



northgate
environmental management, inc.

**POST-REMEDATION SCREENING HEALTH RISK
ASSESSMENT REPORT FOR PARCELS C, D, F, G
AND H, Revision 2**
Nevada Environmental Response Trust Site
Henderson, Nevada

Prepared For:

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June 27, 2013

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Henderson, Nevada**

Nevada Environmental Response Trust (NERT) Representative Certification

I certify that this document and all attachments submitted to the Division were prepared at the request of, or under the direction or supervision of the Trust. Based on my own involvement and/or my inquiry of the person or persons who manage the system(s) or those directly responsible for gathering the information or preparing the document, or the immediate supervisor of such person(s), the information submitted and provided herein is, to the best of my knowledge and belief, true, accurate, and complete in all material respects.

Office of the Nevada Environmental Response Trust

Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Signature: Jay A. Steinberg, as President, and not individually, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

Name: Jay A. Steinberg, not individually, but solely in his representative capacity as President of the Nevada Environmental Response Trust Trustee

Title: Solely as President and not individually

Company: Le Petomane XXVII, Inc., not individually, but solely in its representative capacity as the Nevada Environmental Response Trust Trustee

Date: 6/27/13



**Post-Remediation Screening Health Risk Assessment Report
For Parcels C, D, F, G, and H, Revision 2
Nevada Environmental Response Trust Site
Henderson, Nevada**

Responsible Certified Environmental Manager (CEM) for this project

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.



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ACRONYM LIST

Acronym	Meaning
ADD	Average daily dose
BCL	Basic comparison level
Bgs	Below ground surface
BEC	Basic Environmental Company
BRC	Basic Remediation Company
CLP	Contact Laboratory Program
COPC	Chemical of potential concern
CSM	Conceptual site model
Cy	Cubic yards
DF	Dilution factor
DQI	Data quality indicator
DQO	Data quality objective
DVSR	Data validation summary report
EC	Exposure concentration
ECD	Electron capture detector
ED	Exposure duration
ECAO	Environmental Criteria And Assessment Office
EDA	Exploratory data analysis
EPC	Exposure-point concentration
GC	Gas chromatograph
GISdT [®]	Guided Interactive Statistical Decision Tool
HEAST	Health Effects Assessment Summary Tables
HI	Hazard Index
HRA	Health Risk Assessment
ILCR	Incremental Lifetime Cancer Risk
IUPAC	International Union of Pure and Applied Chemicals
LADD	Lifetime average daily dose
LBCL	Leaching Basic Comparison Level
LOU	Letter of Understanding
LVP	Las Vegas Paving
MS	Mass spectrometer
MSD	Matrix spike duplicate
NCEA	National Center for Environmental Assessment
NDEP	Nevada Division of Environmental Protection
OCP	Organochlorine pesticide
PAH	Polynuclear aromatic hydrocarbon
PARCC	Precision, accuracy, representativeness, comparability, and completeness
PCB	Polychlorinated biphenyls
PEF	Particulate emission factor
PPRTV	Provisional peer-reviewed toxicity value
PQL	Practical quantitation limit



Acronym	Meaning
Q-Q	Quantile to quantile
QA/QC	Quality assurance/quality control
QAPP	Quality Assurance Project Plan
RAS	Remedial Alternatives Study
RfC	Reference concentration
RfD	Reference dose
RME	Reasonable maximum exposure
ROD	Record of Decision
RPD	Relative percent difference
RZ-A	Remediation Zone A
SF	Slope factor
SOP	Standard operating procedure
SQL	Sample quantitation limit
SRC	Site-related chemical
SVOC	Semi-volatile organic compound
SWP	Soil-water partitioning
TEF	Toxicity equivalency factor
TEQ	Toxicity equivalency
TPH	Total petroleum hydrocarbon
U	Qualified
UCL	Upper confidence limit
URF	Unit risk factor
U.S. EPA	U.S. Environmental Protection Agency
VOC	Volatile organic compound



EXECUTIVE SUMMARY

On behalf of the Nevada Environmental Response Trust (the Trust), Northgate Environmental Management, Inc. (Northgate) has prepared this Post-Remediation Health Risk Assessment (HRA) Report for Parcels C, D, F, G, and H (Parcels) at the Nevada Environmental Response Trust Site in Henderson, Nevada (the Site). The Parcels represent a subset of the original parcels A through J. It should be recognized that these parcels do not correspond to Clark County assessor parcel designations.

The removal action was completed in accordance with the Removal Action Workplan (BEC, 2008a), with over 11,000 tons of soil removed and transported to an approved landfill. Analytical results for confirmation samples collected following the soil removal action were all less than the approved remediation goals. However, small areas of unremediated soil remain in Parcels C, F, G, and H. In Parcel C, an unremediated area of approximately 8,345 square feet south of the South Haul Road Fence line will be removed by Black Mountain Industrial (BMI) in conjunction with BMI's planned removal of the Haul Road. In Parcels F, G, and H, four small areas (ranging from 135 to 1,955 square feet) were not remediated, either because the soils were covered by asphalt or were adjacent to railroad tracks. For these areas, qualitative considerations suggest that associated risks would be insignificant due to one or more of the following factors: the soil is covered with asphalt, the area is small, and/or the area is in close proximity to a road or railroad track where individuals would not spend a significant amount of time. In addition, it appears that those areas under paved roads along the Site boundary are an artifact of the mapping of the remediation polygons and that these areas should not have been identified for removal.

A post-remediation HRA was conducted to evaluate the residual soil concentrations in the Parcels. Soil data collected as part of the initial and confirmation sampling efforts were evaluated and the usable data were selected for the purposes of this HRA. The methods and findings from the HRA can be summarized as follows:

- Based on the Conceptual Site Model (CSM) for the Parcels, potential exposure to soil was evaluated for future onsite indoor commercial/industrial workers, outdoor commercial workers, and future construction workers via direct contact with soil (i.e., incidental ingestion, dermal contact) and inhalation of dust. Chemicals of potential concern (COPCs) were selected according to a multi-step process, including comparisons to background for metals and radionuclides, a toxicity screen, frequency of detection, and CSM considerations. Based on this process, 10 chemicals were selected as COPCs.
- Non-cancer hazard indices and/or theoretical excess cancer risks associated with direct contact with soil and inhalation of dust were estimated for all of the COPCs except asbestos, based on the maximum detected concentration. The estimated hazard indices



and excess cancer risks were equal to or below NDEP's point of departure for non-cancer effects (hazard index of 1) and cancer risks (1×10^{-6}) for future onsite indoor commercial/industrial workers, outdoor commercial workers, and future construction workers under the conditions evaluated.

- With regard to asbestos, a best estimate and an upper-bound estimate were calculated. The estimated risks for death from lung cancer or mesothelioma for asbestos exposures to future onsite outdoor commercial workers and construction workers are less than or equal to 1×10^{-6} , except for upper-bound estimates of exposure to amphibole fibers by future construction workers. The upper-bound estimates were slightly above NDEP's point of departure for cancer risks for exposure to amphibole fibers by future construction workers; however the estimates were based on constant lifetime exposures, not short-term exposure such as construction activities. Therefore, exposures to asbestos in soil should not result in unacceptable risks for future onsite outdoor commercial workers or future construction workers.

The results indicate that exposure to residual chemicals in soil in the Parcels should not result in unacceptable risks for all future onsite receptors evaluated in this HRA.



1.0 INTRODUCTION

On behalf of the Trust, Northgate has prepared this Post-Remediation Health Risk Assessment (HRA) Report for Parcels C, D, F, G, and H (Parcels) at the Site. The original draft of this report was authored by Northgate and Exponent, Inc. (Exponent) and submitted to the Nevada Division of Environmental Protection (NDEP) on December 10, 2010 on behalf of Tronox, LLC (Tronox). A revised report was submitted to NDEP on May 18, 2012 to address NDEP comments on the original draft issued in a letter dated May 19, 2011. This revised report has been prepared to address NDEP comments on the revised report issued in letters dated August 7 and 10, 2012. These Parcels represent a subset of the original Parcels A through J. It should be recognized that these parcels do not correspond to Clark County assessor parcel designations.

The major revisions that have been made to this updated HRA report, as compared with the previously submitted May 18, 2012 HRA report are summarized below:

- NDEP's August 7 and 10, 2012 comments on the May 18, 2012 report and Data Validation Summary Report (DVSR), respectively, were addressed, as well as comments received during teleconferences on December 5, 2012 (NDEP, 2012b) and March 22, 2013 (NDEP, 2013). Annotated response to comments (RTC) letters are provided in Appendix A.
- The soil analytical data set has been revised to address NDEP comments (NDEP, 2012a) on treatment of blanks, detection limits, and other issues.
- The Parcel G boundary was revised. (The southern half of Parcel G is currently leased by Tronox and this area is no longer for sale.) As a result of this change, the total sample count is less than the sample count reported in the May 18, 2012 report. In addition, polycyclic aromatic hydrocarbons (PAHs) are no longer identified as chemicals of potential concern (COPCs).
- Cumulative risk estimates for exposures to soil and soil gas at the Parcels that were presented in the May 18, 2012 report have been removed from this HRA report as a result of an NDEP request to collect additional soil gas samples in the Parcels (NDEP, 2012a). The updated risk estimates for the vapor intrusion and outdoor air pathways and cumulative risk estimates for the soil-related and vapor intrusion pathways will be presented in an upcoming HRA (ENVIRON, 2013c).
- Section 5.3 of the May 18, 2012 report, which presented a screening-level evaluation of the potential for leaching of COPCs to groundwater, has been deleted. The proposed approach for evaluating leaching potential is discussed in ENVIRON's *Remedial Investigation and Feasibility Study Work Plan* (RI/FS Work Plan; ENVIRON, 2012).



This report presents field activities related to soil remediation and asbestos abatement conducted in the Parcels, a post-remediation risk assessment that was performed to evaluate potential human health risks associated with residual concentrations of chemicals in soil following remediation, and supporting tables, figures, and appendices.

The remedial actions described in this report are based on information contained in the following documents:

- *Removal Action Workplan for Soil, Tronox Parcels “C”, “D”, “F”, “G”, and “H” Sites, Henderson, Nevada* (RAW), prepared by Basic Environmental Company (BEC), dated July 1, 2008 (BEC, 2008a);
- NDEP July 2, 2008, approval letter of *Removal Action Workplan for Soil, Tronox Parcels “C”, “D”, “F”, “G”, and “H” Sites, Henderson, Nevada* dated July 1, 2008, with comments, and July 2, 2008, e-mail correspondence between Shannon Harbour of NDEP and Susan Crowley of Tronox regarding NDEP comment clarifications (NDEP, 2008a);
- *Data Validation Summary Report, Tronox Parcels C, D, F, and G Investigation, November 2007, BMI Industrial Complex, Clark County, Nevada*, prepared by ERM-West, Inc., and dated February 2008 (ERM-West, 2008a) including amended tables provided in Appendix C of this report;
- *Data Validation Summary Report, Tronox Parcel H Investigation, January 2008, BMI Industrial Complex, Clark County, Nevada*, prepared by ERM-West, Inc., and dated April 2008 (ERM-West, 2008b) including amended tables provided in Appendix C of this report;
- *Data Validation Summary Report, Tronox Parcels C, D, F, G and H Supplemental Investigations-June-July 2008, BMI Industrial Complex, Clark County, Nevada*, prepared by ERM-West, Inc., and dated January 2009 (ERM-West, 2009) including amended tables provided in Appendix C of this report; and
- *Data Validation Summary Report, Parcels “C”, “D”, “F”, “G”, and “H” Soil Confirmation, Tronox LLC, Henderson, Nevada*, prepared by Northgate, dated June 15, 2010 (Northgate, 2010a) including amended tables provided in Appendix C of this report.

1.1 Scope of Report

The purpose of this report is twofold: 1) to describe the field activities related to implementing the RAW for soil in the Parcels, including the scraping and removal of asbestos- and chemically-impacted soils within the Parcels; and 2) present a post-remediation HRA based on the initial and confirmation Parcel soil data.



The objective of the post-remediation HRA is to evaluate the potential for adverse human health impacts that may occur as a result of exposure to soil in the Parcels that contains residual chemicals. The findings of this report are intended to support the site closure process for the Parcels. Potential exposure to residual chemicals in soil vapor in the Parcels will be evaluated in a Soil Gas Vapor Intrusion HRA prepared by ENVIRON; cumulative risks for exposures to soil-related and the vapor intrusion pathways will also be presented. The approach for evaluating potential impacts to groundwater beneath the Parcels is discussed in the RI/FS Work Plan (ENVIRON, 2012).

The overall goal of this report is to demonstrate that soil within the Parcels has been remediated in a manner consistent with the cleanup strategy presented in the RAW (BEC, 2008a), and that under a future commercial/industrial land-use scenario, there is no significant risk to human health associated with soils at the Parcels.

1.2 Report Organization

This HRA report is organized as follows:

- Section 2.0 describes past uses of the Parcels and results of BEC's Phase 2 soil sampling;
- Section 3.0 describes Northgate's field activities related to the scraping and removal of soil in the Parcels, including summaries of soil volumes removed and disposed. The confirmation soil sampling program conducted within the Parcels after completion of removal activities is also discussed;
- Section 4.0 presents the sources of the analytical data used in the post-remediation HRA, and procedures used to evaluate the data;
- Section 5.0 presents the post-remediation HRA and includes the conceptual site model (CSM), selection of COPCs, exposure assessment, toxicity assessment, and risk characterization;
- Section 6.0 presents an overall summary and conclusions regarding the current conditions at the Parcels; and
- Section 7.0 provides references for documents cited in this report.

Supporting tables, figures, and appendices follow the text of this report.



2.0 NEVADA ENVIRONMENTAL RESPONSE TRUST SITE DESCRIPTION AND HISTORY

The approximately 410-acre Site, of which the Parcels constitute approximately 81 acres, is located approximately 13 miles southeast of the city of Las Vegas in an unincorporated area of Clark County, Nevada, and lies in Sections 1, 12, and 13 of Township 22 S, Range 62 E, (Figure 1). The Site is located within the BMI complex, which consists of several facilities, owned and/or operated by chemical companies, one of which is owned and operated by Tronox, as a tenant, on property owned by the Trust. The City of Henderson surrounds the BMI complex, which is an unincorporated Clark County “island.”

Early in the Site’s environmental investigation history, the Parcels were identified as areas that were either generally undeveloped and/or not significantly chemically-impacted by previous uses. Parcel boundaries are shown on Figure 2.

The BMI complex was first developed by the U.S. government in 1942 as a magnesium plant for World War II operations. Later, a part of the BMI complex was leased by Western Electrochemical Company (WECCO). WECCO produced manganese dioxide, sodium chlorate, sodium perchlorate, and other perchlorates. WECCO also produced ammonium perchlorate (a powerful oxidizer) for the Navy during the early 1950s, using a plant that was constructed on the Site by the Navy. WECCO merged with American Potash and Chemical Company (AP&CC) in 1956, and continued production of ammonium perchlorate for the Navy. In 1967, AP&CC merged with Kerr-McGee Corporation (Kerr-McGee) and added production of boron chemicals in the early 1970s. The production processes included elemental boron, boron trichloride (a colorless gas used as a reagent in organic synthesis), and boron tribromide (a colorless fuming liquid compound used in a variety of applications). The production of boron tribromide was discontinued in 1994, and the production of sodium chlorate and ammonium perchlorate was discontinued in 1997 and 1998, respectively. Perchlorate was reclaimed at the Site using existing equipment until early 2002.

In 2005, Kerr-McGee Chemical LLC was renamed Tronox LLC. Tronox’s Henderson facility continues to produce electrolytic manganese dioxide, used in the manufacture of alkaline batteries; elemental boron, a component of automotive airbag igniters; and boron trichloride, used in the pharmaceutical and semiconductor industries and in the manufacture of high-strength boron fibers for products that include sporting equipment and aircraft parts. Tronox currently leases the Henderson facility (the Facility) from the Trust, which took title to Site (including the Facility) on February 14, 2011.



During the 1970s, the U.S. Environmental Protection Agency (U.S. EPA), the State of Nevada, and Clark County investigated potential environmental impacts from the BMI companies' operations, including atmospheric emissions, groundwater and surface-water discharges, and soil impacts (Ecology and Environment, 1982). From 1971 to 1976, Kerr-McGee modified its manufacturing process and constructed lined surface impoundments to recycle and evaporate industrial wastewater. In 1976, the facility achieved zero discharge status regarding industrial wastewater management. In 1980, the U.S. EPA requested specific information from the BMI companies regarding their manufacturing and waste management practices by issuing Section 308 letters. In 1993, a Phase I site assessment was completed for the Site and approved by NDEP. In 1994, NDEP issued a Letter of Understanding (LOU) to Kerr-McGee that identified 69 specific areas or items of interest and indicated the level of environmental investigation they wanted Kerr-McGee to conduct. In 1996, Kerr-McGee completed a Phase II site assessment, which included field sampling as described in an NDEP approved Phase II Work Plan.

Tronox continued to undertake environmental investigations as well as removal actions at the Site up until February 14, 2011, on which date the Trust assumed responsibility for removal activities at the Site pursuant to an Interim Consent Agreement. A detailed discussion of the specific areas or items of interest identified in the LOU, and a list of the products made, years of production, and approximate waste volumes for WECCO, AP&CC, and Kerr-McGee/Tronox are found in the *Conceptual Site Model (CSM) Report* (ENSR, 2005).

Background information, including local geology, hydrogeology, and wind direction, is also described in the *Conceptual Site Model (CSM) Report* (ENSR, 2005). In general, groundwater is encountered in the fine-grained facies within the uppermost Muddy Creek Formation. The depth to groundwater ranges from about 27 to 80 feet below ground surface (bgs) and is generally deepest in the southernmost portion of the Site (where Parcel H is located). The prevailing wind direction for the Site is from the Southwest and the South or West with the Olin property located up-wind (west) and the TIMET property located down-wind (east) from the Site (see Figure 1 for wind-rose). Based on the prevailing wind direction, the nearest down-wind residences are located approximately 1800 feet from Parcel D, which is the northern-most parcel included in this report.

2.1 Historical Uses and Results of Investigations of Parcels C, D, F, G, and H

Northgate compiled information regarding historical usage and investigations of the Parcels from the following sources:

- *Environmental Conditions Assessment, Kerr-McGee Chemical Corporation, Henderson, Nevada Facility*, prepared by Kleinfelder, and dated April 1993 (Kleinfelder, 1993);



- *Removal Action Workplan for Soil, Tronox Parcels “C”, “D”, “F”, “G” and “H” Sites, Henderson, Nevada (RAW)*, prepared by Basic Environmental Company (BEC), and dated July 1, 2008 (BEC, 2008a);
- *Revised Phase B Site Investigation Work Plan for Areas I, II, III and IV*, Text, Tables and Figures, prepared by AECOM, dated December 2008, and containing summaries for 70 LOUs (sites identified in an August 15, 1994 Letter of Understanding); and
- *Phase I Environmental Site Assessment [ESA], Approximately 182 Acres, APNs 178-13-601-002, -002, 178-12-101-002, -003, 178-12-201-005, 178-12-601-005, 178-01-401-001, 178-11-501-007, and Portions of 178-12-401-009 & 178-13-101-002, Henderson, Nevada*, prepared by Converse Consultants (Converse), and dated March 5, 2007 (Converse, 2007).

In addition, Northgate created a map that consists of the Parcel location map overlain with the LOU locations (henceforth: LOUs). The resultant map (Figure 2) was reviewed to determine which LOUs were identified in each of the five Parcels. No LOUs are located in Parcels C or H. The tip of the southern portion of LOU 68 is located in Parcel D, and LOU 6 (the unnamed drainage ditch segment) extends across Parcel D. LOUs 63, 65c, and a portion of LOU 59 are located in Parcel F; and LOUs 59, 60, and 65d are located in Parcel G. Descriptions of these LOUs are included in Sections 2.1.1, 2.1.2, and 2.1.3, respectively.

On behalf of BEC, ERM-West conducted soil sampling in Parcels C, D, F, and G in August and September 2007 (DVSR dated February 2008 [ERM-West, 2008a]) and in Parcel H during January and March 2008 (DVSR dated April 2008 [ERM-West, 2008b]) in accordance with the *Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization* (BEC, 2007a,b,c,d,e). The initial investigation data summaries and risk tables were presented by BEC and discussed with NDEP and Tronox on May 15, 2008 (NDEP, 2008b). Based on the findings discussed during the meeting, a supplemental investigation was conducted in Parcels C, D, F, G, and H in June and July 2008, in accordance with the Sampling and Analysis Plan (SAP; BEC, 2008b), and results were reported in the DVSR dated January 2009 (ERM-West, 2009). BEC prepared a RAW for the Parcels that proposed remediation polygons in each of the Parcels (BEC, 2008a). The RAW was approved by NDEP on July 2, 2008 (NDEP, 2008a), and served as the basis for Northgate’s 2010 remediation of the Parcels.

Asbestos remediation goals for the Parcels were established by NDEP as four or more long chrysotile fibers and one or more long amphibole fibers (>10 microns [μm] in length and <0.4 μm in width). The Agency for Toxic Substances and Disease Registry (ATSDR) action level of one part per billion was used as a remediation goal for dioxins and furans. For all other chemicals, the NDEP BCLs for the Industrial/Commercial worker, which are based on an



incremental lifetime cancer risk (ILCR) of one in one million (1×10^{-6}) or a non-cancer hazard index of 1, were used as the remediation goals (BEC, 2008a).

2.1.1 Parcel C and D Historical Use and Investigation

Historical use of Parcels C and D has been limited, based on review of historical aerial photographs and reports of past activities. No LOUs are located in Parcel C (Figure 3). Parcel C is a 20.4-acre parcel located directly north and adjacent to the former Trade Effluent Ponds. Review of aerial photographs indicates that sometime prior to 1950, multiple ditches lined with French drains were installed across Parcel C, perpendicular to, and leading from, a main French drain that traversed east-west along the northern berm of the ponds located along the southern boundary of Parcel C. The drains were ostensibly used for capturing underflow from the former Trade Effluent Ponds. At some point, these ditches were disturbed and possibly graded over.

Parcel D is a 24.6-acre parcel located directly north of Parcel C, and based on review of historical aerial photographs, the ditches (French drains) described for Parcel C extended into and terminated in the eastern two-thirds of Parcel D. Southern Nevada Auto Parts (a former Kerr-McGee tenant) operated an auto impound yard where wrecked, police-impounded, and repossessed vehicles were stored. NDEP identified this area as LOU 68. The southern portion of the lease area appeared to have minor soil staining (Kleinfelder, 1993). LOU 6 (the Unnamed Drainage Ditch Segment, also referred to as the Northwest Ditch) extends across Parcel D. The Northwest Ditch, which originated near the Beta Ditch (LOU 5) and crossed the northern portion of the Site (Kleinfelder, 1993), conveyed process waste streams from the BMI Complex facilities to the BMI Common Area and was identified under the Phases I and II BMI Common Area Consent Agreement as a BMI Common Areas issue (ENSR, 2005; Broadbent & Associates, Inc., 2011). According to the BEC (2008a) RAW, Phase 2 soil sampling performed in Parcels C and D indicated the presence of long amphibole fibers and long chrysotile fibers exceeding remediation goals at four locations (samples TSB-CR-02, TSB-CR-03, and TSB-CJ-03 in Parcel C, and TSB-DR-04 in Parcel D), and dioxins/furans in sample TSB-CR-07 located in Parcel C (Figure 3).

BEC developed Thiessen/Voronoi polygons for Parcels C and D. The single polygon located in Parcel D was an exception to the rule, because it was located in a drainage ditch. BEC based the dimensions of this polygon on the fact that two subsequent soil samples collected east and west of TSB-DR-04 (TSB-DR-04E and TSB-DR-04W) were found to be “clean.” These polygons were the basis for Northgate’s remedial design for Parcels C and D (Figure 3). Northgate’s remedial activities are described in Section 3.2.



2.1.2 Parcel F Historical Use and Investigation

LOUs 63, 65c, and a portion of LOU 59 are located in Parcel F. Parcel F is a 7.2-acre parcel that was initially leased by W.S. Hatch Company, a trucking operation, from 1980 to 1986. Jack B. Kelley, Inc. (J.B. Kelley) leased Parcel F from 1986 through at least 1993 and also operated a trucking operation (Kleinfelder, 1993). The company hauled commodities such as lime and soda ash. The areas of interest at the J.B. Kelley site included a 10,000-gallon fiberglass diesel underground storage tank (UST), a ceramic-lined 600-gallon waste-oil UST, and truck washing in eight open concrete vaults that formerly served as foundations for peat storage buildings during World War II. Rinsate from truck washing was reportedly discharged to the former vault floors, metal containment tanks, a storm sewer, and/or the ground surface. Additional fluids from truck maintenance activities, such as oil changes, were reportedly discharged to the storm sewer, which conveyed the wash water and other fluids northward to the Beta Ditch (Kleinfelder, 1993).

Chemicals reported in tanker-truck rinsate consisted of lime, soda ash, barite, magnesium chloride brine, and possibly dilute concentrations of ferric chloride, hydrochloride, sodium hydro sulfide, sodium hydroxide, and titanium tetrachloride. Onsite wash activities ceased in 1991. JB Kelley, Inc. retained consultants to conduct field investigations of the diesel UST and 600-gallon ceramic-lined waste-oil UST. Both tanks were found to have leaked, and were removed in 1991. Contaminated soil in the tank pits was reportedly excavated at the time of tank removal (Kleinfelder, 1993).

According to the Converse (2007) Phase 1 Site Assessment, a Phase I ESA was conducted for Parcel F by Tetra Tech EM, Inc. (Tetra Tech), in October of 2005, on behalf of TIMET. The Tetra Tech ESA reportedly found three Recognized Environmental Conditions (RECs) in Parcel F: an empty steel tank, three 55-gallon drums (no longer present on March 8, 2013), and a painted surface on the interior of a building. The Phase 1 ESA review of historical aerial photographs identified a building present on Parcel F in 1950 that was no longer visible in 2006 (Converse, 2007).

LOU 65c was formerly occupied by Nevada Pre-Cast Concrete, which used office space near the J.B. Kelley operations from January 1973 to May 1978. Reportedly, only office activities were conducted by Nevada Pre-Cast Concrete (Kleinfelder, 1993). No waste streams or chemical uses have been associated with LOU 65c.

Segments of LOU 59 (the Storm Sewer System) are located in Parcel F.



Soil quality investigations have been performed to characterize Parcel F. According to the BEC (2008a) RAW, Phase 2 soil sampling performed in Parcel F indicated the presence of long amphibole fibers and long chrysotile fibers exceeding remediation goals at eight locations in Parcel F (TSB-FJ-01, TSB-FJ-02, TSB-FR-02, TSB-FJ-03, TSB-FJ-05, TSB-FJ-06, TSB-FJ-07, and TSB-FJ-08). In addition, Aroclor 1254, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene at TSB-FR-02, and arsenic at TSB-FJ-02 were detected above BCLs (Figure 4).

BEC developed Thiessen/Voronoi polygons for Parcel F. These polygons were the basis for Northgate's remedial design for Parcel F (Figure 4). Northgate's remedial activities are described in Section 3.3.

2.1.3 Parcel G Historical Use and Investigation

LOU 65d and a portion of LOUs 59 (the Storm Sewer System) and 60 (the Acid Drain System) are located in Parcel G (2.8-acre parcel). No waste streams or chemical uses have been identified for LOU 65d. Green Ventures International (LOU 65d) leased a building ("S3 Changehouse") from August 1980 to September 1981 for use as a marketing office by a Green farming operation. Only office activities were conducted by Green Ventures International (Kleinfelder, 1993). No waste streams or chemical uses have been associated with LOU 65d.

Soil quality investigations have been performed to characterize Parcel G. According to the BEC (2008a) RAW, Phase 2 soil sampling performed in Parcel G indicated the presence of long amphibole fibers exceeding the remediation goal at TSB-GJ-09 and benzo(a)pyrene above its BCL at TSB-GJ-06 (Figure 5).¹

BEC developed Thiessen/Voronoi polygons for Parcel G. These polygons are the basis for Northgate's remedial design for Parcel G (Figure 5). Northgate's remedial activities are described in Section 3.4.

2.1.4 Parcel H Historical Use and Investigation

Review of historical aerial photographs from 1950 through 2006 of Parcel H (26-acre parcel) indicates that the property has remained undeveloped. Soil quality investigations have been performed to characterize Parcel H. According to the BEC (2008a) RAW, Phase 2 soil sampling

¹ Long amphibole fibers exceeding the remediation goal were also found at TSB-GJ-04, which was previously thought to be in Parcel G, but is no longer considered within the Parcel boundary.



performed in Parcel H indicated the presence of long amphibole fibers and/or long chrysotile fibers exceeding remediation goals at two locations (TSB-HJ-09 and TSB-HR-06).

BEC developed Thiessen/Voronoi polygons for Parcel H. These polygons were the basis for Northgate's remedial design for Parcel H (Figure 6). Northgate's remedial activities are described in Section 3.5.



3.0 PARCEL REMEDIATION AND CONFIRMATION SAMPLING

3.1 Scope of Work

Northgate conducted field work, under the oversight of NDEP, to remediate the Parcels during the months of March and April 2010. Work was performed in accordance with the RAW (BEC, 2008a). Remediation consisted of scraping the top 1 foot or less from each polygon shown on Figures 3 through 6. After each polygon was scraped to the target depth, confirmation soil samples were collected from each polygon. A total of 20 confirmation soil samples and 16 field quality control (QC) samples were collected from 17 polygons in the five Parcels². Field samples and the associated field QC samples were logged into the laboratories in Sample Delivery Groups (SDGs). The Parcel Soil Confirmation data are contained in nine SDGs.

The analytical data were validated by Laboratory Data Consultants, Inc. (LDC) in accordance with procedures described in the NDEP *Data Verification and Validation Requirements – Supplement, Henderson, Nevada, April 13, 2009*, established for the BMI Plant Sites and Common Areas Projects (NDEP, 2009a). A complete listing of the Parcel Soil Confirmation samples and SDGs is presented in Table 1-2 of the Northgate (2010a) Data Validation Summary Report for the Parcels, which is discussed later in this report and provided in Appendix C.

A total of 11, 262 tons of soil were scraped during remediation of the Parcels and transported in covered trucks to Apex Landfill, approximately 37 miles away from the Site. Figures prepared by Las Vegas Paving (LVP) are presented as Appendix B-1. Soil disposal manifests are presented in Appendix B-2. Descriptions of each scrape area are presented for each Parcel in the following sections (3.2 through 3.5). Parcels C and D are presented together because they share boundaries and have similar site-use history.

3.2 Parcels C and D Scrape Cleanup

Five scrape areas were located in Parcels C and D, as shown approximately on Figure 3. A total of 1,807 cubic yards (cy) and 82 cy of soil were removed from Parcels C and D, respectively. More than 50% of the soil removed was in the vicinity of sample TSB-CJ-03 (680 cy). Total scrape depths in Parcel C and D ranged from 0.4 to 1.0 feet below original grade surface as shown in Table 1. Approximately 8,345 square feet south of the existing South Haul Road Fence

² There is one additional polygon and confirmation sample that were located on the southern portion of the parcel that is no longer included in Parcel G as shown in Appendix B-1 (Parcel G Scrape Information).



line remains to be remediated by BMI when their haul road is removed (Parcel C and D Scrape Area Information, Appendix B-1).

3.3 Parcel F Scrape Cleanup

Eight scrape areas were located in Parcel F, as shown approximately on Figure 4 and in Appendix B-1 (Parcel F Scrape Area Information). A total of 3,928 cy of soil was removed from Parcel F. Total scrape depths in Parcel F ranged from 0.2 to 0.9 feet below original grade surface as shown in Table 1. Two small portions of proposed remediation areas in Parcel F were not scraped because of impediments: 1) approximately 1,000 square feet section of the center portion of Fourth Street (along the western boundary of Parcel F) that was covered by asphalt, and 2) approximately 1,955 square feet of railroad track along the southern boundary (Parcel F Scrape Area Information, Appendix B-1). However, excavation was conducted to the edge of the above-described inaccessible areas. For these areas, qualitative considerations suggest that associated risks would be insignificant due to one or more of the following factors: the soil is covered with asphalt, the area is small, and the area is in close proximity to a road or railroad track where individuals would not spend a significant amount of time. In addition, it appears that those areas under paved roads along the Site boundary are an artifact of the mapping of the remediation polygons and that these areas should not have been identified for removal.

3.4 Parcel G Scrape Cleanup

The boundary of Parcel G was revised subsequent to the Parcel G remediation. The southern portion of the parcel is no longer included in Parcel G, reducing the area of Parcel G from 5.2 acres to 2.8 acres. Two scrape areas were located in Parcel G and one scrape area was located in the southern portion of the parcel that is no longer included in Parcel G, as shown approximately on Figure 5 and in Appendix B-1 (Parcel G Scrape Area Information). A total of 1,094 cy of soil was removed from Parcel G, including soil removed from the portion that is no longer included in Parcel G. Total scrape depths in Parcel G ranged from 0.3 to 0.4 feet below original grade surface as shown in Table 1. One small portion of the remediation area, approximately 135 square feet of asphalt located in the northeast corner in Parcel G was not scraped because of approximately 135 square feet of asphalt (Parcel G Scrape Area Information, Appendix B-1).³ However, excavation was conducted to the edge of this area. Because this area is covered with

³ Two additional portions of the remediation area located in the former portion of Parcel G were not scraped because of impediments: 1) approximately 1,880 square feet of a section of the southern third of Fourth Street that was covered by asphalt, and 2) approximately 1,955 square feet of railroad track along the southern boundary (Parcel G Scrape Area Information, Appendix B-1).



asphalt and the area is small, qualitative considerations would suggest that associated risks would be insignificant.

3.5 Parcel H Scrape Cleanup

Two scrape areas were located in Parcel H, as shown approximately on Figure 6 and in Appendix B-1 (Parcel H Scrape Area Information). A total of 617 cy of soil was removed from Parcel H. More than 50% of the soil removed was in the vicinity of sample TSB-HR-06 (563 cy). Total scrape depths in Parcel H ranged from 0.3 to 0.7 feet below original grade surface as shown in Table 1. Approximately 621 square feet of soil in one remediation area in Parcel H was not scraped because of the presence of a landscaped, asphalt-covered public footpath and approximately 1,314 square feet of the same remediation area in Parcel H was not scraped due to the presence of an existing asphalt-covered road area (Parcel H Scrape Area Information, Appendix B-1). Soil was excavated to the edge of this inaccessible area. For these areas, qualitative considerations suggest that associated risks would be insignificant due to the following factors: the soil is covered with asphalt, the area is small, and the area is in close proximity to a footpath or road where individuals would not spend a significant amount of time. In addition, it appears that these areas under paved roads along the Site boundary are an artifact of the mapping of the remediation polygons and that these areas should not have been identified for removal.

3.6 Confirmation Sampling Rationale

Confirmation soil samples were collected in a manner consistent with the RAW (BEC, 2008a) as approved by NDEP in a letter dated July 2, 2008 (NDEP 2008a). As directed by the approved RAW, confirmation samples were collected at the same locations as original samples and tested for the chemicals that triggered remediation at the locations. The confirmation sampling locations were surveyed by LVP prior to sample collection. Table 1 presents a summary of information regarding the scrape areas and confirmation sampling. Figures 3 through 6 show the Parcels, scrape areas, and confirmation sample locations and identifications.

3.7 Confirmation Sampling Methodology

Following remediation of soils, Northgate collected confirmation soil samples from each of the five Parcel remediation sites in April 2010. Field activities and sampling procedures were performed under the supervision of a Certified Environmental Manager and in accordance with the Basic Remediation Company (BRC) *Health and Safety Plan, BMI Common Areas, Clark County, Nevada*, dated October 2005 (BRC and MWH, 2005); the BRC *Field Sampling and*



Standard Operating Procedures (SOP), BMI Common Areas, Clark County, Nevada, dated August 2007 (BRC, ERM and MWH, 2007); and the BRC SOP-12 Surface Soil Sampling for Asbestos, dated December 2008 (BRC, ERM, MWH, 2008).

As discussed previously, polygon size and shape were determined based on BEC’s Phase 2 soil sampling results and locations where contaminants of concern were detected above remediation goals, triggering remediation (BEC, 2008a). At each remediation polygon, the trigger sample point was surveyed and marked by LVP before and after the parcel was scraped and graded. Samples to be analyzed for asbestos were collected using the methodology outlined in SOP-12 (BRC, ERM, MWH, 2008), all such samples are considered to be surface soil samples. The samples were collected from an area measuring 50 feet by 50 feet and subdivided into four quadrants as required by SOP-12. Once the confirmation sample point was marked and cleared, soil samples were collected for laboratory analysis.

The number and type of confirmation samples that were analyzed in accordance with the RAW (BEC 2008a) are summarized below.

Location	Asbestos	Dioxin	SVOC	PCB	Arsenic
Parcels C and D	4	1			
Parcel F	8		1	1	1
Parcel G	1		1		
Parcel H	2				

Confirmation sample results indicated that all analytes were detected below their respective NDEP BCLs and met the NDEP target goals of four or fewer long chrysotile fibers and less than one long amphibole fiber.

Use of the confirmation sampling results and the original 2007 and 2008 characterization data in the post-remediation HRA are discussed in the following sections.



4.0 DATA SUMMARY AND DATA USABILITY EVALUATION ASSESSMENT

This section summarizes the sources of analytical data and procedures used to evaluate the data, and presents data summaries used in the Parcels post-remediation HRA.

4.1 Investigation and Data Sources

As discussed in Section 2.1, analytical data obtained from BEC's 2007 and 2008 and Northgate's 2010 sampling events are used in the Parcels post-remediation HRA. The data set for the Parcels consists of 31 sample locations in Parcels C and D, 23 sample locations in Parcel F, 7 sample locations in Parcel G, and 24 sample locations in Parcel H.

4.2 Data Usability

The primary objective of the data usability evaluation is to identify appropriate data for use in the Parcels post-remediation HRA. Evaluation of the analytical data for the Parcels, in terms of usability for this assessment, was conducted in accordance with the criteria presented in the *Guidance for Data Usability in Risk Assessment (Parts A and B)* (U.S. EPA, 1992b,c) and the *NDEP Supplemental Guidance for Assessing Data Usability for Environmental Investigations at the BMI Facility in Henderson, NV* (NDEP, 2010a). These criteria include:

- Reports to risk assessors;
- Documentation;
- Data sources;
- Analytical methods and detection limits;
- Data review; and
- Data quality indicators (DQIs): precision, accuracy, representativeness, comparability, and completeness (PARCC).

Criterion I –Reports to Risk Assessors

The usability analysis of the site characterization data requires the availability of specific report components for review. The required information is available from the following documentation associated with the Parcels data and data collection efforts:

- The site description is provided in Section 2 of this report. The *Sampling and Analysis Plan (SAP) to Conduct Supplemental Soil Characterization for Tronox Parcels C, D, F, G, and H, Henderson, Nevada* (BEC, 2008b), and the *Removal Action Work (RAW) Plan for Soil, Tronox Parcels C, D, F, G, and H Sites,*



Henderson Nevada, July 2008 (BEC, 2008a) identifies the sample locations and remediation areas. Figures 3 through 6 of this report also provide soil sample locations by parcel.

- Data are presented in Appendix C for the following DVSRs:
 - DVSR Tronox Parcels C, D, F, and G Investigation November 2007, dated February 2008 (ERM-West, 2008a)
 - DVSR Tronox Parcel H Investigation January 2008, dated April 2008 (ERM-West, 2008b)
 - DVSR Tronox Parcels C, D, F, G and H Supplemental Investigations June/July 2008, dated January 2009 (ERM-West, 2009)
 - DVSR Tronox Parcels C, D, F, G, and H Soil Confirmation April 2010, dated June 15, 2010 (Northgate, 2010a), with final response to comments, dated July 21, 2010 (Northgate, 2010c).
- The laboratory provided a quality assurance/quality control (QA/QC) narrative with each analytical data package, and the data review provides a narrative of qualified analytical results. A description of the analytical methods and detection limits is included. These narratives are included as part of each DVSR.
- Method-specific QC results are provided in each laboratory report, along with associated raw data. The laboratory reports and QC results are included as part of each DVSR.
- Data flags used by the laboratory were defined adequately and are discussed further below. The DVSRs and accompanying lab reports were considered complete for HRA purposes.
- Laboratory reports include the name and address of the laboratory, unique identification of the test report, client and project name, and dates of sample receipt and analysis. Each analytical report describes the analytical method used, and provides results on a sample-by-sample basis, along with practical quantitation limits (PQLs), and provides results of appropriate QC samples, such as method blanks, laboratory control spike samples, surrogate recoveries, internal standard recoveries, matrix spike samples, second column confirmation, interference checks, and serial dilutions. All laboratory reports contained data equivalent to a Contract Laboratory Program (CLP) deliverable, inclusive of CLP QC summary forms where applicable, and the supporting raw data. Reported sample analysis results were imported into the project database.

Criterion II – Documentation Review

The objective of the documentation review is to ensure that each analytical result can be traced to a sample location, and that the procedures used to collect the environmental samples are appropriate. As discussed in the SAP and RAW, all sample collection and handling procedures were consistent



with NDEP-approved *BRC Field Sampling and Standard Operating Procedures* (BRC, 2007) and the *Tronox Quality Assurance Project Plan* (QAPP; AECOM/Northgate 2009). Chain-of-custody (COC) 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 locations and are shown in Figures 3 through 6 of this report. Summary data tables are provided in Appendix D of this report. All reviewed reports provide adequate information regarding sample results related to location and sampling procedures.

Criterion III – Data Sources

The review of data sources is performed to ensure that the analytical techniques are appropriate to identify the COPCs, appropriate analytical methods have been used, and adequate sample coverage of source areas has been obtained. All analytical sample data results for soil were provided. The data collection activities were developed to characterize a broad spectrum of chemicals potentially present on the Parcels, including asbestos, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, radionuclides, dioxin/furans, polychlorinated biphenyls (PCBs), PAHs, organochlorine pesticides (OCPs), and petroleum hydrocarbons. Based on the sample locations (taken at both random and judgmental locations), the conceptual site model for each parcel, and the sample results, the data for the analytical suites were deemed representative to evaluate site conditions.

