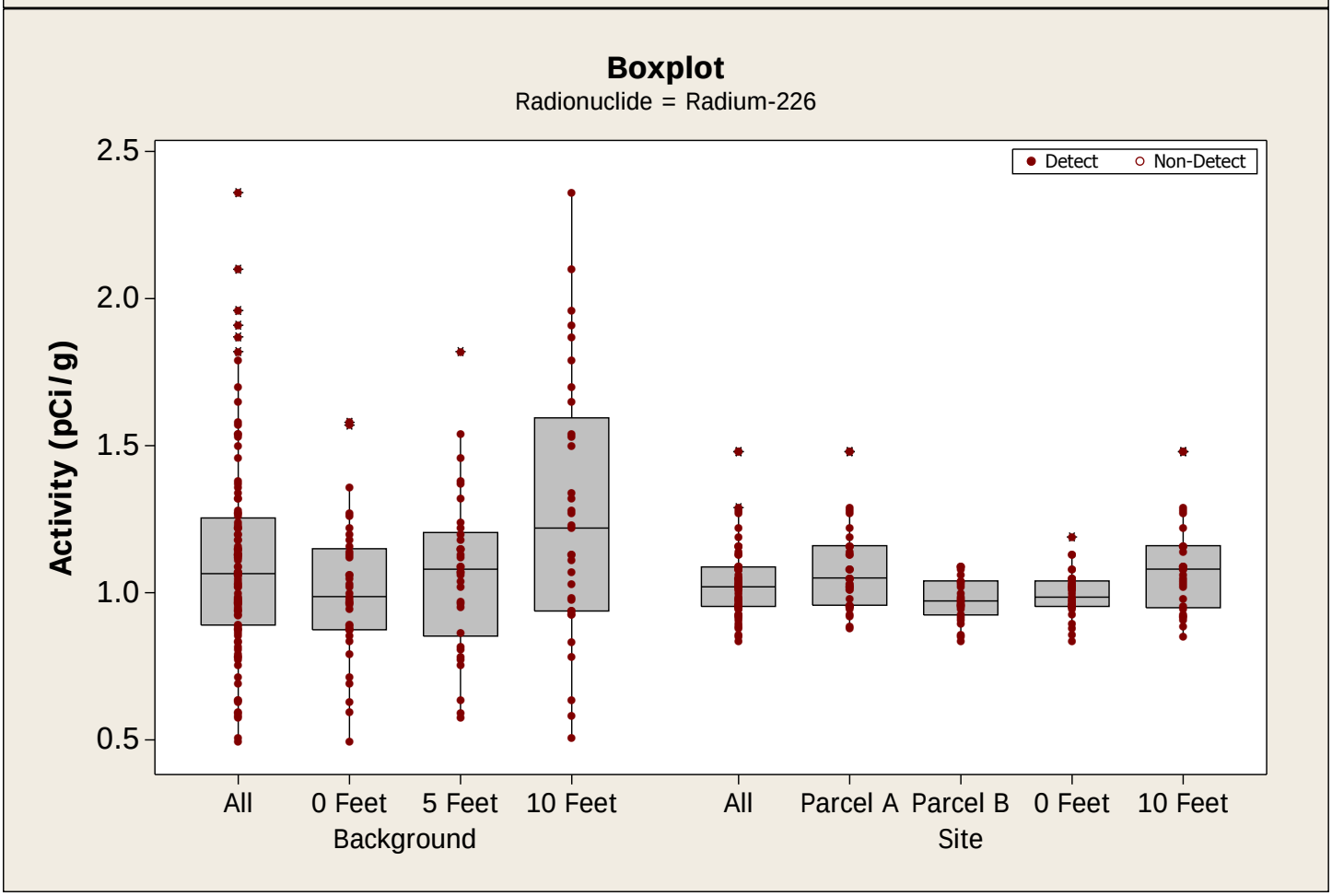

Probability Plot
Metal = Vanadium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
10
20
30
40
50
60
70
80
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Metal = Vanadium
Concentration (mg/kg)
60
50
40
30
20
10
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