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 U.S. EPA reference analytical methods were used in analyzing samples collected from the property. Each of the identified U.S. EPA methods was approved by NDEP as part of the SAP (BEC, 2007; BEC, 2008b) and the QAPP (BRC, 2008b). The range of detection limits achieved in the field samples was compared to NDEP BCLs. With the exceptions of benzo(a)pyrene and dibenz(a,h)anthracene, which are PAHs, all had non-detectable results with method detection limits below NDEP BCLs.

It appears that the analytical results reported in the NDEP-approved DVSRs associated with the initial sampling events in 2007 and 2008 were reported to the PQL rather than the sample-specific quantitation limit (SQL) and the SQL was not reported for some samples. This resulted in reported detection limits that were greater than the BCLs for benzo(a)pyrene and



dibenz(a,h)anthracene. However, based on review of the laboratory data packages, and as discussed with the laboratory, the procedure for evaluating results consisted of the following steps. If a chemical was detected above the PQL, then the value was reported. If the chemical was detected above the SQL, but below the PQL, then the value was reported and flagged as a J value. If there was no indication that the chemical was detected, it was reported as a non-detect value at the PQL. These procedures are consistent with the approved DVSR for the 2007 and 2008 sampling program. As discussed further in Section 5.2, this has little impact on the overall evaluation.

Criterion V – Data Review

The data review portion of the data usability process involves review of the quality of the analytical data received from the laboratory by a professional knowledgeable in HRA data application. The data set was reviewed by Renee Kalmes, MSPH, CIH, and Greg Brorby, DABT. All soil data were subject to data validation using EPA guidelines (U.S. EPA, 1999; 2001; 2004a; 2005a, b; 2008; 2009a), the BMI Plant Site Specific Supplemental Guidance on Data Validation from NDEP (NDEP, 2009a), and BRC SOP 40 and Data Review/Validation (BRC, 2009). These federal EPA guidelines, which were prepared for CLP data, were adapted to reflect the analytical methods and measurement quality objectives established for the individual sampling events and the guidance provided by NDEP.

Four separate DVSRs were prepared for the Parcel data (ERM-West, 2008a,b; ERM-West, 2009; Northgate, 2010a). Any analytical errors and/or limitations in the data have been addressed, and explanations for data qualification are provided in the respective data tables. The results of LDC's data review of these issues are presented in the DVSRs and are summarized below.

Although certain laboratory limits, such as percent recovery and relative percent difference (RPD) between sample and duplicate, were exceeded for certain compounds or analyses, as identified by the laboratory (and confirmed during LDC's review of the data), there does not appear to be a widespread effect on the quality of the analytical results. Furthermore, based on a review of the laboratory narratives (provided in the laboratory reports in each DVSR), the laboratory does not believe that the observed exceedances of laboratory criteria are cause for concern. As discussed below, when quality criteria were not met for some analytical results, 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 the DVSRs. Sample results were rejected based on findings of serious deficiencies in the ability to properly collect or analyze the sample and meet QC criteria. Depending on the specific DVSR,



91% to 99.8% of the data obtained during the field investigations were found to be valid and were not rejected.

It was noted during the review of the 2010 soil confirmation results that some of the reported values for PAHs at sample location TSB-FR-02 in Parcel F were rejected due to exceedances of internal calibration limits. For purposes of the HRA, we have excluded the original PAH data for this location, because this area has been remediated. However, because insufficient post-remediation data were available, another confirmation sample (and field duplicate) was collected on November 30, 2010 to ensure that the cleanup goals for PAHs were met for the remediation polygon associated with this sample location. The results for these additional samples are provided in Appendix H; however, they are not included in any of the tabular summaries or in the risk assessment calculations. As shown in the appendix, PAHs were not detected in either of these samples at detection limits below the BCLs. These results confirm that this area of Parcel F has been remediated and inclusion of these samples would not affect the conclusions of the post-remediation HRA presented herein.

Analytical results for other qualifiers, and their potential usability in the HRA, were also reviewed. Specifically, all “J-“ qualified data were identified (Appendix C, Table C-1, Summary of J- qualified Parcel Data) and evaluated. Data were qualified as J- for one the following reasons:

- Calibration violations, indicating a low bias (5 instances);
- MS/MSD recovery outside of control limits (570 instances⁴), almost exclusively metals;
- Surrogate recovery outside of control limits (2 samples); and
- Holding-time exceedance (75 instances), primarily OCPs.

Table C-1 provides the reported soil concentration for each of the J- qualified samples. In all instances, the reported soil concentration is significantly below its respective BCL or the chemicals were not health-based, site-related chemicals of interest in the Parcels (i.e., zirconium, chlorite, sodium). Therefore, use of the J- qualified data in the HRA is not expected to have a substantial impact on the overall conclusions of the report, and all J- qualified data were retained for purposes of the post-remediation HRA.

⁴ Previous versions of this report indicated that there were only 140 instances of MS/MSD recoveries outside of control limits. However, this value was incorrect because it included only the instances where both the MS/MSD recovery was outside of control limits and the analyte was detected below the PQL but above the SQL. The instances where the MS/MSD recovery was outside of control limits and the analyte was detected above the PQL are also J- qualified samples and are now included in the total count.



Data associated with field and laboratory blank contamination were J qualified and the actual reported value was used in the post-remediation HRA. These data were originally qualified as non-detections based on NDEP guidance at the time, but were reviewed and amended as requested by NDEP and in accordance with the most recent NDEP blank contamination guidance (NDEP, 2012a). Data associated with blank contamination in the Parcels are summarized in amended tables of the four DVSRs in Appendix C. These reported soil concentrations are considered biased high; however the use of these blank contaminated results is not expected to have a substantial impact on the overall conclusions of the report, as discussed further in Section 5.7.

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 that 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 completeness, comparability, representativeness, precision, and accuracy. 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 these parameters, and all data not meeting the established criteria were qualified during the validation process.

“Completeness” is measured by the total number of acceptable data points and total number of samples collected by source area and exposure area. Field completeness is defined as the percentage of samples actually collected versus those intended to be collected. This field completeness calculation is based on the total sample locations scheduled compared to the COC requests sent to the laboratories. The field completeness goals stated in the QAPPs are 90%. A comparison of samples reported in the database indicates actual field completeness of 100% for all sampling events. All COC requests were faithfully executed by the laboratories, with minor exceptions detailed in the data validation memoranda. Laboratory completeness is defined as the percentage of valid data points versus the total expected from the laboratory analyses. Actual laboratory completeness was 100% on the basis of sample analysis (i.e., all requested analyses were performed and reported by the laboratories), and depending on the specific DVSR, 91.41% to 99.8% completeness based on valid data, with 0.2% to 8.59% of the data qualified as rejected (*R*). The data eliminated from the HRA dataset are presented in Appendix C, Table C-2, Summary of Reject Parcel Data. Data were qualified as “R/rejected” during the validation



process. The Parcel site characterization dataset approved by NDEP (NDEP, 2008a) and results from confirmation soil samples (Northgate, 2010c) were used to support the HRA.

“Comparability” is a qualitative characteristic expressing the confidence with which one data set can be combined with another for purposes of estimating exposure. Comparability is a qualitative expression of the measure of confidence that two or more data sets may contribute to a common analysis. In general, comparability of data was maximized by using standard methods for sampling and analysis, reporting data, and data validation over the 2007/2008 and 2010 sampling programs. With the exception of the reporting issue for the 2007 and 2008 sampling events (SQL not reported for some samples), the reporting requirements were the same for all the investigations. Similar sampling methods and testing methods were used throughout the program.

“Representativeness” is the degree to which data accurately and precisely represent a characteristic of the population at a sampling point or an environmental condition. 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 relevant types of locations. As noted, the initial sampling was conducted in accordance with the NDEP-approved *Phase 2 Sampling and Analysis Plan to Conduct Soil Characterization* (BEC, 2007). The investigation involved collection of random soil matrix samples placed within a grid across the Parcels. The random sample locations were supplemented with judgment-based sampling locations targeting specific site features and LOUs. The placement of the sample locations was deemed representative to evaluate the soil conditions in the context of the CSM.

“Precision” is a measure of the degree of agreement between replicate measurements of the same source or sample. Precision is expressed by RPD between replicate measurements. Replicate measurements can be made on the same sample or on two samples from the same source. Field precision for the parcel samples was assessed by evaluating the field duplicate results. As discussed under *Criterion V – Data Review*, matrix spike versus matrix spike duplicates (MS/MSD) were evaluated focusing on the samples that were *J*-qualified. In all instances, the reported soil concentration is significantly below its respective BCL. Therefore, use of the *J*-qualified data in the post-remediation HRA is not expected to have a substantial impact on the overall conclusions of the report, and all *J*-qualified data were retained for purposes of the HRA.



Field duplicate precision was evaluated in accordance with the *Statistical Analysis Recommendations for Field Duplicates and Field Splits* (NDEP, 2008c), where the primary sample and field duplicate are independent samples. RPD exceedances were qualified as estimated (UJ/J) due to concentration uncertainty. A summary of qualified field duplicates is presented in the associated DVSR tables (Appendix C). All field duplicate precision data were determined to be usable for purposes of the HRA.

“Accuracy” measures the level of bias that an analytical method or measurement exhibits. Several QC parameters are used to evaluate the accuracy of reported analytical results:

- Holding times;
- Method blanks;
- Surrogate spike recovery; and
- LCS percent recovery.

As discussed under *Criterion V – Data Review*, holding-time exceedances and calibration exceedances were evaluated focusing on the samples that were *J*-qualified. In all instances, the reported soil concentration is significantly below its respective BCL, or the chemicals are not site-related chemicals of interest. Therefore, use of the *J*-qualified data in the post-remediation HRA is not expected to have a substantial impact on the overall conclusions of the report, and all *J*-qualified data were retained for purposes of the HRA.

Data Usability Conclusions

Evaluation of the analytical data for the Parcels, in terms of usability for the risk assessment, was conducted in accordance with U.S. EPA and NDEP guidance. Some data points were found to be qualified, and all *J*-qualified data were evaluated individually. Based on the evaluation, all data usability requirements were met, and with the exception of the rejected data discussed above, all Parcel data were deemed to be usable for risk assessment purposes.

4.3 Data Used in Post-Remediation Health Risk Assessment

A complete set of validated data for the Parcels is provided in Tables D-1 through D-10 of Appendix D. Data not considered in the post-remediation HRA due to soil removal and soil scraping activities are highlighted in each table. All confirmation data obtained in 2010 following the soil removal activities are included in these tables, with the exception of the recently collected confirmation data for PAHs described above that is provided in Appendix H.



Based on the post-remediation data, summaries for the Parcels are provided in Table 2 for organics and general chemistry and in Table 3 for inorganics and radionuclides. The data summaries present the number of samples, frequency of detection, minimum concentration detected, maximum concentration detected, location of maximum detect, mean concentration, standard deviation of the concentrations, minimum non-detect limit, maximum non-detect limit, determined counts of detections above NDEP worker BCLs, and determined counts of non-detects above NDEP worker BCLs (NDEP, 2010b). The NDEP worker BCLs shown in the table are the lower of the indoor and outdoor worker values.⁵ As discussed further in Section 5.2, NDEP BCLs are used as part of the toxicity screen for determining COPCs.

Table 4 presents the soil data summary results for asbestos. There are a total of 79 post-remediation surface soil (0- to 0.5-feet bgs) samples. Results are reported in terms of the number of long fibers (i.e., >10 µm long and <0.4 µm wide) observed in the sample. As shown in the table, no long amphibole fibers were observed in any of the samples. A total of 37 long chrysotile fibers were observed in 21 locations; a maximum of four long chrysotile fibers were observed in any one sample.

⁵ Worker BCLs are based on combining human health toxicity values with a standard exposure factor to estimate contaminate concentrations in environmental media that are considered by NDEP to be protective of human exposure (including sensitive sub-groups) over a lifetime. Worker BCLs do not address intrusion of VOCs into indoor air, particulate emission during construction/excavation activities, and groundwater contact from soil-leached chemicals.



5.0 POST-REMEDATION HEALTH RISK ASSESSMENT

This section presents the post-remediation HRA and includes the following items:

- Exposure Scenarios and Conceptual Site Model
- Selection of Chemicals of Potential Concern
- Exposure Assessment
- Toxicity Assessment
- Risk Characterization.

The post-remediation HRA follows the basic procedures outlined in the U.S. Environmental Protection Agency's (U.S. EPA's) *Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual* (U.S. EPA, 1989). Other guidance documents consulted in formulating the risk assessment include:

- Guidelines for Exposure Assessment (U.S. EPA, 1992a);
- Exposure Factors Handbook (U.S. EPA, 2011);
- Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) (U.S. EPA, 2004a);
- Soil Screening Guidance: Technical Background Document (U.S. EPA, 1996);
- Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (U.S. EPA, 2002a);
- Soil Screening Guidance for Radionuclides (U.S. EPA, 2000);
- Technical Support Document for a Protocol to Assess Asbestos-Related Risk, Final Draft (U.S. EPA, 2003a);
- Nevada Administrative Code Chapter NAC 445A. Adopted Permanent Regulation of the Nevada State Environmental Commission. LCB File No. R119-96 (NDEP, 1996); and
- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment) (U.S. EPA, 2009b).

5.1 Exposure Scenarios and Conceptual Site Model

The exposure scenarios considered in the post-remediation HRA depend on the relevant exposure pathways and receptor populations for the Parcels. The CSM is a tool used in risk assessment to



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

5.1.1 Sources and Release Mechanisms

A list of potential site-related chemicals (SRCs) was agreed upon with NDEP, based on review of historical Site operations and practices, as well as those at the neighboring facilities. Not all the SRCs are related to Parcel operations, but were included because they may be related to neighboring facilities. The Parcel SRCs include:

- VOCs;
- SVOCs;
- OCPs;
- PCBs;
- Dioxins/furans;
- Asbestos;
- Metals;
- Perchlorate;
- Cyanide; and
- Radionuclides.

As discussed in the relevant Parcel SAPs (BEC, 2007; BEC, 2008b), the distribution of sampling locations involved collecting random soil matrix samples that were supplemented with judgment-based sampling locations targeting specific site features within the Parcels.

Potential release mechanisms from above-ground source areas, such as spills, leaks, or accidents, could have released SRCs to surface soils. These SRCs may have then leached into subsurface soils and eventually migrated to groundwater.

In addition to the potential primary release mechanisms, secondary release mechanisms may include resuspension of SRCs in surface soils into ambient air. Volatile organics detected in the subsurface also have the ability to migrate upward to ambient air or into buildings.



Although all of these pathways are considered in the CSM, the scope of the Parcel HRA is limited to evaluating direct contact with affected soil and inhalation of dust. The vapor intrusion and outdoor air pathways and cumulative risk estimates for the soil-related and vapor intrusion pathways will be presented in an upcoming HRA (ENVIRON, 2013c).

5.1.2 Potential Receptors and Exposure Pathways

The identification of potentially exposed populations and exposure pathways is supported by the CSM. For a complete exposure pathway to exist, all of the following elements must be present (U.S. EPA, 1989):

- A source and mechanism for chemical release;
- An environmental transport medium (i.e., air, water, soil);
- A point of potential human contact with the medium; and
- A route of exposure (e.g., inhalation, ingestion, dermal contact).

As discussed previously, the Parcels are composed of vacant land. In the future, the Parcels will be restricted to use for industrial and/or commercial purposes. Accordingly, current and future “onsite receptors” include long-term indoor workers, long-term outdoor workers, and short-term construction workers (U.S. EPA, 2002a). Other potential onsite receptors, such as visitors or trespassers, do not warrant assessment. As discussed by U.S. EPA (2002a), evaluation of exposures to members of the public under a non-residential land-use scenario is not warranted, for two reasons:

1. Public access is generally restricted at industrial sites
2. While the public may have access to commercial sites, onsite workers have a much higher exposure potential, because they spend substantially more time at a site.

Current and future “offsite receptors” are residential and worker receptors located outside the Parcel boundaries who could be exposed to airborne chemicals emitted from the Parcels during short-term construction projects (U.S. EPA, 2002a). Considering the distance from the Parcels to the nearest offsite residents, and based on the relative difference in the onsite construction particulate emission factor (which is on the order of 10^{+6} m³/kg) and the offsite receptor particulate emission factor during construction (which is on the order of 10^{+8} m³/kg), versus other exposure factors that may be higher for the offsite receptors, the onsite construction worker exposure will be greater than that of the offsite receptor. Accordingly, offsite receptors are not evaluated quantitatively in the HRA. This issue is discussed further in the uncertainty assessment.



5.1.3 Conceptual Site Model

Based on the source and release mechanisms identified in the Parcels, Figure 7 presents the following exposure pathways and receptor populations that are considered in this HRA:

- Indoor commercial/industrial workers⁶
 - Incidental soil ingestion⁷
 - External exposure from soil⁸
- Outdoor commercial/industrial workers
 - Incidental soil ingestion⁷
 - External exposure from soil⁸
 - Dermal contact with soil
 - Outdoor inhalation of dust^{7,9}
- Construction workers
 - Incidental soil ingestion⁷
 - External exposure from soil⁸
 - Dermal contact with soil
 - Outdoor inhalation of dust^{7,9}

As previously noted, the vapor intrusion and outdoor air pathways will be presented in an upcoming HRA (ENVIRON, 2013c).

With regard to the pathways that involve direct contact with soil, commercial workers are assumed to come into direct contact with shallow soil, 0–2 feet bgs, and construction workers are assumed to come into direct contact with soil at 0–10 feet bgs, as specified in the approved HRA Work Plan (Northgate, 2010d). It should be noted that incidental ingestion of groundwater or dermal contact with groundwater during short-term construction activities are not considered complete pathways due to groundwater depth being greater than 20 feet bgs.

⁶ In accordance with U.S. EPA, 2002a, dermal absorption is not considered to be a complete exposure pathway for the indoor worker. Soil ingestion is identified by U.S. EPA (2002a) as a potentially complete exposure pathway for an indoor worker, due to potential for contact through ingestion of soil tracked indoors from outside. Inhalation of indoor dust (particulates) is accommodated via the soil ingestion pathway (U.S. EPA, 2002a, Exhibit 4-1).

⁷ Includes radionuclide exposures; however, as noted in Section 5.2, radionuclides are not selected as COPCs for the Parcels.

⁸ Only radionuclide exposures; however, as noted in Section 5.2, radionuclides are not selected as COPCs for the Parcels.

⁹ Includes asbestos exposures.



5.2 Selection of Chemicals of Potential Concern Based on Direct Contact with Soil

All chemicals detected in validated soil samples collected from 0–10 feet bgs were used as the initial list of COPCs¹⁰. However, to ensure that the risk assessment focuses on those chemicals that contribute the most to the overall risk (U.S. EPA, 1989), the following procedures were used to eliminate chemicals for quantitative evaluation in the risk assessment:

- Identification of metals and radionuclides for which Parcel concentrations are at or less than background concentrations
- Identification of chemicals that will not contribute significantly to risk and hazard estimates based on a toxicity screen.

Each of these procedures is discussed in the following sections.

5.2.1 Evaluation of Site Concentrations Relative to Background

Consistent with U.S. EPA guidance (1989, 1992b,c), site data for metals and radionuclides were evaluated relative to background concentrations, to identify those that are not elevated above naturally occurring levels and can, therefore, be eliminated from further quantitative evaluation in the health risk assessment. This evaluation was performed by ENVIRON and the results are included in Appendix F. The data sets used for the background evaluation are included in Appendix E, which is provided electronically. This evaluation was based on a combination of exploratory data analysis (EDA) and appropriate statistical methods (U.S. EPA, 2002b). When the weight of evidence of the EDA and results of the statistical analyses indicated that a particular chemical is within background levels, then the chemical was not identified as a COPC. For radionuclides, NDEP's *Guidance for Evaluating Radionuclide Data for the BMI Plant Sites and Common Area Projects* (NDEP, 2009b) and *Guidance for Evaluating Secular Equilibrium at the BMI Complex and Common Areas* (NDEP, 2009c) were followed to assess secular equilibrium when performing background comparisons.

For the evaluation of metals, NDEP has requested that the Site soil concentrations from Remediation Zone A (RZ-A) be used as the background data set for comparisons to Site concentrations (NDEP, 2010c). The RZ-A soil samples were collected as part of the Area IV investigation (i.e., a subset of the Phase B Area IV samples) and were analyzed in accordance with the *Revised Phase B Investigation Work Plan, Tronox LLC Facility, Henderson, Nevada*,

¹⁰ Although the direct contact exposure pathway focuses on the upper 10 feet, it should be noted that no chemicals above BCLs or above the deep background data set range were detected in soils analyzed to depths of 30 feet below ground surface in the Parcels.



December 2008 (AECOM, 2008) and the *Revised Phase B Quality Assurance Project Plan Tronox LLC Facility, Henderson, Nevada, July 2009* (AECOM and Northgate, 2009). A detailed discussion of the RZ-A background data set is contained in the *Revised Technical Leaching Memorandum*, dated November 18, 2010 (Northgate, 2010e). Specifically, the RZ-A background dataset consists of total of 31 samples collected from 14 borings. Sixteen samples were collected between 0.5 and 2 feet bgs and 15 samples were collected between 10 and 11.5 feet bgs. A review of the RZ-A dataset showed that one Phase A boring (SA02) and five Phase B borings (RSAU4, RSAU5, SA28, SA146, and SA147) are located in a boron source area (the former State Industries, Inc. site) in LOU 62 and contributed to elevated concentrations of boron. In addition to boron, there are elevated concentrations of arsenic, chromium (total), cobalt, iron, molybdenum, nickel, platinum, and sodium. These six samples were removed from the RZ-A background data set. Primary samples and field duplicates were treated as independent samples, on the basis of preliminary evaluation indicating that the variance of the duplicates was similar to the variance of the primary samples, in accordance with NDEP guidance (NDEP, 2009a).

Soil data collected from locations within the Parcels at starting depths between 0 and 10 feet bgs were included in this evaluation. Samples were generally collected at starting depths of 0 feet bgs (77 samples) or 10 feet bgs (63 samples), although a few samples were collected at a starting depth of 5 feet bgs (3 samples). Field duplicates were again treated as independent samples.

For radionuclides, Parcel soil concentrations were compared to background levels using the existing soils background data presented in the *Background Shallow Soil Summary Report, BMI Complex and Common Area Vicinity* (BRC and TIMET, 2007), which includes both the ENVIRON (2003) data set and the BRC/TIMET data set collected in 2005. Specifically, only the subset of shallow background data identified as being from sediments derived from the McCullough Range were used, based on the recommendation of NDEP (NDEP, 2009d) These samples were collected at 0, 5, and 10 feet bgs. The total number of samples in this data set ranged from 81 to 101, depending on analyte, with approximately 30 to 40 samples for each depth interval (see Table E-3).

EDA was performed using summary statistics (*Guidance on the Development of Summary Statistics Tables for the BMI Plant Sites and Common Areas Projects, Henderson, Nevada*; NDEP, 2008e) and normal and log-normal quantile-quantile (Q-Q) plots and side-by-side box-and-whisker plots to qualitatively evaluate whether the Parcel and background data are representative of a single population. These plots are included in Appendix F. Normal and log-normal Q-Q plots provide a visual assessment of how closely a data set follows a normal or log-normal distribution. Data points that fall on roughly a straight line may be considered to follow a



normal or log-normal distribution. In Tables F-1 and F-3, the Shapiro-Wilk test was used to formally evaluate how consistent each data set is with normal and log-normal distributions. Since both the background and Parcel data are included, the Q-Q plots also provide a direct visual comparison of the two distributions. A curve that is higher in the vertical direction indicates a higher distribution of values (U.S. EPA 2002b).

Side-by-side box-and-whisker plots provide a visual comparison between the site and background data sets and an easy assessment of whether the bulk of samples from the Parcels are above background. For each data set, the box in the box-and-whisker plot encompasses the central 50% of the results from the 25th to 75th percentiles. Substantial overlap between the boxes for background and site data indicates that the site data may not be significantly different from background. The whiskers demarcate one “step” above the 75th percentile and below the 25th percentile. One “step” is defined as 1.5 times the interquartile range (the difference between the 75th and 25th percentiles). Data points above and below the whiskers are considered potential outliers and are shown on the plots as open circles for non-detected values and as crosses for detected values.

The computer statistical software program Guided Interactive Statistical Decision Tools (GiSdT[®]; Neptune and Company, 2007) was used to perform all statistical comparisons. Specifically, statistical background comparisons were performed using the Quantile test, Slippage test, *t*-test, and Wilcoxon Rank Sum test with Gehan modification (this suite of tests is sometimes referred to as Gilbert’s Toolbox). The *t*-test is parametric, which assumes that the data or log-transformed data are normally distributed. In contrast, the Wilcoxon Rank Sum test, Quantile test, and Slippage test are non-parametric, and thus do not require an assumption that the data are normally or lognormally distributed (U.S. EPA, 2002b; NDEP, 2009e). These non-parametric tests are described further below.

- The Wilcoxon Rank Sum test performs a test for a difference between the sums of the ranks for two populations. This is a non-parametric method for assessing differences in the centers of the distributions that relies on the relative rankings of data values. Knowledge of the precise form of the population distributions is not necessary. The Wilcoxon Rank Sum test has less power than the two-sample *t*-test when the data are normally distributed, but the assumptions are not as restrictive. The GiSdT[®] version of the Wilcoxon Rank Sum test uses the Mantel approach for ranking the data, which is equivalent to using the Gehan ranking system. The Gehan ranking system is used to rank non-detects with the rest of the data (NDEP, 2009e).



- The Quantile test addresses tail effects that are not addressed in the Wilcoxon Rank Sum test. The Quantile test looks for differences in the right tails (upper end of the data set), rather than the central tendency like the Wilcoxon Rank Sum test. The Quantile test was performed using a defined quantile = 0.80 (Paul Black, pers. comm., Oct. 7, 2009).
- The Slippage test looks for a shift to the right in the extreme right tail of the background data set versus the extreme right tail of the site data set. This test determines, for each metal and radionuclide, whether the number of site concentrations that are greater than the maximum background concentration is greater than would be expected statistically if the site and background distributions are the same.

Non-detect results were set equal to one-half of the limit of detection for purposes of the parametric test and set equal to the detection limit for purposes of the non-parametric tests. The PQL was used as the detection limit for the Parcels data set and the SQL was used for the background data set¹¹. An alpha = 0.05 is typically used to evaluate a statistically significant result (U.S. EPA, 2002b). However, as more tests are performed, it is more likely that a statistically significant result will be obtained purely by chance. Given the use of multiple statistical tests, an alpha = 0.03 was selected as a reasonable significance level for determining whether Parcel data are different from background (NDEP, 2009e). Generally, any chemical that resulted in a *p*-value less than 0.03 in at least one of four tests was retained for further consideration in the COPC selection process. In a few cases, a Parcel data set was determined to be greater than the background data set based on a visual inspection of the box and Q-Q plots.

For radionuclides, if approximate secular equilibrium (discussed further below) is exhibited in an isotope decay chain, then background comparisons were performed to confirm whether all the radionuclides in that decay chain are similar to background. If any radionuclide is greater than background, then all the radionuclides in that decay chain generally would be carried forward in the risk assessment. If they are not greater than background, then they would not be identified as COPCs and would not be evaluated quantitatively in the risk assessment.

Section 5.2.1.1 Metals

The summary statistics for the background (RZ-A) and Parcel data are provided in Appendix F. Table F-1 shows the number of detections, total number of samples, percent detections,

¹¹ As discussed previously, NDEP guidance recommends use of the SQL for non-detects (NDEP, 2008d), however the SQL was unavailable from the laboratory for some results in the Parcels data set and therefore the PQL was used instead for non-detects.



minimum detected value, maximum detected value, median, mean, and standard deviation (NDEP, 2008e) for each analyte. Q-Q and box-and-whisker plots are also included in Appendix F. Consistent with NDEP guidance, the median, mean, and standard deviation are based on detected values (NDEP, 2008e).

Table F-2 includes the results for the four statistical tests (p-values), as well as a determination as to whether the Parcel data are greater than background. There are five tests shown in Table F-2 because the *t*-test was performed twice, once on the raw data set and once on the log-transformed data set. Based on a visual inspection of the box and Q-Q plots, in many cases it is apparent that the Parcel data are lower than background. This issue is discussed further below. In addition, there are several chemicals for which there is low frequency of detection (less than 25%) in the site or background data set.

All chemicals identified as being greater than background in one or more of the Parcels were evaluated further in the COPC selection process (Section 5.2.2), regardless of whether the elevated concentrations could be related to the CSM for the Parcels. Based on these results, the chemicals identified as being greater than background in one or more of the Parcels include arsenic, barium, beryllium, boron, total chromium, cobalt, lead, magnesium, manganese, molybdenum, platinum, potassium, sodium, strontium, thallium, tungsten, and uranium. In addition, as also noted in Table F-2, there were an insufficient number of detected values in either the background or Parcel data sets, or both, for several metals to reliably determine whether the Parcel data were greater than background. Therefore, these metals (chromium VI and silver) were also evaluated further in the COPC selection process (Section 5.2.2). Selenium was not detected in any soil sample collected from the Parcels and therefore it was excluded from the COPC selection process.

Section 5.2.1.2 Radionuclides

Secular equilibrium is defined by the International Union of Pure and Applied Chemicals (IUPAC) as “Radioactive equilibrium where the half-life of the precursor isotope is so long that the change of its activity can be ignored during the period of interest and all activities remain constant” (IUPAC, 1997). In other words, the activity of each radionuclide within an isotope decay chain is essentially the same. The analysis of secular equilibrium was performed according to NDEP’s *Guidance for Evaluating Radionuclide Data for the BMI Plant Sites and Common Areas Projects* (NDEP, 2009b) and *Guidance for Evaluating Secular Equilibrium at the BMI Complex and Common Areas* (NDEP, 2009c). Secular equilibrium was evaluated for the uranium decay series and thorium decay series. The uranium decay series includes, in order, U-238, U-



234, Th-230, and Ra-226. The thorium decay series includes Th-232, Th-228, and Ra-228. The secular equilibrium evaluation was based on combined data from between 0 and 10 feet bgs.

The results of the equivalence test for secular equilibrium of radionuclides in the Parcels are presented in Tables F-5a and F-5b. The table includes the *p*-value, a conclusion about secular equilibrium, the delta used, the sample size, the number of missing data pairs (if any), the mean proportions of radioactivity, lower and upper 95% confidence intervals, and data shifts (the value by which all negative activities are shifted upward toward zero, if this setting was used). The equivalence test analysis was performed using Neptune's EnviroGiSDT statistical analysis tool. The null hypothesis of the test is that the radionuclides within a decay series are not in secular equilibrium. Per NDEP guidance (NDEP, 2009c), the delta value (maximum deviation from equal proportions) was set to 0.10 (based on NDEP evaluations of background data sets), and a decay series was considered to be in secular equilibrium if the *p*-value was less than the standard significance level of 0.05. As noted in the documentation for the GiSDT software, the upper and lower confidence intervals are included primarily to show which radioisotopes are producing more/less radioactivity than the others, in case secular equilibrium is not shown. As shown in Tables F-5a and F-5b, the equivalence test indicates that the thorium decay series and the uranium decay series are in approximate secular equilibrium in shallow soils between 0 and 10 feet bgs.

Correlation matrices for these same two decay chains are shown in Table F-6. In conjunction with the equivalence testing described above, the correlation matrices serve as an additional line of evidence for establishing whether the decay chains are in secular equilibrium (NDEP, 2009c). As shown in Table F-6, the correlation matrices show a positive correlation between the isotopes within each chain, which would be consistent with decay chains in secular equilibrium. The correlations are strongest for the uranium decay chain, where the strongest correlation occurs between U-238 and U-234, and the weakest correlations occur between Ra-226 and Th-230. For the thorium decay chain, the strongest correlation is between the Th-232 and Th-228, while a much weaker correlation is exhibited between Ra-228 and the thorium isotopes. The correlations between Ra-228 and the thorium isotopes are very weak, reflective of the larger scatter in the Ra-228 activities. A similar picture was seen for the decay-chain correlations for the 2005 BRC/TIMET Background data set, which are also presented in Table F-6. It should be noted that most radionuclide datasets from the BMI Complex and Common Areas show fairly low correlations in the thorium decay chain.



Background Comparison

The summary statistics for the background and site radionuclide data for the Parcels are summarized in Table F-3, including the number of detections, total number of samples, percent detections, minimum detected value, maximum detected value, median, mean, and standard deviation (NDEP, 2008e); Q-Q and box-and-whisker plots are included in Appendix F. Consistent with NDEP guidance, the median, mean, and standard deviation are based on detected values (NDEP, 2008e). Comparisons between site data and the background data set were based on combined data between 0 and 10 feet bgs in each data set.

The results for the four statistical tests (p -values) are shown in the Table F-4, as well as a determination as to whether the site data are greater than background. The background comparison tests were carried out using Neptune's EnviroGiSDT statistical analysis tool. Based on these results, Ra-226, Ra-228, Th-228, Th-230, Th-232, U-234, and U-238 are identified as being above background in one or more of the Parcels. However, given that the radionuclide chains are generally within secular equilibrium and there is no reason to believe that the Parcels have been affected by thorium or uranium isotopes, radionuclides were not evaluated further in the COPC selection process.

5.2.2 Evaluation of Site Concentrations Relative to Toxicity Screen

Table 5 contains a list of all chemicals (68 potential COPCs) that were either positively identified in at least one soil sample as presented in Tables 1 through 3 or, for metals, were determined to be above background in one or more of the Parcels (or for which a background determination could not be made) based on evaluation presented in Table F-2. Based on the methods in the approved HRA Work Plan (Northgate, 2010d), a combination of frequency of detection (chemical is detected in less than 5% of the samples) and a toxicity screen were used to further reduce the initial list of potential COPCs. No chemical was eliminated based solely on frequency of detection.

The chemical toxicity screen used was based on comparison of the maximum detected concentration to a percentage of the BCL. To illustrate this BCL comparison, Table 5 presents the ratio of the BCL divided by the maximum detected soil concentration. A ratio >10 indicates that the maximum detected concentration is less than 10% of the BCL. A ratio of >100 indicates that the maximum detected concentration is less than 1% of the BCL. The results of the chemical toxicity screen can be summarized as follows:

- With the exception of alpha-BHC, beta-BHC, hexachlorobenzene, Aroclor 1254, perchlorate, arsenic, magnesium, lead, and dioxin, the detected chemicals have maximum



detected concentrations less than 10% of the BCL (or ratios above 10). The majority of detected chemicals have very large ratios, indicating that they would not contribute substantially to overall health risk estimates.

- All persistent, bioaccumulative, and toxic chemicals or Class A carcinogens were retained as COPCs, unless their ratio of BCL to maximum detected concentration was greater than 100 (maximum detected concentration is less than 1% BCL), indicating that they would not contribute significantly to overall health risk estimates. The chemicals retained because of a BCL to maximum detected concentration less than 100 are 4,4'-DDE, 4,4'-DDT, hexachlorobenzene, Aroclor 1248, and Aroclor 1254.
- There is no BCL for asbestos; however, one or more long chrysotile fibers (>10 microns [μm] in length and <0.4 μm in width) were detected in 21 of 79 samples analyzed for asbestos. Therefore, long chrysotile fibers were identified as a COPC.
- Dioxin was not retained as a COPC, because the maximum detected concentration of dioxin/furan TEQ (765) is below the NDEP recommended default target goal of 1000 pg/g.
- Arsenic was not retained as a COPC because all but one of the measured concentrations were below NDEP-approved remediation target of 7.2 mg/kg (NDEP, 2010d), and the remaining detection, which is for a sample collected at 10 feet bgs, was 8.0 mg/kg, only slightly above the remediation target.
- Lead was not retained as a COPC because the maximum detection of 136 mg/kg is below the BCL of 800 mg/kg, in accordance with NDEP guidance (NDEP, 2008f).
- As shown in Table 5, BCLs are not available for the following detected organic compounds: endrin aldehyde, gamma-chlordane, di-n-octyl phthalate, octachlorostyrene, and 1,2,3-trichlorobenzene. Consistent with NDEP guidance, surrogate BCLs were identified for those compounds for which a representative surrogate could be identified, specifically, endrin (for endrin aldehyde), chlordane (for gamma-chlordane), butyl benzyl phthalate (for di-n-octyl phthalate), and 1,2,4-trichlorobenzene (for 1,2,3-trichlorobenzene). A representative surrogate for octachlorostyrene was not identified. The uncertainty in using surrogate compounds for the toxicity screen and COPC selection and absence of an appropriate surrogate for octachlorostyrene is discussed in Section 5.7.
- BCLs are not available for three metals, platinum, potassium and sodium (Table 5). Platinum was detected in only 7 of 157 samples, at a maximum concentration of 2.4 mg/kg in sample TSB-FJ-02-02-0. Surface soil at this location was scraped because of the presence of asbestos; therefore, the soil represented by this sample has been removed. The next highest detected platinum concentration was 0.15 mg/kg. Sodium was detected in all but one of the 143 samples, at a maximum concentration of 2910 mg/kg; however, sodium is an essential nutrient. Potassium was detected in all 143 samples at a maximum concentration of 4480 mg/kg; however potassium is also an essential nutrient. In such



cases, U.S. EPA (1989) guidance suggests that essential nutrients do not need to be considered further in the quantitative risk assessment. In contrast to organic compounds, NDEP guidance does not recommend the use of surrogates for metals. The uncertainty in the risk estimates due to the exclusion of these metals as COPCs (due to the absence of BCLs and associated toxicity values) is discussed in Section 5.7.

It should be noted that, in a few instances, the detection limit was higher than the BCL for one or more chemicals. For example, out of 143 samples analyzed for OCPs, the detection limit for one sample exceeded the BCLs for toxaphene (see Table 2 and Table D-6 in Appendix D). Given that toxaphene was not detected in any sample and the detection limits for nearly all of the samples were below the BCLs, these few instances of elevated detection limits are not expected to affect the conclusions of this post-remediation HRA. The only other chemicals for which the detection limits exceeded the BCLs were benzo(a)pyrene and dibenz(a,h)anthracene.

In summary, based on the background comparison for metals and radionuclides, and the toxicity screen evaluation, the following 10 chemicals are identified as COPCs for the Parcels and are evaluated quantitatively in the post-remediation HRA.

- 4,4'-DDE
- 4,4'-DDT
- Alpha BHC
- Beta BHC
- Hexachlorobenzene
- Aroclor 1248
- Aroclor 1254
- Perchlorate
- Magnesium
- Asbestos (long chrysotile fibers)

5.3 Exposure Assessment

The magnitude of exposure for any given receptor is a function of the amount of the constituent in the exposure medium, and the frequency, intensity, and duration of contact with that medium. This section presents the equations and assumptions used to calculate potential exposures for each of the identified COPCs.



5.3.1 Determination of Representative Exposure-Point Concentrations

A representative exposure-point concentration (EPC) is a COPC-specific and medium-specific concentration used in the dose equation for each receptor and each exposure pathway. The methods, rationale, and assumptions employed in deriving the EPCs are discussed below for the relevant environmental media based on the COPCs evaluated in the Parcels.

5.3.1.1 Soil

Soil EPCs were used to estimate direct-contact exposure for future onsite indoor and outdoor commercial workers and construction workers. The soil EPCs were also used to derive airborne particulate concentrations of non-volatile COPCs. For the purposes of this HRA, a screening approach was used that incorporated use of the maximum detected concentration (across all parcels) within the 0- to 10-foot bgs interval for each identified COPC, except for asbestos, which is discussed separately below. This assumption likely overestimates potential health risks, because receptors are unlikely to be exposed to the maximum concentration for all COPCs over an extended period of time.

5.3.1.2 Asbestos

Bulk soil concentrations for asbestos were used to estimate exposure-point concentrations in air according to the methodology described in *Technical Guidance for the Calculation of Asbestos-Related Risk in Soils for the BMI Complex and Common Areas* (NDEP, 2011). This methodology is based on the protocols described in U.S. EPA (2003a), and requires estimation of asbestos concentrations in soil to develop exposure-point concentrations in air.

Asbestos concentrations in surface soils are based on the number of long fibers (i.e., >10 μm long and <0.4 μm wide) observed in a sample, multiplied by the analytical sensitivity of the measurement:

$$C_{\text{soil}} = f \times AS$$

where f is the number of long fibers observed (unitless), and AS is the analytical sensitivity (fibers per gram [fibers/g]).¹² If more than one asbestos sample is collected, the analytical sensitivity is pooled across the n samples as follows:

$$\text{Pooled } AS = 1 \times \frac{1}{\sum_{i=1}^n AS_n}$$

¹² The laboratory results are reported as “structures”; however, the term “fibers” is used herein for simplicity.



Two estimates of the asbestos concentration were calculated (i.e., a best estimate and an upper-bound estimate), as defined in U.S. EPA's draft methodology (U.S. EPA, 2003a) and NDEP (2011). The best-estimate concentration is similar to a central-tendency estimate, whereas the upper-bound concentration is comparable to a reasonable maximum exposure estimate. The pooled analytical sensitivity is multiplied by the number of long chrysotile or amphibole structures to estimate concentration. For the best estimate, the number of long fibers measured is incorporated into the calculation above. The upper bound of the asbestos bulk soil concentration is calculated as the 95% UCL of the Poisson distribution, where the mean equals the number of long structures detected. This value is calculated as follows (NDEP 2011):

$$95\% \text{ UCL} = \frac{\chi^2_{0.95} (2 \times (x + 1))}{2}$$

The 95% UCL of the Poisson distribution is then multiplied by the pooled analytical sensitivity to estimate the upper-bound concentration.

5.3.1.3 Outdoor Dust

Long-term exposure to COPCs bound to dust particles was evaluated using U.S. EPA's particulate emission factor (PEF) approach (U.S. EPA, 2002a). The PEF relates concentrations of a chemical in soil to the concentration of dust particles in the air. The Q/C (Site-Specific Dispersion Factor [U.S. EPA, 2002a]) values are based on the Las Vegas, Nevada, area, as presented in Appendix E of U.S. EPA (2002a). The U.S. EPA guidance for dust generated by construction activities (U.S. EPA, 2002a) was used for short-term construction worker exposures. Input soil concentrations for the model are the EPCs described above. The calculations, including all intermediate equations, are included in Appendix G of this report. It should be noted that the PEF for short-term construction workers includes two components, emissions from unpaved roads and emissions from wind erosion, excavation, dozing, grading, and tilling (U.S. EPA, 2002a). These sources of dust emissions are combined into a single PEF for short-term construction workers as follows:

$$PEF_{sc_total} = \frac{1}{\left(\frac{1}{PEF_{sc_road}}\right) + \left(\frac{1}{PEF_{sc}}\right)}$$

where:

PEF_{sc-total} = total subchronic construction-related PEF (m³/kg)
 PEF_{sc road} = subchronic PEF for unpaved road traffic



PEF_{sc} = subchronic PEF for construction activities.

For onsite workers, the PEF is limited to emissions from wind erosion from surface soil, which is calculated according to the Equation 24 in NDEP's (2011) asbestos guidance, as shown in Appendix G.

The air concentration term for COPCs bound to dust particles is derived from soil concentrations (mg/kg for chemicals and fibers/g for asbestos) by applying the PEF values described above in the following equations:

Chemicals

$$C_{air} = C_{soil} \times CF_1 \times \left(\frac{1}{PEF} \right)$$

Asbestos

$$C_{air} = C_{soil} \times CF_2 \times \left(\frac{1}{PEF} \right) \times \left(\frac{1}{CF_3} \right)$$

where:

C _{air}	=	air concentration (µg/m ³ , f/cm ³)
CF ₁	=	conversion factor (1000 µg/mg)
CF ₂	=	conversion factor (1000 g/kg)
CF ₃	=	conversion factor (10 ⁶ cm ³ /m ³)
PEF	=	particulate emission factor (m ³ /kg).

For asbestos, the soil bulk concentrations and air concentrations (and subsequent health risks) were calculated using NDEP's "asbestos guidance riskcalcs.xls" spreadsheet. It should be noted that asbestos bulk soil concentrations and corresponding air concentrations were calculated for each Parcel separately. The approximate size of each area is presented in Table 6.

5.3.2 Exposure Calculations

Reasonable maximum exposures to chemicals were calculated for future onsite indoor and outdoor commercial workers and future onsite construction workers, using the exposure pathway-specific dose equations presented below and the exposure input parameters presented in Tables 7 and 8, respectively. The dose calculation spreadsheets for each exposure scenario are



included in Appendix G. The methodology used to estimate the average daily dose (ADD) via each of the complete exposure pathways is based on U.S. EPA (1989, 1992a) guidance. For chemical carcinogens, lifetime average daily dose (LADD) estimates are based on chronic lifetime exposure extrapolated over the estimated average 70-year lifetime (U.S. EPA, 1989), to be consistent with cancer slope factors, which are based on chronic lifetime exposures. For noncarcinogens, ADD estimates are averaged over the estimated exposure period.

5.3.2.1 Chemicals

Soil Ingestion:

$$Dose = \frac{C_{soil} \times SIR \times CF_4 \times EF \times ED \times BIO}{BW \times AT}$$

where:

- Dose = ADD for non-carcinogens and LADD for carcinogens (mg/kg-day)
- C_{soil} = chemical concentration in soil (mg/kg)
- SIR = soil ingestion rate for indoor workers (SIR_i), outdoor workers (SIR_o), or construction workers (SIR_{cw}) (mg/day)
- CF_4 = conversion factor (10^{-6} kg/mg)
- EF = exposure frequency for indoor workers (EF_i), outdoor workers (EF_o), or construction workers (EF_{cw}) (days/year)
- ED = exposure duration for commercial workers (ED_w) or construction workers (ED_{cw}) (years)
- BIO = relative bioavailability (unitless)
- BW = body weight (kilograms)
- AT = averaging time (days); equal to the $ED \times 365$ days/year for non-carcinogens (AT_{nc}) and 70 years (average lifetime) $\times 365$ days/year for carcinogens (AT_c)

Dermal Contact:

$$Dose = \frac{C_{soil} \times CF_4 \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$



where:

- Dose = ADD for non-carcinogens and LADD for carcinogens (mg/kg-day)
- C_{soil} = chemical concentration in soil (mg/kg)
- CF_4 = conversion factor (10^{-6} kg/mg)
- SA = skin surface area for outdoor workers (SA_o) or construction workers (SA_{cw}) (cm^2 /event)
- AF = soil to skin adherence factor for outdoor workers (AF_o) or construction workers (AF_{cw}) (mg/cm^2)
- ABS = absorption factor (unitless)
- EF = exposure frequency for outdoor workers (EF_o) or construction workers (EF_{cw}) (events/year)
- ED = exposure duration for commercial workers (ED_w) or construction workers (ED_{cw}) (years)
- BW = body weight (kilograms)
- AT = averaging time (days); equal to the $ED \times 365$ days/year for non-carcinogens (AT_{nc}) and 70 years (average lifetime) $\times 365$ days/year for carcinogens (AT_c).

Chemical-specific dermal absorption values from U.S. EPA guidance (U.S. EPA, 2004b [Part E RAGS]) are used in the risk assessment.

Inhalation:

The contaminant concentration in air, rather than contaminant intake, is used as the basis for estimating chemical inhalation risks based on guidance described in *Part F, Supplemental Guidance for Inhalation Risk Assessment* (U.S. EPA, 2009b). As presented in the CSM, indoor dust (particulate) is accommodated via the soil ingestion pathway for indoor workers. The inhalation equation for outdoor workers and construction workers is:

$$EC = \frac{C_{soil} \times CF_1 \times [ET_o + (ET_i \times DF)] \times EF \times ED}{AT \times PEF}$$



where:

- EC = exposure concentration for evaluating exposure to non-carcinogens (EC_{nc}) or carcinogens (EC_c) (µg/m³)
- C_{soil} = chemical concentration in soil (mg/kg)
- CF₁ = conversion factor (1000 µg/m³)
- ET_o = exposure time outdoors onsite (hr/day)
- ET_i = exposure time indoors onsite (hr/day)
- DF = dilution factor for outdoor to indoor air (unitless)
- EF = exposure frequency for outdoor workers (EF_o) or construction workers (EF_{cw}) (days/yr)
- ED = exposure duration for commercial workers (ED_w) or construction workers (ED_{cw}) (year)
- AT = averaging time (hours); equal to the ED × 365 days/year × 24 hours/day for non-carcinogens (AT_{nc}) and 70 years (average lifetime) × 365 days/year × 24 hours/day for carcinogens (AT_c)
- PEF = particulate emission factor (m³/kg) – see Table 6.

5.3.2.2. *Asbestos*

Exposure to asbestos fibers in air was evaluated using the methodology described in NDEP guidance (2011). The NDEP asbestos risk assessment guidance is based on methods for assessing asbestos risk described in U.S. EPA (2003a), and also on associated examples of the implementation of these methods as described in other documents by the authors of U.S. EPA documents (Berman and Chatfield, 1990; Berman and Crump, 1999a,b, 2001; Berman and Kolk, 2000). The exposure equation for asbestos is analogous to that recommended by U.S. EPA for other inhalation carcinogens. The exposure concentration is a function of the asbestos air concentration, the length of time an individual is exposed, and the averaging time for which carcinogenic effects are evaluated for the unit risk factor. The equation for a time-weighted exposure concentration in air used in performing an asbestos inhalation risk assessment is the same as for chemicals:

$$EC_a = \frac{C_{air} \times [ET_o + (ET_i \times DF)] \times EF \times ED}{AT}$$



where:

EC_a = exposure concentration for evaluating exposure to asbestos (f/cm^3)

C_{air} = air concentration of asbestos (f/cm^3)

ET_o = Exposure time outdoors onsite (hours/day)

ET_i = Exposure time indoors onsite (hours/day)

DF = Dilution factor for outdoor to indoor air (unitless)

EF = Exposure frequency for commercial workers (EF_w) or construction workers (EF_{cw}) (days/year)

ED = Exposure duration for commercial workers (ED_w) or construction workers (ED_{cw}) (years)

AT = Averaging time (hours); based on 70 years (average lifetime) (AT_c).

As stated previously, potential exposure to asbestos in soil was evaluated for each Parcel.

5.4 Toxicity Assessment

Cancer oral slope factors (SFs), which are expressed in units of $(mg/kg\text{-day})^{-1}$, or inhalation unit risk factors (URFs), which are expressed in units of $(\mu g/m^3)^{-1}$, are chemical specific and experimentally derived potency values that are used to calculate the risk of cancer resulting from exposure to potentially carcinogenic chemicals. The SF and URF are defined as the 95% UCL of the probability of a carcinogenic response per unit daily intake or concentration of a chemical over 70 years. A higher value implies a more potent carcinogenic potential. Non-cancer oral reference doses (RfDs), which are expressed in units of $mg/kg\text{-day}$, and inhalation reference concentrations (RfCs), which are expressed in units of mg/m^3 , are experimentally derived “no-effect” levels that are used to quantify the extent of toxic effects other than cancer due to exposure to chemicals. The RfD and RfC are intended to represent the dose or concentration of a chemical that is not expected to cause adverse health effects, assuming daily exposure over a lifetime, even in sensitive individuals, with a substantial margin of safety. With RfDs and RfCs, a lower value implies a more potent toxicant. These criteria are generally developed by U.S. EPA risk assessment work groups and are listed in the U.S. EPA risk assessment guidance documents and databases.

Table 9 presents the toxicity criteria used in this assessment based on the following hierarchy (based on U.S. EPA, 2003b), with the exception of asbestos, which is discussed separately below:



1. IRIS
2. CalEPA – Office of Environmental Health Hazard Assessment (OEHHA) Toxicity Criteria Database
3. U.S. EPA’s Provisional Peer Reviewed Toxicity Values (PPRTVs)
4. NDEP’s Basic Comparison Levels (BCLs)
5. National Center for Environmental Assessment (NCEA, or other current U.S. EPA sources)
6. Health Effects Assessment Summary Tables (HEAST)
7. U.S. EPA Criteria Documents (e.g., drinking-water criteria documents, drinking-water Health Advisory summaries, ambient water-quality criteria documents, and air-quality criteria documents)
8. ATSDR toxicological profiles
9. U.S. EPA’s Environmental Criteria and Assessment Office (ECAO)
10. Peer-reviewed scientific literature.

For carcinogens, the U.S. EPA weight-of-evidence classification is identified in the table for each carcinogenic COPC.

Asbestos risks were assessed in line with the approaches specified in NDEP’s (2011) *Technical Guidance for the Calculation of Asbestos-Related Risk in Soils for the BMI Complex and Common Areas*. The approach relies on exposure-response coefficients that describe the toxicity of different fiber lengths and types of asbestos. These risk coefficients are adopted from the draft, *Technical Support Documents for a Protocol to Assess Asbestos Related Risk* (U.S. EPA, 2003a). The majority of available information indicates that lung cancer and mesothelioma are the most important risks associated with low levels of asbestos (NDEP, 2011; U.S. EPA, 2003a). Types and aspect ratios (relative length versus diameter) of asbestos fibers differ, and are known to affect the potency of the material; therefore, deriving conclusions regarding the health effects related to asbestos exposure is complex. In the U.S. EPA draft document (U.S. EPA, 2003a), studies from environments with asbestos dusts of differing characteristics were reviewed to evaluate asbestos-related risks. U.S. EPA developed an optimal exposure index, which best reconciles the published literature. The index assigns equal potency to fibers longer than 10 μm and thinner than 0.4 μm , and assigns no potency to fibers of other dimensions. The optimal exposure index also assigns unique exposure-response coefficients for chrysotile and amphibole fibers for the endpoints of mesothelioma and lung cancer. Optimum dose-response coefficients, based on the body of available data, were assumed for this risk assessment. These coefficients



are used to calculate the factor “R,” which is defined as the “Estimated Additional Deaths from Lung Cancer or Mesothelioma per 100,000 persons from Constant Lifetime Exposure to 0.0001 TEM f/cc Longer than 10 μm and Thinner than 0.4 μm” (U.S. EPA, 2003a, Table 8-2 combined lung cancer and mesothelioma risk). This factor is calculated as follows (Equation 8-1 of U.S. EPA, 2003a):

$$R = 0.5 \left((0.786(NSM + NSF)) + (0.214(SM + SF)) \right)$$

where:

NSM = risk for population of non-smoking males

NSF = risk for population of non-smoking females

SM = risk for population of smoking males

SF = risk for population of smoking females.

“R” is calculated separately for long chrysotile and long amphibole fibers, reflecting the difference in potency between fiber types. Using the values for NSM, NSF, SM, and SF in Table 8.2 of U.S. EPA (2003a), “R” for chrysotile is 0.5693, and “R” for amphiboles is 63.206. “R” is then used to calculate the URF as follows:

$$\begin{aligned} URF &= \frac{10^{-5}}{0.0001} \times R \\ &= \frac{1}{10} \times R \end{aligned}$$

The numerator, 10^{-5} , and the denominator, 0.0001, reflect that the values in Table 8-2 of U.S. EPA 2003a are based on a risk per 100,000 persons exposed to an asbestos air concentration of 0.0001 f/cc. The resulting URFs are 0.05693 for long chrysotile fibers and 6.3206 for long amphibole fibers. These values were used to estimate risks associated with exposure to asbestos in soil at the Parcels (see Appendix G).

5.5 Risk Characterization

Risk characterization represents the final step in the risk assessment process. In this step, the results of the exposure and toxicity assessments are integrated into quantitative or qualitative estimates of potential health risks. Potential cancer risks and non-cancer adverse health effects



are characterized separately. In addition, potential cancer risks associated with exposure to asbestos are characterized separately for the other carcinogenic chemicals. This section also contains a qualitative discussion of the uncertainties associated with this assessment.

5.5.1 Evaluation of Potential Cancer Risks

Carcinogenic risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a given chemical at a given concentration. Carcinogenic risks for chemicals are evaluated by multiplying the estimated average exposure rate (i.e., LADD calculated in the exposure assessment) by the chemical's SF or the estimated average exposure concentration (i.e., EC calculated in the exposure assessment) by the chemical's URF. The SF or URF converts estimated LADDs or ECs averaged over a lifetime to incremental risk of an individual developing cancer. According to U.S. EPA (1989), this approach is appropriate for theoretical upper-bound incremental lifetime cancer risks of less than 1×10^{-2} . Lifetime chemical-specific risks and total site risks are estimated as follows:

$$Risk_{oral\ or\ dermal} = LADD \times SF$$

where:

LADD = lifetime average daily dose (mg/kg-d)
SF = cancer slope factor (mg/kg-d)⁻¹

$$Risk_{inhalation} = EC_c \times URF$$

where:

EC_c = exposure concentration for evaluating exposure to carcinogens (μg/m³)
URF = unit risk factor (μg/m³)⁻¹

and

$$Total\ Site\ Risk = \sum Chemical\ Risk$$

The estimated excess cancer risks for each chemical and exposure route are summed, regardless of the type of cancer associated with each chemical, to estimate the total excess cancer risk for the exposed individual.



For most chemicals, the NDEP point of departure is a cumulative incremental cancer risk of 1×10^{-6} (NDEP, 2010b). U.S. EPA considers 1×10^{-6} to 1×10^{-4} to be the target range for acceptable risks at sites where remediation is considered (U.S. EPA, 1990). Estimates of lifetime excess cancer risk associated with exposure to chemicals of less than one in one million (1×10^{-6}) are considered to be so low as to warrant no further investigation or analysis (U.S. EPA, 1990). Current methodology for estimating the carcinogenic potential of chemicals is believed to not underestimate the true risk, but could overestimate the true risk by a considerable degree, and the true risk could be as low as zero.

5.5.1.1 Indoor Commercial/Industrial Worker

The estimated excess cancer risks associated with exposure of an indoor commercial/industrial worker to the COPCs in soil through incidental ingestion are summarized in Table 10, and the calculation spreadsheets are presented in Appendix G. For an indoor commercial/industrial worker, the excess cancer risk due to exposure to chemicals in soil is 4×10^{-7} . Hexachlorobenzene and Aroclor 1254 are the largest contributors to the overall risk. This value is below the lower end of the generally acceptable risk range, indicating that potential exposure to COPCs in soil by an indoor commercial/industrial worker should not pose an unacceptable carcinogenic health risk under the conditions evaluated.

5.5.1.2 Outdoor Commercial Worker

The estimated excess cancer risks associated with exposure of an outdoor commercial worker to the COPCs in soil through incidental ingestion, dermal absorption, and inhalation are summarized in Table 10, and the calculation spreadsheets are presented in Appendix G. For an outdoor commercial worker, the excess cancer risk due to exposure to chemicals in soil is 1×10^{-6} . Incidental soil ingestion and dermal contact with soil for hexachlorobenzene and Aroclor 1254 are the largest contributors to the overall risk; inhalation exposure is inconsequential. This value is at the lower end of the generally acceptable risk range, indicating that potential exposure to COPCs in soil by an outdoor commercial worker should not pose an unacceptable carcinogenic health risk under the conditions evaluated.

5.5.1.3 Construction Worker

The estimated excess cancer risks associated with exposure of a construction worker to the COPCs in soil through incidental ingestion, dermal absorption, and inhalation are summarized in Table 11, and the calculation spreadsheets are presented in Appendix G. For a construction worker, the excess cancer risk due to exposure to chemicals in soil is 1×10^{-7} . Incidental soil



ingestion and dermal contact with soil for hexachlorobenzene and Aroclor 1254 are the largest contributors to the overall risk; inhalation exposure is inconsequential. This value is below the lower end of the generally acceptable risk range, indicating that potential exposure to COPCs in soil by an outdoor commercial worker should not pose an unacceptable carcinogenic health risk under the conditions evaluated.

5.5.2 Evaluation of Non-Cancer Health Effects

Non-cancer adverse health effects are evaluated by comparing the estimated average exposure rate (i.e., ADDs or ECs estimated in the exposure assessment) with an exposure level at which no adverse health effects are expected to occur for a long period of exposure (i.e., the RfDs and RfCs). ADDs and RfDs are compared by dividing the ADD by the RfD to obtain the ADD:RfD ratio, as follows:

$$\text{Hazard Quotient}_{\text{oral or dermal}} = \frac{ADD}{RfD}$$

where:

ADD = average daily dose (mg/kg-d)

RfD = reference dose (mg/kg-d)

Similarly, ECs and RfCs are compared by dividing the EC by the RfC to obtain the EC/RfC ratio, as follows:

$$\text{Hazard Quotient}_{\text{inhalation}} = \frac{EC_{nc} \times 10^{-3} \text{ mg}/\mu\text{g}}{RfC}$$

where:

EC_{nc} = exposure concentration for evaluating exposure to noncarcinogens (μg/m³)

RfC = reference concentration (mg/m³).

A hazard quotient less than or equal to 1 indicates that the predicted exposure to that chemical should not result in an adverse noncarcinogenic health effect (U.S. EPA, 1989). If more than one pathway is evaluated, the hazard quotients for each pathway, for all COPCs, are summed to determine whether exposure to a combination of pathways poses a health concern. This sum of the hazard quotients is known as a hazard index.



$$\text{Hazard Index} = \sum \text{Hazard Quotients}$$

The NDEP non-cancer risk management target is a hazard index (HI) value of less than or equal to 1.0 (NDEP, 2010b). It should be noted that HI or HQ values greater than 1 do not necessarily mean that adverse health effects will be observed, because a substantial margin of safety has been incorporated into many of the RfDs and RfCs.

5.5.2.1 Indoor Commercial/Industrial Worker

The estimated non-cancer hazard quotients and hazard indices associated with exposure of an indoor commercial/industrial worker to the COPCs in soil through incidental ingestion are summarized in Table 10, and the calculation spreadsheets are presented in Appendix G. The total hazard index due to exposure to chemicals in soil is 0.1, indicating that potential exposure of indoor commercial/industrial workers to COPCs in soil should not pose a potential noncarcinogenic health risk under the conditions evaluated. Perchlorate is the largest contributor to the overall hazard index.

5.5.2.2 Outdoor Commercial Worker

The estimated non-cancer hazard quotients and hazard indices associated with exposure of an outdoor commercial worker to the COPCs in soil through incidental ingestion, dermal absorption, and inhalation are summarized in Table 10, and the calculation spreadsheets are presented in Appendix G. The total hazard index due to exposure to chemicals in soil is 0.2, indicating that potential exposure of outdoor commercial workers to COPCs in soil should not pose a potential noncarcinogenic health risk under the conditions evaluated. Incidental soil ingestion of perchlorate is the largest contributors to the overall hazard index.

5.5.2.3 Construction Worker

The estimated non-cancer hazard quotients and hazard indices associated with exposure of a construction worker to the COPCs in soil through incidental ingestion, dermal absorption, and inhalation are summarized in Table 11, and the calculation spreadsheets are presented in Appendix G. The total hazard index due to exposure to chemicals in soil is 0.9, indicating that potential exposure of construction workers to COPCs in soil should not pose a potential noncarcinogenic health risk under the conditions evaluated. Incidental soil ingestion of perchlorate is the largest contributors to the overall hazard index.



5.5.3 Asbestos

The equation used to estimate inhalation cancer risk for asbestos is as follows:

$$Risk_{inhalation} = EC_a \times URF$$

where:

EC_a = exposure concentration for evaluating exposure to asbestos (f/cm^3)

URF = unit risk factor (f/cm^3)⁻¹.

As noted in NDEP's (2011) risk assessment guidance, EC_a is a function of the asbestos air concentration, the length of exposure, and the averaging time. These latter two factors are combined into a "unit risk adjustment factor" (URF adjustment factor) in NDEP's "asbestos guidance risk calcs.xls" spreadsheet, which was used in this HRA. The estimated asbestos air concentrations, URFs, URF adjustment factors, and risks for death from lung cancer or mesothelioma for asbestos exposures to outdoor commercial workers and construction workers are summarized in Table 12, and the calculation spreadsheets are presented in Appendix G.

The upper-bound estimated risks for death from lung cancer or mesothelioma for asbestos exposures to outdoor commercial workers are less than 1×10^{-6} for all of the Parcels (up to 2×10^{-8} for chrysotile and 4×10^{-7} for amphiboles [Parcel D]). For construction workers, the best and upper-bound estimates for chrysotile are less than 1×10^{-6} for all of the Parcels (up to 1×10^{-7} and 2×10^{-7} , respectively [Parcel F]). For amphiboles, the best estimate is zero for all Parcels, and the upper-bound estimates range from 2×10^{-6} (Parcels F and H) to 6×10^{-6} (Parcel G). It should be noted that the upper-bound risk estimates are based on an observed count of zero long amphibole structures in the 79 samples collected from the Parcels. It should also be noted that the unit risk factors used to estimate risks from asbestos exposure were intended to evaluate constant lifetime exposures, not short-term exposure such as construction activities (U.S. EPA, 2003a). Therefore, these results indicate that exposures to asbestos in soil in the Parcels should not result in unacceptable risks for all future onsite receptors.

5.6 Uncertainty Analysis

Uncertainty is inherent in many aspects of the risk assessment process. Uncertainty generally arises from a lack of knowledge, as well as variability of (1) site conditions and future site use; (2) toxicity and dose-response of the COPCs; and/or (3) the extent to which an individual may be exposed (if at all) to the chemicals. This lack of knowledge means that assumptions must be



made based on information presented in the scientific literature or on professional judgment. Although some assumptions have significant scientific basis, many do not. The assumptions that introduce the greatest amount of uncertainty, and their effects on the findings of this HRA, are discussed further below. This discussion is qualitative in nature, reflecting the difficulty in quantifying the uncertainty in specific assumptions. In general, assumptions were selected in a manner that purposely biases the process toward health protection.

Uncertainty Associated with Site Characterization Data

Samples cannot be collected from every possible location; therefore, there is always some uncertainty associated with the representativeness of site characterization data. The investigation involved collection of random soil matrix samples placed within a grid across the Parcels. The random sample locations were supplemented with judgment-based sampling locations targeting specific site features and LOUs. The placement of the sample locations was deemed representative to evaluate the soil conditions in the context of the CSM. Because most of the sampling locations were targeted, and samples from these locations were analyzed for the full suite of SRC chemicals, the relative uncertainty in the site characterization data is considered to be low.

The maximum concentration obtained in any of the Parcels was used as the exposure-point concentration to evaluate all Parcels, which is a highly conservative assumption because it is very unlikely that receptors will be exposed to the maximum concentrations of all COPCs in each Parcel over an extended period of time.

Uncertainty Associated with Data Usability/Data Evaluation

A subset of the data was qualified with a *J* qualifier and estimated with low bias. These data were evaluated further to assess potential impact on the risk assessment results. Inclusion of these data is not expected to result in an underestimate of the potential risks associated with residual chemicals in soil at the Parcels, because (1) the number of affected data points was very small relative to the entire data set, (2) the maximum detected concentration was used as the EPC in the risk assessment calculations, and (3) most of the chemicals identified with a *J* qualifier were not selected as COPCs, because their concentrations were significantly (greater than 100 times) below the BCLs.

It appears that the NDEP-approved DVSRs associated with the initial sampling events in 2007 and 2008 do not include an SQL for many results. Therefore, the PQL was used as the detection limit for non-detectable concentrations in the post-remediation HRA. This may result in the



selection of additional metals as being above background, particularly since the SQL was used for the background data set. However it has little impact on the overall evaluation, because most metals had a high frequency of detection and the maximum detected concentrations were used to select COPCs and to estimate potential health impacts.

For data associated with blank contamination, recent NDEP guidance recommends using the actual reported value instead of either the SQL or PQL (NDEP, 2012a). These concentrations were J qualified and are considered estimated with high bias. This has little impact on the overall evaluation since the reported soil concentrations for these samples are generally significantly below BCLs for the Parcels COPCs.

Uncertainty Associated with Selection of COPCs

Based on comparison to background, some metals were identified as being above background, and for others, there are insufficient detections in the background and/or site data sets to make a determination. For the majority of these metals, there is no reason to believe they are related to historical Site/Parcel activities, based on the CSM. Although seven radionuclides were identified as being above background in one or more of the Parcels, there is no reason to believe that the Parcels have been affected by thorium or uranium isotopes; therefore, no radionuclides were identified as COPCs. In addition to the metals, chemicals detected in at least one sample were included in the COPC selection process. Of these 68 chemicals, 10 were identified as COPCs. For those chemicals that were not selected as COPCs, the maximum detected concentration was generally a factor of 10, if not a factor of 100 or more, lower than the NDEP commercial worker BCL; therefore, exclusion of these chemicals from the quantitative risk assessment may slightly underestimate the potential health risks posed by the Parcels, but to such a small degree as to be inconsequential to the overall results of the HRA. Conversely, some metals may have been selected as COPCs, but may actually be within background.

Surrogate BCLs were used for the toxicity screen and COPC selection for endrin aldehyde, gamma-chlordane, di-N-butyl phthalate, and 1,2,3-trichlorobenzene in the absence of NDEP-derived BCLs for these compounds. As shown in Table 5, these compounds were excluded as COPCs based on the toxicity screen. The surrogates identified are considered to be toxicologically representative of these compounds, and given that the ratios of the BCLs to the maximum detected concentrations ranged from 1,798 to 415,882, the detected concentrations of these compounds would not be expected to contribute significantly to the total risk estimates.

Finally, no representative surrogate was identified for octachlorostyrene, platinum, potassium, or sodium. Octachlorostyrene was detected in only 2 of 143 samples with a maximum detected



concentration of 0.065 mg/kg. Platinum was detected in only 7 of 143 samples at a maximum concentration of 2.4 mg/kg in sample TSB-FJ-02-02-0. Surface soil at this location was removed because of the presence of asbestos; therefore, the soil represented by this sample has been removed. The next highest detected platinum concentration was 0.15 mg/kg. Sodium was detected in all of the 143 samples at a maximum concentration of 2910 mg/kg. Potassium was detected in all of the 143 samples at a maximum concentration of 4480 mg/kg. Sodium and potassium are essential nutrients that were found to be only slightly elevated above background (see Table E-2). In such cases, U.S. EPA (1989) guidance suggests that essential nutrients do not need to be considered further in the quantitative risk assessment. Considering the low frequency of detection for octachlorostyrene and platinum, and the fact that sodium and potassium are an essential nutrients, the exclusion of these chemicals as COPCs is not expected to impact the risk estimates or overall conclusions of the HRA.

Uncertainty Associated with Exposure-Point Concentrations

The maximum detected concentration within all the Parcels was used as the EPC for all of the COPCs except asbestos. This assumption likely overestimates potential health risks, because receptors are unlikely to be exposed to the maximum concentration for all COPCs over an extended period of time. With regard to asbestos, two EPCs were calculated—a best estimate and an upper-bound estimate—for each Parcel as a whole. Because no long amphibole fibers were counted in any of the samples, the best estimate is zero. The upper bound of the asbestos bulk soil concentration is calculated as the 95% UCL of the Poisson distribution, where the mean equals the number of long structures detected. This value is then multiplied by the pooled analytical sensitivity to estimate the upper-bound concentration. The 95% UCL of the Poisson distribution for zero fibers counted is three fibers; therefore, for long amphibole fibers, the upper-bound EPC assumes that three long amphibole fibers are present, even though none were actually counted. Therefore, the potential risks associated with exposure to asbestos based on the upper-bound EPCs may be overestimated, particularly for long amphibole fibers.

Uncertainty Associated with Fate-and-Transport Modeling

The fate-and-transport modeling in this HRA is limited to estimating PEFs for construction workers and commercial workers. These values were estimated according to U.S. EPA guidance (2002a) based on a combination of site-specific and default input parameters. For most chemicals, inhalation of dust does not contribute significantly to the overall risk estimates, because exposure via ingestion and dermal contact is much higher; therefore, the uncertainty in this input parameter does not affect the conclusions of the HRA. However, for chemicals such as



asbestos, which is evaluated as a carcinogen only through the inhalation route, the potential uncertainty in the PEF contributes substantially to the overall uncertainty in the risk estimate. This is particularly important for the construction worker scenario, because the estimated PEF is large relative to non-construction scenarios. The PEF for construction accounts for several potential sources of dust, including excavating, tilling, and dumping; however, the largest contributor to the overall PEF is driving over unpaved roads. In this case, the majority of the input parameters are based on default values recommended by U.S. EPA (2002a). U.S. EPA provides the basis for most of these values, but not others, including the average weight of the vehicle (8 tonnes) and the number of vehicles that will drive across the area every day (30). The applicability of these and other assumptions to future construction at the Parcels is unknown; however, it is believed that, in combination, these assumptions are more likely to overestimate than underestimate potential health risks, potentially to a significant degree.

Uncertainty Associated with Exposure Assessment

The exposure assessment in this HRA is based on a reasonable maximum exposure (RME) scenario, which is defined by EPA as the highest exposure that could reasonably be expected to occur for a given exposure pathway at a site (U.S. EPA, 1989). To achieve this goal, the RME scenario uses highly conservative exposure assumptions. For example, this HRA assumes that a future onsite outdoor commercial worker incidentally ingests 100 mg of site soil per day, 225 days per year, for 25 years. These and other upper-bound, default estimates of exposure most likely overestimate the potential health risks associated with exposures to soil. Finally, it should be noted that potential health risks associated with inhalation of dust released from soil at the Site were not evaluated quantitatively for offsite receptors. However, because (1) offsite receptors would be exposed to lower concentrations than onsite receptors, and (2) the estimated inhalation health risks for onsite receptors are below levels of concern, potential inhalation health risks to offsite receptors would also be below levels of concern.

Uncertainty Associated with Toxicity Assessment

One of the largest sources of uncertainty in any risk assessment is the limited understanding of toxicity to humans who are exposed to the low concentrations that are generally encountered in the environment. The majority of the available toxicity data are from animal studies; these data are extrapolated using mathematical models or multiple uncertainty factors to predict what might occur in humans. Sources of conservatism in the toxicity criteria used in this HRA include:



- The use of conservative methods and assumptions to extrapolate from high-dose animal studies to predict the possible response in humans at exposure levels far below those administered to animals
- The assumption that chemicals considered to be carcinogens do not have thresholds (i.e., for all doses greater than zero, some risk is assumed to be present)
- The fact that epidemiological studies (i.e., human exposure studies) are limited and are not generally considered in a quantitative manner in deriving toxicity values.

In aggregate, these assumptions lead to overestimates of risk, such that the actual risk is unlikely to be higher than the estimated risk, but could be considerably lower and, in fact, could be zero. Chemical-specific uncertainties in toxicity criteria are provided below for chemicals that contribute most to the estimated cancer risks (hexachlorobenzene) and hazard indices (perchlorate) and asbestos, followed by a discussion regarding chemicals for which route-to-route extrapolations were assumed, surrogate criteria were used, or no criteria were available.

Hexachlorobenzene

The oral slope factor and inhalation unit risk factor for HCB are based on a 2-year chronic feeding study in rats (U.S. EPA, 2010). Significantly increased incidences of kidney and liver tumors were observed in treated animals, and the toxicity criteria were ultimately based on increased liver tumors in females. With regard to their confidence in these criteria, U.S. EPA concluded that significant increases in malignant tumors were observed among an adequate number of animals observed for their lifetime. Additionally, U.S. EPA calculated slope factors from a total of 14 different data sets encompassing three species, four studies, and various endpoints. These values fell within a range of approximately one order of magnitude (U.S. EPA, 2010).

Perchlorate

The oral reference dose for perchlorate is based on a 14-day drinking-water study of adult human volunteers (U.S. EPA, 2010). The critical effect from this study is radioactive iodide uptake inhibition in the thyroid. This is not considered to be an adverse effect; therefore, basing the oral RfD on this endpoint is a more conservative approach than traditional hazard assessment. U.S. EPA applied an intraspecies uncertainty factor of 10 to the no-observed-effect level (NOEL) to account for differences in sensitivity within the human population. U.S. EPA concluded that their confidence in the oral RfD is high, because it is based on a no-effect level for a well-



characterized precursor effect, accompanied by a 10-fold uncertainty factor for susceptible populations (U.S. EPA 2010).

Asbestos

The potential risk associated with exposure to long chrysotile fibers in soil was assessed based on methodology from U.S. EPA (2003a), as specified in NDEP's (2011) asbestos risk assessment guidance. This methodology distinguishes between different fiber sizes (greater than 10 μm in length and less than 0.4 μm in width) and types (chrysotile and amphiboles). U.S. EPA (2003a) developed two sets of risk coefficients—one set is “optimized” based on the entirety of the available data, and the other set is “conservative” based on data from a single epidemiology study. Per NDEP (2011) guidance, the optimized risk coefficients were used in this HRA. In addition, the risk coefficients are intended to assess long-term average exposure, such as onsite workers. Applying this methodology to short-term workers such as construction workers, as was done in this HRA, may result in additional uncertainty in the risk estimates (U.S. EPA 2003a).

Uncertainty Associated with Risk Characterization

The uncertainties associated with risk characterization are generally the result of combined uncertainties in the site conditions, exposure assumptions, and toxicity criteria. In addition, risks cannot be characterized for chemicals for which toxicity criteria have not been established. In this HRA, potential health risks were quantified for future construction workers and future onsite commercial workers associated with direct contact with soil and inhalation of dust. Given the highly conservative nature of the exposure parameters used to characterize this pathway, especially for the RME scenario, it is highly unlikely that the same receptor would be exposed at that level over the entire duration of exposure. These conservative estimates of exposure were then combined with even more conservative estimates of acceptable exposure (RfD or RfC) or carcinogenic potency (SF or URF) to estimate the magnitude (non-cancer) or likelihood (cancer) of potential effects. As discussed above (“Uncertainty Associated with Selection of COPCs”), the absence of toxicity criteria for a small number of metals and organic compounds and resulting exclusion from the quantitative evaluation is not expected to impact the risk estimates or conclusions of the HRA.

One source of uncertainty that is unique to risk characterization is the assumption that the total risk associated with exposure to multiple chemicals is equal to the sum of the individual risks for each chemical (i.e., the risks are additive). Other possible interactions include synergism, where the total risk is higher than the sum of the individual risks, and antagonism, where the total risk is lower than the sum of the individual risks. Relatively few data are available regarding potential



chemical interactions following environmental exposure to chemical mixtures. Some studies have been carried out in rodents that were given simultaneous doses of multiple chemicals. The results of these studies indicated that no interactive effects were observed for mixtures of chemicals that affect different target organs (i.e., each chemical acted independently), whereas antagonism was observed for mixtures of chemicals that affect the same target organ, but by different mechanisms (Risk Commission, 1997).

While there are no data on chemical interactions in humans exposed to chemical mixtures at the dose levels typically observed in environmental exposures, animal studies suggest that synergistic effects will not occur at levels of exposure below their individual effect levels (Seed et al., 1995). As exposure levels approach the individual effect levels, a variety of interactions may occur, including additive, synergistic, and antagonistic interactions (Seed et al., 1995).

EPA guidance for risk assessment of chemical mixtures (U.S. EPA, 1986) recommends assuming an additive effect following exposure to multiple chemicals. Subsequent recommendations by other parties, such as the National Research Council (1988) and the Presidential/Congressional Commission on Risk Assessment and Risk Management (Risk Commission, 1997), have also advocated a default assumption of additivity. As currently practiced, risk assessments of chemical mixtures generally sum cancer risks regardless of tumor type, and sum non-cancer hazard indices regardless of toxic endpoint or mode of action. Given the available experimental data, this approach likely overestimates potential risks associated with simultaneous exposure to multiple chemicals. It should be noted that asbestos risks were evaluated separately from other chemical risks, consistent with the HRA work plan (Northgate, 2010d). These risk estimates are not additive because of differences in the basis for the carcinogenic toxicity criteria. For chemicals, the SF and URF are defined as the 95% UCL of the probability of a carcinogenic response, whereas the URFs for asbestos are based on the estimated number of additional deaths from lung cancer and mesothelioma.

In summary, these and other assumptions contribute to the overall uncertainty in the results of the HRA. However, given that the largest sources of uncertainty generally result in overestimates of exposure or risk, it is believed that the noncarcinogenic and carcinogenic risks presented in this HRA represent conservative estimates of the risks, if any, posed by residual chemicals at the Parcels.

5.7 Data Quality Assessment

Data quality assessment (DQA) is an evaluation performed to determine whether the collected environmental data are of the right type, quality, and quantity to support the risk characterization



presented in a risk assessment. The suitability of the type of data collected and data quality have been discussed in earlier sections of this HRA with regards to adherence to the NDEP-approved Sampling and Analysis Plans (SAPs) and Quality Assurance Project Plans (QAPPs), and that discussion is not repeated here. Similarly, earlier sections present results of data review such as evaluation of summary statistics. The current discussion will focus on the assessment of whether a sufficient number of data were collected.

In this HRA, the evaluation of site concentrations relative to toxicity screening levels was based on an evaluation of maximum detected concentrations, rather than on mean concentrations. For this reason, for the purposes of evaluating if a sufficient number of samples were collected to support the risk assessment, it was determined that the formula used for calculation of sample size based on the one-sample test for proportions would be an appropriate method (rather than a method which focuses on the mean threshold value of the contaminant distribution). The one-sample test for proportions can be used to test for a difference between the proportion of a sample population that exceeds a threshold concentration and a specified target proportion. The method assumes that the data constitute an independent random sample, and is strictly limited to cases where the normal approximation can be applied (EPA, 2006). The normal approximation can be applied when both of the following are true:

$$5 < nP_0$$

$$5 < n(1 - P_0)$$

where:

n = actual number of samples

P_0 = Theoretical proportion of concentrations exceeding a threshold as specified in the null hypothesis

For the purposes of our evaluation, we will consider a specified target exceedance proportion of ten percent, $P_0 = 0.10$. Since the actual number of samples for each chemical in the HRA dataset ranges from 67 to 143 samples, the above equations are true and the normal approximation can be applied.

The minimum number of samples necessary is determined from the following inequality:



$$n \geq \left[\frac{z_{1-\alpha}\sqrt{P_0(1-P_0)} + z_{1-\beta}\sqrt{P_1(1-P_1)}}{P_1 - P_0} \right]^2$$

where:

- n = number of samples required
- α = significance level, Type I error tolerance, or false rejection rate
- β = Type II error tolerance or false acceptance rate
- P_0 = Theoretical proportion of concentrations exceeding a threshold as specified in the null hypothesis
- P_1 = The proportion at which β is specified
- z = quantile from the standard normal distribution

The difference, $P_1 - P_0$, is also commonly known as Δ , the “width of the gray region”. The sample size calculations presented in Table 13 cover a range of Type I (α) and Type II (β) error tolerances for a gray region width specified by $P_0 = 0.10$ and $P_1 = 0.01$. Table 13 presents the minimum sample size necessary to test the null hypothesis that the true population proportion of concentrations exceeding a threshold is greater than 0.10 at the specified false rejection and false acceptance rates. The smallest sample size for any analyte in the Parcels HRA dataset ($n = 67$) is greater than the minimum required number of samples ($n \geq 44$) calculated with the method above. This sample size evaluation shows that the HRA dataset has a sufficient sample size to evaluate a 10% proportion of exceedances and supports the conclusion that a sufficient quantity of data were collected for the purpose of risk characterization.



6.0 SUMMARY AND CONCLUSIONS

Analytical results for confirmation soil samples indicate that for most areas, Parcels C, D, F, G, and H have been successfully remediated in accordance with the approved RAW (BEC, 2008a), with over 11,000 tons of soil removed and transported to an approved landfill. Analytical results for confirmation samples collected following the soil removal action were all less than the approved remediation goals. However, small areas of unremediated soil remain in Parcels C, F, G, and H. In Parcel C, an unremediated area of approximately 8,345 square feet south of the South Haul Road Fence line will be removed by Black Mountain Industrial (BMI) in conjunction with BMI's planned removal of the Haul Road. In Parcels F, G, and H, four small areas (ranging from 135 to 1,955 square feet) were not remediated, either because the soils were covered by asphalt or were adjacent to railroad tracks. For these areas, qualitative considerations suggest that associated risks would be insignificant due to one or more of the following factors: the soil is covered with asphalt, the area is small, and/or the area is in close proximity to a road or railroad track where individuals would not spend a significant amount of time. In addition, it appears that those areas under paved roads along the Site boundary are an artifact of the mapping of the remediation polygons and that these areas should not have been identified for removal.