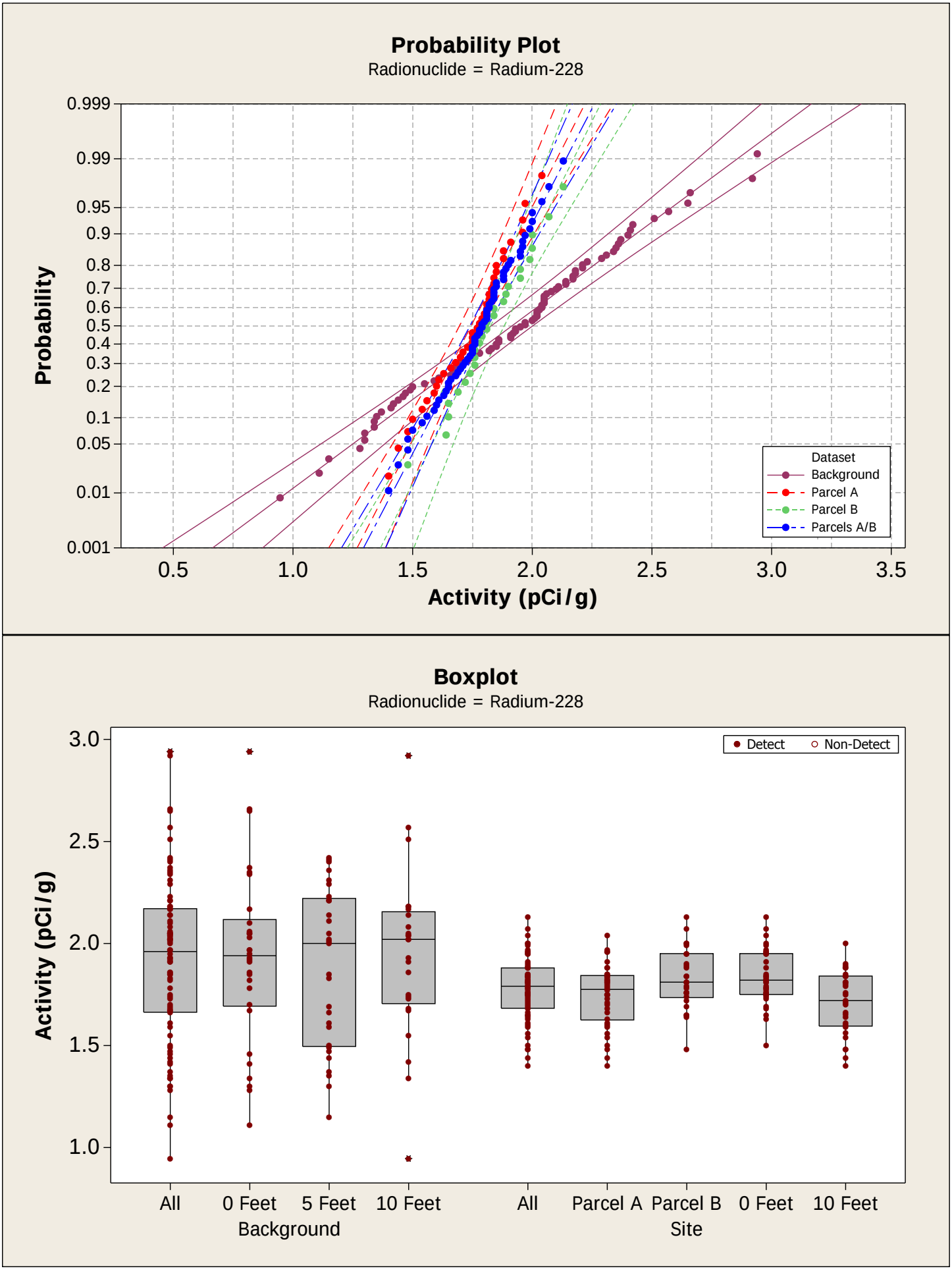

Probability Plot
Metal = Zinc
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-100
-50
0
50
100
150
200
250
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

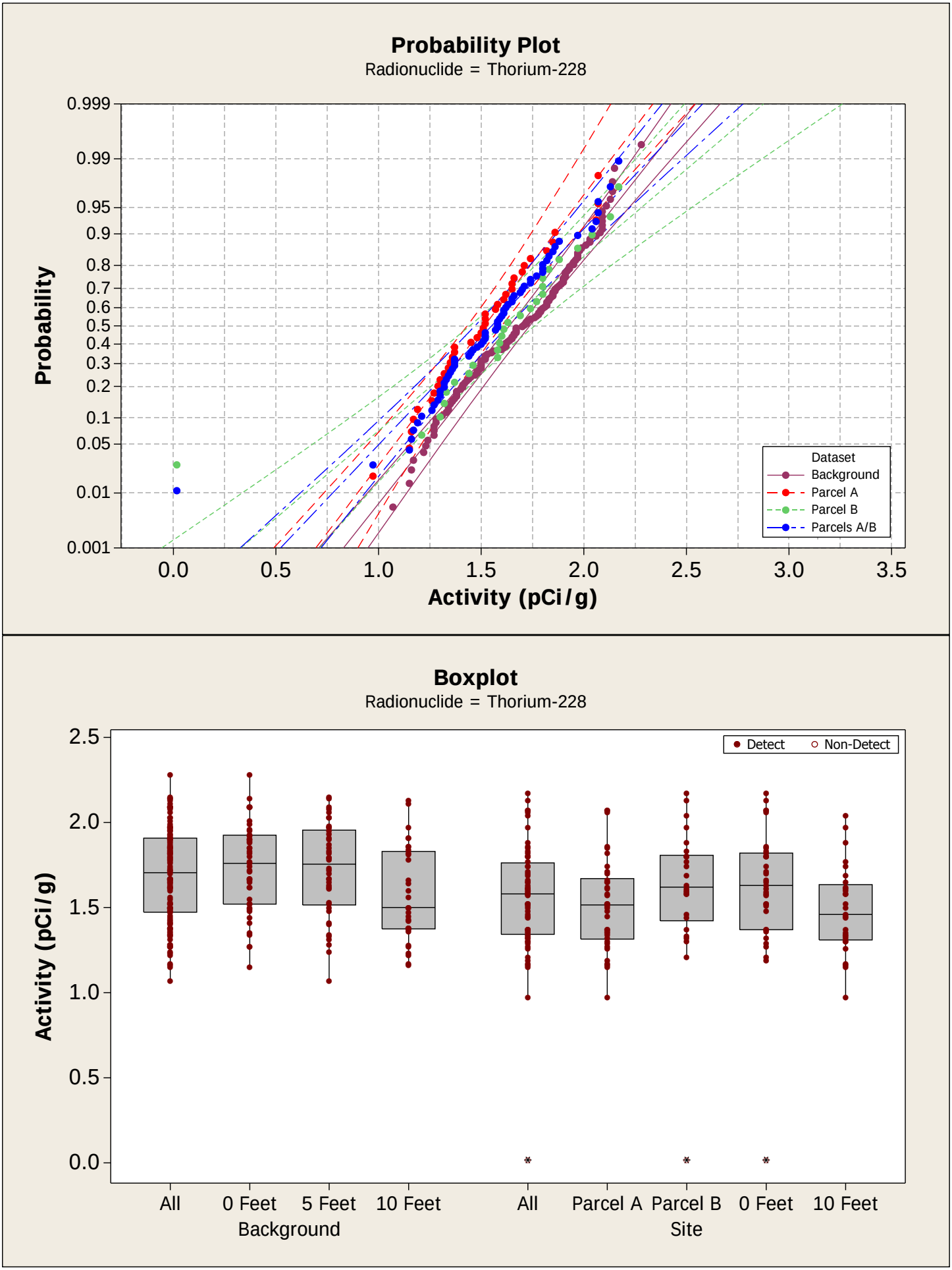

Boxplot
Metal = Zinc
Concentration (mg/kg)
Detect
Non-Detect
200
150
100
50
0
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