This post-remediation HRA was conducted to evaluate potential risks associated with the residual soil chemical concentrations in the Parcels. Soil data collected as part of the initial and confirmation sampling efforts were evaluated and considered usable for the purposes of this HRA. The methods and findings from the HRA can be summarized as follows:

- Based on the CSM for the Parcels, potential exposure to soil was evaluated for future onsite indoor and outdoor commercial workers and future construction workers via direct contact with soil (i.e., incidental ingestion, dermal contact) and inhalation of dust. COPCs were selected according to a multi-step process, including comparisons to background for metals and radionuclides, a toxicity screen, frequency of detection, and CSM considerations. Based on this process, 10 chemicals were selected as COPCs.
- Non-cancer hazard indices and/or theoretical excess cancer risks associated with direct contact with soil and inhalation of dust were estimated for all of the COPCs except asbestos, based on the maximum detected concentration. The estimated hazard indices and excess cancer risks were equal to or below NDEP's point of departure for non-cancer effects (hazard index of 1) and cancer risks (1×10^{-6}) for future onsite indoor and outdoor commercial workers and future construction workers under the conditions evaluated.
- With regard to asbestos, a best estimate and an upper-bound estimate were calculated. The estimated risks for death from lung cancer or mesothelioma for asbestos exposures to future onsite outdoor commercial workers and construction workers are less than or equal to 1×10^{-6} , except for upper-bound estimates of exposure to amphibole fibers by future



construction workers. The upper-bound estimates were slightly above NDEP's point of departure for cancer risks for exposure to amphibole fibers by future construction workers; however the estimates were based on constant lifetime exposures, not short-term exposure such as construction activities. Therefore, exposures to asbestos in soil should not result in unacceptable risks for future onsite outdoor commercial workers or future construction workers.

- Additional confirmation samples were collected for PAHs in Parcel F following preparation of the initial draft HRA submitted to NDEP on December 10, 2010. PAHs were not detected in these samples at detection limits below the BCLs. Therefore, inclusion of these data in the risk assessment calculations will not affect the results of this post-remediation HRA and thus, this data were not included.

The results indicate that exposure to residual chemicals in the upper 10 feet of soil in the Parcels should not result in unacceptable risks for all future onsite receptors evaluated in this HRA.



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TABLES



TABLE 1
Summary of Scrape Area and Confirmation Sampling Information for Parcels

Parcel	BEC Samples with BCL or Remediation Goal Exceedances (BEC, 2008)	Compounds Detected Above Remediation Goals or BCL	Confirmation Sample Identifier (Northgate, 2010)	Scrape Depth (feet)	Net Tonnage of Soil Removed (disposed weight)
C	TSB-CR-02	Amphibole= 1 fiber	E1-PC-1-1-0.0	1	2,751.65
	TSB-CR-03	Chrysotile=7 fibers	G1-PC-1-1-0.0	0.4	
	TSB-CJ-03	Amphibole=1 fiber	H2-PC-1-1-0.0	0.4	
	TSB-CR-07	Dioxins=1,521 pg/g	I6-PC-1-1-0.0	0.5	
D	TSB-DR-04	Chrysotile=4 fibers	F4-PD-1-1-0.0	0.4	139.9
F	TSB-FJ-01	Chrysotile=15 fibers	P2-PF-1-1-0.0	0.7	5,895.02
	TSB-FJ-02	Chrysotile=20 fibers	P3-PF-2-1-0.0	0.3	
		Arsenic=11.3 mg/kg			
	TSB-FJ-03	Chrysotile=8 fibers	P4-PF-1-1-0.0	0.6	
	TSB-FJ-05	Amphibole=1 fiber	P4-PH-1-1-0.0	0.6	
	TSB-FJ-06	Amphibole=1 fiber	Q3-PF-1-1-0.0	0.9	
	TSB-FJ-07	Amphibole=4 fibers	Q2-PF-1-1-0.0	0.2	
	TSB-FJ-08	Amphibole=3 fibers	P3-PF-1-1-0.0	0.9	
	TSB-FR-02	Chrysotile=7 fibers	Q3-PF-3-1-0.0	0.7	
		Aroclor 1254=0.76 mg/kg			
Benzo(a)pyrene=0.85 mg/kg					
Benzo(b)fluoranthene=3.3 mg/kg					
	Dibenzo(a,h)anthracene=0.57 mg/kg				
G	TSB-GJ-04 ¹	Amphibole=1 fiber	S2-PG-1-1-0.0	0.3	1,588.56
	TSB-GJ-06	Benzo(a)pyrene=0.99 mg/kg	S3-PG-2-0.0	0.3	
	TSB-GJ-09	Amphibole=13 fibers	S3-PG-1-1-0.0	0.4	
H	TSB-HJ-09	Amphibole=2 fibers	W4-PH-1-1-0.0	0.3	886.93
	TSB-HR-06	Chrysotile=8 fibers	VS-PH-1-1-0.0	0.7	

Notes:

¹ TSB-GJ-04 is located outside the boundary of Parcel G

BCL - Basic Comparison Levels

mg/kg - Milligrams per kilogram

TABLE 2
Parcel Soil Data Results Summary - Organics and General Chemistry

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect	Mean ^g	Max. Detect	Location of Max. Detect	Standard Deviation ^g	Minimum Non-Detect Limit	Maximum Non-Detect Limit	NDEP 2010 Worker BCL ^{a,b}	Basis	Count of Detects > NDEP Worker BCL	Count of Non-Detects > NDEP Worker BCL
Organochlorine Pesticides	4,4'-DDD	mg/kg	143	4	3%	0.0019	0.00141	0.013	TSB-FR-02	3.1E-03	0.0017	0.069	11.1	C	0	0
	4,4'-DDE	mg/kg	143	37	26%	0.0018	0.0109	0.2	TSB-GJ-08	3.3E-02	0.0017	0.0022	7.81	C	0	0
	4,4'-DDT	mg/kg	143	31	22%	0.0018	0.00806	0.26	TSB-FR-02	2.9E-02	0.0017	0.069	7.81	C	0	0
	Aldrin	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	0.113	C	--	0
	Alpha-BHC	mg/kg	143	11	8%	0.002	0.00220	0.059	TSB-FR-01	6.8E-03	0.0017	0.069	0.399	C	0	0
	Alpha-chlordane	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	--	--	--	--
	Beta-BHC	mg/kg	143	48	34%	0.0018	0.0168	0.18	TSB-CR-06	3.3E-02	0.0017	0.069	1.4	C	0	0
	Delta-BHC	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	--	--	--	--
	Dieldrin	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	0.12	C	--	0
	Endosulfan I	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	--	--	--	--
	Endosulfan II	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	--	--	--	--
	Endosulfan Sulfate	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	--	--	--	--
	Endrin	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	205	N	--	0
	Endrin Aldehyde	mg/kg	143	3	2%	0.0029	0.00145	0.02	TSB-FJ-05	3.3E-03	0.0017	0.069	--	--	--	--
	Endrin Ketone	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	--	--	--	--
	Gamma-BHC (Lindane)	mg/kg	143	1	1%	0.013	0.00140	0.013	TSB-CJ-04	3.1E-03	0.0017	0.069	1.93	C	0	0
	Gamma-chlordane	mg/kg	143	1	1%	0.004	0.00134	0.004	TSB-CR-06	3.0E-03	0.0017	0.069	--	--	--	--
	Heptachlor	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	0.426	C	--	0
	Heptachlor Epoxide	mg/kg	143	0	0%	--	0.00132	--	--	3.0E-03	0.0017	0.069	0.21	C	--	0
	Methoxychlor	mg/kg	143	5	3%	0.002	0.00268	0.0078	--	5.7E-03	0.0033	0.13	3420	N	0	0
Tech-Chlordane	mg/kg	143	0	0%	--	0.01318	--	--	3.0E-02	0.017	0.69	7.19	C	--	0	
Toxaphene	mg/kg	143	0	0%	--	0.0519	--	--	1.2E-01	0.067	2.7	1.74	C	--	1	
Semi-Volatile Organic Compounds	1,4-Dioxane	mg/kg	143	0	0%	--	0.175	--	--	6.0E-03	0.33	0.43	174	C	--	0
	2-Methylnaphthalene	mg/kg	144	0	0%	--	0.172	--	--	2.4E-02	0.02	0.43	--	--	--	--
	Acenaphthene	mg/kg	133	0	0%	--	0.171	--	--	2.6E-02	0.011	0.38	2350	N	--	0
	Acenaphthylene	mg/kg	133	0	0%	--	0.171	--	--	2.5E-02	0.018	0.38	147	sat	--	0
	Anthracene	mg/kg	133	0	0%	--	0.171	--	--	2.5E-02	0.018	0.38	9060	max	--	0
	Benzo(a)anthracene	mg/kg	133	1	1%	0.096	0.170	0.096	TSB-FR-04	2.6E-02	0.021	0.38	2.34	C	0	0
	Benzo(a)pyrene	mg/kg	131	0	0%	--	0.174	--	--	1.5E-02	0.021	0.38	0.234	C	--	130
	Benzo(b)fluoranthene	mg/kg	132	2	2%	0.043	0.173	0.11	TSB-FR-02	1.4E-02	0.33	0.38	2.34	C	0	0
	Benzo(g,h,i)perylene	mg/kg	131	2	2%	0.042	0.173	0.075	TSB-GJ-06	1.5E-02	0.33	0.38	34100	N	0	0
	Benzo(k)fluoranthene	mg/kg	131	0	0%	--	0.174	--	--	1.4E-02	0.042	0.38	23.4	C	--	0
	bis(2-Ethylhexyl)phthalate	mg/kg	143	6	4%	0.04	0.180	1.4	TSB-FJ-08	1.0E-01	0.33	0.43	137	C	0	0
	Butyl benzyl phthalate	mg/kg	143	1	1%	0.11	0.174	0.11	TSB-HJ-01	8.1E-03	0.33	0.43	240	sat	0	0
	Chrysene	mg/kg	134	5	4%	0.029	0.171	0.51	TSB-FR-04	4.1E-02	0.029	0.38	234	C	0	0
	Dibenz(a,h)anthracene	mg/kg	131	0	0%	--	0.174	--	--	1.5E-02	0.02	0.38	0.234	C	--	130
	Diethyl phthalate	mg/kg	143	0	0%	--	0.175	--	--	6.0E-03	0.33	0.43	100000	max	--	0
	Dimethyl phthalate	mg/kg	143	0	0%	--	0.175	--	--	6.0E-03	0.33	0.43	100000	max	--	0
	Di-N-Butyl phthalate	mg/kg	143	4	3%	0.047	0.241	5.2	TSB-FJ-06	5.6E-01	0.33	0.43	68400	N	0	0
	Di-N-Octyl phthalate	mg/kg	143	2	1%	0.21	0.176	0.28	TSB-FJ-05	1.1E-02	0.33	0.43	--	--	--	--
	Fluoranthene	mg/kg	144	5	3%	0.041	0.169	0.097	TSB-FR-04	2.9E-02	0.038	0.43	24400	N	0	0
	Fluorene	mg/kg	144	0	0%	--	0.172	--	--	2.4E-02	0.019	0.43	3440	N	--	0
Hexachlorobenzene ^c	mg/kg	143	4	3%	0.035	0.176	0.37	TSB-CJ-04	2.7E-02	0.33	0.43	1.2	C	0	0	
Indeno(1,2,3-cd)pyrene	mg/kg	131	0	0%	--	0.174	--	--	1.5E-02	0.023	0.38	2.34	C	--	0	
Naphthalene	mg/kg	144	0	0%	--	0.172	--	--	2.3E-02	0.033	0.43	15.6	C	--	0	
Nitrobenzene	mg/kg	143	0	0%	--	0.175	--	--	6.0E-03	0.33	0.43	13.6	C	--	0	

TABLE 2
Parcel Soil Data Results Summary - Organics and General Chemistry

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect	Mean ^g	Max. Detect	Location of Max. Detect	Standard Deviation ^g	Minimum Non-Detect Limit	Maximum Non-Detect Limit	NDEP 2010 Worker BCL ^{a,b}	Basis	Count of Detects > NDEP Worker BCL	Count of Non-Detects > NDEP Worker BCL	
Semi-Volatile Organic Compounds (Continued)	Octachlorostyrene	mg/kg	143	2	1%	0.039	0.173	0.065	TSB-CJ-04	1.6E-02	0.33	0.43	--	--	--	--	
	Phenanthrene	mg/kg	133	4	3%	0.018	0.176	0.96	TSB-FR-04	7.3E-02	0.019	0.38	24.5	sat	0	0	
	Pyrene	mg/kg	133	5	4%	0.015	0.171	0.3	TSB-FR-04	2.8E-02	0.33	0.38	19300	N	0	0	
	Pyridine	mg/kg	143	0	0%	--	0.350	--	--	--	1.2E-02	0.66	0.87	667	N	--	0
Volatile Organic Compounds	1,1,1,2-Tetrachloroethane	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	19.9	C	--	0	
	1,1,1-Trichloroethane	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	1390	C	--	0	
	1,1,2,2-Tetrachloroethane	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	2.54	C	--	0	
	1,1,2-Trichloroethane	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	5.51	C	--	0	
	1,1-Dichloroethane	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	21.4	C	--	0	
	1,1-Dichloroethene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	1270	N	--	0	
	1,1-Dichloropropene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	--	--	--	--	
	1,2,3-Trichlorobenzene	mg/kg	143	2	1%	0.00098	0.00263028	0.0017	TSB-CR-01	1.8E-04	0.005	0.0066	--	--	--	--	
	1,2,3-Trichloropropane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	1.59	C	--	0
	1,2,4-Trichlorobenzene	mg/kg	143	4	3%	0.0012	0.00273217	0.014	TSB-CR-01	1.0E-03	0.005	0.0066	707	N	0	0	
	1,2,4-Trimethylbenzene	mg/kg	143	57	40%	0.00029	0.00197587	0.0086	TSB-FJ-09	1.2E-03	0.005	0.0066	604	N	0	0	
	1,2-Dibromo-3-chloropropane	mg/kg	143	0	0%	--	0.00531469	--	--	--	2.6E-04	0.01	0.013	0.0529	C	--	0
	1,2-Dichlorobenzene	mg/kg	143	1	1%	0.00036	0.00263224	0.00036	TSB-CJ-01	2.1E-04	0.005	0.0066	373	sat	0	0	
	1,2-Dichloroethane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	2.24	C	--	0
	1,2-Dichloropropane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	4.29	C	--	0
	1,3,5-Trimethylbenzene	mg/kg	143	8	6%	0.00029	0.00257958	0.0038	TSB-FJ-09	4.0E-04	0.005	0.0066	246	N	0	0	
	1,3-Dichlorobenzene	mg/kg	143	3	2%	0.00034	0.0026072	0.0008	TSB-CJ-08	3.0E-04	0.005	0.0066	373	sat	0	0	
	1,3-Dichloropropane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	64.6	sat	--	0
	1,4-Dichlorobenzene	mg/kg	143	3	2%	0.00027	0.00260217	0.00051	TSB-CJ-08	3.4E-04	0.005	0.0066	13.6	C	0	0	
	2,2-Dichloropropane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	--	--	--	--
	2-Butanone	mg/kg	142	5	4%	0.0038	0.01047746	0.013	TSB-FJ-09	9.6E-04	0.02	0.026	34100	sat	0	0	
	2-Chlorotoluene	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	511	sat	--	0
	2-Hexanone	mg/kg	143	2	1%	0.0022	0.0104951	0.0071	TSB-FJ-06	8.5E-04	0.02	0.026	1930	N	0	0	
	4-Chlorotoluene	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	--	--	--	--
	4-Isopropyltoluene	mg/kg	142	0	0%	--	0.00264824	--	--	--	9.1E-05	0.005	0.0066	--	--	--	--
	4-Methyl-2-pentanone	mg/kg	143	0	0%	--	0.01056993	--	--	--	3.9E-04	0.02	0.026	17200	sat	--	0
	Acetone	mg/kg	143	60	42%	0.0058	0.0398	1.9	TSB-FJ-09	1.8E-01	0.02	0.026	100000	max	0	0	
	Benzene	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	4.21	C	--	0
	Bromobenzene	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	276	N	--	0
	Bromochloromethane	mg/kg	142	0	0%	--	0.00264824	--	--	--	9.1E-05	0.005	0.0066	--	--	--	--
	Bromodichloromethane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	51.3	C	--	0
	Bromoform	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	242	C	--	0
	Bromomethane	mg/kg	143	0	0%	--	0.00531469	--	--	--	2.6E-04	0.01	0.013	39.1	N	--	0
	Carbon tetrachloride	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	1.55	C	--	0
	Chlorobenzene	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	695	N	--	0
	Chloroethane	mg/kg	143	0	0%	--	0.00531469	--	--	--	2.6E-04	0.01	0.013	1100	C	--	0
	Chloroform	mg/kg	143	6	4%	0.00053	0.00259042	0.0023	TSB-CJ-01	3.4E-04	0.005	0.0066	1.55	C	0	0	
Chloromethane	mg/kg	143	0	0%	--	0.00531469	--	--	--	2.6E-04	0.01	0.013	8.05	C	--	0	
cis-1,2-Dichloroethene	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	737	sat	--	0	
cis-1,3-Dichloropropene	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	--	--	--	--	
Dibromochloromethane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	6.03	C	--	0	
Dibromomethane	mg/kg	143	0	0%	--	0.00264825	--	--	--	9.0E-05	0.005	0.0066	191	N	--	0	
Dichlorodifluoromethane	mg/kg	143	0	0%	--	0.00531469	--	--	--	2.6E-04	0.01	0.013	340	N	--	0	
Ethylbenzene	mg/kg	143	5	3%	0.00037	0.00259238	0.0022	TSB-CJ-08	3.5E-04	0.005	0.0066	19.6	C	0	0		

TABLE 2
Parcel Soil Data Results Summary - Organics and General Chemistry

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect	Mean ^g	Max. Detect	Location of Max. Detect	Standard Deviation ^g	Minimum Non-Detect Limit	Maximum Non-Detect Limit	NDEP 2010 Worker BCL ^{a,b}	Basis	Count of Detects > NDEP Worker BCL	Count of Non-Detects > NDEP Worker BCL
Volatile Organic Compounds (Continued)	Isopropylbenzene	mg/kg	143	1	1%	0.00029	0.00263245	0.00029	TSB-CJ-08	2.2E-04	0.005	0.0066	647	N	0	0
	m,p-Xylene	mg/kg	143	10	7%	0.00087	0.00268301	0.011	TSB-CJ-08	8.9E-04	0.005	0.0066	214	sat	0	0
	Methyl tert butyl ether	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	208	C	--	0
	Methylene chloride	mg/kg	142	14	10%	0.0035	0.00328979	0.021	TSB-FJ-02	2.8E-03	0.005	0.0066	58.5	C	0	0
	N-Butylbenzene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	237	sat	--	0
	N-Propylbenzene	mg/kg	143	3	2%	0.001	0.00261783	0.0014	TSB-FJ-09	2.4E-04	0.005	0.0066	237	sat	0	0
	o-Xylene	mg/kg	143	5	3%	0.00047	0.00262014	0.0041	TSB-CJ-08	3.2E-04	0.005	0.0066	282	sat	0	0
	sec-Butylbenzene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	223	sat	--	0
	Styrene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	1730	sat	--	0
	tert-Butylbenzene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	393	sat	--	0
	Tetrachloroethene	mg/kg	143	2	1%	0.001	0.00263776	0.0027	TSB-CJ-08	1.6E-04	0.005	0.0066	3.28	C	0	0
	Toluene	mg/kg	143	16	11%	0.00047	0.00244196	0.0017	TSB-HJ-08	6.1E-04	0.005	0.0066	521	sat	0	0
	trans-1,2-Dichloroethylene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	547	N	--	0
	trans-1,3-Dichloropropene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	--	--	--	--
	Trichloroethene	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	5.49	C	--	0
	Trichlorofluoromethane	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	1980	N	--	0
Vinyl Chloride	mg/kg	143	0	0%	--	0.00264825	--	--	9.0E-05	0.005	0.0066	1.86	C	--	0	
Xylenes, total	mg/kg	143	7	5%	0.0014	0.00531259	0.015	TSB-CJ-08	1.1E-03	0.01	0.013	214	sat	0	0	
Total Petroleum Hydrocarbons (TPH)	TPH as diesel	mg/kg	143	7	5%	6.6	59.4	5500	TSB-FR-04	4.6E+02	25	1300	100 ^d	--	2	2
	TPH as gasoline	mg/kg	143	7	5%	--	0.0526	0.29	TSB-FJ-09	2.3E-02	0.1	0.13	100 ^d	--	0	0
Polychlorinated Biphenyls	Aroclor-1016	mg/kg	67	0	0%	--	0.0174	--	--	1.8E-03	0.0083	0.043	23.6	C	0	0
	Aroclor-1221	mg/kg	67	0	0%	--	0.0174	--	--	1.6E-03	0.011	0.043	0.826	C	0	0
	Aroclor-1232	mg/kg	67	0	0%	--	0.0174	--	--	1.8E-03	0.0083	0.043	0.826	C	0	0
	Aroclor-1242	mg/kg	67	0	0%	--	0.0174	--	--	1.8E-03	0.0083	0.043	0.826	C	0	0
	Aroclor-1248	mg/kg	67	1	1%	0.074	0.0182	0.074	TSB-FJ-03	7.1E-03	0.0083	0.043	0.826	C	0	0
	Aroclor-1254	mg/kg	67	1	1%	0.29	0.0215	0.29	TSB-FJ-04	3.3E-02	0.0083	0.043	0.826	C	0	0
	Aroclor-1260	mg/kg	67	0	0%	--	0.0174	--	--	1.8E-03	0.0083	0.043	0.826	C	0	0
General Chemistry	Perchlorate	mg/kg	143	134	94%	0.0024	7.67	168	TSB-FJ-05	2.4E+01	0.0104	0.0438	795	N	0	0
Dioxins/Furans	TCDD TEQ ^f	pg/g	131	131	100%	--	29.6	765.628	TSB-DJ-01	1.1E+02	--	--	1000 ^e	C	0	0

Notes:

a - From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010. Values for the worker are the lower of the indoor and outdoor worker soil BCLs.

b - 2010 BCLs were in effect at the time of soil removal.

c - Hexachlorobenzene analyzed using both EPA Methods 8081 and 8270. Data reported based on EPA 8270 as it was deemed to be the superior method.

d - 100 mg/kg total TPH value used for screening. This screening value is not a BCL.

e - NDEP default value based on 1998 OSWER directive and consideration of the uncertainty regarding the potency factor

f - TCDD equivalents based on WHO 2005 TEFs for the 17 dioxin and furan congeners.

g - 1/2 of the detection limit was used for non-detect values to calculate the mean and standard deviation.

mg/kg - Milligram per kilogram

C - Cancer

N - Noncancer

sat - soil saturation

max - risk-based value is greater than 100,000 mg/kg

TABLE 3
Parcel Soil Data Results Summary - Metals and Radionuclides

Parameter of Interest	Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect	Mean ^c	Max. Detect	Location of Max. Detect	Standard Deviation ^c	Min. Non-Detect Limit	Max. Non-Detect Limit	NDEP 2010 Worker BCL ^{a,b}	Basis	Count of Detects > NDEP Worker BCL	Count of Non-Detect > NDEP Worker BCL
Metals	Aluminum	mg/kg	143	143	100%	3430	7408	11600	TSB-FJ-04	1218	--	--	100000	max	0	0
	Antimony	mg/kg	143	113	79%	0.088	0.274	0.32	TSB-CR-06 TSB-FJ-06	0.261	1	5.4	454	N	0	0
	Arsenic	mg/kg	144	144	100%	1.3	3.55	8	TSB-CJ-08	1.32	--	--	1.77	C	137	0
	Barium	mg/kg	143	143	100%	67	185	1420	TSB-FJ-06	135	--	--	100000	max	0	0
	Beryllium	mg/kg	143	143	100%	0.23	0.523	0.84	TSB-FJ-04	0.0908	--	--	2230	N	0	0
	Boron	mg/kg	143	118	83%	3.2	12.4	22.6	TSB-DR-04	15.3	20.3	265	100000	max	0	0
	Cadmium	mg/kg	143	139	97%	0.036	0.105	0.42	TSB-FR-02	0.0686	0.54	1.3	560	N	0	0
	Chromium (Total)	mg/kg	143	143	100%	4.1	10.2	19	TSB-FJ-04	2.66	--	--	100000	max	0	0
	Chromium (VI)	mg/kg	101	3	3%	0.49	0.607	1.3	TSB-DR-05	0.947	1	20	1230	C	0	0
	Cobalt	mg/kg	143	143	100%	3.2	6.6	11.2	TSB-FJ-04	1.29	--	--	337	C	0	0
	Copper	mg/kg	135	135	100%	6	14.7	27.4	TSB-CJ-03	3.29	--	--	42200	N	0	0
	Iron	mg/kg	143	143	100%	5950	12298	22300	TSB-FJ-04	2094	--	--	100000	max	0	0
	Lead	mg/kg	143	143	100%	3.8	10.9	136	TSB-FR-02	12.4	--	--	800	--	0	0
	Magnesium	mg/kg	143	143	100%	4100	9451	25000	TSB-GJ-08	2761	--	--	100000	max	0	0
	Manganese	mg/kg	143	143	100%	111	341	917	TSB-FR-02	129	--	--	15100	N	0	0
	Mercury	mg/kg	143	102	71%	0.0072	0.0155	0.0413	TSB-FJ-06	0.00623	0.0336	0.0439	341	N	0	0
	Molybdenum	mg/kg	143	142	99%	0.16	0.594	1.5	TSB-FR-02	0.268	5.4	5.4	5680	N	0	0
	Nickel	mg/kg	143	143	100%	6	14.2	22.6	TSB-FJ-04	2.44	--	--	21800	N	0	0
	Platinum	mg/kg	143	7	5%	0.021	0.168	2.4	TSB-FJ-02	0.24	0.1	2.7	--	--	0	0
	Potassium	mg/kg	143	143	100%	704	1995	4480	TSB-DR-05	655	--	--	--	--	0	0
	Selenium	mg/kg	143	0	0%	--	0.571	--		0.192	0.51	5.4	5680	N	0	0
	Silver	mg/kg	143	127	89%	0.038	0.123	0.21	TSB-FR-01 TSB-FR-02	0.0955	0.42	2.2	5680	N	0	0
	Sodium	mg/kg	143	143	100%	138	740	2910	TSB-FJ-01	510.74	--	--	--	--	0	0
	Strontium	mg/kg	143	143	100%	50.7	213	500	TSB-HR-04	79.95	--	--	100000	max	0	0
	Thallium	mg/kg	143	61	43%	0.1	0.239	0.45	TSB-DR-04	0.0969	0.21	2.2	79.5	N	0	0
	Tin	mg/kg	143	130	91%	0.064	0.498	1.2	TSB-CJ-02	0.194	0.42	2.2	100000	max	0	0
Titanium	mg/kg	143	143	100%	257	542	1010	TSB-FJ-04	118	--	--	100000	max	0	0	
Tungsten	mg/kg	143	117	82%	0.21	0.711	9	TSB-FJ-02	1.04	1	13.3	8510	N	0	0	
Uranium	mg/kg	143	143	100%	0.39	1.27	3.90	TSB-GJ-08	0.571	--	--	3400	N	0	0	
Vanadium	mg/kg	139	139	100%	19.1	36.8	65.8	TSB-FJ-04	7.51	--	--	5680	N	0	0	
Zinc	mg/kg	143	143	100%	14	30.7	67.1	TSB-FJ-06	7.40	--	--	100000	max	0	0	
Radionuclides	Radium-226	pCi/g	146	146	100%	0.412	1.13	2.46	TSB-HR-02	0.329	--	--	0.023	C	146	--
	Radium-228	pCi/g	146	146	100%	0.442	1.83	14.3	TSB-FR-02	1.18	--	--	0.041	C	146	--
	Thorium-228	pCi/g	142	142	100%	1.07	1.75	2.92	TSB-HJ-10	0.332	--	--	0.025	C	142	--
	Thorium-230	pCi/g	142	142	100%	0.792	1.34	3.03	TSB-HR-03	0.402	--	--	8.3	C	0	--
	Thorium-232	pCi/g	142	142	100%	0.92	1.62	2.74	TSB-HJ-10	0.298	--	--	7.4	C	0	--
	Uranium-234	pCi/g	138	138	100%	0.725	1.37	3.52	TSB-HR-02	0.528	--	--	11	C	0	--
	Uranium-235	pCi/g	138	138	100%	0	0.0481	0.17	TSB-GJ-09	0.026	--	--	0.35	C	0	--
	Uranium-238	pCi/g	138	138	100%	0.643	1.19	2.6	TSB-HR-03	0.376	--	--	1.4	C	24	--

Notes:

a - From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas,

Revision 5, August 2010. Values for the worker are the lower of the indoor and outdoor worker soil BCLs.

b - 2010 BCLs were in effect at the time of soil removal.

c - 1/2 of the detection limit was used for non-detect values to calculate the mean and standard deviation.

C = Cancer

N = Noncancer

max = risk-based value is greater than 100,000 mg/kg

TABLE 4
Parcel Soil Data Results Summary - Asbestos

Parcel	Sample ID	Sample Name	Number of Long Chrysotile Fibers (>10µm and <0.4µm)	Number of Long Amphibole Fibers (>10µm and <0.4µm)	Type of Long Amphibole Fibers (>10µm and <0.4µm)
Parcel C	G1-PC-1-1	G1-PC-1-1-0.0	0	0	--
Parcel C	H2-PC-1-1	H2-PC-1-1-0.0	0	0	--
Parcel C	TSB-CJ-01	TSB-CJ-01-0	1	0	--
Parcel C	TSB-CJ-02	TSB-CJ-02-0	0	0	--
Parcel C	TSB-CJ-04	TSB-CJ-04-0	1	0	--
Parcel C	TSB-CJ-05	TSB-CJ-05-0	0	0	--
Parcel C	TSB-CJ-06	TSB-CJ-06-0	0	0	--
Parcel C	TSB-CJ-07	TSB-CJ-07-0	0	0	--
Parcel C	TSB-CJ-08	TSB-CJ-08-0	1	0	--
Parcel C	TSB-CJ-10	TSB-CJ-10-0	0	0	--
Parcel C	TSB-CJ-11	TSB-CJ-11-0	0	0	--
Parcel C	TSB-CR-01	TSB-CR-01-0	1	0	--
Parcel C	TSB-CR-01	TSB-CR-01-0 FD	1	0	--
Parcel C	TSB-CR-04	TSB-CR-04-0	0	0	--
Parcel C	TSB-CR-05	TSB-CR-05-0	2	0	--
Parcel C	TSB-CR-06	TSB-CR-06-0	0	0	--
Parcel C	TSB-CR-07	TSB-CR-07-0	2	0	--
Parcel C	E1-PC-1-1	E1-PC-1-1-0.0	0	0	--
Parcel D	F4-PD-1-1	F4-PD-1-1-0.0	0	0	--
Parcel D	TSB-DJ-01	TSB-DJ-01-0	2	0	--
Parcel D	TSB-DR-01	TSB-DR-01-0	0	0	--
Parcel D	TSB-DR-02	TSB-DR-02-0	0	0	--
Parcel D	TSB-DR-02	TSB-DR-02-0 FD	0	0	--
Parcel D	TSB-DR-03	TSB-DR-03-0	0	0	--
Parcel D	TSB-DR-04E	TSB-DR-04E-0	3	0	--
Parcel D	TSB-DR-04W	TSB-DR-04W-0	0	0	--
Parcel D	TSB-DR-04W	TSB-DR-04W-0 FD	0	0	--
Parcel D	TSB-DR-05	TSB-DR-05-0	0	0	--
Parcel D	TSB-DR-06	TSB-DR-06-0	2	0	--
Parcel F	P2-PF-1-1	P2-PF-1-1-0.0	0	0	--
Parcel F	P3-PF-1-1	P3-PF-1-1-0.0	0	0	--
Parcel F	P3-PF-2-1	P3-PF-2-1-0.0	0	0	--

TABLE 4
Parcel Soil Data Results Summary - Asbestos

Parcel	Sample ID	Sample Name	Number of Long Chrysotile Fibers (>10µm and <0.4µm)	Number of Long Amphibole Fibers (>10µm and <0.4µm)	Type of Long Amphibole Fibers (>10µm and <0.4µm)
Parcel F	Q2-PF-1-1	Q2-PF-1-1-0.0	0	0	--
Parcel F	Q3-PF-1-1	Q3-PF-1-1-0.0	0	0	--
Parcel F	TSB-FJ-04	TSB-FJ-04-0	2	0	--
Parcel F	TSB-FJ-05	P4-PF-1-1-0.0-FD	0	0	--
Parcel F	TSB-FJ-05	P4-PH-1-1-0.0	0	0	--
Parcel F	TSB-FJ-05	TSB-FJ-05-0-FD	0	0	--
Parcel F	TSB-FJ-09	TSB-FJ-09-0	3	0	--
Parcel F	TSB-FJ-10	TSB-FJ-10-0	3	0	--
Parcel F	TSB-FR-01	TSB-FR-01-0	0	0	--
Parcel F	TSB-FR-02	Q3-PF-3-1-0.0	0	0	--
Parcel F	TSB-FR-03	TSB-FR-03-0	0	0	--
Parcel F	TSB-FR-04	TSB-FR-04-0	3	0	--
Parcel F	TSB-FR-04	TSB-FR-04-0-FD	4	0	--
Parcel F	TSB-FR-05	TSB-FR-05-0	0	0	--
Parcel G	S3-PG-1-1	S3-PG-1-1-0.0	0	0	--
Parcel G	TSB-GJ-01	TSB-GJ-01-0	0	0	--
Parcel G	TSB-GJ-02	TSB-GJ-02-0	1	0	--
Parcel G	TSB-GJ-03	TSB-GJ-03-0	0	0	--
Parcel G	TSB-GJ-05	TSB-GJ-05-0	1	0	--
Parcel G	TSB-GJ-06	TSB-GJ-06-0	0	0	--
Parcel G	TSB-GJ-07	TSB-GJ-07-0	0	0	--
Parcel G	TSB-GJ-08	TSB-GJ-08-0	0	0	--
Parcel G	TSB-GR-01	TSB-GR-01-0	0	0	--
Parcel G	TSB-GR-01	TSB-GR-01-0-FD	0	0	--
Parcel G	TSB-GR-02	TSB-GR-02-0	1	0	--
Parcel H	TSB-HJ-01	TSB-HJ-01-0	0	0	--
Parcel H	TSB-HJ-02	TSB-HJ-02-0	0	0	--
Parcel H	TSB-HJ-03	TSB-HJ-03-0	0	0	--
Parcel H	TSB-HJ-04	TSB-HJ-04-0	0	0	--
Parcel H	TSB-HJ-05	TSB-HJ-05-0	0	0	--
Parcel H	TSB-HJ-06	TSB-HJ-06-0	0	0	--
Parcel H	TSB-HJ-07	TSB-HJ-07-0	0	0	--

TABLE 4
Parcel Soil Data Results Summary - Asbestos

Parcel	Sample ID	Sample Name	Number of Long Chrysotile Fibers (>10µm and <0.4µm)	Number of Long Amphibole Fibers (>10µm and <0.4µm)	Type of Long Amphibole Fibers (>10µm and <0.4µm)
Parcel H	TSB-HJ-08	TSB-HJ-08-0	1	0	--
Parcel H	TSB-HJ-09-NE	TSB-HJ-09-NE-0	0	0	--
Parcel H	TSB-HJ-10	TSB-HJ-10-0	0	0	--
Parcel H	TSB-HJ-11	TSB-HJ-11-0	1	0	--
Parcel H	TSB-HJ-12	TSB-HJ-12-0	0	0	--
Parcel H	TSB-HJ-13	TSB-HJ-13-0	0	0	--
Parcel H	TSB-HR-01	TSB-HR-01-0	0	0	--
Parcel H	TSB-HR-02	TSB-HR-02-0	0	0	--
Parcel H	TSB-HR-03	TSB-HR-03-0	1	0	--
Parcel H	TSB-HR-04	TSB-HR-04-0	0	0	--
Parcel H	TSB-HR-05	TSB-HR-05-0	0	0	--
Parcel H	TSB-HR-07	TSB-HR-07-0	0	0	--
Parcel H	TSB-HR-08	TSB-HR-08-0	0	0	--
Parcel H	V5-PH-1-1	V5-PH-1-1-0.0	0	0	--
Parcel H	W4-PH-1-1	W4-PH-1-1-0.0	0	0	--
Summary - All Samples					
Total Number of Samples:			79	79	
Total Number of Fibers:			37	0	
Number of Sample Locations with Detections:			21	0	
Maximum Number of Fibers Counted in a Sample:			4	0	

TABLE 5
Parcel Chemicals of Potential Concern (COPC) Selection

Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect	Max. Detect	PBT or Class A Carcinogen	NDEP BCL ^{a,b}	Ratio: BCL/max detect	Constituents of Potential Concern	Basis
4,4'-DDD	mg/kg	143	4	3%	0.0019	0.013	yes	11.1	854	no	1,5
4,4'-DDE	mg/kg	143	37	26%	0.0018	0.20	yes	7.81	39	yes	2
4,4'-DDT	mg/kg	143	31	22%	0.0018	0.26	yes	7.8	30	yes	2
Alpha-BHC	mg/kg	143	11	8%	0.002	0.059	no	0.399	7	yes	4
Beta-BHC	mg/kg	143	48	34%	0.0018	0.18	no	1.4	8	yes	4
Endrin aldehyde ^c	mg/kg	143	3	2%	0.0029	0.02	no	205	10250	no	3,5
Gamma-BHC (Lindane)	mg/kg	143	1	1%	0.013	0.013	no	1.93	148	no	3,5
Gamma-chlordane ^c	mg/kg	143	1	1%	0.004	0.004	yes	7.19	1798	no	1,5
Methoxychlor	mg/kg	143	5	3%	0.002	0.0078	no	3420	438462	no	3,5
Benz(a)anthracene	mg/kg	133	1	1%	0.096	0.096	no	2.34	24	no	3,5
Benzo(b)fluoranthene	mg/kg	132	2	2%	0.043	0.11	no	2.34	21	no	3,5
Benzo(g,h,i)perylene	mg/kg	131	2	2%	0.042	0.075	no	34100	454667	no	3,5
bis(2-Ethylhexyl) phthalate	mg/kg	143	6	4%	0.04	1.4	no	137	98	no	3,5
Butyl benzyl phthalate	mg/kg	143	1	1%	0.11	0.11	no	240	2182	no	3,5
Chrysene	mg/kg	134	5	4%	0.029	0.51	no	234	459	no	3,5
Di-N-Butyl phthalate	mg/kg	143	4	3%	0.047	5.2	no	64800	12462	no	3,5
Di-N-Octyl phthalate ^c	mg/kg	143	2	1%	0.21	0.28	no	64800	231429	no	3,5
Fluoranthene	mg/kg	144	5	3%	0.041	0.097	no	24400	251546	no	3,5
Hexachlorobenzene ^d	mg/kg	143	4	3%	0.035	0.37	yes	1.2	3	yes	2
Octachlorostyrene	mg/kg	143	2	1%	0.039	0.065	yes	na	na	no	see text
Phenanthrene	mg/kg	133	4	3%	0.018	0.96	no	24.5	26	no	3,5
Pyrene	mg/kg	133	5	4%	0.015	0.3	no	19300	64333	no	3,5
1,2,3-Trichlorobenzene ^c	mg/kg	143	2	1%	0.00098	0.0017	no	707	415882	no	3,5
1,2,4-Trichlorobenzene	mg/kg	143	4	3%	0.0012	0.014	no	707	50500	no	3,5
1,2,4-Trimethylbenzene	mg/kg	143	57	40%	0.00029	0.0086	no	604	70233	no	3
1,2-Dichlorobenzene	mg/kg	143	1	1%	0.00036	0.00036	no	373	1036111	no	3,5
1,3,5-Trimethylbenzene	mg/kg	143	8	6%	0.00029	0.0038	no	246	64737	no	3
1,3-Dichlorobenzene	mg/kg	143	3	2%	0.00034	0.0008	no	373	466250	no	3,5
1,4-Dichlorobenzene	mg/kg	143	3	2%	0.00027	0.00051	no	13.6	26667	no	3,5
2-Butanone	mg/kg	142	5	4%	0.0038	0.013	no	511	39308	no	3,5

TABLE 5
Parcel Chemicals of Potential Concern (COPC) Selection

Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect	Max. Detect	PBT or Class A Carcinogen	NDEP BCL ^{a,b}	Ratio: BCL/max detect	Constituents of Potential Concern	Basis
2-Hexanone	mg/kg	143	2	1%	0.0022	0.0071	no	1930	271831	no	3,5
Acetone	mg/kg	143	60	42%	0.0058	1.9	no	100000	52632	no	3
Chloroform	mg/kg	143	6	4%	0.00053	0.0023	no	1.55	674	no	3,5
Ethylbenzene	mg/kg	143	5	3%	0.00037	0.0022	no	19.6	8909	no	3,5
Isopropylbenzene	mg/kg	143	1	1%	0.00029	0.00029	no	647	2231034	no	3,5
m,p-Xylene	mg/kg	143	10	7%	0.00087	0.011	no	214	19455	no	3
Methylene chloride	mg/kg	142	14	10%	0.0035	0.021	no	58.5	2786	no	3
N-Propylbenzene	mg/kg	143	3	2%	0.001	0.0014	no	237	169286	no	3,5
o-Xylene	mg/kg	143	5	3%	0.00047	0.0041	no	282	68780	no	3,5
Tetrachloroethene	mg/kg	143	2	1%	0.001	0.0027	no	3.28	1215	no	3,5
Toluene	mg/kg	143	16	11%	0.00047	0.0017	no	521	306471	no	3
Xylenes, total	mg/kg	143	7	5%	0.0014	0.015	no	214	14267	no	3,5
Aroclor 1248	mg/kg	67	1	1%	0.074	0.074	yes	0.826	11	yes	2
Aroclor 1254	mg/kg	67	1	1%	0.29	0.29	yes	0.826	3	yes	2
Perchlorate	mg/kg	143	134	94%	0.0024	168	no	795	5	yes	4
Antimony	mg/kg	143	113	79%	0.088	0.32	no	454	1419	no	3
Arsenic	mg/kg	144	144	100%	1.3	8	no	1.77	0.2	no	see text
Barium	mg/kg	143	143	100%	67	1420	no	100000	70	no	3
Beryllium	mg/kg	143	143	100%	0.23	0.84	no	2230	2655	no	3
Boron	mg/kg	143	118	83%	3.2	22.6	no	100000	4425	no	3
Chromium (Total)	mg/kg	143	143	100%	4.1	19	no	100000	5263	no	3
Chromium (VI)	mg/kg	101	3	3%	0.49	1.3	no	1230	946	no	3,5
Cobalt	mg/kg	143	143	100%	3.2	11.2	no	337	30	no	3
Lead	mg/kg	143	143	100%	3.8	136	no	800	6	no	8
Magnesium	mg/kg	143	143	100%	4100	25000	no	100000	4	yes	4
Manganese	mg/kg	143	143	100%	111	917	no	15100	16	no	3
Molybdenum	mg/kg	143	142	99%	0.16	1.5	no	5680	3787	no	3
Platinum	mg/kg	143	7	5%	0.021	2.4	no	--	na	no	see text
Potassium	mg/kg	143	143	100%	704	4480	no	--	na	no	see text
Silver	mg/kg	143	127	89%	0.038	0.21	no	5680	27048	no	3
Sodium	mg/kg	143	143	100%	138	2910	no	--	na	no	see text
Strontium	mg/kg	143	143	100%	50.7	500	no	100000	200	no	3

TABLE 5
Parcel Chemicals of Potential Concern (COPC) Selection

Chemical	Result Unit	Total Count	Detect Count	Detect Frequency	Min. Detect	Max. Detect	PBT or Class A Carcinogen	NDEP BCL ^{a,b}	Ratio: BCL/max detect	Constituents of Potential Concern	Basis
Thallium	mg/kg	143	61	43%	0.1	0.45	no	79.5	177	no	3,5
Tin	mg/kg	143	130	91%	0.064	1.2	no	100000	83333	no	3
Tungsten	mg/kg	143	117	82%	0.21	9	no	8510	946	no	3
Uranium	mg/kg	143	143	1	0.39	3.9	no	3400	872	no	3
TCDD TEQ	pg/g	139	79	57%	0.00035	765	yes	1000	1	no	7
Asbestos - Long Chrysotile	fibers	79	21	27%	1	4	yes	na	na	yes	6

Notes:

- (1) chemical is a PBT or Class A carcinogen but BCL/maximum detect ratio is greater than 100
- (2) chemical is a PBT or Class A carcinogen and BCL/maximum detect ratio is less than 100
- (3) chemical is not a PBT or Class A carcinogen and BCL/maximum detect ratio is greater than 10
- (4) chemical is not a PBT or Class A carcinogen but BCL/maximum detect ratio is less than 10
- (5) chemical is detected in less than 5% of samples
- (6) asbestos does not have a BCL; therefore, it is identified as a COPC if detected in one or more samples
- (7) below NDEP target goal of TCDD TEQ 1000 pg/g as stipulated in the approved HRA Workplan (Northgate 2010)
- (8) lead BCL/maximum detect ratio is greater than 1 (see text)

a - From User's Guide and Background Technical Document for Nevada Division of Environmental Protection (NDEP) Basic Comparison Levels (BCLs) for Human Health for the BMI Complex and Common Areas, Revision 5, August 2010. Values for the worker are the lower of the indoor and outdoor worker soil BCLs.

b - 2010 BCLs were in effect at the time of soil removal.

c - Surrogate Used. Per comments from NDEP on May 19, 2011, Endrin is used as a surrogate for Endrin aldehyde; Chlordane is used for gamma-Chlordane; Butyl benzyl phthalate is used for Di-n-octyl phthalate; and 1,2,4-Trichlorobenzene is used for 1,2,3,-Trichlorobenzene.

d - Hexachlorobenzene analyzed using both EPA Methods 8081 and 8270. Data reported based on EPA 8270 as it was deemed to be the superior method.