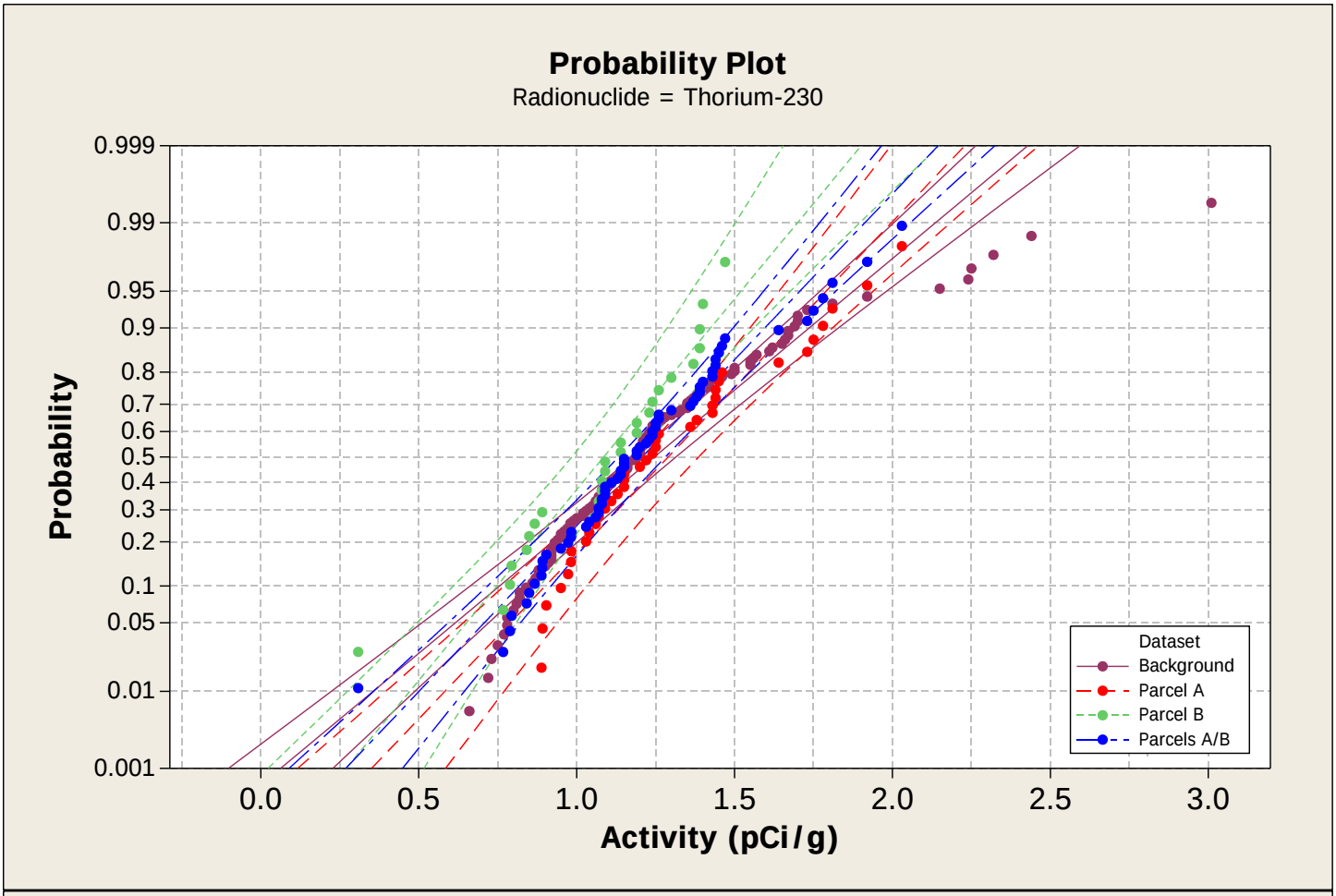

Probability Plot
Metal = Zirconium
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0
50
100
150
200
250
Concentration (mg/kg)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Metal = Zirconium
Concentration (mg/kg)
200
150
100
50
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