PBT: persistent bioaccumulative and toxic

TABLE 6
Fate and Transport Screening Model Values

Parameter	Abbreviation	Value						Units	Reference
		All Parcels	Parcel C	Parcel D	Parcel F	Parcel G	Parcel H		
On-Site Commercial Worker Dust Parameters									
Fraction of vegetative cover	V	0.5	--	--	--	--	--	--	USEPA 2002a
Mean annual wind speed	U _m	4.1	--	--	--	--	--	m/s	(1)
Equivalent threshold value of wind speed	U _t	11.32	--	--	--	--	--	m/s	USEPA 2002a
Function dependent on U/U _t	F(x)	0.194	--	--	--	--	--	--	USEPA 2002a
Air dispersion factor for area source (calculated)	Q/C _{wind}	--	45.51	44.29	53.24	61.90	43.93	g/m ² -s per kg/m ³	USEPA 2002a
Dispersion factor for area source - Constant A (Las Vegas, NV)	A	13.309	--	--	--	--	--	--	USEPA 2002a
Dispersion factor for area source - Constant B (Las Vegas, NV)	B	19.839	--	--	--	--	--	--	USEPA 2002a
Dispersion factor for area source - Constant C (Las Vegas, NV)	C	230.165	--	--	--	--	--	--	USEPA 2002a
Areal extent of site surface contamination	A _{surf}	--	20.41	24.62	7.21	2.80	26.03	acres	Area of parcel
Particulate emission factor - Worker (calculated)	PEF _{worker}	--	9.88 E+8	9.61 E+8	1.16 E+9	1.34 E+9	9.53 E+8	m ³ /kg	USEPA 2002a (2)
Construction Worker Dust Parameters									
Fraction of vegetative cover	V	0	--	--	--	--	--	--	USEPA 2002a
Mean annual wind speed	U _m	4.1	--	--	--	--	--	m/s	(1)
Equivalent threshold value of wind speed	U _t	11.32	--	--	--	--	--	m/s	USEPA 2002a
Function dependent on U/U _t	F(x)	0.194	--	--	--	--	--	--	USEPA 2002a
Wet soil bulk density	r _{soil}	1.88	--	--	--	--	--	Mg/m ³	Site-specific (3)
Percent moisture in soil	M	9.0	--	--	--	--	--	%	Site-specific (3)
Areal extent of site excavation	A _{excav}	--	16520.51	19931.46	5836.32	2266.32	21071.97	m ²	(4)
Depth of site excavation	d _{excav}	1.0	--	--	--	--	--	m	USEPA 2002a
Number of times soil is dumped	N _A	2.0	--	--	--	--	--	--	USEPA 2002a
Percent weight of silt in soil	s	10.8	--	--	--	--	--	%	Site-specific (2)
Average dozing speed	S _{doz}	11.4	--	--	--	--	--	km/hr	USEPA 2002a
Average grading speed	S _{grade}	11.4	--	--	--	--	--	km/hr	USEPA 2002a
Areal extent of site tilling	A _{till}	--	4.08	4.92	1.44	0.56	5.21	acre	(4)
Number of times soil is tilled	N _A	2	--	--	--	--	--	--	USEPA 2002a
Subchronic dispersion factor for area source-Constant A	A	2.454	--	--	--	--	--	--	USEPA 2002a
Subchronic dispersion factor for area source-Constant B	B	17.566	--	--	--	--	--	--	USEPA 2002a
Subchronic dispersion factor for area source-Constant C	C	189.043	--	--	--	--	--	--	USEPA 2002a

TABLE 6
Fate and Transport Screening Model Values

Parameter	Abbreviation	Value						Units	Reference
		All Parcels	Parcel C	Parcel D	Parcel F	Parcel G	Parcel H		
Length of road segment	L _R	--	287.41	315.69	170.83	106.45	324.59	m	(5)
Width of road segment	W _R	6.1	--	--	--	--	--	m	USEPA 2002a
Mean vehicle weight	W	8.0	--	--	--	--	--	tonnes	USEPA 2002a
Percent moisture in dry road surface	M _{dry}	0.2	--	--	--	--	--	--	USEPA 2002a
Number of days/year ³ 0.01 inches	p	27	--	--	--	--	--	days	(6)
Number of vehicles for duration of construction	N _V	30	--	--	--	--	--	vehicles	USEPA 2002a
Length of road traveled per day	L _D	--	287.41	315.69	170.83	106.45	324.59	m/day	(5)
Subchronic dispersion factor for road segment-Constant A	A	12.935	--	--	--	--	--	--	USEPA 2002a
Subchronic dispersion factor for road segment-Constant B	B	5.738	--	--	--	--	--	--	USEPA 2002a
Subchronic dispersion factor for road segment-Constant C	C	71.771	--	--	--	--	--	--	USEPA 2002a
Particulate emission factor - Construction Worker (calculated)	PEF _{cw}	--	4.07 E+6	4.01 E+6	4.47 E+6	5.01 E+6	4.00 E+6	m ³ /kg	USEPA 2002a (2)

Notes:

- (1) - Derived from Western Regional Climate Center (WRCC). 2010. Average wind speeds for Las Vegas. Desert Research Institute.
- (2) - Equations used to calculate PEFs are shown in Appendix D
- (3) - Data provided in Appendix A of HRA Work Plan
- (4) - Assumed value of one fifth of the site based upon USEPA (2002a).
- (5) - Assumed value of the square root of the site area, based upon USEPA (2002a).
- (6) - Based on long-term weather data for the area of interest (NDEP asbestos calculation worksheet, On-line. <http://www.ndep.nv.gov/bmi/technical.htm#asbestos>).

TABLE 7
Deterministic Exposure Factors – Commercial Workers

Parameter	Abbreviation	Value	Units	Reference
Dermal absorption fraction	ABS	--chemical-specific-- (Table 9)		USEPA 2004c
Outdoor worker dermal adherence factor	AF _o	0.2	mg/cm ²	USEPA 2002a
Averaging time, carcinogenic	AT _c	25550	days	Calculated (1)
Averaging time, carcinogenic for inhalation exposures	AT _c	613200	hours	Calculated (2)
Averaging time, non-carcinogenic	AT _{nc}	9125	days	Calculated (3)
Averaging time, non-carcinogenic for inhalation exposures	AT _{nc}	219000	hours	Calculated (4)
Relative bioavailability	BIO	1	unitless	Maximum
Adult body weight	BW	70	kg	USEPA 2002a
Outdoor worker exposure frequency	EF _o	225	days/year	USEPA 2002a
Indoor worker exposure frequency	EF _i	250	days/year	USEPA 2002a
Worker exposure duration	ED _w	25	years	USEPA 2002a
Outdoor worker exposed surface area	SA _o	3,300	cm ² /day	USEPA 2002a
Outdoor worker soil ingestion rate	SIR _o	100	mg/day	USEPA 2002a
Indoor worker soil ingestion rate	SIR _i	50	mg/day	USEPA 2002a
Outdoor worker exposure time, outdoors	ET _o	8	hours/day	(5)
Indoor worker exposure time, indoors	Et _i	8	hours/day	(5)
Dilution factor for outdoor to indoor air (chemicals)	DF	1	unitless	Maximum
Dilution factor for outdoor to indoor air (asbestos)	DF	0.4	unitless	NDEP 2011
Conversion factor	CF ₁	1000	ug/mg	
Conversion factor	CF ₂	1000	g/kg	
Conversion factor	CF ₃	1000000	cm ³ /m ³	
Conversion factor	CF ₄	1E-06	kg/mg	

Notes:

- (1) 70 years × 365 days/year (based on USEPA 2002a)
- (2) 70 years × 365 days/year × 24 hours/day
- (3) 25 years × 365 days/year (based on ED_w)
- (4) 25 years × 365 days/year × 24 hours/day
- (5) Outdoor worker spends 100% of time outdoors, 8 hours a day, and the indoor worker spends 100% of time indoors, 8 hours a day.

TABLE 8
Deterministic Exposure Factors – Construction Workers

Parameter	Abbrev.	Value	Units	Reference
Dermal absorption fraction	ABS	--chemical-specific-- (Table 9)		USEPA 2004c
Dermal adherence factor, soil	AF _{cw}	0.3	mg/cm ²	USEPA 2002a
Averaging time, carcinogenic	AT _c	25550	days	Calculated (1)
Averaging time, carcinogenic for inhalation exposures	AT _c	613200	hours	Calculated (2)
Averaging time, non-carcinogenic	AT _{nc}	365	days	Calculated (3)
Averaging time, non-carcinogenic for inhalation exposures	AT _{nc}	8760	hours	Calculated (4)
Relative bioavailability	BIO	1	unitless	Maximum
Adult body weight	BW	70	kg	USEPA 2002a
Construction worker exposure frequency	EF _{cw}	250	days/year	USEPA 2002a
Construction worker exposure duration	ED _{cw}	1	years	(5)
Construction worker exposed surface area, soil	SA _{cw}	3,300	cm ² /day	USEPA 2002a
Construction worker soil ingestion rate	SIR _{cw}	330	mg/day	USEPA 2002a
Exposure time, outdoors	ET _o	8	hours/day	(6)
Conversion factor	CF ₁	1000	ug/mg	
Conversion factor	CF ₂	1000	g/kg	
Conversion factor	CF ₃	1000000	cm ³ /m ³	
Conversion factor	CF ₄	1E-06	kg/mg	

Notes:

- (1) 70 years × 365 days/year (based on USEPA 2002a)
- (2) 70 years × 365 days/year × 24 hours/day
- (3) 1 year × 365 days/year × 24 hours/day (based on ED_{cw})
- (4) 1 year × 365 days/year × 24 hours/day
- (5) Assumed to be 1 year based on USEPA 2002a.
- (6) Assumes worker spends 100% of time outdoors, 8 hours a day.

TABLE 9
Summary of Toxicity Criteria and Absorption Factors for Chemicals of Potential Concern

Chemical	Noncarcinogenic			Carcinogenic			Dermal ABS		
	Inhalation	Oral		Inhalation	Oral				Cancer Weight of Evidence
	RfC (mg/m ³)	RfD (mg/kg-day)		IUR (µg/m ³) ⁻¹	SF (mg/kg-day) ⁻¹				
Aroclor 1248	NA	NA		5.70E-04 CA	2.00E+00 CA	B2	1.4E-01 RAGS		
Aroclor 1254	NA	2.00E-05 I		5.70E-04 CA	2.00E+00 CA	B2	1.4E-01 RAGS		
Alpha-BHC	NA	8.00E-03 A		1.80E-03 I	6.30E+00 I	B2	4.0E-02 **		
Beta-BHC	NA	NA		5.30E-04 I	1.80E+00 I	C	4.0E-02 **		
4,4'-DDE	NA	NA		9.70E-05 CA	3.40E-01 I	B2	3.0E-02 ***		
4,4'-DDT	NA	5.00E-04 I		9.70E-05 I	3.40E-01 I	B2	3.0E-02 RAGS		
Hexachlorobenzene	NA	8.00E-04 I		4.60E-04 I	1.60E+00 I	B2	1.0E-01 RAGS		
Perchlorate	NA	7.00E-04 I		NA	NA	****	NA RAGS		
Magnesium	NA	5.67E+00 NDEP		NA	NA	NA	1.0E-01 NDEP		

Notes:

- ABS - Absorption factor
- A - Agency for Toxic Substances Disease Registry (ATSDR) (as cited in NDEP, 2010)
- B2 - Probable human carcinogen
- C - Possible human carcinogen
- D - Not classifiable as to human carcinogenicity
- CA - CalEPA - OEHHA Toxicity Criteria database (accessed December 2010; <http://www.oehha.org/risk/ChemicalDB/index.asp>)
- EPA - U.S. Environmental Protection Agency
- I - EPA Integrated Risk Information System (IRIS) database (accessed November 2010; <http://www.epa.gov/iris/>)
- NDEP - Nevada Department of Environmental Protection Basic Comparison Levels (January 2013)
- IUR - Inhalation unit risk
- N - National Center for Environmental Assessment (NCEA) (as cited in NDEP, 2010)
- NA - Not available
- OEHHA - Office of Environmental Health Hazard Assessment
- RAGS - US EPA, 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual, Part E
- RfC - Reference concentration
- RfD - Reference dose
- SF - Slope factor
- ** - Based on value for lindane (NDEP, 2010)
- *** - Based on value for DDT (NDEP, 2010)
- **** - Not likely to pose a thyroid cancer risk in humans (IRIS, 2010)

TABLE 10
Parcel Chemical Risk Summary for Commercial Workers

Chemical	Risk Summary for Indoor Commercial Workers		Risk Summary for Outdoor Commercial Workers							
	Theoretical Excess Cancer Risk From Ingestion	Theoretical HQ From Ingestion	Theoretical Excess Cancer Risk From Ingestion	Theoretical Excess Cancer Risk From Dermal	Theoretical Excess Cancer Risk From Inhalation	Total Theoretical Excess Cancer Risk	Theoretical HQ From Ingestion	Theoretical HQ From Dermal	Theoretical HQ From Inhalation	Total Theoretical HI
Aroclor 1248	2.6E-08	NA	4.7E-08	4.3E-08	2.3E-12	9.0E-08	NA	NA	NA	NA
Aroclor 1254	1.0E-07	7.1E-03	1.8E-07	1.7E-07	9.0E-12	3.5E-07	1.3E-02	1.2E-02	NA	2.5E-02
Alpha-BHC	6.5E-08	3.6E-06	1.2E-07	3.1E-08	5.8E-12	1.5E-07	6.5E-06	1.7E-06	NA	8.2E-06
Beta-BHC	5.7E-08	NA	1.0E-07	2.7E-08	5.2E-12	1.3E-07	NA	NA	NA	NA
4,4'-DDE	1.2E-08	NA	2.1E-08	4.2E-09	1.1E-12	2.6E-08	NA	NA	NA	NA
4,4'-DDT	1.5E-08	2.5E-04	2.8E-08	5.5E-09	1.4E-12	3.3E-08	4.6E-04	9.1E-05	NA	5.5E-04
Hexachlorobenzene	1.0E-07	2.3E-04	1.9E-07	1.2E-07	9.3E-12	3.1E-07	4.1E-04	2.7E-04	NA	6.8E-04
Perchlorate	NA	1.2E-01	NA	NA	NA	NA	2.1E-01	NA	NA	2.1E-01
Magnesium	NA	2.2E-03	NA	NA	NA	NA	3.9E-03	NA	NA	3.9E-03
TOTAL	4E-07	1E-01				1E-06				2E-01

Notes:

HI - Hazard Index
 HQ - Hazard quotient
 NA - Not applicable

TABLE 11
Parcel Chemical Risk Summary for Construction Workers

Chemical	Risk Summary for Construction Workers							
	Theoretical Excess Cancer Risk From Ingestion	Theoretical Excess Cancer Risk From Dermal	Theoretical Excess Cancer Risk From Inhalation	Total Theoretical Excess Cancer Risk	Theoretical HQ From Ingestion	Theoretical HQ From Dermal	Theoretical HQ From Inhalation	Total Theoretical HI
Aroclor 1248	6.8E-09	2.9E-09	2.7E-11	9.7E-09	NA	NA	NA	NA
Aroclor 1254	2.7E-08	1.1E-08	1.1E-10	3.8E-08	4.7E-02	2.0E-02	NA	6.6E-02
Alpha-BHC	1.7E-08	2.1E-09	6.9E-11	1.9E-08	2.4E-05	2.9E-06	NA	2.7E-05
Beta-BHC	1.5E-08	1.8E-09	6.2E-11	1.7E-08	NA	NA	NA	NA
4,4'-DDE	3.1E-09	2.8E-10	1.3E-11	3.4E-09	NA	NA	NA	NA
4,4'-DDT	4.1E-09	3.7E-10	1.6E-11	4.5E-09	1.7E-03	1.5E-04	NA	1.8E-03
Hexachlorobenzene	2.7E-08	8.2E-09	1.1E-10	3.6E-08	1.5E-03	4.5E-04	NA	1.9E-03
Perchlorate	NA	NA	NA	NA	7.7E-01	NA	NA	7.7E-01
Magnesium	NA	NA	NA	NA	1.4E-02	4.3E-03	NA	1.9E-02
TOTAL				1E-07				9E-01

Notes:

- HI - Hazard Index
- HQ - Hazard quotient
- NA - Not applicable

TABLE 12
Parcel Asbestos Risk Summary

Scenario	Estimated Airborne Chrysotile Concentrations ⁽¹⁾ (f/cm ³)	Estimated Airborne Amphibole Concentrations ⁽¹⁾ (f/cm ³)	Chrysotile URF ⁽¹⁾ (f/cm ³) ⁻¹	Amphibole URF ⁽¹⁾ (f/cm ³) ⁻¹	URF Adjustment Factor ⁽¹⁾ (unitless)	Estimated Chrysotile Risk ⁽²⁾	Estimated Amphibole Risk ⁽²⁾
Parcel C							
Future Construction Workers - Best Estimate	3.65E-04	0.00E+00	0.0569336	6.3206	0.003261579	7E-08	0E+00
Future Construction Workers - Upper Bound	6.37E-04	1.21E-04	0.0569336	6.3206	0.003261579	1E-07	3E-06
Future Outdoor Commercial Worker - Best Estimate	1.50E-06	0.00E+00	0.0569336	6.3206	0.073385519	6E-09	0E+00
Future Outdoor Commercial Worker - Upper Bound	2.62E-06	5.01E-07	0.0569336	6.3206	0.073385519	1E-08	2E-07
Parcel D							
Future Construction Workers - Best Estimate	4.72E-04	0.00E+00	0.0569336	6.3206	0.003261579	9E-08	0E+00
Future Construction Workers - Upper Bound	8.86E-04	2.02E-04	0.0569336	6.3206	0.003261579	2E-07	4E-06
Future Outdoor Commercial Worker - Best Estimate	1.97E-06	0.00E+00	0.0569336	6.3206	0.073385519	8E-09	0E+00
Future Outdoor Commercial Worker - Upper Bound	3.70E-06	8.44E-07	0.0569336	6.3206	0.073385519	2E-08	4E-07
Parcel F							
Future Construction Workers - Best Estimate	5.85E-04	0.00E+00	0.0569336	6.3206	0.003261579	1E-07	0E+00
Future Construction Workers - Upper Bound	9.00E-04	1.17E-04	0.0569336	6.3206	0.003261579	2E-07	2E-06
Future Outdoor Commercial Worker - Best Estimate	2.26E-06	0.00E+00	0.0569336	6.3206	0.073385519	9E-09	0E+00
Future Outdoor Commercial Worker - Upper Bound	3.49E-06	4.52E-07	0.0569336	6.3206	0.073385519	1E-08	2E-07
Parcel G							
Future Construction Workers - Best Estimate	0.00E+00	0.00E+00	0.0569336	6.3206	0.003261579	0E+00	0E+00
Future Construction Workers - Upper Bound	2.91E-04	2.91E-04	0.0569336	6.3206	0.003261579	5E-08	6E-06
Future Outdoor Commercial Worker - Best Estimate	0.00E+00	0.00E+00	0.0569336	6.3206	0.073385519	0E+00	0E+00
Future Outdoor Commercial Worker - Upper Bound	1.09E-06	1.09E-06	0.0569336	6.3206	0.073385519	5E-09	5E-07
Parcel H							
Future Construction Workers - Best Estimate	1.05E-04	0.00E+00	0.0569336	6.3206	0.003261579	2E-08	0E+00
Future Construction Workers - Upper Bound	2.71E-04	1.05E-04	0.0569336	6.3206	0.003261579	5E-08	2E-06
Future Outdoor Commercial Worker - Best Estimate	4.39E-07	0.00E+00	0.0569336	6.3206	0.073385519	2E-09	0E+00
Future Outdoor Commercial Worker - Upper Bound	1.13E-06	4.39E-07	0.0569336	6.3206	0.073385519	5E-09	2E-07

Notes:

¹ = From calculation spreadsheets in Appendix F for the Construction Worker and Outdoor Commercial Worker Scenarios

² = Estimated airborne concentration x URF x URF adjustment factor

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

TABLE 13
Data Quality Assessment

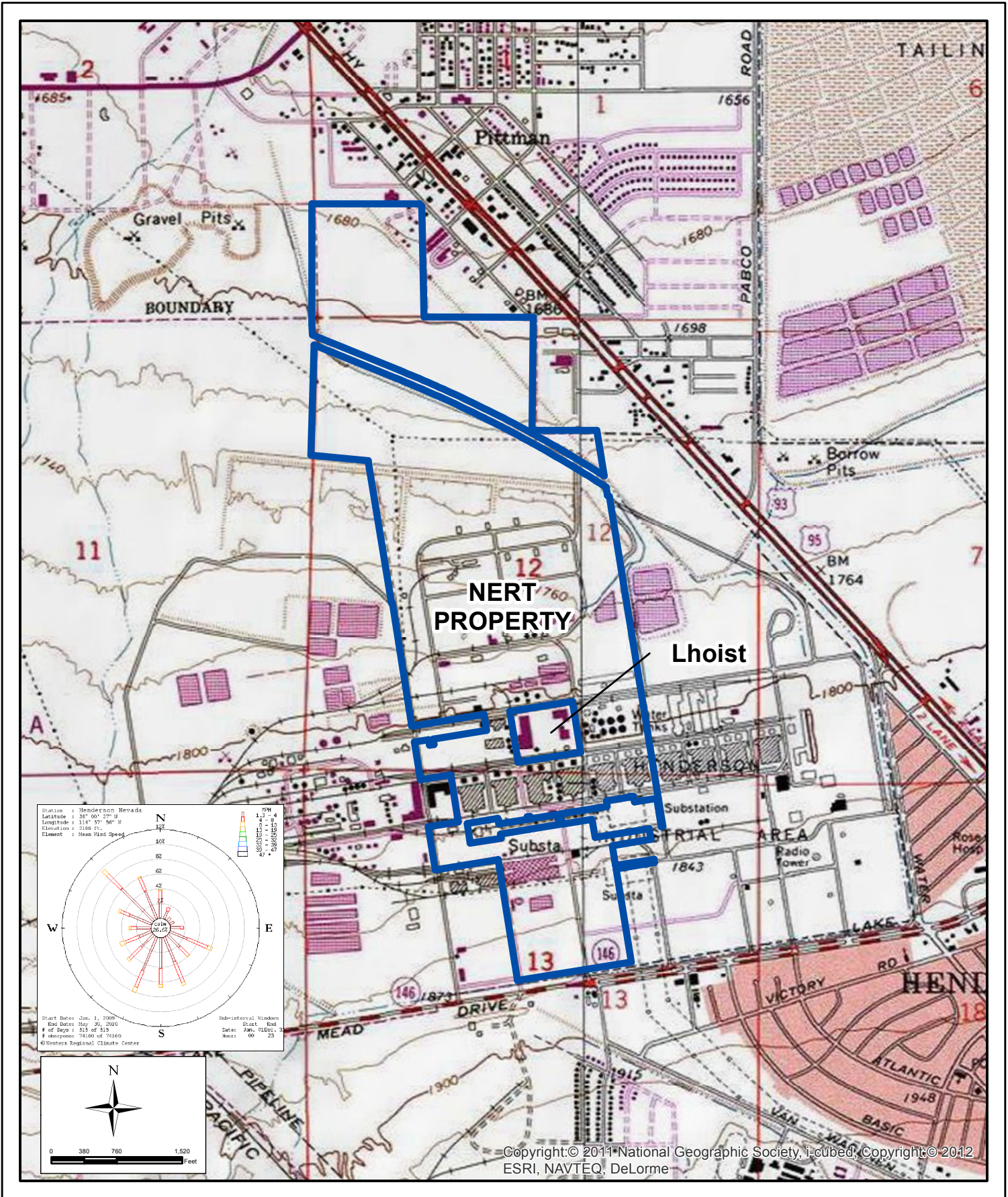
	Number of samples required ¹		
	$\alpha = 5\%$	$\alpha = 10\%$	$\alpha = 15\%$
$\beta = 15\%$	44	30	22
$\beta = 20\%$	42	28	20
$\beta = 25\%$	39	26	18

Notes:

1 - Number of samples required calculated using the formula for sample size based on the one-sample test for proportions.

FIGURES





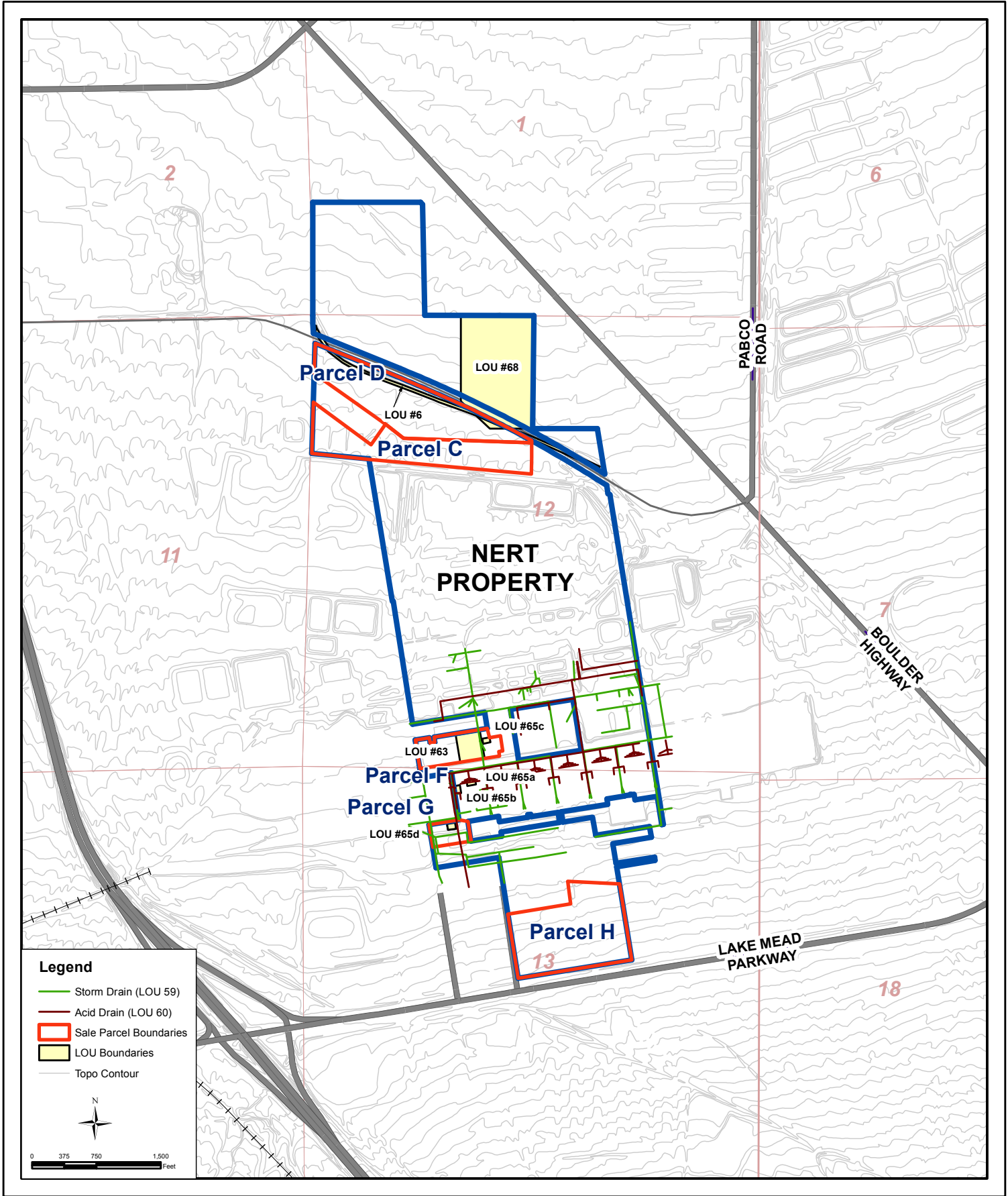
Copyright:© 2011 National Geographic Society, i-cubed, Copyright:© 2012 ESRI, NAVTEQ, DeLorme

REVISION NUMBER	1
EPOCH NUMBER	1

SITE LOCATION MAP		
Revised Post-Remediation Screening HRA Report For Parcels C, D, F, G, and H Nevada Environmental Response Trust Henderson, Nevada		
SCALE	DATE	PROJECT NUMBER
1 in = 1,500 ft	6/4/2013	1232.01 T71

DESIGNED BY:	REVISIONS			
	NO.	DESCRIPTION	DATE	BY
NGEM				
DRAWN BY:				
GS				
CHECKED BY:				
NGEM				
APPROVED BY:				
NGEM				

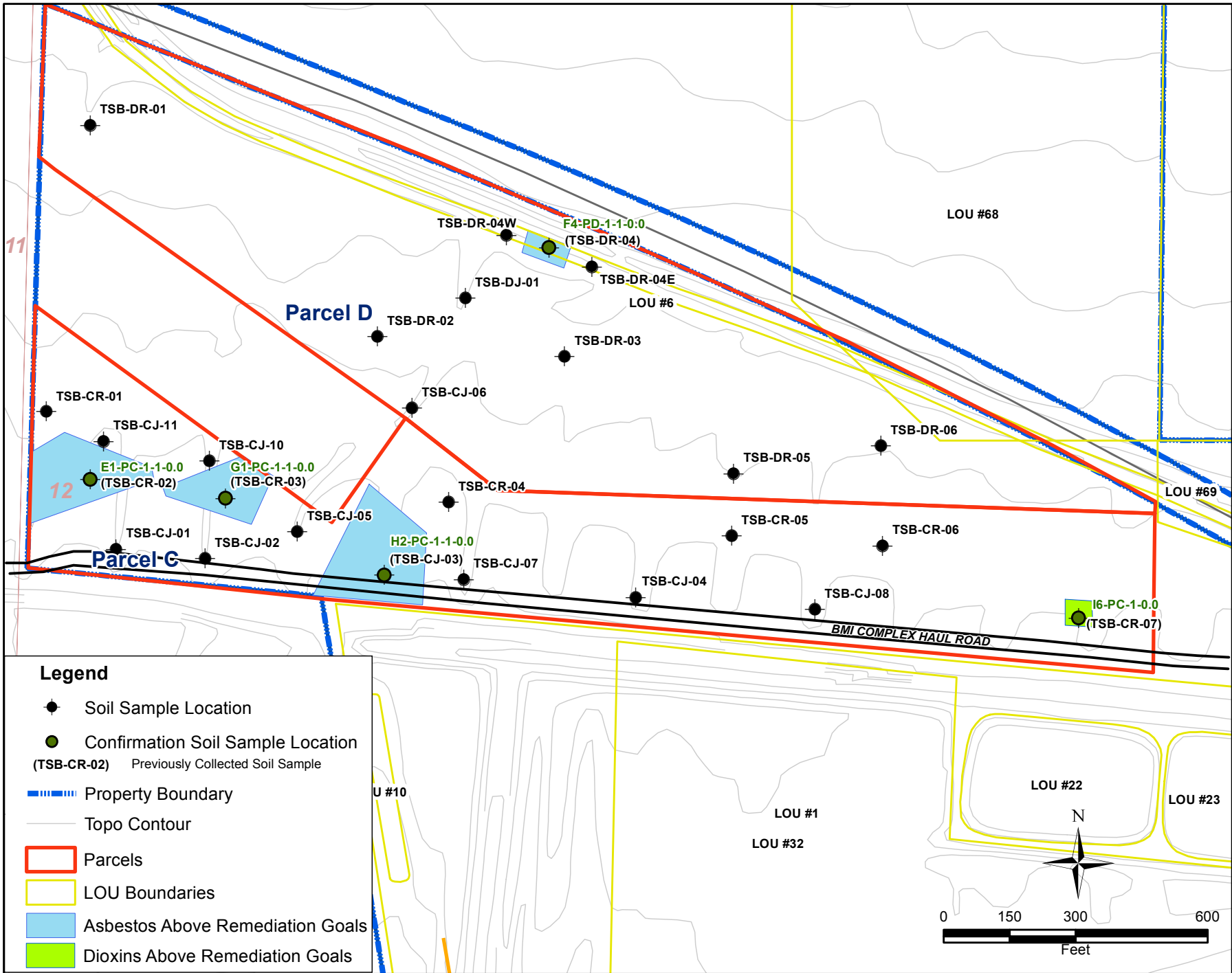
northgate
environmental management, inc.
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SHEET NUMBER: 2	FIGURE NUMBER: 2		
	PARCEL AND LOU LOCATION MAP Revised Post-Remediation Screening HRA Report For Parcels C, D, F, G, and H Nevada Environmental Response Trust Henderson, Nevada		
SCALE: 1 in = 1,500 ft	DATE: 6/4/2013	PROJECT NUMBER: 1232.01 T71	

DESIGNED BY:		REVISIONS		
NGEM	NO.	DESCRIPTION:	DATE:	BY:
DRAWN BY:				
CS				
CHECKED BY:				
NGEM				
APPROVED BY:				
NGEM				

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environmental management, inc.
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Legend

- Soil Sample Location
- Confirmation Soil Sample Location
(TSB-CR-02) Previously Collected Soil Sample
- ▬ Property Boundary
- Topo Contour
- ▭ Parcels
- ▭ LOU Boundaries
- ▭ Asbestos Above Remediation Goals
- ▭ Dioxins Above Remediation Goals



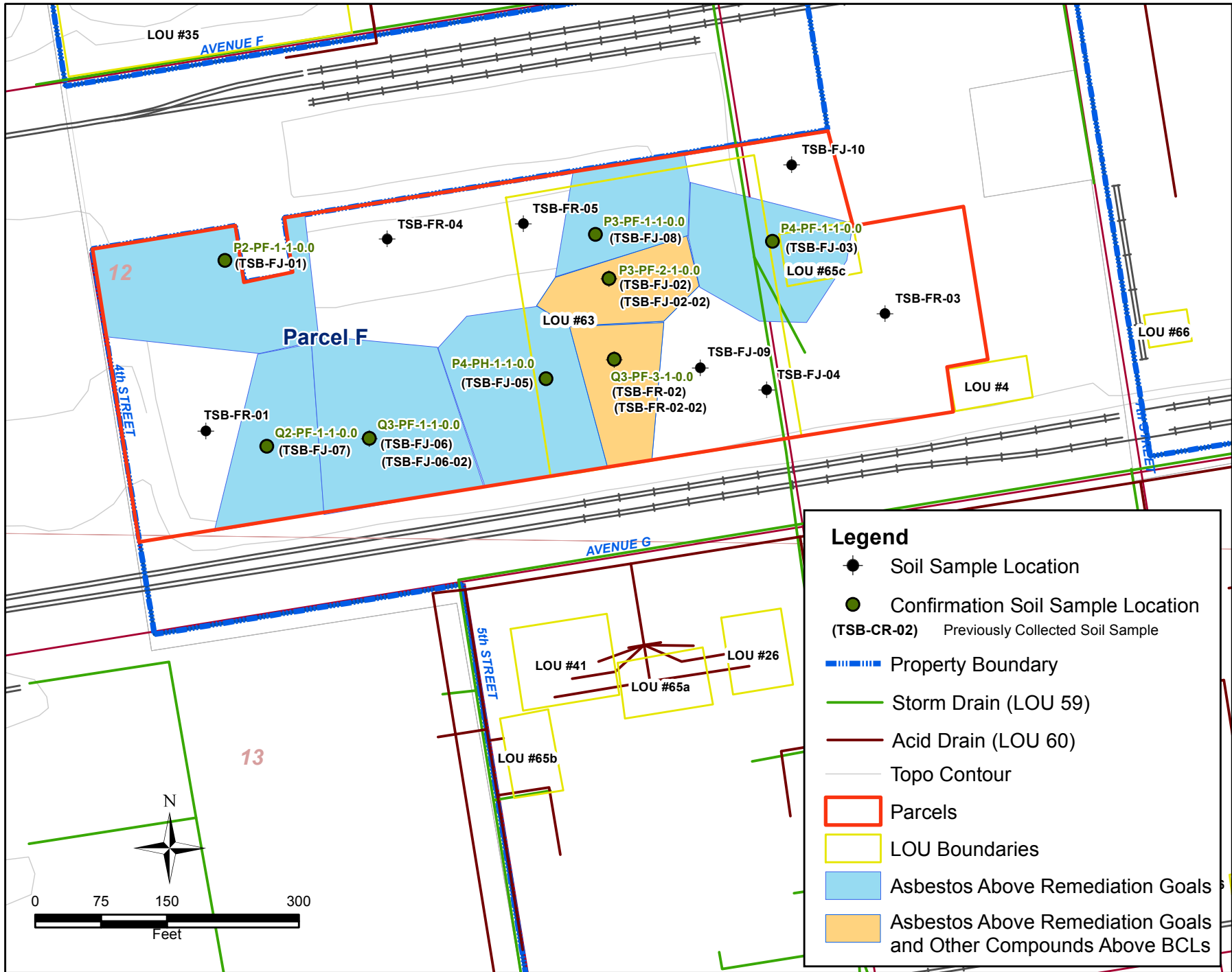
DESIGNED BY:	NO.:	REVISIONS	DATE:	BY:
DRAWN BY:		DESCRIPTION		
CHECKED BY:				
APPROVED BY:				

LOCATION OF REMEDIATION POLYGONS AND SOIL SAMPLES, PARCELS C AND D
 Revised Post-Remediation Screening HRA Report
 For Parcels C, D, F, G, and H
 Nevada Environmental Response Trust
 Henderson, Nevada

SCALE: 1 in = 300 ft
 DATE: 6/4/2013
 PROJECT NUMBER: 1232.01 T71

FIGURE NUMBER:
3

SHEET NUMBER:
1



Legend

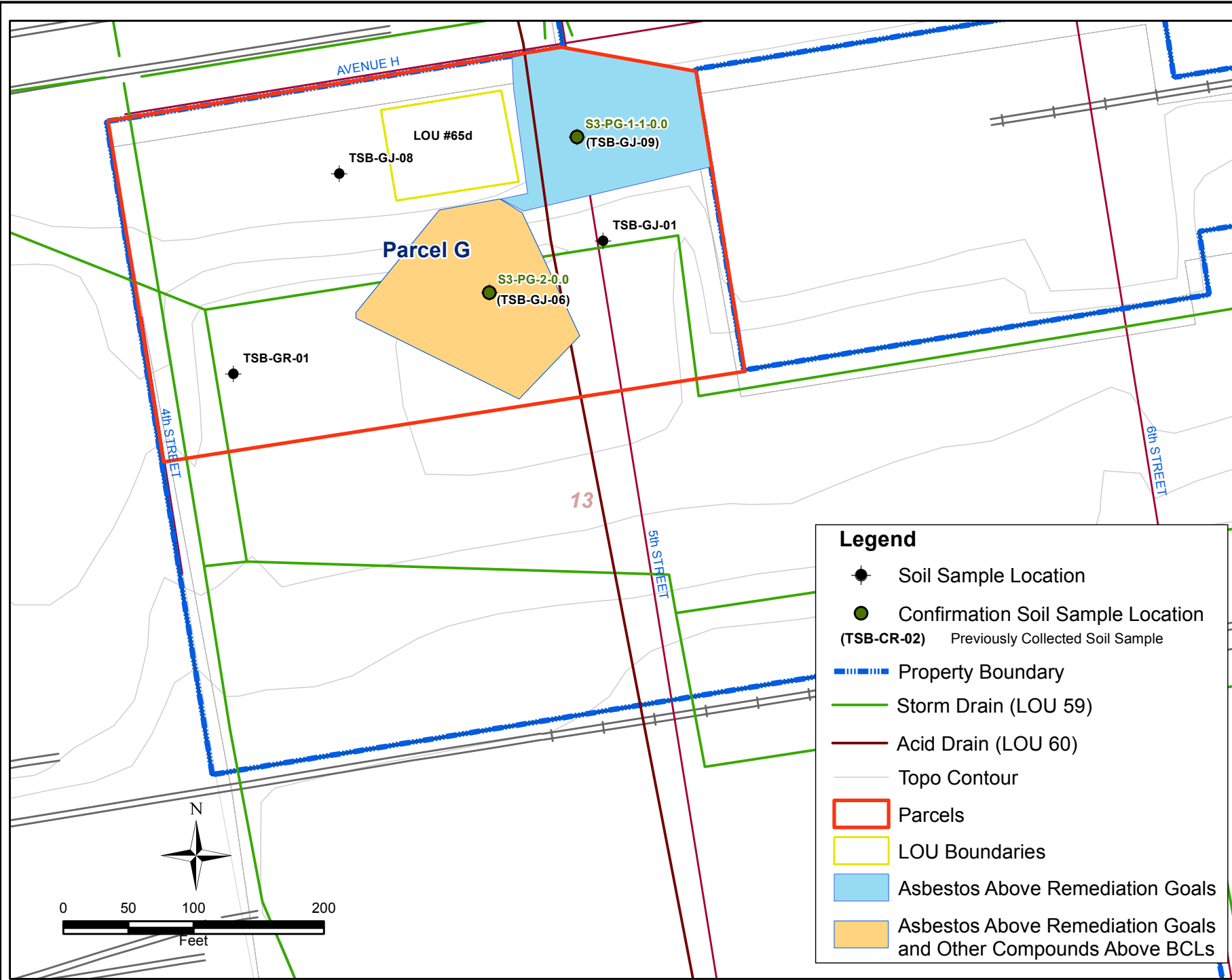
- Soil Sample Location
- Confirmation Soil Sample Location
- (TSB-CR-02) Previously Collected Soil Sample
- ▬ Property Boundary
- ▬ Storm Drain (LOU 59)
- ▬ Acid Drain (LOU 60)
- ▬ Topo Contour
- ▭ Parcels
- ▭ LOU Boundaries
- ▭ Asbestos Above Remediation Goals
- ▭ Asbestos Above Remediation Goals and Other Compounds Above BCLs



DESIGNED BY:	NO.:	REVISIONS	DATE:	BY:
DRAWN BY:		DESCRIPTION		
CHECKED BY:				
APPROVED BY:				

LOCATION OF REMEDIATION POLYGONS AND SOIL SAMPLES, PARCEL F
 Revised Post-Remediation Screening HRA Report
 For Parcels C, D, F, G, and H
 Nevada Environmental Response Trust
 Henderson, Nevada

SCALE: 1 in = 150 ft
 DATE: 6/4/2013
 PROJECT NUMBER: 1232.01.T71



Legend

- Soil Sample Location
- Confirmation Soil Sample Location
(TSB-CR-02) Previously Collected Soil Sample
- ▬ Property Boundary
- ▬ Storm Drain (LOU 59)
- ▬ Acid Drain (LOU 60)
- ▬ Topo Contour
- ▭ Parcels
- ▭ LOU Boundaries
- ▭ Asbestos Above Remediation Goals
- ▭ Asbestos Above Remediation Goals and Other Compounds Above BCLs



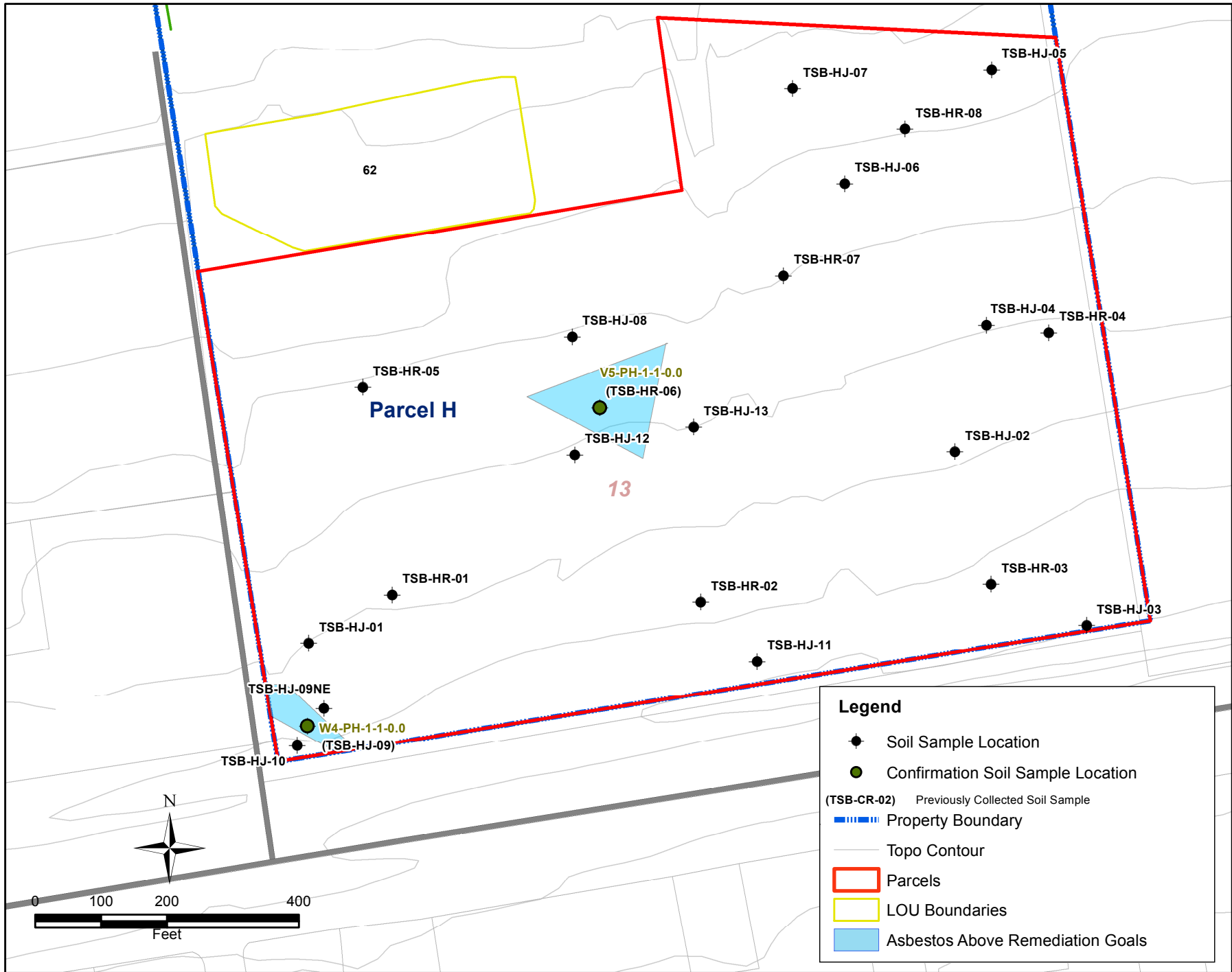
DESIGNED BY:	NO.	REVISIONS	DATE:	BY:
DRAWN BY:		DESCRIPTION		
CHECKED BY:				
APPROVED BY:				

LOCATION OF REMEDIATION POLYGONS AND SOIL SAMPLES, PARCEL G
 Revised Post-Remediation Screening HRA Report
 For Parcels C, D, F, G, and H
 Nevada Environmental Response Trust
 Henderson, Nevada

SCALE: 1 in = 100 ft
 DATE: 6/4/2013
 PROJECT NUMBER: 1232.01.T71

FIGURE NUMBER:
5

SHEET NUMBER:
1



Legend

- Soil Sample Location
- Confirmation Soil Sample Location
- (TSB-CR-02) Previously Collected Soil Sample
- ▬ Property Boundary
- Topo Contour
- ▭ Parcels
- ▭ LOU Boundaries
- ▭ Asbestos Above Remediation Goals



DESIGNED BY:	NO.:	REVISIONS	DATE:	BY:
DRAWN BY:		DESCRIPTION		
CHECKED BY:				
APPROVED BY:				

LOCATION OF REMEDIATION POLYGONS AND SOIL SAMPLES, PARCEL H
 Revised Post-Remediation Screening HRA Report
 For Parcels C, D, F, G, and H
 Nevada Environmental Response Trust
 Henderson, Nevada

SCALE: 1 in = 200 ft
 DATE: 6/4/2013
 PROJECT NUMBER: 1232.01.T71

FIGURE NUMBER:
6

SHEET NUMBER:
1

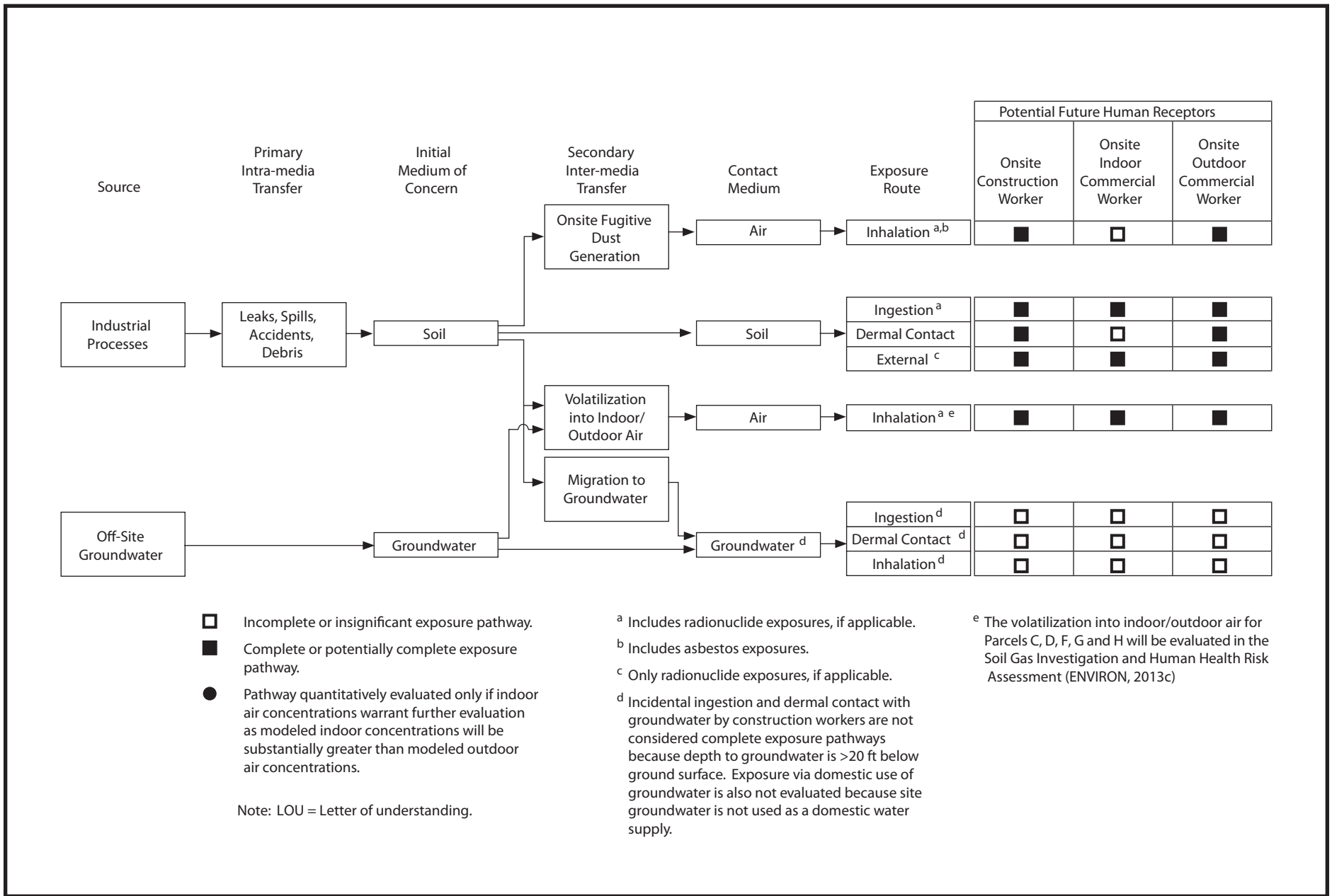


FIGURE 7. Conceptual Site Model Diagram for Potential Human Exposures - Parcels C, D, F, G and H Nevada Environmental Response Trust Property, Henderson, Nevada

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 - April 29, 2013 Response to Comments: August 10, 2012 Nevada Division of Environmental Protection (NDEP) response to Appendix B (DVSRs) Closure and Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G and H, Tronox LLC, Henderson, Nevada
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 - 19307



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 - EMSL
 - GEL
 - TestAmerica-Irvine
 - TestAmerica-St Louis
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APPENDIX A

Response to Comments Letters





From: Scott McLaughlin
Deni Chambers, C.E.M.

Date: June 27, 2013

To: Weiquan Dong, P.E.
Bureau of Corrective Actions
Nevada Division of Environmental Protection

RE: Nevada Environmental Response Trust (NERT) Site, NDEP Facility ID #H-00539,
Henderson, Nevada

**RESPONSE TO COMMENTS
REVISED CLOSURE AND POST-REMEDiation SCREENING HEALTH RISK
ASSESSMENT REPORT FOR PARCELS C, D, F, G, AND H, DATED MAY 18, 2012**

On behalf of ENVIRON and the Nevada Environmental Response Trust, this memorandum presents a Response to Comments (RTC) provided by the Nevada Division of Environmental Protection (NDEP) in their letter dated August 7, 2012 regarding the "Revised Closure and Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G, and H" dated May 18, 2012. A revised report has been prepared to address NDEP comments, and this RTC is included as Appendix A to the revised report.

In addition to the changes made to the revised deliverable in response to NDEP's comments, the boundary of Parcel G was updated and the samples located outside of the new Parcel G boundary (TSB-GJ-02, TSB-GJ-03, TSB-GJ-04, TSB-GJ-05, TSB-GJ-07, and TSB-GR-02) were removed from the data set. The new area of Parcel G is 2.8 acres and is shown on Figure 5 of the revised deliverable.

It should be noted that Northgate's RTC letter to NDEP's August 10, 2012 comments on Appendix B (Data Validation Summary Reports) of the Revised Closure and Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G, and H, dated May 18, 2012, is presented following this RTC letter.

NDEP's comments are transcribed below, in italics, followed by responses to these comments.

Comments

1. *General comment, NDEP was unable to review the background calculations, perform the secular equilibrium test, or verify a data quality assessment (which was not performed as part of this deliverable) because we could not match the data to the report.*

Response: As requested by NDEP, the data used for the background calculations and secular equilibrium tests are provided (on a CD) and included in Appendix E of the revised report. A data quality assessment (DQA) was performed for the chemicals of potential concern (COPCs), with the exception of asbestos, and the results are presented in Table 13 and discussed in Section 5.8 of the text. Asbestos was not included in the DQA because a basic comparison level (BCL; NDEP 2013) has not been established for asbestos.

2. *General comment, at the time of submittal, the most recent asbestos guidance released by NDEP (February, 2011) was not followed. NERT should note that new asbestos guidance was issued in July 2012 that should be reviewed for applicability.*

Response: The report and the asbestos risk calculations have been updated in accordance with the most recent NDEP asbestos guidance document (February 2011). The July 2012 NDEP asbestos guidance concerning data validation for asbestos data in soils was reviewed and it appears the asbestos data validation previously performed by Laboratory Data Consultants (LDC) is adequate.

3. *General comment, in all future Deliverables that are presented electronically, please ensure that file names are referenced exactly as presented in the text to facilitate review, that data are provided so that a complete review can be performed, and that NDEP guidance has been followed completely (or if not, note where and why). For example, it was not straightforward to find where Figure 1 is located in the Figures directory.*

Response: Acknowledged. The report and electronic files were presented as requested, data were provided, and NDEP guidance was followed.

4. *General comment, NDEP has noted that the approach document (Proposed Evaluation Procedures for Parcels C, D, F, G, H Risk Evaluation, Tronox Facility, Henderson, Nevada) indicates that these Parcels will be combined for background comparisons essentially because there are no source terms; hence, the Parcels as a whole should be at background concentrations. However, the Parcels concentrations tell a different story. Many of the chemicals fail background comparisons. Some more discussion of this is needed to address this contradiction.*

Response: This comment was discussed during a call with NDEP on December 5, 2012. The background evaluation was performed and is presented for both the combined Parcels



and individual Parcels. The background evaluation results are included in Appendix F and discussed in Section 5.2.1 of the text. Metals that were above background in one or more Parcels were included in the COPC evaluation.

5. *Executive Summary, 2nd paragraph, NERT indicates that all Parcels have been successfully remediated. However, the main text indicates that some areas remain to be remediated (e.g., Section 3.2, page 13 indicates that approximately 8,345 square feet remains to be remediated in Parcels C and D when the BMI haul road is removed.). Please revise as necessary.*

Response: The executive summary and Sections 3.2 through 3.5 have been revised to address the noted inconsistency. Specifically, both the Executive Summary and Sections 3.2 through 3.5 have been revised to note that areas within Parcels C, F, G, and H were not remediated. Additional discussion of these areas has also been added.

6. *Section 2.1.1, Parcel C and D Historical Use and Investigation, page 10, based on Figure 3, Parcel D appears to have LOU areas within its defined area on Figure 3. The text, however, does not mention or discuss any LOUs. Please add language regarding the LOUs shown on Figure 3.*

Response: Sections 2.1 and 2.1.1 have been updated to reflect the presence of two LOUs, LOU #6 (the Unnamed Drainage Ditch Segment, also referred to as the Northwest Ditch) and LOU #68 (Southern Nevada Auto Parts) within the defined area of Parcel D.

7. *Section 3.7, Confirmation Sampling Methodology, page 15, NDEP provides the following comments:*
 - a. *This section should provide rationale for only one confirmation sample for each remediated polygon. Please address accordingly.*
 - b. *Table, please provide the reference to the sampling and analysis plan (SAP) for these sample sizes.*

Response: The confirmation sampling program was based on the Removal Action Workplan for Parcels C, D, F, G, and H (RAW) that was prepared by Basic Environmental Company (BEC) in 2008 and approved by NDEP in a letter dated July 2, 2008. As specified in the approved RAW, confirmation samples were collected at the same locations as the original samples following remediation. No specific SAP was prepared for the confirmation sampling work. Sections 3.6 and 3.7 have been updated to provide additional detail and reference to the RAW.

8. *Section 4.3, Data Used in Post-Remediation Health Risk Assessment, page 23, 2nd paragraph, the list of items included in the data summary tables does not conform to NDEP*



guidance. Specifically, the mean and standard deviation concentrations should be included (calculated using ½ SQL as necessary- NDEP Guidance on the Development of Summary Statistics Tables, December, 2008). Also see comments regarding Tables 2 and 3 below.

Response: The mean and standard deviation concentrations (calculated using ½ PQL as necessary) have been added to the tables in accordance with NDEP guidance. As discussed below and in the revised report, the PQL was used as the detection limit for non-detectable results in the Parcels data set because a SQL was unavailable for some of the results.

9. Section 5.2.1, *Evaluation of Site Concentrations Relative to Background*, NDEP provides the following comments:
- a. Page 29, please briefly describe the six RZ-A samples that were omitted from the background dataset, per footnote on Table 5.
 - b. Page 30, 1st full paragraph on page, last sentence, please delete the reference to Paul Black as the NDEP guidance document should suffice.
 - c. Page 32, 1st paragraph, 2nd sentence, based on review of the Appendix C Summary Tables, it is not clear that the sample quantitation limit (SQL) was used for all non-detects (per NDEP guidance, December, 2008). Please check the data summary tables for cases where the non-detect value is greater than (nearly) all of the detect values. Also, NDEP notes that this might be because of blank contamination, which has been a problem for other BMI Complex and Common Areas health risk assessments. See also comment on Appendix C, Table C-1 below. In either case, please address this issue.
 - d. Metals, page 33, last paragraph, reference should be to Section 5.2.2.
 - e. Radionuclides, NDEP provides the following comments:
 - i. Pages 33-35, general comment, it is also notable that U-235 fails background for five of the eight tests that were run, although this might be driven by the single value of 1 pCi/g, which should also be investigated further. This might be because of blank contamination so it may be reasonable to also run the statistical analyses without this outlier (although it would be better if a reason for the outlier could be found first - for example, review the lab reports). If the one high value remains, then the effect of removal of the value from the statistical analysis could be described in the uncertainty analysis section. NERT should consider scheduling a technical call to discuss this issue before responding to this comment.
 - ii. Page 34, 1st paragraph, it is not clear why the Th-232 chain was evaluated for a combined depth interval, but the U-238 chain was evaluated for two different depth intervals. Please bring the explanation on page 33 up to here in the text.
 - iii. Page 34, 2nd paragraph, NERT should note that most radionuclide datasets



from the BMI Complex and Common Areas show fairly low correlations in the Th decay chain. The most plausible hypothesis that has been presented to date is because the concentrations are close to the sensitivity of the analytical instrument. However, there have been a few examples for which this is not the case, and the correlations have been quite high for this chain. This is probably a consequence of differences between labs and/or analytical methods. No response necessary.

- iv. Page 34, 2nd paragraph, it is not clear that 6 and 10 ft below ground surface (bgs) secular equilibrium test failed for the U-238 chain based on sample size. One of the purposes of equivalence testing is to move away from problems that arise when using simple hypothesis testing - problems that identify differences based more on sample size than on significant differences. In this case, a Delta of 0.10 is allowed when describing secular equilibrium - this is based on an analysis of the background data {BRC/TIMET McCullough background}, which suggests a Delta of 0.10 approximately represents analytical differences for the radionuclides. It seems unlikely that a sample size as large as 61 is responsible for the differences observed in the deeper samples for the U-238 chain. It seems more reasonable to consider the data (see Table 7). It seems clear from the data that the secular equilibrium test for the U-238 chain for the 10 ft bgs data does not demonstrate secular equilibrium because the Ra-226 concentrations are low. The U-234 concentrations are also on the high side. This should be explored more thoroughly. This approach to secular equilibrium was set up because of analytical issues in the past - one of the issues was low Ra-226 concentrations. The same issues are seen in the U-234 and Ra-226 background comparisons. For U-234, the background comparisons fail and for Ra-226, background data are statistically greater than site data. Please review the laboratory reports to explore these issues. Otherwise, the arguments provided regarding exploratory data analysis and correlations provide useful support for a multiple lines of evidence approach to concluding secular equilibrium. (The high correlations are also supportive of analytical issues - that is, they could imply secular equilibrium by themselves, but the secular equilibrium tests (and the background tests) imply lack of secular equilibrium.) NERT should consider scheduling a technical call before responding to this comment.

Response:

9a. A brief discussion of the omitted samples was added to the text. The six samples removed from the RZ-A dataset were located in a boron source area within LOU 62 and



contributed to elevated concentrations of boron and certain other metals.

9b. The reference to communication with Paul Black was removed.

9c. NDEP is correct that the PQL was used as the detection limit for non-detectable results. This was discussed with NDEP during a call on December 5, 2012 and because many of the laboratory results do not include a SQL, it was decided to use the PQL. The discussion in the text has been updated to reflect this. Additionally, the treatment of blank contaminated samples has been revised in accordance with NDEP's comments and the most recent NDEP guidance.

9d. Acknowledged. The report was revised accordingly.

9e. i. The radionuclides data set has been updated to address a variety of issues related to the reported values in the previous deliverable. For a number of samples, particularly for Ra-226 and U-235, the laboratory and/or validator reported the samples as non-detects and the MDA was then used for the value. For Ra-226, this primarily resulted in lower concentrations than those measured being used in the evaluation. For U-235, this primarily resulted in higher concentrations than those measured being used in the evaluation. For a fewer number of samples, there were samples reported to the MDA due to blank contamination, which are now also reported to the actual measured concentrations in accordance with NDEP guidance. Using the updated data set, both the uranium and thorium decay series are shown to be in secular equilibrium for all depth intervals. Additionally, U-235 is no longer above background according to the revised statistical tests.

9e. ii. The uranium decay series and thorium decay series were based on combined data from between 0 and 10 feet bgs as described in Section 5.2.1.2 of the revised report.

9e. iii. Acknowledged.

9e. iv. This section was updated to reflect the fact that the revised secular equilibrium evaluation shows that the decay series are in secular equilibrium (Tables F-5a and F-5b).

10. *Section 5.2.2, Evaluation of Site Concentrations Relative to Toxicity Screen, NDEP provides the following comments:*

- a. *Page 36, 3rd bullet, Table 4 and previous text suggests 34 detections of chrysotile in 72 samples, 20 of which had at least 1 detect. Please revise as necessary.*
- b. *Page 37, penultimate and last bullets, normally we would prefer that surrogates be derived for chemicals lacking toxicity values; however, octachlorostyrene and platinum were detected so infrequently and at such a low concentrations that NDEP agrees that derivation of such is of little merit for this site.*
- c. *Page 37, 2nd bullet on page, Table 5 indicates that there are a total of 31 background samples from RZ-A, which have a maximum concentration of 4.25 mg/kg. Some*



explanation is needed to clarify why 7.2 mg/kg has been targeted as a remediation goal. Reference to any such as agreement with NDEP should be provided.

Response:

10a. Table 4 was revised to present the correct number of chrysotile detections. It should be noted that the asbestos dataset was updated in the revised deliverable to include missing asbestos results from the 2008 supplemental sampling (see the response to Comment 23 for additional details) and to exclude samples that were collected outside of the new Parcel G boundary.

10b. Acknowledged.

10c. The value of 7.2 mg/kg is the maximum background concentration for shallow soils in the BRC/TIMET background evaluation of McCullough-Range soils. The use of the value was requested in a letter from NDEP dated August 15, 2010, which is referenced in the revised report. This was included as the target remediation goal for arsenic in the final Removal Action Work Plan for the Site.

11. *Section 5.4.2, Exposure Calculations, the exposure equations for inhalation by outdoor workers and construction workers differs from the presentation in the HHRA Work Plan dated 09 March 2010. Similarly, the equation for time-weighted exposure concentration in air for asbestos inhalation also differs from the Work Plan. It is requested that NERT comply with the NDEP-approved Work Plan or schedule a technical call to discuss the rationale for the changes.*

Response: The exposure equations in Section 5.3.2 of the revised deliverable for inhalation by outdoor workers and construction workers and for asbestos inhalation were modified to be consistent with the HHRA Work Plan. It should be noted that because it is assumed that outdoor workers and construction workers spend 0 hours per day inside, these modifications do not change the exposure calculations for outdoor workers and construction workers.

12. *Section 5.8.1 {including subsections}, Summary of Potential Can Risk Reported in the Site-Wide Soil Gas HRA, pages 61-63, the NDEP provides the following comments:*
- a. The subject Deliverable provides a summary from the November 2010 Site-Wide Soil Gas Human Health Risk Assessment (Site-Wide Soil Gas HRA).*
 - b. NDEP notes that the Site-Wide Soil Gas HRA was not previously reviewed or approved by NDEP.*
 - c. Based on a review of the Site-Wide Soil Gas HRA, NDEP has determined that the site-wide soil gas data alone is not sufficient to characterize risk when the site is*



subdivided into parcels; thus, the calculations and J&E modeling were not reviewed at this time. The following findings from the review of the Site-Wide Soil Gas HRA support this decision {All references in the following comments are to the Site-Wide Soil Gas HRA document):

- i. Figure 4 shows an area of soil vapor risk in the range of 1E-05 to 1 E-04 that stops at the southern boundary for Remediation Zone C.
- ii. Figures 2 and 4 appear to show soil gas sample location SG-34 within the Parcel F but according to Table 6 the sample is within Remediation Zone B. Soil gas locations for Parcels C and G are less than ideal and there are no soil gas samples from within parcel F.
- iii. Overlaying the map for chloroform in shallow groundwater (Figure 5) on Figure 2 (Soil Gas Sampling locations) and Figure 4 (Site-Wide Soil Gas ILCR Results for Indoor Air) shows that the soil gas samples were located in areas where results would likely be biased low. For example, soil gas sample SG-34 is collocated with well M-92 (chloroform concentration 30 µg/L) and the calculated risk is 4E-07. However, within Parcel F chloroform concentration in groundwater is two orders of magnitude higher in well TR-6 (western portion of Parcel F) than in well M-92.
- iv. As an alternative to or in addition to the J&E soil gas model, the J&E groundwater model can be used to calculate indoor air risk from exposure to VOCs. The Site-Wide Soil Gas HRA evaluated collocated soil gas and groundwater samples in Table 9. The correlation coefficient is 0.97 between chloroform in soil gas measurements at ten feet bgs and groundwater concentrations at the collocated sites. The conclusion was that the data supported the hypothesis that chloroform in shallow soil gas was from shallow groundwater (Northgate, 2010). Figures 5, 6, and 7 show wells that could be used in Parcels C, D, and F to supplement the soil gas data.
- v. NDEP suggests that NERT may use the site-wide soil gas data in conjunction with groundwater data to develop a risk assessment specific to Parcels C, D, F, G, and H.

Response: This comment will be addressed as part of the Soil Gas Investigation Report and Health Risk Assessment (HRA) for Parcels C, D, F, G, and H that is currently being prepared by ENVIRON.

13. Section 5.8.2.2, *Outdoor Commercial and Construction Worker*, 2nd paragraph, page 63, VOC concentrations in air could possibly be higher during construction scenarios relative to non-intrusive conditions assumed for the outdoor commercial worker. Please include discussion of this uncertainty. (This is relevant only to the HI as applying the VOC ILCR for the construction worker assumes a 25-year exposure rather than the one-year exposure



time for the construction worker).

Response: Acknowledged, however this comment is no longer relevant because the discussion of cumulative risk has been removed from the revised deliverable. Cumulative risk and hazard will be evaluated in the Soil Gas Investigation Report and Health Risk Assessment (HRA) for Parcels C, D, F, G, and H that is currently being prepared by ENVIRON.

14. *Tables 2 and 3, these Tables presented do not follow the NDEP guidance for summary statistics tables. (NDEP Guidance on the Development of Summary Statistics Tables, December, 2008). Please revise.*

Response: Acknowledged. As previously stated in the response to NDEP comment #8, the mean and standard deviation (calculated using ½ the PQL) were added to the Tables 2 and 3.

15. *Table 5, 1st footnote, please note that when the frequency of detects is small (e.g., less than 25%), the NDEP has suggested that further comparison can be performed on the detection frequency using a chi-square test for independence. If this test passes (detection frequency is the same, statistically), then it is reasonable to consider comparing the detected concentrations only. However, since the report indicates that all metals with detection limit problems are carried through to the next step as COPCs, no action is necessary.*

Response: Acknowledged.

16. *Table 7, there is no need for the word "Detect" to appear in the column headings, since non-detects are not defined for radionuclides.*

Response: In the revised report, the background evaluation is presented in Appendix F, and the word "Detect" has been removed from the column headings for the radionuclides.

17. *Table 8, the text and Table 5 indicate that Selenium is selected as a COPC; however, it is not listed in Table 8. Please revise as necessary*

Response: Selenium was not detected in any samples from the Parcels and therefore should not be identified as a COPC. The report and Table 5 were revised to remove selenium as a COPC accordingly.

18. *Table 10, please include an indoor worker exposure time (indoors) in this table. The HRA Work Plan dated March 9, 2010 includes an exposure time for indoor workers, which should also be included here.*



Response: An indoor worker exposure time was added to the table. The indoor worker exposure time (indoors) is 8 hours per day. It is assumed that the outdoor worker spends 100% of time outdoors (8 hours per day) and the indoor worker spends 100% of time indoors (8 hours per day).

19. *Tables 10 and 11, under dermal absorption fraction (ABS), the value is listed as “chemical-specific (Table 11)”. Please note that the ABS values are listed in Table 12, not Table 11. Please revise as necessary.*

Response: This reference in Tables 7 and 8 (previously Tables 10 and 11) was revised to identify the correct table (Table 9, previously Table 11) that lists the ABS values.

20. *Table 12, NDEP provides the following comments:*
- a. *RfCs for the COPCs are listed as “non-applicable” when they should be listed as “not available” (i.e., the non-carcinogenic endpoint for the inhalation pathway for these COPCs is applicable).*
 - b. *DDD is listed as a COPC in this table but it was not identified as a COPC in Section 5.2 or Table 8. Please revise as necessary.*
 - c. *USEPA’s IRIS database is listed as the reference for the RfD values listed for the 5 PAHs; however, those RfDs are not currently listed in IRIS or the USEPA Regional Screening Levels (RSLs). Please provide the source of these RfDs.*

Response:

20a. Acknowledged and Table 9 (previously Table 12) was revised.

20b. DDD was not retained as a COPC and has been removed from the toxicity criteria table, which is Table 9 in the revised deliverable.

20c. As noted in the footnotes of the table in the previous deliverable, pyrene was selected as a surrogate to evaluate noncancer health hazards and therefore the listed RfD values are for pyrene and came from the IRIS database. However, the only detection of benzo(a)pyrene was from a location which has been removed from the Parcel G dataset because it was determined that the actual boundaries of Parcel G did not include this sample. Therefore, none of the PAHs are included as COPCs in the revised deliverable.

21. *Figure 1, the outlined area should be noted as the NERT property not the Tronox Facility.*

Response: Figure 1 has been revised to refer to the outlined area as the “NERT property”.

22. *Figure 2, the blue lines should have better definition similar to Figure 1. Also, please specify the extent of the parcels (i.e., in red outline), and please more clearly identify LOUs and*



their boundaries.

Response: Acknowledged and revised.

23. *Figure 3, the following sample IDs shown on the Figure were not found in the Appendix C tables: TSB-CJ-10, TSB-CJ-11, TSB-DR-04W, TSB-DR-04E, and I6-PC-1-1-0.0. Please review the Figure and summary tables and revise as necessary.*

Response: TSB-CJ-10, TSB-CJ-11, TSB-DR-04W, and TSB-DR-04E are sample IDs from the 2008 supplemental sampling that were analyzed for asbestos and have been added to Table D10 (previously Table C10) and Table 4. Other samples shown on Figures 4, 5, and 6 that were collected as part of the supplemental sampling (TSB-HJ-12, TSB-HJ-13, TSB-HJ-09-NE, and TSB-GJ-08) were also missing from Table C10 and Table 4 and have been added.

Sample I6-PC-1-0.0, analyzed for dioxins, was previously mislabeled as I6-PC-1-1-0.0 on Figure 3 and previously misidentified as TSB-CR-07 in Table C5 in the previous deliverable. Figure 3 and Table D5 (previously Table C5) have been updated accordingly.

24. *Figure 4, the following sample IDs were found in the Appendix C tables but were not found on the Figure: TSB-FJ-02-02, TSB-FJ-06-02, and TSB-FR-02-02. Please review the Figure and summary tables and revise as necessary.*

Response: These samples are located in approximately the same locations as their “parent” samples (e.g., TSB-FJ-02-02 is located in the same location as TSB-FJ-02). For completeness, these locations IDs were added to Figure 4.

25. *Appendix B, Table B-2, there is no key for the "Reason Code". The reviewers assumed it is the same as the key for Table B-1 but this should be clarified in the revised document.*

Response: The Reason Code key was added to Table C-2 (previously Table B-2) and is the same as the key for Table C-1 (previously Table B-1).

26. *Appendix C, Table C1, Metals, for several of these metals (e.g., Sb, B, Hg, Mo, Tl) the non-detects are often at concentrations that are greater than the detected values. This is only likely to happen to this extent if the non-detects are reported at the practical quantitation limit (PQL) instead of the SQL. Following NDEP guidance, and the descriptions in the main text, the SQL is intended to be used in all statistical analyses. Please confirm that the SQLs were used and check the data in Table C1 for PQL versus SQL issues. Note that NDEP would have reviewed this in more detail, but the data are not available in the Deliverable.*

Please additionally note that it appears there are some similar issues with the background dataset. For other BMI Complex and Common Areas projects, we have found that a related



issue is one of blank contamination. That is, if the sample is affected by blank contamination, then previous EPA and NDEP guidance suggested using the PQL. More recent NDEP guidance requires using the actual reported value instead of either the SQL or PQL in these cases, and recognizing in the uncertainty analysis that these concentrations might be over-estimated. NDEP did not try to verify the background comparisons and plots until this issue is resolved.

Response: The dataset presented in Table C1 are included in Appendix E of the revised deliverable. The PQL was used for non-detectable results and the text was revised accordingly. The SQL was unavailable from the laboratory for many of the results in the data set and therefore the PQL was used. A discussion of the uncertainty is included in the uncertainty analysis. This approach was agreed to by NDEP during a call on December 5, 2012. The treatment of blank contaminated samples was also revised in accordance with NDEP's comment and the most recent NDEP guidance (NDEP, 2012).

27. *Appendix C, Table C2, secular equilibrium results could not be verified due to difficulty in matching up the sample sizes reported in Table 6a with the data set in Table C2. For example, the U-238 chain yields a sample size of 87 samples from Table C2, while Table 6a indicates that the U-238 chain should have a sample size of 90 samples (and 7 missing). Please review these Tables and revise as necessary.*

Response: The secular equilibrium results have been updated based on the revised radionuclides data set. The data set used is included in Appendix E of the revised deliverable.

28. *Appendix D, please revise the box plots to distinguish the non-detects from the detect results.*

Response: The box plots, which are now in Appendix F and were prepared by ENVIRON, were revised to distinguish the non-detects from the detect results.

29. *Appendix F, the asbestos risk calculations do not follow the most recent (at the time of submittal) NDEP guidance workbook. Please use the asbestos guidance released by the NDEP (February 2011) and only change the information in the spreadsheets that is color-coded as green to facilitate review. For the record, the spreadsheet used as part of this risk assessment could be verified against a previous release of the NDEP asbestos guidance workbook (March 2010); however, several changes have been made since this initial guidance release. Similar to this topic, the text should be updated to reflect the most recently released NDEP guidance on calculating asbestos risk (February 2011).*

Response: The asbestos risk calculations were revised to be consistent with the most recent NDEP guidance (February 2011), and the report text was updated correspondingly.





From: Deni Chambers, C.E.G, C.Hg
Dennis Laduzinsky, Principal
Cindy Arnold, Quality Assurance Officer

Date: June 27, 2013

To: Weiquan Dong, P.E.
Bureau of Corrective Actions
Nevada Division of Environmental Protection

RE: Nevada Environmental Response Trust (Trust) Site, NDEP Facility ID #H-00539,
Henderson, Nevada

**RESPONSE TO COMMENTS
APPENDIX B (DATA VALIDATION SUMMARY REPORTS) OF REVISED CLOSURE AND
POST-REMEDATION SCREENING HEALTH RISK ASSESSMENT REPORT FOR
PARCELS C, D, F, G, AND H, DATED MAY 18, 2012**

On behalf of ENVIRON and the Nevada Environmental Response Trust (NERT), Northgate Environmental Management, Inc. (Northgate) submits this Response to Comments (RTC) on the Data Validation Summary Reports in Appendix B of the "Revised Closure and Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G, and H" (post-remediation HRA) dated May 18, 2012. It should be noted that all blank contamination revisions pertain to the tables listed in this response and the data used in the post-remediation HRA, and that no changes have been made to the original text.

Comments

- 1. All four DVSRs were reviewed previously and accepted (2008-2010). In addition, 3 of the 4 EDDs associated with the data have been uploaded to the company wide database. However, the data associated with Parcel H (file Tronox Parcel H DVSR_DB) is not in the companies' wide database. The format of this EDD is not compatible with our current system for uploading. The EDD was compiled in 2008 before the EDD guidance was written. The format for this EDD should be revised so that it is now consistent with the EDD guidance and can be uploaded to the companies' wide database.*

Response: After a call with NDEP on December 5, 2012, it was confirmed that it would be impractical to update the EDD due to reporting errors from the laboratories. As agreed upon by NDEP during the call, EDDs will not be provided and NDEP will not upload these data to the regional web based database.

2. *All data included with the four DVSRs were approved prior to the current guidance where censoring data due to blank contamination is not accepted. With Parcel H data for example, over 200 results were qualified as “U” or “UJ” based on laboratory blank contamination and over 150 results were qualified as “U” or “UJ” based on field blank contamination. These data (from all four DVSR/EDD sets) should be revised so that a “J” qualifier is applied and the data should be included in the HRA in accordance with the Guidance for Qualifying Data due to Blank Contamination (January 2012).*

Response: Data associated with the four DVSRs of the Parcel HRA were reviewed and amended for Blank Contamination (equipment blanks, field blanks, pump blanks, filter blanks, and trip blanks) according to the “Revised Guidance on Qualifying Data due to Blank Contamination for the BMI Complex and Common Areas”, dated January 5, 2012.

The following reflects the revisions made to each of the four DVSR datasets. Revised blank contamination qualifiers are presented in an additional column of the DVSR Tables listed below.