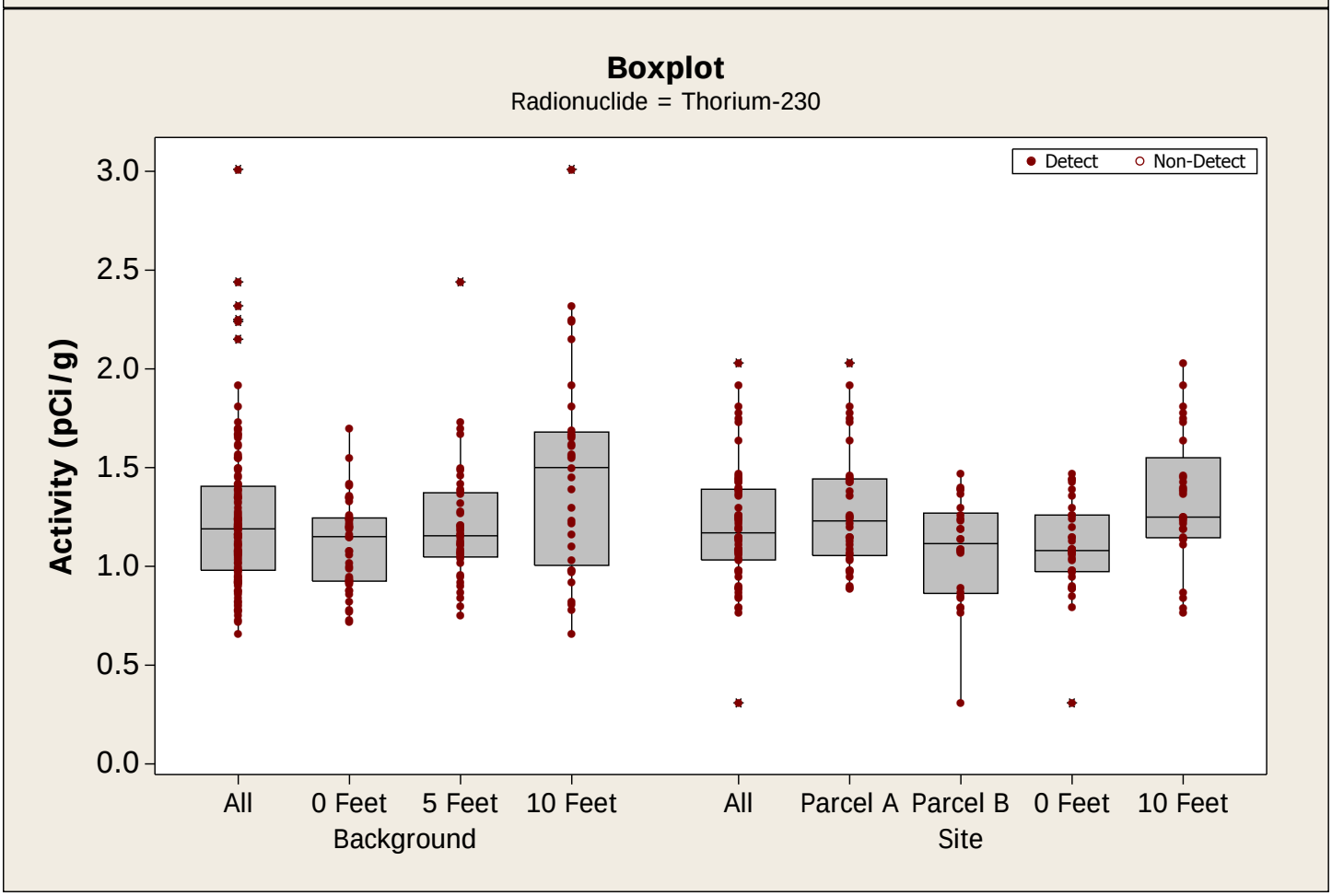

Probability Plot
Radionuclide = Radium-226
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.0
0.5
1.0
1.5
2.0
2.5
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

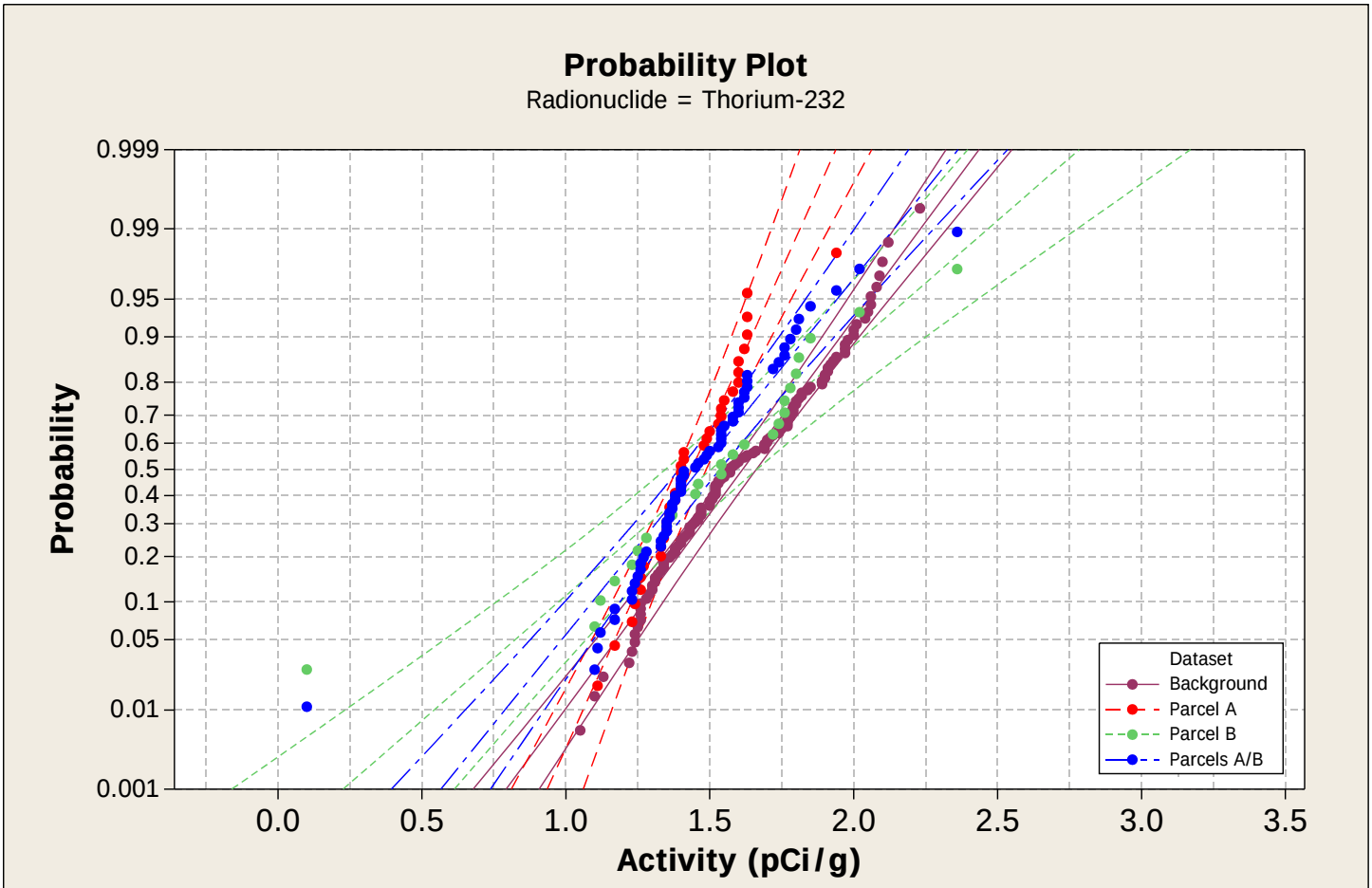

Boxplot
Radionuclide = Radium-226
Activity (pCi/g)
2.5
2.0
1.5
1.0
0.5
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