1. **DVSR Tronox Parcels C, D, F, and G Investigation November 2007, dated February 2008**

Revised Tables

- 2-5 Summary of Data Qualified Due to Laboratory Blank Contamination
- 2-6 Summary of Data Qualified Due to Field Blank Contamination
- 3-1 Summary of Qualified Data Results

2. **DVSR Tronox Parcel H Investigation January 2008, dated April 2008**

Revised Tables

- 2-4 Summary of Data Qualified Due to Laboratory Blank Contamination
- 2-5 Summary of Data Qualified Due to Field Blank Contamination
- 3-1 Summary of Qualified Data Results

3. **DVSR Tronox Parcels C, D, F, G and H Supplemental Investigations June/July 2008, dated January 2009**

Revised Tables

- 2-4 Summary of Data Qualified Due to Laboratory Blank Contamination
- 2-5 Summary of Data Qualified Due to Field Blank Contamination
- 3-1 Summary of Qualified Data Results

4. **DVSR Tronox Parcels C, D, F, G, and H Soil Confirmation April 2010, dated June 15, 2010**

Revised Tables

- 3-1 Qualification Summary



APPENDIX B

B-1. Las Vegas Paving Scrape Clean Up Figures

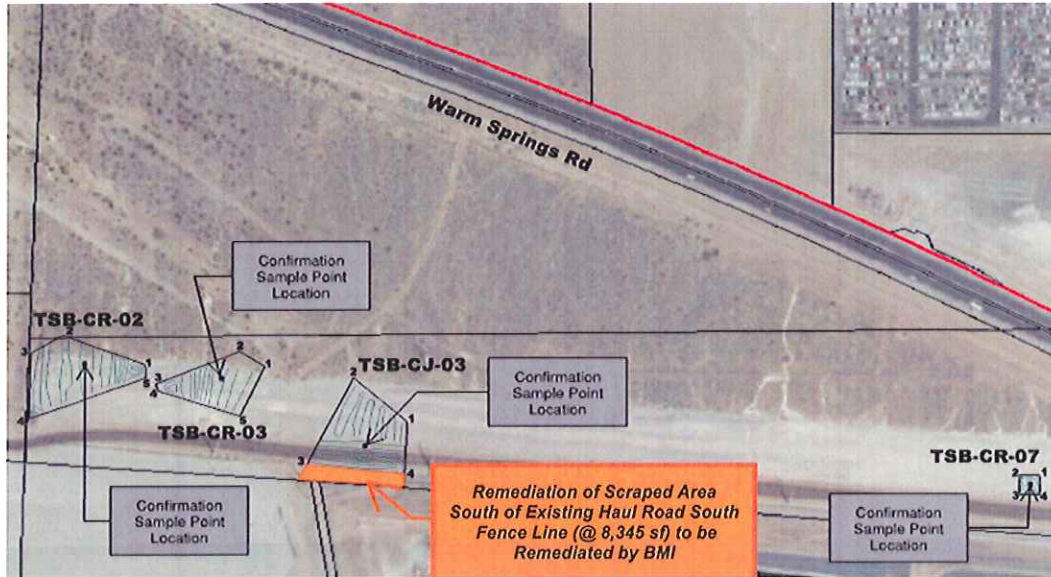
B-2. Soil Disposal Manifests for Parcels C, D, F, G, and H

(Appendix B-2 Provided on CD)



Tronox Parcel C,D,F,G,&H Scrape Clean Up

Parcel C Scrape Areas Information



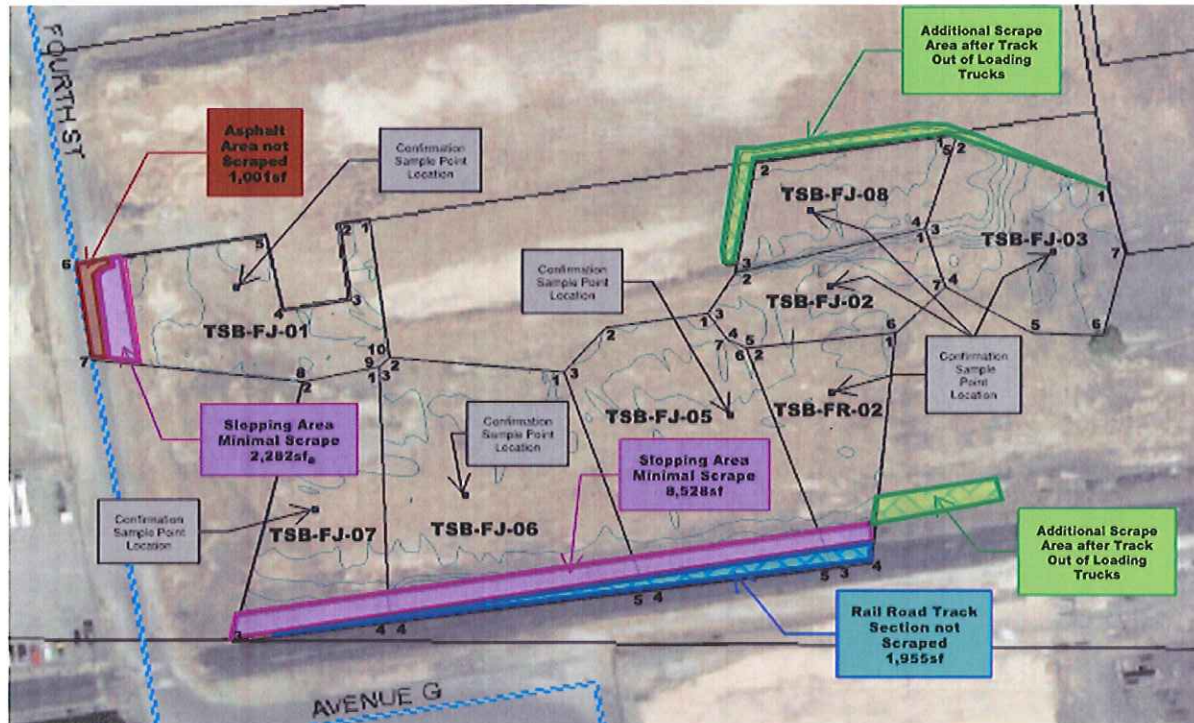
Tronox Parcel C,D,F,G,&H Scrape Clean Up

Parcel D Scrape Area Information



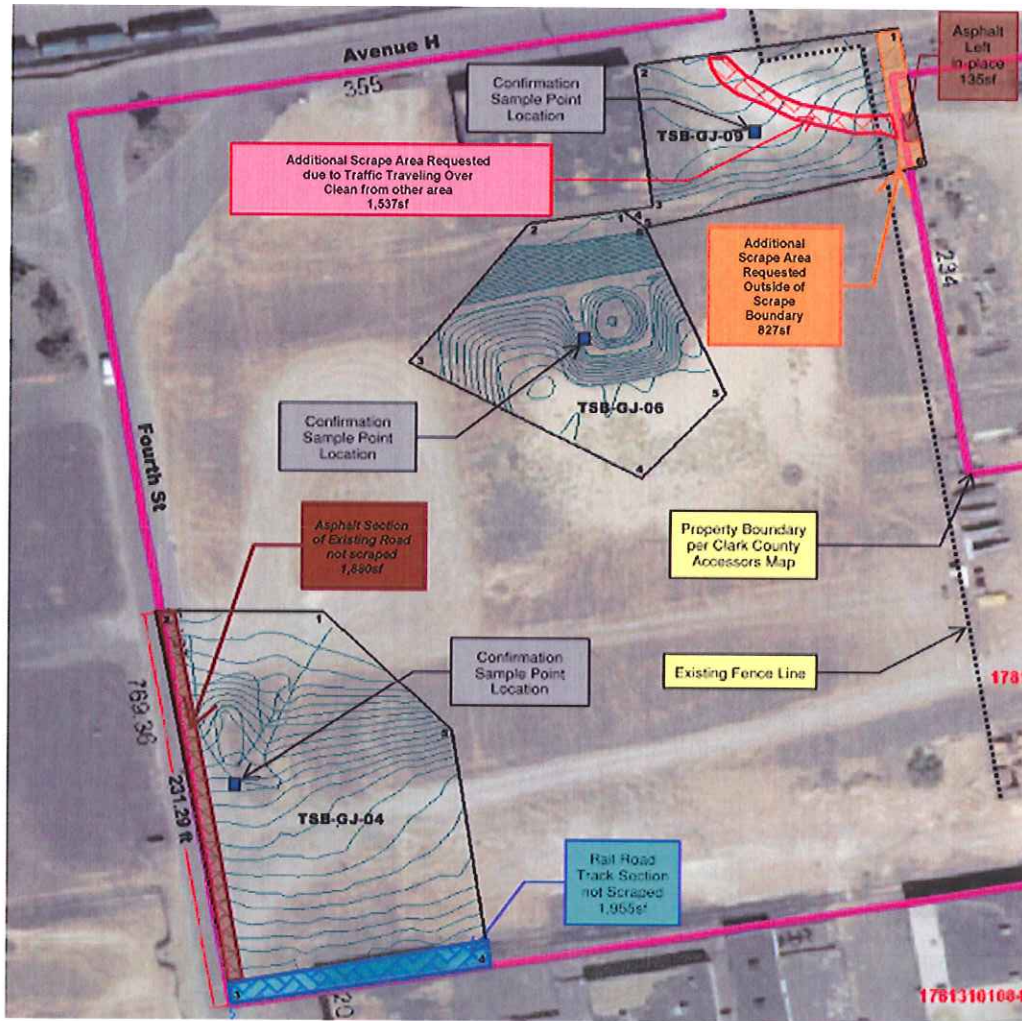
Tronox Parcel C,D,F,G,&H Scrape Clean Up

Parcel F Scrape Areas Information



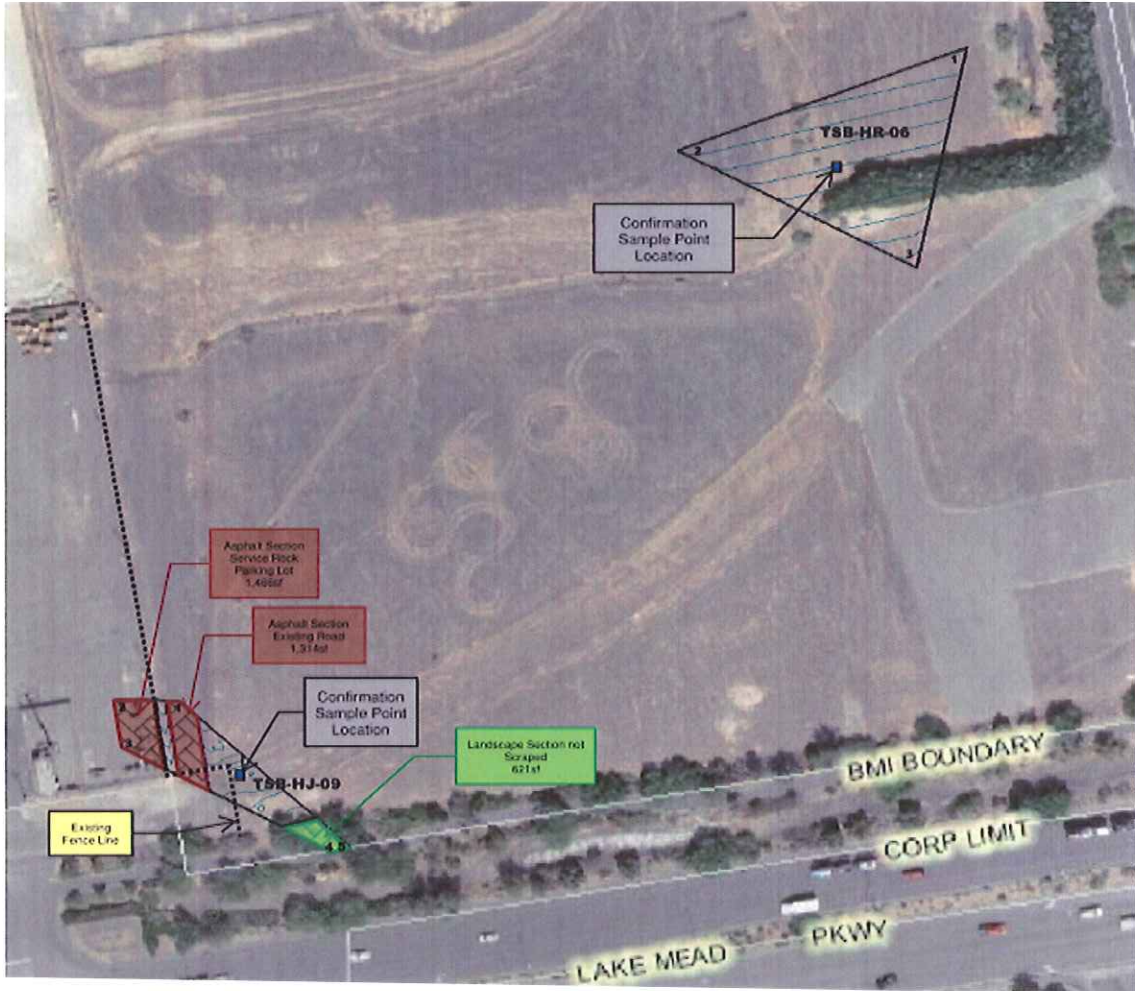
Tronox Parcel C,D,F,G,&H Scrape Clean Up

Parcel G Scrape Areas Information



Tronox Parcel C,D,F,G,&H Scrape Clean Up

Parcel H Scrape Areas Information



APPENDIX C

Data Validation Summary Reports and Tables C-1 and C-2

(Provided on CD)



APPENDIX D

Data Summary Tables



**TABLE D-1
Parcel Metals Soil Results**

					Analyte Units	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Boron mg/kg	Cadmium mg/kg	Chromium (Total) mg/kg	Chromium (VI) mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg	
2010 NDEP BCL						100000	454	1.77	100000	2230	100000	553	100000	1230	337	42200	100000	800	100000	15100	341	
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Parcel C	TSB-CJ-01	TSB-CJ-01-0	N	11/12/2007	0	5770	0.11 J-	2.8	123 J+	0.37	7.5 J	0.075 J	5.6	< 1 U	3.9	10.4	7730	6	5960	200	0.0327 J	
Parcel C	TSB-CJ-01	TSB-CJ-01-0 FD	FD	11/12/2007	0	6440	0.13 J-	3.4	118 J+	0.45	5.7 J	0.074 J	4.8	< 1 U	5	11.6	8810	6.1	6780	242	0.0099 J	
Parcel C	TSB-CJ-01	TSB-CJ-01-10	N	11/12/2007	10	6760	0.18 J-	4.7	167 J+	0.42	7.7 J	0.1 J	8.5	< 1 U	5.7	14	10300	12.7	8240	285	< 0.0351 U	
Parcel C	TSB-CJ-02	TSB-CJ-02-0	N	11/12/2007	0	6570	0.13 J-	3.1	134 J+	0.45	9.7 J	0.095 J	6.1	< 1 U	4.5	10.5	9100	7.3	6810	210	< 0.0353 U	
Parcel C	TSB-CJ-02	TSB-CJ-02-10	N	11/12/2007	10	7070	0.16 J-	4.6	188 J+	0.47	11.7 J	0.06 J	8.8	< 1 U	5	11	10600	7.2	11700	220	0.0072 J	
Parcel C	TSB-CJ-03	TSB-CJ-03-0	N	11/9/2007	0	7080	0.12 J-	3.1	161	0.41	6.9 J	0.086 J	7.4	< 1 U	5.1	12.1	10100	7.6	7160 J	262	0.0109 J	
Parcel C	TSB-CJ-03	TSB-CJ-03-10	N	11/9/2007	10	6480	0.12 J-	3.4	86.7	0.41	6.3 J	0.14	10	< 1 U	8.2	27.4	12700	7.4	12200 J	288	< 0.0358 U	
Parcel C	TSB-CJ-04	TSB-CJ-04-0	N	11/9/2007	0	6530	0.11 J-	3.1	141	0.43	6.4 J	0.081 J	6.7	< 1 U	6.5	11.4	10500	7.6	7930 J	309	0.0077 J	
Parcel C	TSB-CJ-04	TSB-CJ-04-10	N	11/9/2007	10	8390	0.15 J-	6.8	208	0.53	7.8 J	0.11 J	11.5	< 1 U	7.4	15.8	13600	8.7	11500 J	313	< 0.0362 U	
Parcel C	TSB-CJ-05	TSB-CJ-05-0	N	11/12/2007	0	5620	0.14 J-	3.7	153 J+	0.4	3.9 J	0.12	7.3	< 1 U	5.3	11.8	10200	13.4	7430	325	< 0.0078 J	
Parcel C	TSB-CJ-05	TSB-CJ-05-10	N	11/12/2007	10	6140	0.14 J-	2.9	200 J+	0.43	4.8 J	0.05 J	8.3	< 1 U	7.6	13.7	10600	9.4	9660	311	< 0.036 U	
Parcel C	TSB-CJ-06	TSB-CJ-06-0	N	11/12/2007	0	5770	0.14 J-	4.5 J	117 J+	0.44	3.6 J	0.058 J	6.9	< 1 U	5.6	10.4	9170	6.5 J	8300	231	0.0098 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-0 FD	FD	11/12/2007	0	5930	0.13 J-	2.2 J	163 J+	0.38	3.2 J	0.094 J	7.1	< 1 U	5.6	12.7	10900	13 J	6740	366	0.0145 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-10	N	11/12/2007	10	7450	< 1.2 U	3.7	179 J+	0.55	9.8 J	0.08 J	8.9	< 1 U	5.5	13.5	11500	6.3	11000	212	< 0.0382 U	
Parcel C	TSB-CJ-07	TSB-CJ-07-0	N	11/9/2007	0	6000	0.13 J-	3.3	166	0.37	6.7 J	0.086 J	6	< 1 U	4.5	11	8650	7.2	6470 J	264	0.0091 J	
Parcel C	TSB-CJ-07	TSB-CJ-07-10	N	11/9/2007	10	7560	0.13 J-	6.9	196	0.46	7.3 J	0.088 J	9.8	< 1 U	7.2	12.7	12000	7.9	12200 J	286	< 0.0374 U	
Parcel C	TSB-CJ-08	TSB-CJ-08-0	N	11/9/2007	0	7100	0.16 J-	2.5	172	0.4	6 J	0.097 J	7.3	< 1 U	6.2 J	14.6	11700	10.6 J	7840 J	400 J	< 0.0348 U	
Parcel C	TSB-CJ-08	TSB-CJ-08-0 FD	FD	11/9/2007	0	5530	< 1 UJ	3.1	124	0.34	5.6 J	0.062 J	5.4	< 1 U	3.6 J	11.1	8060	4.9 J	5760 J	163 J	0.0106 J	
Parcel C	TSB-CJ-08	TSB-CJ-08-10	N	11/9/2007	10	8880	0.17 J-	8	340	0.58	7.2 J	0.054 J	13.2	< 1 U	7.1	14.3	13900	8	13200 J	326	< 0.0363 U	
Parcel C	TSB-CR-01	TSB-CR-01-0	N	11/12/2007	0	5170	0.14 J-	2.3	143 J+	0.34	< 20.4 U	0.1	6.5	< 1 U	4.6	10.6	7580	13	6490	349	0.0094 J	
Parcel C	TSB-CR-01	TSB-CR-01-10	N	11/12/2007	10	6540	0.15 J-	3.2	207 J+	0.41	11.2 J	0.049 J	7.1	< 1 U	6.4	13	9600	6.6	9660	299	0.0075 J	
Parcel C	TSB-CR-02	TSB-CR-02-0	N	11/12/2007	0	6900	0.13 J-	2.1	212 J+	0.46	3.9 J	0.076 J	7.7	< 1 U	5.2	11.1	10100	7.6	6710	250	0.0178 J	
Parcel C	TSB-CR-02	TSB-CR-02-10	N	11/12/2007	10	8540	0.15 J-	5.8	213 J+	0.51	11.9 J	0.11 J	9.6	< 1 U	4.3	10.5	10500	6.5	11100	188	< 0.0354 U	
Parcel C	TSB-CR-03	TSB-CR-03-0	N	11/12/2007	0	7770	0.15 J-	2.7	161 J+	0.48	4.7 J	0.12	11.5	< 1 U	5.7	12.2	11300	7.9	9180	276	0.0105 J	
Parcel C	TSB-CR-03	TSB-CR-03-10	N	11/12/2007	10	7510	0.15 J-	5.5	189 J+	0.49	10.1 J	0.069 J	10.1	< 1 U	6	12.1	11700	6.9	14600	253	0.0084 J	
Parcel C	TSB-CR-04	TSB-CR-04-0	N	11/13/2007	0	7840 J	0.16 J-	2.7	168	0.47	9.7 J	0.11	11.4	< 1 U	6.8	12.7	13100	9.9	7820 J	358 J	0.0124 J	
Parcel C	TSB-CR-04	TSB-CR-04-10	N	11/13/2007	10	7580 J	0.17 J-	7.8	141	0.52	15.3 J	0.067 J	11	< 1 U	5.9	12	11500	7.8	13900 J	253 J	0.0089 J	
Parcel C	TSB-CR-05	TSB-CR-05-0	N	11/13/2007	0	7550 J	0.19 J-	5.2	202	0.54	6.1 J	0.12	10.8	< 1 U	7.8	14.5	14200	10	8600 J	400 J	0.0215 J	
Parcel C	TSB-CR-05	TSB-CR-05-10	N	11/13/2007	10	8080 J	0.18 J-	7.8	203	0.58	8.5 J	0.073 J	11.5	< 1 U	6.6	13.7	13400	8.6	10600 J	257 J	0.0153 J	
Parcel C	TSB-CR-06	TSB-CR-06-0	N	11/13/2007	0	8740 J	0.22 J-	3.3	174	0.53	4.9 J	0.13	13.9	< 1 U	6.9	14.2	14600	13.3	10500 J	460 J	0.0081 J	
Parcel C	TSB-CR-06	TSB-CR-06-10	N	11/13/2007	10	9300 J	0.23 J-	4.9	179	0.59	8.1 J	0.064 J	13	< 1 U	6.8	13.5	15500	10.1	10200 J	268 J	0.0084 J	
Parcel C	TSB-CR-07	TSB-CR-07-0	N	11/9/2007	0	7100	0.32 J-	3.4	202	0.44	7.9 J	0.25	11.5	< 1 U	7.8	16.9	13400	29.4	10300 J	841	< 0.0336 U	
Parcel C	TSB-CR-07	TSB-CR-07-10	N	11/9/2007	10	8470	0.17 J-	4.2	245	0.54	7.6 J	0.06 J	11.2	< 1 U	7	14	13700	9	9560 J	265	0.0075 J	
Parcel D	TSB-DJ-01	TSB-DJ-01-0	N	11/13/2007	0	7930 J	0.18 J-	3.6	177	0.56	4.5 J	0.076 J	10.9	< 1 U	6.7	13.8	12700	8.1	8400 J	295 J	0.0123 J	
Parcel D	TSB-DJ-01	TSB-DJ-01-10	N	11/13/2007	10	8250 J	0.19 J-	4.9	185	0.54	15.8 J	0.091 J	15.3	< 1 U	6.8	15	13300	9.1	11400 J	318 J	0.0103 J	
Parcel D	TSB-DR-01	TSB-DR-01-0	N	11/14/2007	0	7800	0.15 J-	3	143 J	0.51	10.2 J	0.11	11.4 J-	< 1 U	5.4 J-	11.6 J-	11600	9	9060	356	0.0177 J	
Parcel D	TSB-DR-01	TSB-DR-01-10	N	11/14/2007	10	6630	0.18 J-	4.4	93.2 J	0.43	13.5 J	0.071 J	6.5 J-	< 1 U	5.5 J-	12.1 J-	9310	6.9	11100	195	0.0105 J	
Parcel D	TSB-DR-02	TSB-DR-02-0	N	11/14/2007	0	7760	0.15 J-	2.9	168 J	0.49	5 J	0.11	10.8 J-	< 1 U	5.9 J-	12.1 J-	11800	13.9	8140	390	0.0153 J	
Parcel D	TSB-DR-02	TSB-DR-02-0 FD	FD	11/14/2007	0	8170	0.18 J-	3.1	171 J	0.55	5.8 J	0.11	10.8 J-	< 1 U	6.6 J-	13.9 J-	12800	10.9	8120	348	0.0175 J	
Parcel D	TSB-DR-02	TSB-DR-02-10	N	11/14/2007	10	7970	0.17 J-	3.2	171 J	0.56	12.8 J	0.08 J	9.5 J-	< 1 U	6.7 J-	12.5 J-	12400	8.7	12600	319	0.0082 J	
Parcel D	TSB-DR-03	TSB-DR-03-0	N	11/13/2007	0	8070 J	0.19 J-	2.9	208	0.52	4.5 J	0.11	11.6	< 1 U	6.6	13.4	13800	10.9	6460 J	386 J	0.0211 J	
Parcel D	TSB-DR-03	TSB-DR-03-10	N	11/13/2007	10	6890 J	0.18 J-	3.6	172	0.47	17 J	0.1 J	9.9	< 1 U	6.4	14	8860 J	9.2	8860 J	300 J	0.0093 J	
Parcel D	TSB-DR-04	TSB-DR-04-0	N	11/13/2007	0	7200 J	0.24 J-	3.3	154	0.5	5.3 J	0.13	9.7	< 1 U	6.8	14.5	12100	19.6	9790 J	453 J	0.0208 J	
Parcel D	TSB-DR-04	TSB-DR-04-10	N	11/13/2007	10	7650 J	0.28 J-	6.1	236	0.53	6.4 J	0.083 J	17.8	< 1 U	5.6	13.1	12600	7.2	11200 J	268 J	0.0111 J	
Parcel D	TSB-DR-05	TSB-DR-05-0	N	11/13/2007	0	7700 J	0.2 J-	2.8	174	0.51	22.6	0.11	11.6	< 1 U	6.3	13.3	8550 J	10.9	8550 J	387 J	0.0108 J	
Parcel D	TSB-DR-05	TSB-DR-05-0 FD	FD	11/13/2007	0	7650 J	0.19 J-	2.8	151	0.5	12.9 J	0.11	11.3	1.3	7	12.6	12600	9.5	9040 J	393 J	0.0125 J	
Parcel D	TSB-DR-05	TSB-DR-05-10	N	11/13/2007	10	10800 J	0.2 J-	5.3	234	0.68	14.1 J	0.066 J	14.8	< 1 U	7.5	14.3	14400	9.5	14300 J	340 J	0.0114 J	
Parcel D	TSB-DR-06	TSB-DR-06-0	N	11/13/2007	0	3810 J	0.11 J-	1.3	85.7	0.27	5.8 J	0.067 J	5.9	< 1 U	3.9	8	7620	5.5	4200 J	223 J	0.0113 J	
Parcel D	TSB-DR-06	TSB-DR-06-10	N	11/13/2007	10	3430 J	0.088 J-	2.8	82.5	0.23	3.8 J	0.036 J	4.1	< 1 U	3.2	6	5950	3.8	4100 J	111 J	0.0213 J	
Parcel F	TSB-FJ-01	TSB-FJ-01-0	N	11/16/2007	0	8200 J	0.19 J-	2.6	144 J+	0.57	6 J	0.098 J	10.9	< 1 U	7.1 J	15.5 J-	14800 J	8	7780 J	326 J	0.0117 J	
Parcel F	TSB-FJ-01	TSB-FJ-01-10	N	11/16/2007	10	7150 J	0.2 J-	3.1	114 J+	0.46	9.4 J	0.088 J	9	< 1 U	6.9 J	11.4 J-	10800 J	7.3	12600 J	354 J	0.0114 J	
Parcel F	TSB-FJ-02	P3-PF-2-1-0-0	N	4/6/2010	0			3.1														
Parcel F	TSB-FJ-02	P3-PF-2-1-0-0 FD	FD	4/6/2010	0			3.2														
Parcel F	TSB-FJ-02	TSB-FJ-02-0	N	11/15/2007	0	8540 J	0.29 J-	11.3 J	138	0.63 J	4.6 J	0.1 J	10.3 J	< 1 U	5.9 J	14.5	12400 J	8.9	6920 J	330 J	0.0101 J	
Parcel F	TSB-FJ-02	TSB-FJ-02-0 FD	FD	11/15/2007	0	4650 J	0.14 J-	3.5 J	83.4	0.39 J	< 20.7 U	0.055 J	5.2 J	< 1 U	4.7 J	11	8620 J	5.7	5910 J	259 J	0.0238 J	
Parcel F	TSB-FJ-02	TSB-FJ-02-10	N	11/15/2007	10	8240 J	0.15 J-	3.2	157	0.54	6.1 J	0.072 J	9.8	< 1 U	5.9 J	1						

TABLE D-1
Parcel Metals Soil Results

					Analyte Units	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Boron mg/kg	Cadmium mg/kg	Chromium (Total) mg/kg	Chromium (VI) mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg
2010 NDEP BCL						100000	454	1.77	100000	2230	100000	553	100000	1230	337	42200	100000	800	100000	15100	341
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel F	TSB-FJ-05	TSB-FJ-05-10	N	11/14/2007	10	7870	0.18 J-	3.5	211 J	0.63	6.9 J	0.084 J	9.8 J-	< 1 U	7.8 J-	15.8 J-	13500	9.8	9000	327	0.0093 J
Parcel F	TSB-FJ-06	TSB-FJ-06-0	N	11/14/2007	0	6380	0.29 J-	5	859 J	0.49	12.4 J	0.23	15.4 J-	< 1 U	10.2 J-	19.2 J-	12900	38.5	10300	775	0.0105 J
Parcel F	TSB-FJ-06	TSB-FJ-06-0 FD	FD	11/14/2007	0	8580	0.32 J-	6.9	629 J	0.58	13.4 J	0.25	17.2 J-	< 1 U	8.6 J-	25.1 J-	15000	39.8	12600	671	0.0413 J
Parcel F	TSB-FJ-06	TSB-FJ-06-10	N	11/14/2007	10	7790	0.18 J-	4.8	164 J	0.54	7.8 J	0.073 J	9.5 J-	< 1 U	5.8 J-	13 J-	11900	8.1	9550	260	0.0108 J
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0	6830	0.22 J	5.6	1420 J-	0.5	13.3 J	0.26	14.9 J-	< 0.55 J	9.2 J-	24 J-	12700 J	50.6	11900 J	896	0.0328 J
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10	8410	< 1.1 UJ	3.3	239 J-	0.51	10.1 J	0.073 J	9.7	< 1.1 U	8.2	15.7 J-	13400	9.4	10200 J-	379	< 0.0354 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20	14500	< 1.6 UJ	29.8	56.7 J-	0.73	24.4 J	< 0.16 U	32.5	< 1.2 U	5.9	17.8 J-	15100	9.6	30700 J-	194	< 0.0428 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30	8910	< 1.3 UJ	14.6	30.5 J-	0.46	12.4 J	0.19	15.1	< 1.7 U	4	9.9 J-	8670	6.5	21000 J-	165	< 0.0358 U
Parcel F	TSB-FJ-07	TSB-FJ-07-0	N	11/14/2007	0	7260	0.18 J-	4	129 J	0.51	9.2 J	0.13	13.7 J-	< 1 U	6.7 J-	14.5 J-	12100	15.8	8390	385	0.0151 J
Parcel F	TSB-FJ-07	TSB-FJ-07-10	N	11/14/2007	10	8580	0.17 J-	3.6	176 J	0.6	11.1 J	0.092 J	11.3 J-	< 1 U	6.8 J-	15.5 J-	14000	8.5	10400	300	0.0088 J
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0	6210 J	0.19 J-	2.6	129 J+	0.42	8.6 J	0.11	10.1	< 1 U	7.3 J	13.8 J-	11600 J	13	7900 J	376 J	0.0214 J
Parcel F	TSB-FJ-08	TSB-FJ-08-10	N	11/16/2007	10	8150 J	0.19 J-	6.5	200 J+	0.56	8.4 J	0.086 J	10.8	< 1 U	7 J	14.4 J-	13600 J	8.1	11100 J	287 J	0.0135 J
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0	8270 J	0.3 J-	3.3	188	0.6	9.3 J	0.15	11.8	< 20 U	7.1 J	18.7	13600 J	11	7940 J	410 J	0.0083 J
Parcel F	TSB-FJ-09	TSB-FJ-09-10	N	11/15/2007	10	7710 J	0.17 J-	3.6	153	0.57	8.1 J	0.073 J	10.1	< 1 U	5.3 J	15.1	11500 J	7.2	12300 J	221 J	0.0096 J
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0	7170 J	0.21 J-	4	140	0.63	9.7 J	0.092 J	10.9	< 1 U	9 J	14.4	13800 J	20	8580 J	514 J	0.0173 J
Parcel F	TSB-FJ-10	TSB-FJ-10-10	N	11/15/2007	10	6730 J	0.17 J-	2.8	183	0.51	11.9 J	0.071 J	9	< 1 U	6 J	13.7	11200 J	8.1	7780 J	282 J	0.0115 J
Parcel F	TSB-FR-01	TSB-FR-01-0	N	11/14/2007	0	11600	0.31 J-	4.8	327 J	0.84	10.2 J	0.15	19 J-	< 1 U	11.2 J	24.4 J-	22300	15.4	12600	538	0.0354
Parcel F	TSB-FR-01	TSB-FR-01-10	N	11/14/2007	10	8490	0.19 J-	4.4	153 J	0.53	13.3 J	0.082 J	8.9 J-	< 1 U	7.1 J-	12.9 J-	12200	7.8	11700	267	0.013 J
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0	6900 J	0.22 J-	3.6	186	0.55	4 J	0.081 J	10	< 1 U	6.5 J	13.2	12700 J	10.6	7620 J	343 J	0.0355
Parcel F	TSB-FR-02	TSB-FR-02-10	N	11/15/2007	10	6630 J	0.16 J-	2.5	139	0.47	7.5 J	0.099 J	8.9	< 1 U	5.8 J	13.4	11200 J	6.9	9600 J	278 J	0.0125 J
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0	6460	< 1 UJ	4.5	445 J-	0.5	11.2 J	0.42	18.1 J-	< 1 U	7.7 J-	20.4 J-	11400 J	136	12500 J	917	0.0302 J
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10	8620	< 1.1 UJ	4.1	126 J-	0.49	< 22.8 U	0.1 J	11	< 1.1 U	6.9	15 J-	11000	7.2	18900 J-	301	0.0146 J
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10 FD	FD	6/10/2008	10	8050	< 1.1 UJ	4.3	140 J-	0.55	< 21.4 U	0.068 J	10	< 1.3 U	7.3	14.6 J-	12500	7.5	12500 J-	290	< 0.0357 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20	5210	< 1.1 UJ	15.8	85.3 J-	0.28	< 7.8	< 0.11 U	9	< 1.2 U	2.9	8.2 J-	6730	7.3	4390 J-	117	< 0.037 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30	18200	< 3.6 UJ	35.5	56.2 J-	0.97	27.8	< 0.36 U	26.4	< 1.4 U	8.8	28.8 J-	19900	10.6	45100 J-	310	< 0.0481 U
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0	5790 J	0.15 J-	3.5	85.8	0.44	9.7 J	0.066 J	9.4	< 1 U	5.1 J	12.1	9890 J	5.8	7470 J	189 J	0.023 J
Parcel F	TSB-FR-03	TSB-FR-03-10	N	11/15/2007	10	7590 J	0.17 J-	3.1	145	0.56	8.4 J	0.068 J	11	< 1 U	6 J	13.8	12300 J	7.8	11500 J	240 J	< 0.0363 U
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0	5460 J	0.14 J-	2.8	67 J	0.45	3.7 J	0.11	7.4 J	< 1 U	5.3 J	10.4 J-	9400 J	5.1	7150 J	154 J	0.0166 J
Parcel F	TSB-FR-04	TSB-FR-04-0 FD	FD	11/16/2007	0	7740 J	0.2 J-	4.2	122 J	0.55	4.5 J	0.075 J	12.4 J	< 1 U	7.5 J	15.3 J-	14900 J	7.9	8550 J	262 J	0.0103 J
Parcel F	TSB-FR-04	TSB-FR-04-10	N	11/16/2007	10	7640 J	0.19 J-	6.4	170 J+	0.52	11.4 J	0.083 J	11	< 1 U	6.3 J	14.2 J-	12900 J	8.8	9400 J	308 J	0.0096 J
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0	6690 J	0.2 J-	3.1	129 J+	0.49	5.2 J	0.095 J	8.5	< 1 U	7.6 J	15.3 J-	12600 J	8.7	7180 J	348 J	0.0286 J
Parcel F	TSB-FR-05	TSB-FR-05-10	N	11/16/2007	10	8940 J	0.2 J-	3.4	184 J+	0.58	9 J	0.083 J	11.9	< 1 U	7 J	14.4 J-	13300 J	8.9	11700 J	327 J	0.0107 J
Parcel G	TSB-GJ-01	TSB-GJ-01-0	N	11/16/2007	0	8050 J	0.19 J-	3.3	178 J+	0.55	8.1 J	0.1 J	10.8	< 1 U	8.1 J	14.5 J-	13900 J	12.6	8740 J	395 J	0.0242 J
Parcel G	TSB-GJ-01	TSB-GJ-01-5	N	11/16/2007	5	8030 J	0.19 J-	3.3	155 J+	0.57	7.5 J	0.088 J	10.3	< 1 U	6.6 J	15.5 J-	13500 J	10	8540 J	310 J	0.0131 J
Parcel G	TSB-GJ-06	TSB-GJ-06-0	N	11/16/2007	0	7820 J	0.22 J-	4.1	191 J+	0.57	7.9 J	0.17	11.4	< 1 U	7.6 J	15.4 J-	14200 J	13.5	9100 J	711 J	0.022 J
Parcel G	TSB-GJ-06	TSB-GJ-06-5	N	11/16/2007	5	8790 J	0.18 J-	2.7	203 J+	0.58	8.1 J	0.1 J	10.9	< 1 U	6.7 J	15.1 J-	14300 J	8.7	8430 J	306 J	0.0086 J
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	6410	< 1 UJ	3.4	221 J-	0.42	< 20.3 U	0.17	9.8 J-	0.49 J	7.2 J-	17.8 J-	11700 J	39.4	9220 J	558	0.0159 J
Parcel G	TSB-GJ-08	TSB-GJ-08-10	N	6/11/2008	10	8870	< 1.3 UJ	6.1	89.1	0.65	13.8 J	0.069 J	11.5	< 1.1 U	7	16.4 J-	11700 J	7.2	25000	235	0.0191 J
Parcel G	TSB-GJ-08	TSB-GJ-08-20	N	6/11/2008	20	11900	< 1.2 UJ	24.4	43.4	0.54	22.1 J	< 0.12 U	30.3	< 1.4 U	4.8	11.4 J-	11200 J	7.8	25000	153	< 0.0398 U
Parcel G	TSB-GJ-08	TSB-GJ-08-30	N	6/11/2008	30	12300	< 1.8 UJ	21.9	37.3	0.67	21.9 J	< 0.18 U	41.3	< 2.2 U	6.3	17.8 J-	10200 J	6.8	52800	153	< 0.06 U
Parcel G	TSB-GJ-08	TSB-GJ-08-40	N	6/11/2008	40	16800	< 1.6 UJ	24	93	0.81	25.2 J	0.12 J	20.8	< 1.7 U	8.2	16.4 J-	15100 J	10.2	40000	323	< 0.0537 U
Parcel G	TSB-GJ-09	TSB-GJ-09-0	N	6/4/2008	0	6680	< 1 UJ	3.2	230 J-	0.46	8 J	0.098 J	8.1 J-	< 1 U	7.9 J-	14 J-	10800 J	12.3	11300 J	603	< 0.0342 U
Parcel G	TSB-GJ-09	TSB-GJ-09-0 FD	FD	6/4/2008	0	7890	< 1 UJ	3.3	211 J-	0.55	10.3 J	0.11	10.3 J-	< 1.1 U	6.9 J-	15.3 J-	12200 J	10.9	13400 J	447	< 0.0345 U
Parcel G	TSB-GJ-09	TSB-GJ-09-10	N	6/11/2008	10	7260	< 1.1 UJ	5.7	127	0.47	8.8 J	0.074 J	9.2	< 1.1 U	6.4	14.1 J-	12500 J	7.9	7500	285	< 0.0355 U
Parcel G	TSB-GJ-09	TSB-GJ-09-20	N	6/11/2008	20	10100	< 3.1 UJ	27.6	64.6	0.64	< 62.8 U	< 0.31 U	22.2	< 0.83 J	5.7	13.5 J-	13200 J	7.1	18200	170	< 0.0419 U
Parcel G	TSB-GJ-09	TSB-GJ-09-30	N	6/11/2008	30	12700	< 1.4 UJ	19.8	65.4	0.66	20.5 J	0.064 J	18.6	0.61 J	5.9	14.8 J-	13100 J	8.9	31100	238	< 0.0477 U
Parcel G	TSB-GJ-09	TSB-GJ-09-40	N	6/11/2008	40	16400	< 1.6 UJ	22.5	55.9	0.83	28.3 J	0.1 J	41.6	< 1.6 U	8.1	16.2 J-	15400 J	8.6	42100	259	0.022 J
Parcel G	TSB-GR-01	TSB-GR-01-0	N	11/16/2007	0	7290 J	0.21 J-	3.5	189 J+	0.51	8.5 J	0.11	10.8	< 1 U	7 J	15.4 J-	12400 J	12.6	9400 J	451 J	0.0099 J
Parcel G	TSB-GR-01	TSB-GR-01-5	N	11/16/2007	5	7790 J	0.21 J-	4.8	156 J+	0.52	6.8 J	0.11	11.2	< 1 U	7.6 J	15.6 J-	13700 J	13.3	8090 J	361 J	0.0146 J
Parcel H	TSB-HJ-01	TSB-HJ-01-0	N	1/25/2008	0	7210	0.2 J-	2.4 J	180 J+	0.5	< 26.2 U	0.15	10.9 J+		8.1	17.2	13200	14.1	7810	555	0.0164 J
Parcel H	TSB-HJ-01	TSB-HJ-01-10	N	1/25/2008	10	8520	0.17 J-	5.2	149 J+	0.58	13.4 J	0.12 J	9.9 J+		6.4	14.7	12200	6.6	10600	231	< 0.0356 U
Parcel H	TSB-HJ-02	TSB-HJ-02-0	N	1/25/2008	0	7770	0.18 J-	2.4 J	210 J+	0.68	4.2 J	0.14	12.1 J+		7.7	17.7	13400	12.8	7560	558	0.0119 J
Parcel H	TSB-HJ-02	TSB-HJ-02-10	N	1/25/2008	10	6860	0.19 J-	3.7	126 J+	0.49	7.1 J	0.076 J	10.7 J+		6.3	14.8	12000	6.3	9000	254	< 0.0356 U
Parcel H	TSB-HJ-03	TSB-HJ-03-0	N	1/25/2008	0	6450	0.24 J-	1.9 J	158 J+	0.53	4.3 J</										