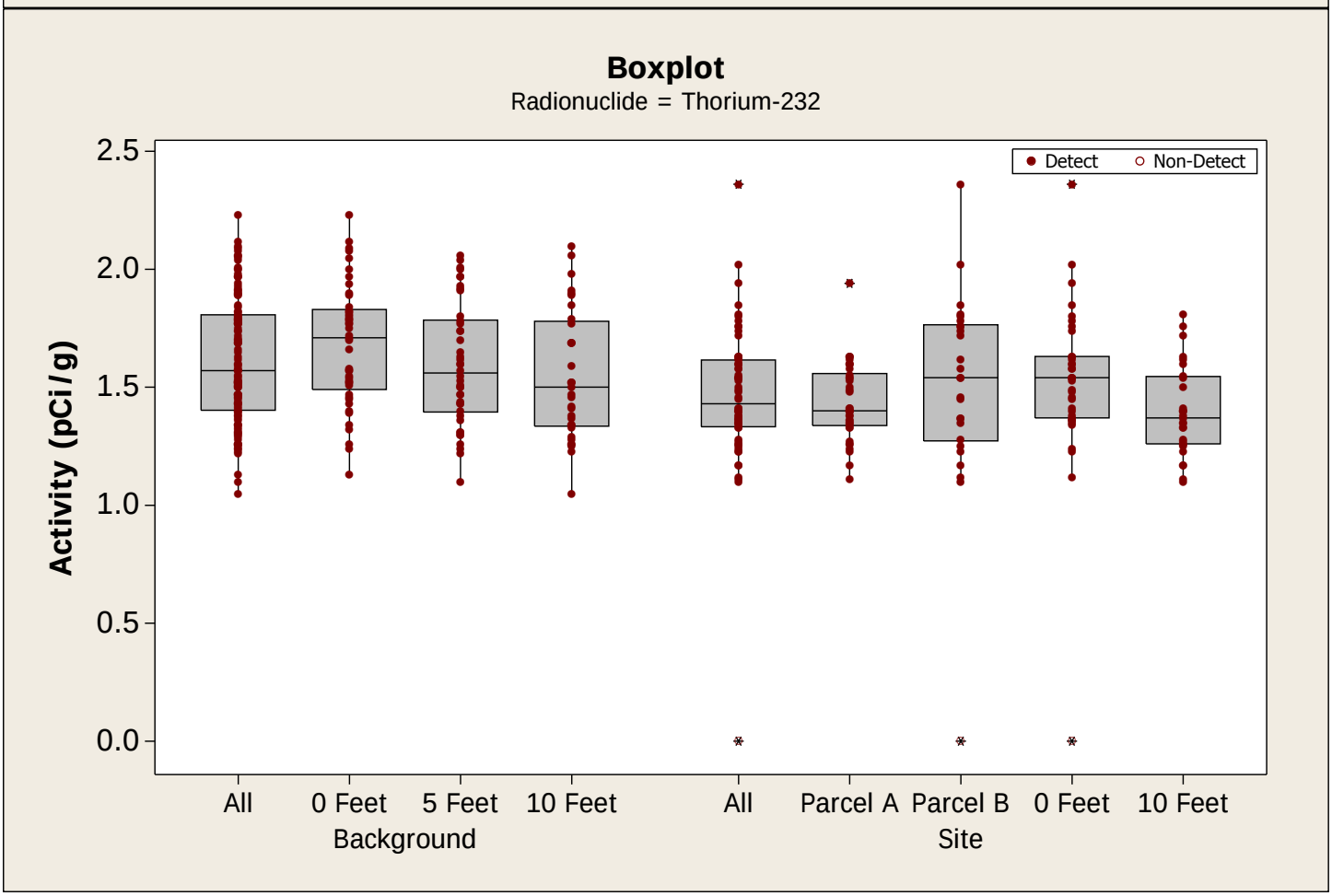

Probability Plot
Radionuclide = Radium-228
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Radionuclide = Radium-228
Activity (pCi/g)
3.0
2.5
2.0
1.5
1.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

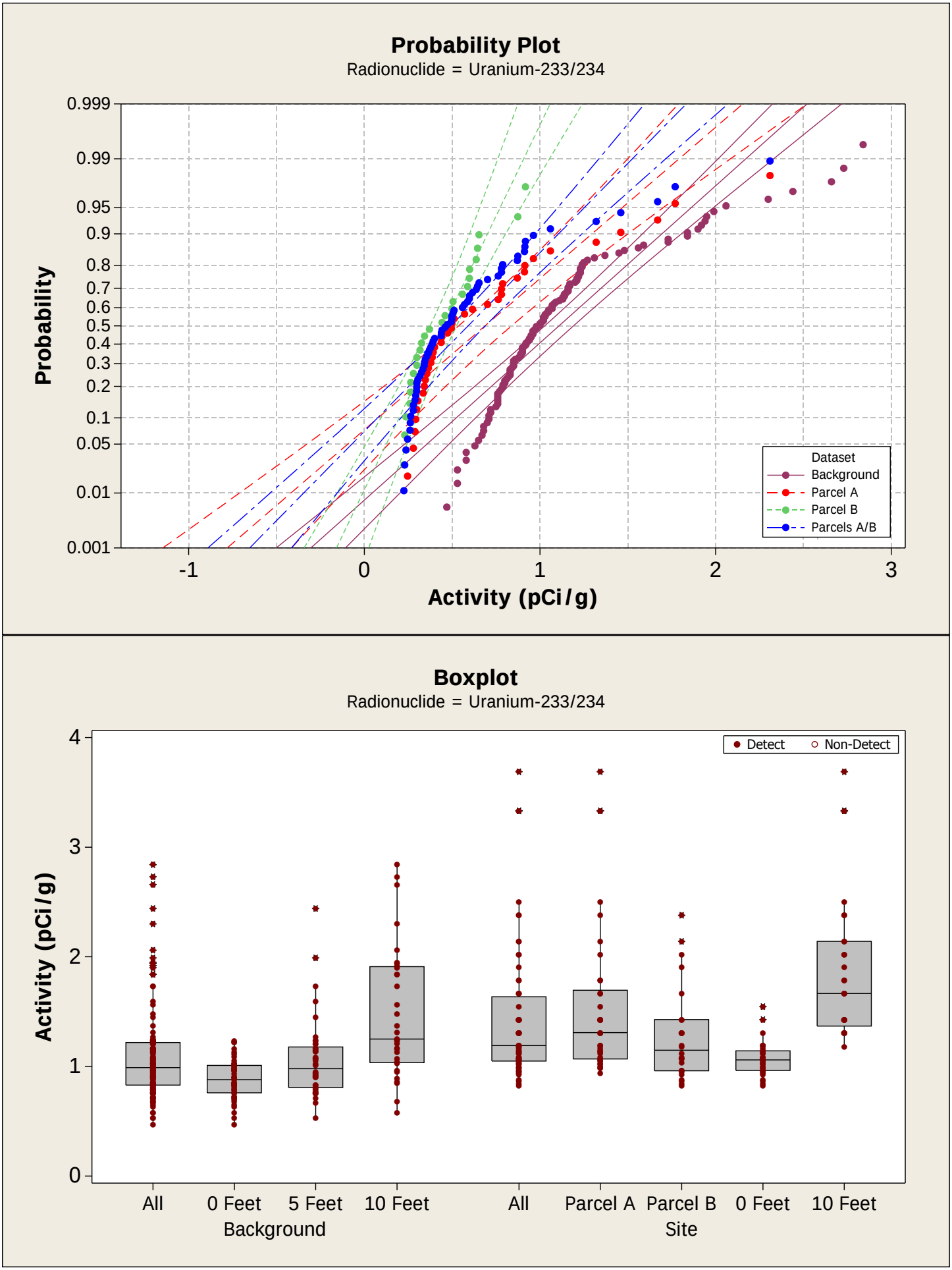

Probability Plot
Radionuclide = Thorium-228
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Radionuclide = Thorium-228
Activity (pCi/g)
2.5
2.0
1.5
1.0
0.5
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

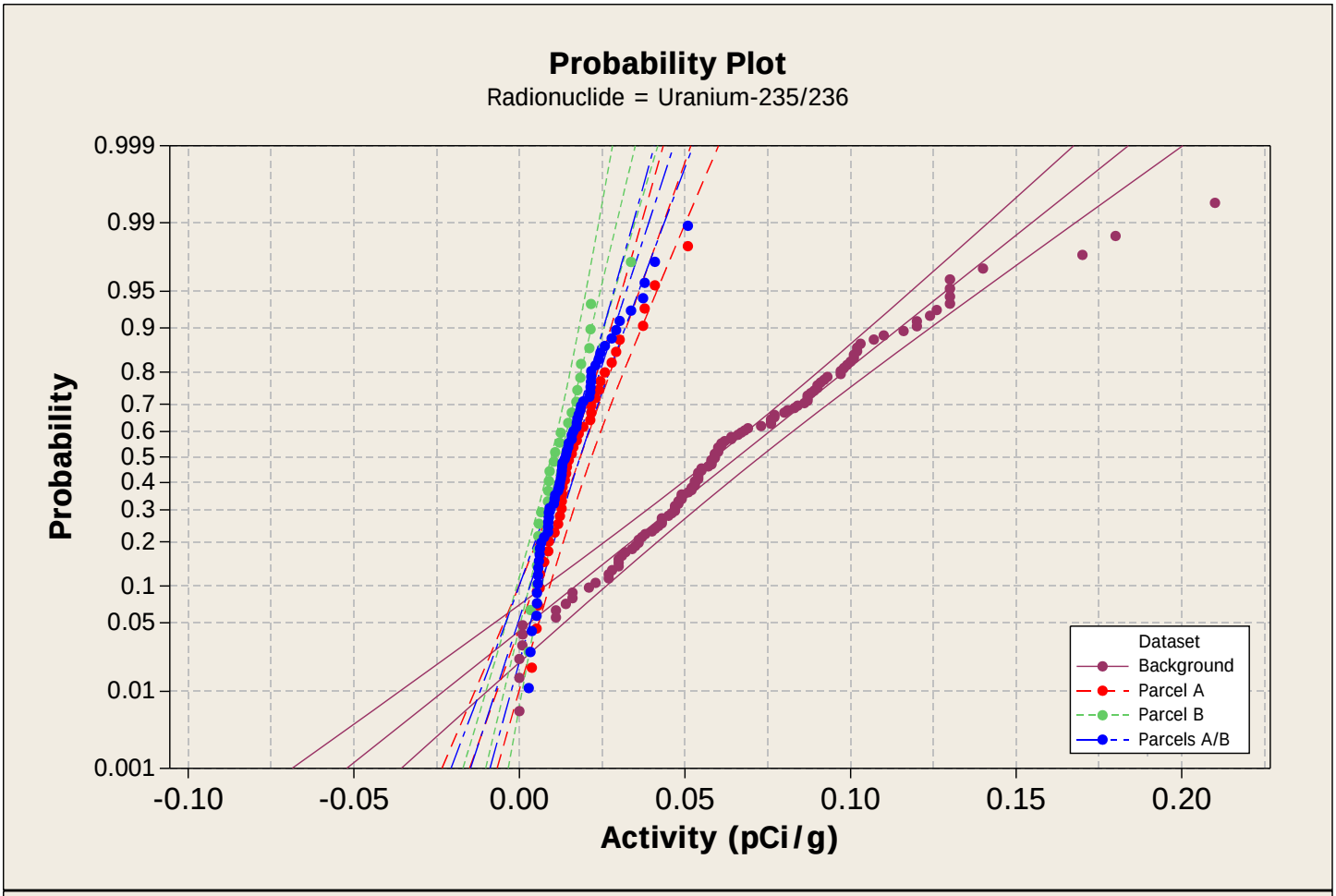

Probability Plot
Radionuclide = Thorium-230
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

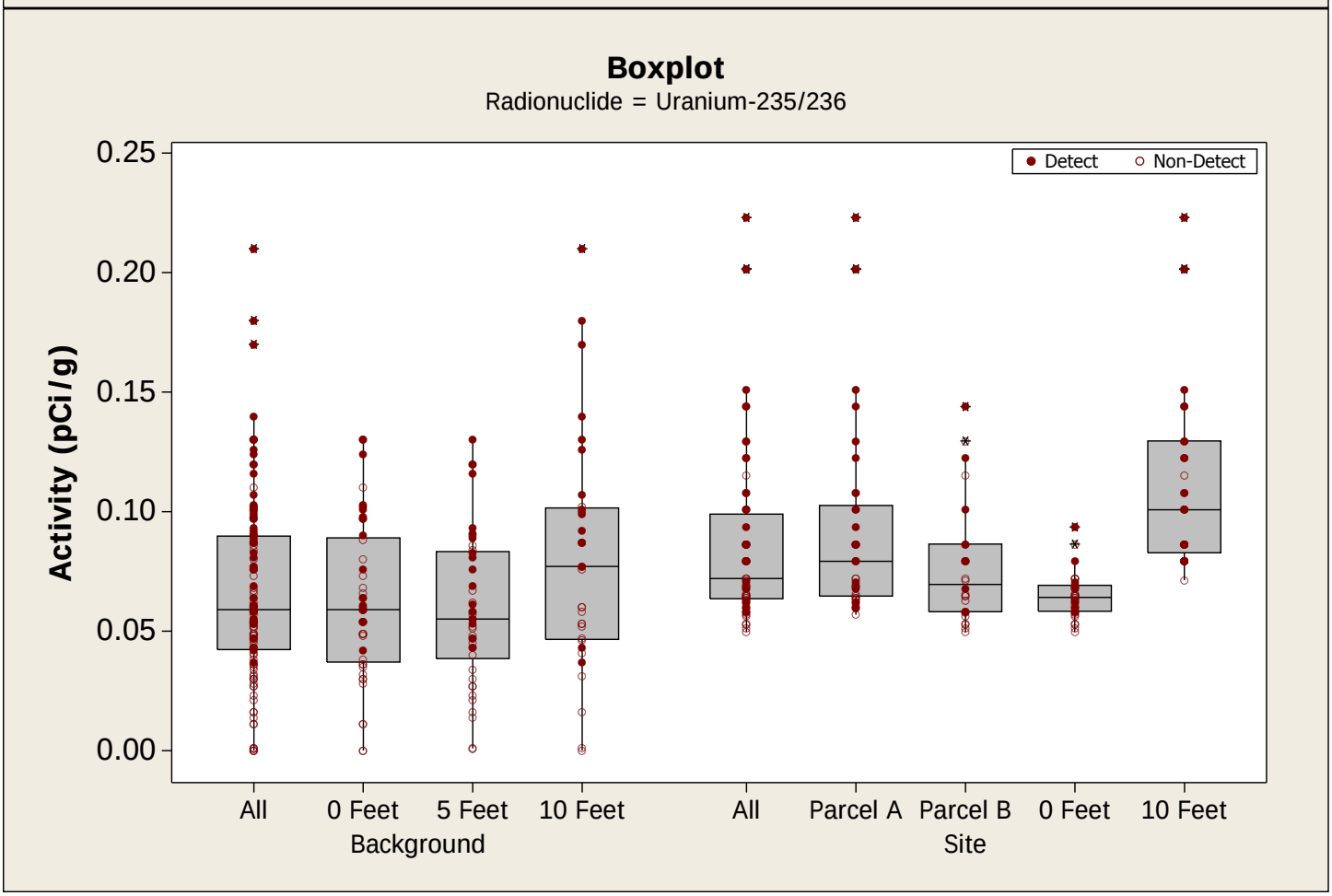

Boxplot
Radionuclide = Thorium-230
Activity (pCi/g)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site

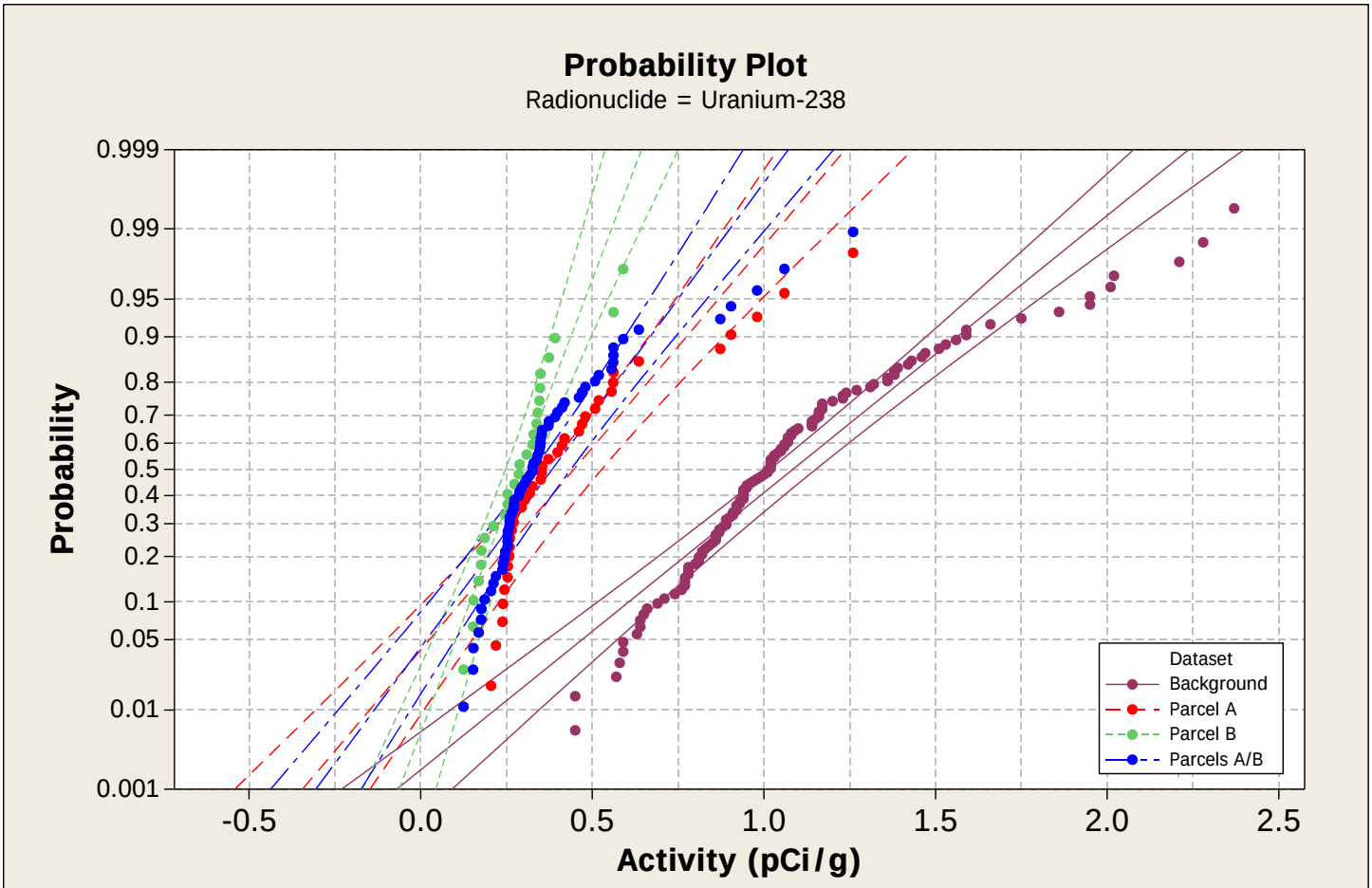

Probability Plot
Radionuclide = Thorium-232
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B

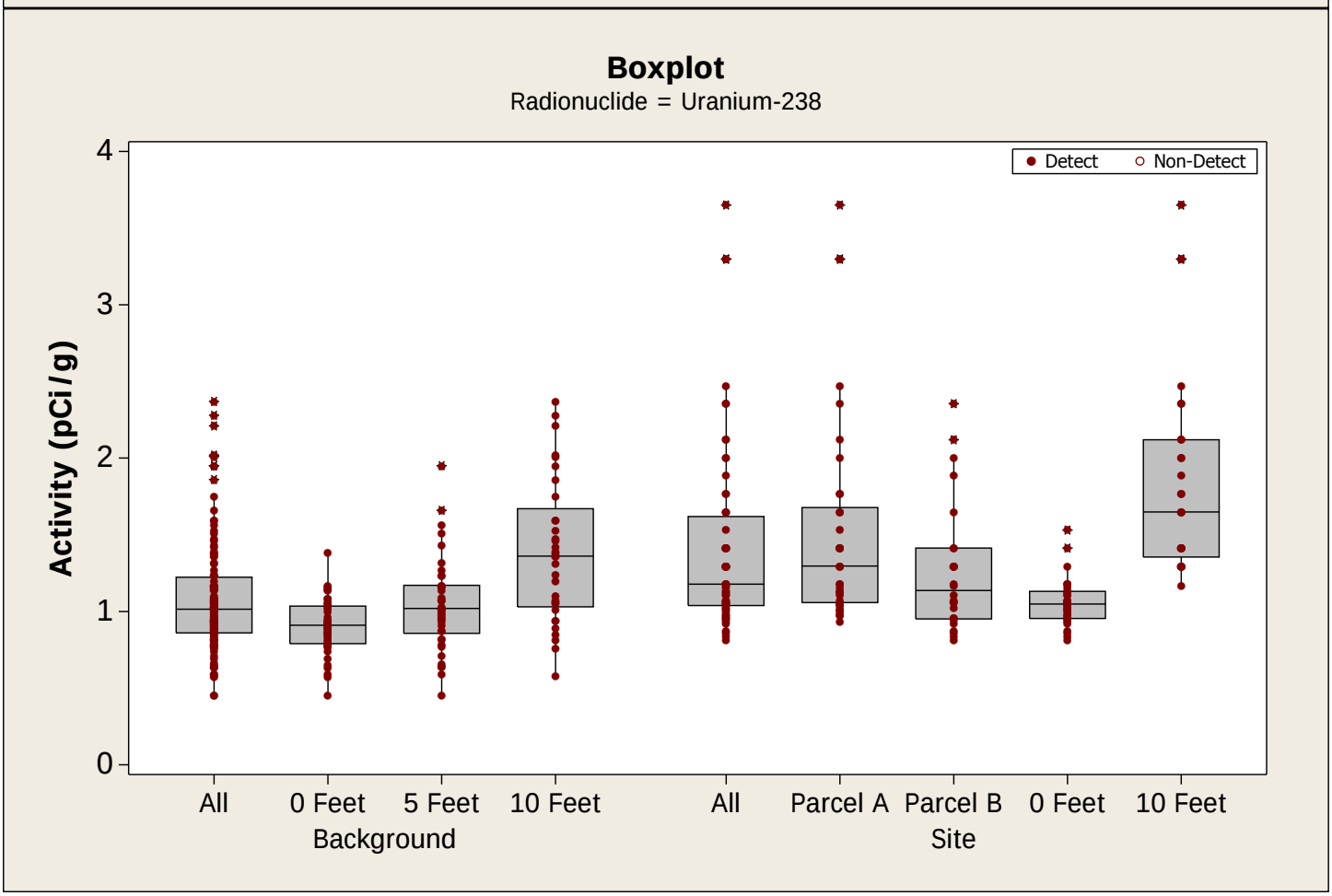

Boxplot
Radionuclide = Thorium-232
Activity (pCi/g)
2.5
2.0
1.5
1.0
0.5
0.0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site


Probability Plot
Radionuclide = Uranium-233/234
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-1
0
1
2
3
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B
Boxplot
Radionuclide = Uranium-233/234
Activity (pCi/g)
Detect
Non-Detect
4
3
2
1
0
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site


Probability Plot
Radionuclide = Uranium-235/236
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.10
-0.05
0.00
0.05
0.10
0.15
0.20
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B


Boxplot
Radionuclide = Uranium-235/236
Activity (pCi/g)
0.25
0.20
0.15
0.10
0.05
0.00
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site


Probability Plot
Radionuclide = Uranium-238
Probability
0.999
0.99
0.95
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.05
0.01
0.001
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
Activity (pCi/g)
Dataset
Background
Parcel A
Parcel B
Parcels A/B


Boxplot
Radionuclide = Uranium-238
Activity (pCi/g)
4
3
2
1
0
Detect
Non-Detect
All
0 Feet
5 Feet
10 Feet
Background
All
Parcel A
Parcel B
0 Feet
10 Feet
Site