**TABLE D-1
Parcel Metals Soil Results**

					Analyte Units	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Boron mg/kg	Cadmium mg/kg	Chromium (Total) mg/kg	Chromium (VI) mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg
2010 NDEP BCL						100000	454	1.77	100000	2230	100000	553	100000	1230	337	42200	100000	800	100000	15100	341
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel H	TSB-HJ-08	TSB-HJ-08-10	N	1/28/2008	10	7770	0.17 J-	3.9	170 J-	0.57	5.3 J	0.1 J	13.6		6.6		13600	7.5	10100 J+	264 J	< 0.036 U
Parcel H	TSB-HJ-09	TSB-HJ-09-0	N	1/25/2008	0	9210	0.21 J-	2.7 J	193 J+	0.64	7 J	0.086 J	14.8 J+		8.8	17.7	15700	9.5	10100	365	0.0087 J
Parcel H	TSB-HJ-09	TSB-HJ-09-10	N	1/25/2008	10	7430	0.15 J-	4.4	201 J+	0.56	8 J	0.096 J	13.4 J+		9.5	20.2	14600	7.3	10100	368	< 0.0354 U
Parcel H	TSB-HJ-10	TSB-HJ-10-0	N	1/28/2008	0	7010	< 1.3 UJ	1.9 J	134 J-	0.53	10.4 J	0.094 J	5.7		6.4		10700	5.8	7870 J+	265 J	0.0076 J
Parcel H	TSB-HJ-10	TSB-HJ-10-10	N	1/28/2008	10	7550	0.17 J-	3.3	140 J-	0.51	6.7 J	0.09 J	10.4		5.7		11700	6.8	8500 J+	218 J	< 0.0349 U
Parcel H	TSB-HJ-11	TSB-HJ-11-0	N	1/25/2008	0	8110	0.17 J-	2.3 J	235 J+	0.61	< 26.2 U	0.11 J	11.4 J+		7.7	16.2	13700	9.6	6140	387	0.0152 J
Parcel H	TSB-HJ-11	TSB-HJ-11-10	N	1/25/2008	10	7930	0.15 J-	3.3	198 J+	0.53	4.7 J	0.093 J	13.4 J+		7.7	16.7	12500	7.2	10800	369	< 0.0356 U
Parcel H	TSB-HJ-11	TSB-HJ-11-10 FD	FD	1/25/2008	10	7390	0.17 J-	3.6	179 J+	0.53	5.2 J	0.071 J	11.2 J+		6.8	16.8	12900	7	10500	330	< 0.0353 U
Parcel H	TSB-HR-01	TSB-HR-01-0	N	1/25/2008	0	9290	0.2 J-	2.3 J	190 J+	0.66	4.1 J	0.09 J	13.9 J+		8.3	16.7	15500	10.6	8160	401	0.0157 J
Parcel H	TSB-HR-01	TSB-HR-01-10	N	1/25/2008	10	6460	0.16 J-	2.9	139 J+	0.44	6.3 J	0.068 J	10.3 J+		6.3	14.2	12000	7	6630	277	< 0.0352 U
Parcel H	TSB-HR-02	TSB-HR-02-0	N	1/25/2008	0	6970	0.18 J-	2.5 J	160 J+	0.5	< 26.4 U	0.12 J	8.6 J+		7.7	14.3	11900	7.4	6710	348	< 0.0352 U
Parcel H	TSB-HR-02	TSB-HR-02-10	N	1/25/2008	10	7320	0.18 J-	2.9	159 J+	0.52	6.1 J	0.058 J	10.8 J+		7.5	15.4	13200	7.2	10600	248	0.0079 J
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0	6820	0.15 J-	1.6 J	132 J+	0.54	< 26.5 U	0.095 J	8.2 J+		7.7	16	12200	8.2	6810	340	0.0087 J
Parcel H	TSB-HR-03	TSB-HR-03-10	N	1/25/2008	10	7600	0.18 J-	4	178 J+	0.64	6.3 J	0.066 J	10.3 J+		7.8	17.9	13400	7.3	11100	271	< 0.0353 U
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0	7860	< 1 UJ	1.3 J	145 J+	0.55	< 26.1 U	0.076 J	10.4 J+		6.5	16.4	12700	7 J+	7460 J+	359	0.0136 J
Parcel H	TSB-HR-04	TSB-HR-04-10	N	1/24/2008	10	7500	< 1.3 UJ	2.9	201 J+	0.66 J	< 265 U	< 1.3 U	8.4 J+		7.3	20 J	12700	5.7 J+	13500 J+	301	< 0.0354 U
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0	4320	< 5.4 UJ	4 J	97.2 J-	0.35 J	< 109 U	0.14 J	6.4 J		4.7	7.2 J	7930	4	6110 J+	300 J	< 0.0363 U
Parcel H	TSB-HR-05	TSB-HR-05-10	N	1/28/2008	10	8300	0.18 J-	3.1	275 J-	0.57	4.9 J	0.071 J	11.3		7.4		12900	9.8	9790 J+	331 J	< 0.0357 U
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0	7800	0.16 J-	2.1 J	161 J-	0.49	4.6 J	0.14	8.9		7.6		13100	9.4	9570 J+	390 J	< 0.0348 U
Parcel H	TSB-HR-06	TSB-HR-06-0FD	FD	1/28/2008	0	7880	0.15 J-	1.7 J	110 J-	0.56	3.9 J	0.094 J	13.3		8.2		12400	7.6	9060 J+	296 J	0.0095 J
Parcel H	TSB-HR-06	TSB-HR-06-10	N	1/28/2008	10	7050	0.16 J-	3.5	168 J-	0.53	5.2 J	0.077 J	10.9		6.7		12300	7	9500 J+	304 J	0.0092 J
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0	8380	< 1.1 UJ	2.1 J	149 J+	0.7	< 53.6 U	0.069 J	11.1 J+		6.3	17.8	15300	7.8 J+	8560 J+	344	0.0104 J
Parcel H	TSB-HR-07	TSB-HR-07-10	N	1/24/2008	10	9970	< 1.4 UJ	2.7 J	179 J+	0.74 J	< 108 U	< 0.54 U	9.9 J+		5.7	18.3	14400	8.2 J+	15400 J+	334	0.0173 J
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0	5900	< 1.1 UJ	1.8 J	101 J+	0.48 J	< 53.1 U	0.099 J	7.4 J+		5.2	20.1	11800	7.5 J+	9300 J+	336	< 0.0354 U
Parcel H	TSB-HR-08	TSB-HR-08-10	N	1/24/2008	10	8170	< 1.1 UJ	3.7	188 J+	0.7 J	< 109 U	0.076 J	9.1 J+		6.1	18.3	15200	7.3 J+	10400 J+	359	< 0.0365 U

Soil sample excavated and data excluded from HRA calculations

**TABLE D-1
Parcel Metals Soil Results**

					Analyte Units	Molybdenum mg/kg	Nickel mg/kg	Platinum mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Strontium mg/kg	Thallium mg/kg	Tin mg/kg	Titanium mg/kg	Tungsten mg/kg	Uranium mg/kg	Vanadium mg/kg	Zinc mg/kg
2010 NDEP BCL						5680	21800	--	--	5680	5680	--	100000	79.5	100000	100000	8510	3400	5680	100000
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel C	TSB-CJ-01	TSB-CJ-01-0	N	11/12/2007	0	0.46 J	8.7	< 0.21 U	2660	< 1 U	0.09 J	794 J	183 J+	< 0.42 U	0.39 J	372 J+	0.23 J	0.87	20.8	20.3
Parcel C	TSB-CJ-01	TSB-CJ-01-0 FD	FD	11/12/2007	0	0.44 J	10.6	< 0.21 U	2690	< 1 U	0.087 J	444 J	202 J+	< 0.42 U	0.39 J	334 J+	0.28 J	0.93	22	20.9
Parcel C	TSB-CJ-01	TSB-CJ-01-10	N	11/12/2007	10	0.92 J	14.4	< 0.21 U	3660	< 1.1 U	0.1 J	1060	277 J+	< 0.42 U	0.54	401 J+	0.45 J	1.4	25.2	25.7
Parcel C	TSB-CJ-02	TSB-CJ-02-0	N	11/12/2007	0	0.52 J	9.7	< 0.21 U	2820	< 1.1 U	0.1 J	574	211 J+	< 0.42 U	0.54	394 J+	0.53 J	1	23.1	22.8
Parcel C	TSB-CJ-02	TSB-CJ-02-10	N	11/12/2007	10	0.64 J	12.7	< 0.21 U	2560	< 1.1 U	0.08 J	1650	375 J+	< 0.42 U	1.2	412 J+	0.31 J	1.7	28.8	23.9
Parcel C	TSB-CJ-03	TSB-CJ-03-0	N	11/9/2007	0	0.55 J	11.1	< 0.21 U	2980 J	< 1.1 U	0.11 J	693	213	< 0.42 U	0.2 J	500	0.26 J	1	27.6 J	25.4 J-
Parcel C	TSB-CJ-03	TSB-CJ-03-10	N	11/9/2007	10	0.57 J	18.5	< 0.22 U	1650 J	< 1.1 U	0.094 J	844	199	< 0.43 U	0.3 J	496	0.29 J	1.5	40.3 J	25.2 J-
Parcel C	TSB-CJ-04	TSB-CJ-04-0	N	11/9/2007	0	0.48 J	13.6	< 0.21 U	2480 J	< 1.1 U	0.093 J	540	176	< 0.42 U	0.21 J	441	0.31 J	0.98	27 J	24.5 J-
Parcel C	TSB-CJ-04	TSB-CJ-04-10	N	11/9/2007	10	0.77 J	16.1	< 0.22 U	1970 J	< 1.1 U	0.11 J	2300	300	< 0.43 U	0.29 J	582	0.33 J	2.1	41.2 J	29.3 J-
Parcel C	TSB-CJ-05	TSB-CJ-05-0	N	11/12/2007	0	0.49 J	12.9	< 0.21 U	2220	< 1 U	0.087 J	492	183 J+	< 0.42 U	0.5	402 J+	0.35 J	0.93	26.8	49.8
Parcel C	TSB-CJ-05	TSB-CJ-05-10	N	11/12/2007	10	0.46 J	12.9	< 0.22 U	2320	< 1.1 U	0.08 J	812	215 J+	< 0.43 U	0.43	379 J+	0.32 J	1.7	31	23.2
Parcel C	TSB-CJ-06	TSB-CJ-06-0	N	11/12/2007	0	0.38 J	11.1	< 0.2 U	2110	< 1 U	0.1 J	484 J	165 J+	< 0.41 U	0.39 J	368 J+	< 1 U	0.84	23.3	21.4
Parcel C	TSB-CJ-06	TSB-CJ-06-0 FD	FD	11/12/2007	0	0.53 J	12.8	< 0.21 U	2200	< 1 U	0.089 J	253 J	142 J+	< 0.41 U	0.48	485 J+	0.33 J	0.77	28.8	31.7
Parcel C	TSB-CJ-06	TSB-CJ-06-10	N	11/12/2007	10	0.47 J	12.9	< 0.23 U	1930	< 1.2 U	0.095 J	1040	234 J+	< 0.46 U	0.43 J	490 J+	< 1.2 U	1.3	33.6	24.5
Parcel C	TSB-CJ-07	TSB-CJ-07-0	N	11/9/2007	0	0.6 J	8.8	< 0.21 U	2640 J	< 1 U	0.094 J	493	195	< 0.42 U	0.16 J	422	0.29 J	0.95	23.1 J	21.3 J-
Parcel C	TSB-CJ-07	TSB-CJ-07-10	N	11/9/2007	10	0.64 J	16.4	< 0.23 U	1840 J	< 1.1 U	0.097 J	768	214	< 0.45 U	0.22 J	540	0.31 J	1.4	34.5 J	25.9 J-
Parcel C	TSB-CJ-08	TSB-CJ-08-0	N	11/9/2007	0	0.55 J	13.7	< 0.21 U	2870 J	< 1 U	0.095 J	549	162	< 0.17 J	0.19 J	450	0.34 J	0.73	28.7 J	28.2 J-
Parcel C	TSB-CJ-08	TSB-CJ-08-0 FD	FD	11/9/2007	0	0.53 J	8.4	< 0.21 U	2270 J	< 1 U	0.087 J	496	197	< 0.42 U	0.24 J	398	0.26 J	0.86	22.5 J	19.4 J-
Parcel C	TSB-CJ-08	TSB-CJ-08-10	N	11/9/2007	10	0.58 J	15	< 0.22 U	1910 J	< 1.1 U	0.12 J	2030	229	< 0.44 U	0.25 J	611	0.32 J	1.7	43.9 J	28.1 J-
Parcel C	TSB-CR-01	TSB-CR-01-0	N	11/12/2007	0	0.61 J	11.7	< 0.2 U	1830	< 1 U	0.076 J	187	100 J+	< 0.41 U	0.41 J	357 J+	0.46 J	0.52	19.5	21.2
Parcel C	TSB-CR-01	TSB-CR-01-10	N	11/12/2007	10	0.46 J	13.5	< 0.21 U	2250	< 1 U	0.18 J	1200	226 J+	< 0.24 J	0.42	287 J+	0.58 J	1.4	26	22.7
Parcel C	TSB-CR-02	TSB-CR-02-0	N	11/12/2007	0	0.55 J	12.9	< 0.21 U	3620	< 1 U	0.094 J	299	119 J+	< 0.41 U	0.46	411 J+	0.22 J	0.83	23.7	23.4
Parcel C	TSB-CR-02	TSB-CR-02-10	N	11/12/2007	10	0.43 J	14.4	< 0.21 U	3090	< 1.1 U	0.092 J	928	390 J+	< 0.42 U	0.46	366 J+	0.23 J	1.8	26.6	24.1
Parcel C	TSB-CR-03	TSB-CR-03-0	N	11/12/2007	0	0.48 J	18.2	< 0.2 U	3170	< 1 U	0.12 J	394	180 J+	< 0.19 J	0.45	439 J+	0.28 J	0.66	23.6	25.8
Parcel C	TSB-CR-03	TSB-CR-03-10	N	11/12/2007	10	0.6 J	13.3	< 0.21 U	2510	< 1.1 U	0.085 J	1220	238 J+	< 0.42 U	0.47	434 J+	0.35 J	2	32.8	24.7
Parcel C	TSB-CR-04	TSB-CR-04-0	N	11/13/2007	0	0.75 J	17.3	< 0.2 U	3510 J	< 1 U	0.11 J	478	155 J	< 0.15 J	0.5	607 J	0.37 J	0.91	37.4 J	28
Parcel C	TSB-CR-04	TSB-CR-04-10	N	11/13/2007	10	0.65 J	14.1	< 0.22 U	2080 J	< 1.1 U	0.11 J	1290	446 J	< 0.45 U	0.51	639 J	0.34 J	2.7	42 J	26.7
Parcel C	TSB-CR-05	TSB-CR-05-0	N	11/13/2007	0	0.54 J	14.7	< 0.21 U	2820 J	< 1.1 U	0.096 J	1270	153 J	< 0.42 U	0.59	673 J	0.32 J	0.98	46.8 J	30.4
Parcel C	TSB-CR-05	TSB-CR-05-10	N	11/13/2007	10	0.5 J	14.4	< 0.22 U	1590 J	< 1.1 U	0.099 J	1110	295 J	< 0.43 U	0.54	654 J	0.35 J	2.7	45.4 J	33.4
Parcel C	TSB-CR-06	TSB-CR-06-0	N	11/13/2007	0	0.59 J	14.5	< 0.21 U	2610 J	< 1 U	0.1 J	186	116 J	< 0.19 J	0.58	694 J	0.4 J	0.81	39.9 J	36.9
Parcel C	TSB-CR-06	TSB-CR-06-10	N	11/13/2007	10	0.58 J	14.4	< 0.22 U	2100 J	< 1.1 U	0.1 J	1220	252 J	< 0.44 U	1.1	695 J	0.32 J	1.8	48.7 J	31.4
Parcel C	TSB-CR-07	TSB-CR-07-0	N	11/9/2007	0	0.86 J	14.9	< 0.2 U	2100 J	< 1 U	0.13 J	242	156	< 0.36 J	0.32 J	652	0.95 J	0.93	37 J	47.1 J-
Parcel C	TSB-CR-07	TSB-CR-07-10	N	11/9/2007	10	0.53 J	13.8	< 0.22 U	1760 J	< 1.1 U	0.12 J	2040	266	< 0.28 J	0.34 J	576	0.52 J	1.4	40.3 J	27.1 J-
Parcel D	TSB-DJ-01	TSB-DJ-01-0	N	11/13/2007	0	0.44 J	15.4	< 0.21 U	2730 J	< 1 U	0.11 J	488	163 J	< 0.23 J	0.55	571 J	0.43 J	1	36.4 J	28.6
Parcel D	TSB-DJ-01	TSB-DJ-01-10	N	11/13/2007	10	1.1	14.9	< 0.21 U	2130 J	< 1.1 U	0.12 J	1170	332 J	< 0.2 J	0.6	635 J	0.5 J	1.8	42.1 J	30.1
Parcel D	TSB-DR-01	TSB-DR-01-0	N	11/14/2007	0	0.65 J	12.6 J-	< 0.2 U	3540 J-	< 1 U	0.085 J	237 J-	152	< 0.41 U	0.51	612	0.29 J	0.7	32.5 J	30.3 J-
Parcel D	TSB-DR-01	TSB-DR-01-10	N	11/14/2007	10	0.53 J	12.1 J-	< 0.21 U	2330 J-	< 1.1 U	0.086 J	1100 J-	279	< 0.42 U	0.41 J	433	0.33 J	2	27.7 J	23.4 J-
Parcel D	TSB-DR-02	TSB-DR-02-0	N	11/14/2007	0	0.55 J	13.6 J-	< 0.2 U	3130 J-	< 1 U	0.094 J	247 J	149	< 0.14 J	0.55	600	0.31 J	0.75	33.2 J	29.8 J-
Parcel D	TSB-DR-02	TSB-DR-02-0 FD	FD	11/14/2007	0	0.49 J	15.5 J-	< 0.2 U	2920 J-	< 1 U	0.11 J	533 J	147	< 0.41 U	0.58	614	0.28 J	0.91	35.9 J	32.7 J-
Parcel D	TSB-DR-02	TSB-DR-02-10	N	11/14/2007	10	0.58 J	13.6 J-	< 0.22 U	2410 J-	< 1.1 U	0.086 J	855 J-	216	< 0.44 U	0.51	579	0.4 J	2	37 J	27.7 J-
Parcel D	TSB-DR-03	TSB-DR-03-0	N	11/13/2007	0	0.5 J	14.2	< 0.2 U	3000 J	< 1 U	0.11 J	515	129 J	< 0.16 J	0.65	654 J	0.35 J	0.91	38.9 J	31.2
Parcel D	TSB-DR-03	TSB-DR-03-10	N	11/13/2007	10	1 J	13.9	< 0.21 U	2030 J	< 1.1 U	0.087 J	1370	202 J	< 0.32 J	0.62	595 J	0.63 J	1.2	37.8 J	26.2
Parcel D	TSB-DR-04	TSB-DR-04-0	N	11/13/2007	0	0.77 J	15.6	< 0.2 U	2150 J	< 1 U	0.096 J	286	114 J	< 0.3 J	0.67	680 J	1 J	1	35.2 J	32.3
Parcel D	TSB-DR-04	TSB-DR-04-10	N	11/13/2007	10	0.61 J	13.8	< 0.21 U	1960 J	< 1.1 U	0.097 J	609	148 J	< 0.45	0.55	568 J	0.88 J	1.8	47.2 J	27.5
Parcel D	TSB-DR-05	TSB-DR-05-0	N	11/13/2007	0	0.79 J	13.9	< 0.2 U	4170 J	< 1 U	0.11 J	428	150 J	< 0.22 J	0.57	626 J	0.43 J	0.85	37.1 J	30.8
Parcel D	TSB-DR-05	TSB-DR-05-0 FD	FD	11/13/2007	0	0.54 J	13.8	< 0.2 U	4480 J	< 1 U	0.091 J	374	141 J	< 0.21 J	0.52	542 J	0.44 J	0.75	34.5 J	29.8
Parcel D	TSB-DR-05	TSB-DR-05-10	N	11/13/2007	10	0.56 J	14.9	< 0.22 U	1990 J	< 1.1 U	0.12 J	2100	247 J	< 0.44 U	0.67	719 J	0.42 J	2.5	46 J	29.9
Parcel D	TSB-DR-06	TSB-DR-06-0	N	11/13/2007	0	0.34 J	7.6	< 0.1 U	1470 J	< 0.51 U	0.047 J	222	50.7 J	< 0.1 J	0.32	323 J	0.39 J	0.39	21.7 J	17.1
Parcel D	TSB-DR-06	TSB-DR-06-10	N	11/13/2007	10	0.32 J	6	< 0.11 U	787 J	< 0.53 U	0.038 J	449	129 J	< 0.21 U	0.28	257 J	0.21 J	0.61	19.1 J	14
Parcel F	TSB-FJ-01	TSB-FJ-01-0	N	11/16/2007	0	0.47 J	13.9	< 0.21 U	1730 J	< 1 U	0.12 J	647	218 J	< 0.16 J	0.53	610 J	0.31 J	0.98	47.3 J	34.6 J-
Parcel F	TSB-FJ-01	TSB-FJ-01-10	N	11/16/2007	10	0.55 J	12.9	< 0.21 U	1460 J	< 1.1 U	0.078 J	626	213 J	< 0.4 J	0.5	393 J	0.68 J	0.93	30.4 J	25.6 J-
Parcel F	TSB-FJ-02	P3-PF-2-1-0-0	N	4/6/2010	0															
Parcel F	TSB-FJ-02	P3-PF-2-1-0-0 FD	FD	4/6/2010	0															
Parcel F	TSB-FJ-02	TSB-FJ-02-0	N	11/15/2007	0	0.51 J	12.7	< 0.21 U	2900 J	< 1.1 U	0.081 J	2910 J	140 J	< 0.2 J	0.51	439	0.28 J	0.84	36 J	32 J-
Parcel F	TSB-FJ-02	TSB-FJ-02-0 FD	FD	11/15/2007	0	0.37 J	8.1	< 0.21 U	1240 J	< 1 U	0.052 J	1100 J	117 J	< 0.41 U	0.35 J	343	0.39 J	0.58	28.6 J	27.2 J-
Parcel F	TSB-FJ-02	TSB-FJ-02-10	N	11/15/2007	10	0.51 J	12.2	< 0.22 U	1700	< 1.1 U	0.071 J	529	284 J	< 0.16 J	0.49	481	0.29 J	1.4	37 J	28.5 J-
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-0	N	6/4/2008																

TABLE D-1
Parcel Metals Soil Results

2010 NDEP BCL						Analyte Units	Molybdenum mg/kg	Nickel mg/kg	Platinum mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Strontium mg/kg	Thallium mg/kg	Tin mg/kg	Titanium mg/kg	Tungsten mg/kg	Uranium mg/kg	Vanadium mg/kg	Zinc mg/kg
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel F	TSB-FJ-05	TSB-FJ-05-10	N	11/14/2007	10	0.69 J	15.1 J- < 0.21 U	< 0.21 U	1690 J- < 1 U	< 1 U	0.089 J	841 J- < 202 < 0.41 U	202 < 0.41 U	0.55	577	0.41 J	1.2	42 J	29.4 J-		
Parcel F	TSB-FJ-06	TSB-FJ-06-0	N	11/14/2007	0	1.1	16.5 J- < 0.15 J	< 0.15 J	1680 J- < 1 U	< 1 U	0.13 J	845 J	150	0.17 J	1.1	576	0.67 J	1	41.8 J	61.8 J-	
Parcel F	TSB-FJ-06	TSB-FJ-06-0 FD	FD	11/14/2007	0	0.92 J	16.5 J- < 0.021 J	< 0.021 J	2270 J- < 1 U	< 1 U	0.15 J	1730 J	167	0.22 J	1.1	701	0.6 J	1.2	47.6 J	67.1 J-	
Parcel F	TSB-FJ-06	TSB-FJ-06-10	N	11/14/2007	10	0.49 J	12.6 J- < 0.2 U	< 0.2 U	1710 J- < 1 U	< 1 U	0.086 J	766 J- < 237 < 0.41 U	237 < 0.41 U	0.5	504	0.35 J	2.3	39.2 J	28 J-		
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0	1.1	17.5 J- < 0.51 U	< 0.51 U	1890 J- < 1 UJ	< 1 UJ	0.2 J	1310	168 J < 1 U	1	479	0.97 J	1.2	37 J-	62.1 J-		
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10	0.66 J	15.3 < 0.21 U	< 0.21 U	1570 < 1.1 U	< 1.1 U	0.13 J	1180	355 < 0.43 U	0.54	656 J	0.56 J	1.9		32.9 J-		
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20	0.71 J	15.5 < 0.32 U	< 0.32 U	3830 < 1.6 U	< 1.6 U	0.25 J	1270	425 < 0.57 J	0.71	743 J	1.7 J-	7.8		41.2 J-		
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30	0.47 J	10.6 < 0.27 U	< 0.27 U	2040 < 1.3 U	< 1.3 U	0.13 J	611	144 < 2.2 U < 0.54 U	< 0.54 U	483 J < 1.3 UJ	1.6			27.4 J-		
Parcel F	TSB-FJ-07	TSB-FJ-07-0	N	11/14/2007	0	0.88 J	15.9 J- < 0.13 J	< 0.13 J	1990 J- < 1.1 U	< 1.1 U	0.12 J	488 J- < 159 < 0.21 J	159 < 0.21 J	0.57	582	0.59 J	1.1	39.6 J	32.3 J-		
Parcel F	TSB-FJ-07	TSB-FJ-07-10	N	11/14/2007	10	0.52 J	14 J- < 0.22 U	< 0.22 U	1860 J- < 1.1 U	< 1.1 U	0.11 J	882 J- < 270 < 0.43 U	270 < 0.43 U	0.59	824	0.36 J	1.7	44.7 J	31.7 J-		
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0	0.48 J	13.7 < 0.21 U	< 0.21 U	1500 J < 1.1 U	< 1.1 U	0.078 J	211	140 J < 0.28 J	0.59	487 J	1.1 J-	0.82	37.7 J	36.6 J-		
Parcel F	TSB-FJ-08	TSB-FJ-08-10	N	11/16/2007	10	0.56 J	16.3 < 0.22 U	< 0.22 U	1710 J < 1.1 U	< 1.1 U	0.085 J	2640	230 J < 0.26 J	0.55	501 J	0.69 J	2.2	41.8 J	30.7 J-		
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0	0.76 J	14.2 < 0.072 J	< 0.072 J	2720 < 1.1 U	< 1.1 U	0.098 J	615	152 J < 0.27 J	0.56	591	0.47 J	0.77	47 J	34.4 J-		
Parcel F	TSB-FJ-09	TSB-FJ-09-10	N	11/15/2007	10	0.42 J	12.4 < 0.22 U	< 0.22 U	1550 < 1.1 U	< 1.1 U	0.076 J	744	293 J < 0.22 J	0.5	479	0.32 J	1.6	43.3 J	29.3 J-		
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0	0.97 J	14 < 0.21 U	< 0.21 U	2710 < 1.1 U	< 1.1 U	0.09 J	698	218 J < 0.34 J	0.52	513	0.53 J	1.1	44.5 J	31.3 J-		
Parcel F	TSB-FJ-10	TSB-FJ-10-10	N	11/15/2007	10	0.67 J	12 < 0.21 U	< 0.21 U	1330 < 1 U	< 1 U	0.073 J	828	248 J < 0.16 J	0.52	447	0.29 J	0.87	35.2 J	27.2 J-		
Parcel F	TSB-FR-01	TSB-FR-01-0	N	11/14/2007	0	1.1	22.6 J- < 0.021 J	< 0.021 J	3930 J- < 1.1 U	< 1.1 U	0.21 J	1330 J- < 214 < 0.27 J	214 < 0.27 J	1.1	1010	1.2 J-	1.8	65.8 J	46.3 J-		
Parcel F	TSB-FR-01	TSB-FR-01-10	N	11/14/2007	10	0.48 J	13.9 J- < 0.21 U	< 0.21 U	1710 J- < 1.1 U	< 1.1 U	0.089 J	1090 J- < 353 < 0.36 J	353 < 0.36 J	0.65	555	0.72 J	3.2	36.8 J	30 J-		
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0	0.51 J	13 < 0.21 U	< 0.21 U	1880 < 1 U	< 1 U	0.074 J	812	164 J < 0.18 J	0.56	499	0.37 J	0.88	43.9 J	30.6 J-		
Parcel F	TSB-FR-02	TSB-FR-02-10	N	11/15/2007	10	0.5 J	13 < 0.22 U	< 0.22 U	1400 < 1.1 U	< 1.1 U	0.071 J	710	296 J < 0.43 J	0.47	470	0.66 J	1.2	36.8 J	25.8 J-		
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0	1.5	14.8 J- < 0.11 J	< 0.11 J	1960 J- < 1 UJ	< 1 UJ	0.21 J	1720	166 J < 0.43 J	0.91	472	0.79 J	1.2	35.6 J-	43.5 J		
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10	0.39 J	13.7 < 0.23 U	< 0.23 U	1640 < 1.1 U	< 1.1 U	0.13 J	860	309 < 1.1 U	0.41 J	556 J < 1.1 UJ	2.1			26.2 J-		
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10 FD	FD	6/10/2008	10	0.31 J	15 < 0.21 U	< 0.21 U	1540 < 1.1 U	< 1.1 U	0.12 J	911	204 < 0.43 U	0.43	530 J	0.6 J	1.5		30 J-		
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20	0.68	5.5 < 0.22 U	< 0.22 U	1700 < 1.1 U	< 1.1 U	0.13	824	1550 < 1.1 U	0.36	545 J < 1.1 UJ	10			18.1 J-		
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30	2.9	20.7 < 0.72 U	< 0.72 U	3780 < 3.6 U	< 3.6 U	0.19	964	219 < 1.4 U < 1.4 U	< 1.4 U	866 J < 3.6 UJ	6.7			65 J-		
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0	0.37 J	11.4 < 0.2 U	< 0.2 U	1700 < 1 U	< 1 U	0.079 J	439	162 J < 0.17 J	0.36 J	379	0.29 J	0.72	34.5 J	23.6 J-		
Parcel F	TSB-FR-03	TSB-FR-03-10	N	11/15/2007	10	0.4 J	12.9 < 0.22 U	< 0.22 U	1350 < 1.1 U	< 1.1 U	0.089 J	724	248 J < 0.17 J	0.52	589	0.28 J	1.4	44.7 J	28.2 J-		
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0	0.29 J	13 < 0.21 U	< 0.21 U	1340 J < 1 U	< 1 U	0.064 J	261 J	170 J < 0.18 J	0.4 J	356 J	0.33 J	0.86	27.4 J	25.9 J-		
Parcel F	TSB-FR-04	TSB-FR-04-0 FD	FD	11/16/2007	0	0.5 J	15.7 < 0.22 U	< 0.22 U	1710 J < 1.1 U	< 1.1 U	0.085 J	471 J	216 J < 0.19 J	0.55	590 J	0.36 J	1.2	51.7 J	31.7 J-		
Parcel F	TSB-FR-04	TSB-FR-04-10	N	11/16/2007	10	0.7 J	14 < 0.22 U	< 0.22 U	1630 J < 1.1 U	< 1.1 U	0.095 J	761	253 J < 0.19 J	0.57	591 J	0.4 J	2.4	41.4 J	30.4 J-		
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0	0.45 J	14.5 < 0.21 U	< 0.21 U	2090 J < 1.1 U	< 1.1 U	0.073 J	169	148 J < 0.25 J	0.55	473 J	0.55 J	0.81	37.3 J	30 J-		
Parcel F	TSB-FR-05	TSB-FR-05-10	N	11/16/2007	10	0.53 J	15.2 < 0.22 U	< 0.22 U	1770 J < 1.1 U	< 1.1 U	0.1 J	524	268 J < 0.21 J	0.57	612 J	0.47 J	1.2	44.1 J	31 J-		
Parcel G	TSB-GJ-01	TSB-GJ-01-0	N	11/16/2007	0	0.52 J	15.4 < 0.21 U	< 0.21 U	1920 J < 1.1 U	< 1.1 U	0.1 J	778	205 J < 0.18 J	0.54	617 J	0.36 J	1.1	47.3 J	33.8 J-		
Parcel G	TSB-GJ-01	TSB-GJ-01-5	N	11/16/2007	5	0.56 J	14.3 < 0.22 U	< 0.22 U	2040 J < 1.1 U	< 1.1 U	0.088 J	700	240 J < 0.17 J	0.57	588 J	0.36 J	1.2	42.1 J	32.6 J-		
Parcel G	TSB-GJ-06	TSB-GJ-06-0	N	11/16/2007	0	0.69 J	15.4 < 0.21 U	< 0.21 U	2030 J < 1.1 U	< 1.1 U	0.1 J	456	236 J < 0.24 J	0.62	675 J	0.53 J	1.2	49.7 J	35.3 J-		
Parcel G	TSB-GJ-06	TSB-GJ-06-5	N	11/16/2007	5	0.5 J	15.2 < 0.21 U	< 0.21 U	2630 J < 1.1 U	< 1.1 U	0.1 J	670	248 J < 0.17 J	0.57	668 J	0.34 J	1	43.2 J	34.9 J-		
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	1.1	15.7 J- < 0.25 U	< 0.25 U	1900 J- < 1 UJ	< 1 UJ	0.17 J	359	158 J < 0.51 U	0.66	554 < 1 UJ	1.1			37.6 J-	52.3 J	
Parcel G	TSB-GJ-08	TSB-GJ-08-10	N	6/11/2008	10	0.47 J	15.1 J- < 0.27 U	< 0.27 U	1740 < 1.3 U	< 1.3 U	0.11 J	717	228 < 0.54 U	0.42 J	475 < 1.3 UJ	3.9			39.1 J-	30.7 J-	
Parcel G	TSB-GJ-08	TSB-GJ-08-20	N	6/11/2008	20	0.56 J	11.6 J- < 0.24 U	< 0.24 U	3190 < 1.2 U	< 1.2 U	0.17 J	786	106 J < 0.4 J	0.51	528	0.7 J	5.4	42.3 J-	32.8 J-		
Parcel G	TSB-GJ-08	TSB-GJ-08-30	N	6/11/2008	30	0.53 J	11.6 J- < 0.36 U	< 0.36 U	3060 < 1.8 U	< 1.8 U	0.17 J	1440	103 J < 0.72 U < 0.72 U	< 0.72 U	520 < 1.8 UJ	4			37.6 J-	34.1 J-	
Parcel G	TSB-GJ-08	TSB-GJ-08-40	N	6/11/2008	40	0.8 J	16.6 J- < 0.32 U	< 0.32 U	4150 < 1.6 U	< 1.6 U	0.18 J	969	127 < 0.64 U	0.66	675 < 1.6 UJ	2.4			39 J-	49 J-	
Parcel G	TSB-GJ-09	TSB-GJ-09-0	N	6/4/2008	0	0.77 J	13.6 J- < 0.26 U	< 0.26 U	1520 J- < 1 UJ	< 1 UJ	0.14 J	1810	287 J < 0.51 U	0.43	436 < 1 UJ	1.5			33.6 J-	33.5 J	
Parcel G	TSB-GJ-09	TSB-GJ-09-0 FD	FD	6/4/2008	0	0.98 J	15 J- < 0.26 U	< 0.26 U	1840 J- < 1 UJ	< 1 UJ	0.18 J	1720	267 J < 0.52 U	0.49	505 < 1 UJ	1.4			37.2 J-	35.8 J	
Parcel G	TSB-GJ-09	TSB-GJ-09-10	N	6/11/2008	10	0.61 J	14.6 J- < 0.21 U	< 0.21 U	1560 < 1.1 U	< 1.1 U	0.11 J	788	485 < 0.43 U	0.44	440 < 1.1 UJ	1.5			38.6 J-	30.1 J-	
Parcel G	TSB-GJ-09	TSB-GJ-09-20	N	6/11/2008	20	< 3.1 U	14.7 J- < 0.63 U	< 0.63 U	2710 < 3.1 U	< 3.1 U	0.14 J	944	505 < 1.3 U < 1.3 U	< 1.3 U	558 < 3.1 UJ	3.7			57.7 J-	91.2 J-	
Parcel G	TSB-GJ-09	TSB-GJ-09-30	N	6/11/2008	30	0.71 J	13.4 J- < 0.29 U	< 0.29 U	3400 < 1.4 U	< 1.4 U	0.19 J	1100	162 < 0.57 U	0.56 J	607 < 1.4 UJ	2.5			41 J-	37.2 J-	
Parcel G	TSB-GJ-09	TSB-GJ-09-40	N	6/11/2008	40	0.67 J	16.3 J- < 0.31 U	< 0.31 U	4290 < 1.6 U	< 1.6 U	0.19 J	1020	149 < 0.63 U	0.65	670 < 1.6 UJ	2.5			42.4 J-	45 J-	
Parcel G	TSB-GR-01	TSB-GR-01-0	N	11/16/2007	0	0.63 J	14.1 < 0.21 U	< 0.21 U	1690 J < 1 U	< 1 U	0.084 J	495	244 J < 0.23 J	0.54	481 J	0.51 J	1	40.1 J	33.1 J-		
Parcel G	TSB-GR-01	TSB-GR-01-5	N	11/16/2007	5	0.59 J	14 < 0.21 U	< 0.21 U	2080 J < 1.1 U	< 1.1 U	0.12 J	562	188 J < 0.2 J	0.57	583 J	0.43 J	0.84	46.6 J	33.6 J-		
Parcel H	TSB-HJ-01	TSB-HJ-01-0	N	1/25/2008	0	0.76 J	16.2 < 0.26 U	< 0.26 U	1880 < 1.3 U	< 1.3 U	0.12 J+	215	129 J+ < 0.19 J	0.57	618	0.28 J	0.73	36	35.3		
Parcel H	TSB-HJ-01	TSB-HJ-01-10	N	1/25/2008	10	0.51 J	15.6 < 0.27 U	< 0.27 U	1770 < 1.3 U	< 1.3 U	0.098 J+	651	253 J+ < 0.32 J	0.63	481	0.85 J	1.9	35.1	34.9		
Parcel H	TSB-HJ-02	TSB-HJ-02-0	N	1/25/2008	0	0.91 J	16.7 < 0.26 U	< 0.26 U	2320 < 1.3 U	< 1.3 U	0.1 J+	274	215 J+ < 0.53 U	0.55	584	0.29 J	0				

**TABLE D-1
Parcel Metals Soil Results**

					Analyte Units	Molybdenum mg/kg	Nickel mg/kg	Platinum mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Strontium mg/kg	Thallium mg/kg	Tin mg/kg	Titanium mg/kg	Tungsten mg/kg	Uranium mg/kg	Vanadium mg/kg	Zinc mg/kg
2010 NDEP BCL						5680	21800	--	--	5680	5680	--	100000	79.5	100000	100000	8510	3400	5680	100000
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel H	TSB-HJ-08	TSB-HJ-08-10	N	1/28/2008	10	0.64 J	16.4	< 0.27 U	1490	< 1.4 U	0.11 J	741	308 J	< 0.54 U	0.5 J	671	0.33 J	1.6	42.5	31.3
Parcel H	TSB-HJ-09	TSB-HJ-09-0	N	1/25/2008	0	0.46 J	17.8	< 0.28 U	1840	< 1.4 U	0.11 J+	405	179 J+	0.27 J	0.66	725	0.52 J	1	48	37.8
Parcel H	TSB-HJ-09	TSB-HJ-09-10	N	1/25/2008	10	0.74 J	20	< 0.27 U	1010	< 1.3 U	0.13 J+	870	224 J+	0.2 J	0.55	686	0.48 J	1.4	49.7	35.6
Parcel H	TSB-HJ-10	TSB-HJ-10-0	N	1/28/2008	0	0.37 J	14.8	< 0.27 U	1790	< 1.3 U	0.072 J	686	160 J	< 0.53 U	0.59	427	0.74 J	0.82	28.2	31.6
Parcel H	TSB-HJ-10	TSB-HJ-10-10	N	1/28/2008	10	0.35 J	14.1	< 0.26 U	1260	< 1.3 U	0.092 J	577	375 J	< 0.52 U	0.5 J	521	0.46 J	1.6	36.5	29
Parcel H	TSB-HJ-11	TSB-HJ-11-0	N	1/25/2008	0	0.52 J	15.6	< 0.26 U	2000	< 1.3 U	0.097 J+	343	164 J+	< 0.53 U	0.55	599	0.3 J	0.71	39.6	34.6
Parcel H	TSB-HJ-11	TSB-HJ-11-10	N	1/25/2008	10	0.7 J	15	< 0.27 U	1510	< 1.3 U	0.11 J+	490	299 J+	< 0.53 U	0.52 J	675	0.37 J	1.2	38.6	29.7
Parcel H	TSB-HJ-11	TSB-HJ-11-10 FD	FD	1/25/2008	10	0.41 J	16.3	< 0.27 U	1230	< 1.3 U	0.12 J+	469	230 J+	0.19 J	0.46 J	719	< 1.3 U	1.2	43.1	33.2
Parcel H	TSB-HR-01	TSB-HR-01-0	N	1/25/2008	0	0.46 J	16.3	< 0.27 U	2350	< 1.4 U	0.11 J+	204	173 J+	< 0.55 U	0.65	678	0.31 J	0.84	44.7	37.8
Parcel H	TSB-HR-01	TSB-HR-01-10	N	1/25/2008	10	0.46 J	13	< 0.26 U	1220	< 1.3 U	0.094 J+	734	187 J+	< 0.53 U	0.46 J	670	0.31 J	1.1	44.5	30.6
Parcel H	TSB-HR-02	TSB-HR-02-0	N	1/25/2008	0	0.48 J	14.8	< 0.26 U	1580	< 1.3 U	0.081 J+	421	133 J+	< 0.53 U	0.48 J	483	0.36 J	0.81	33.1	33.7
Parcel H	TSB-HR-02	TSB-HR-02-10	N	1/25/2008	10	0.47 J	15.8	< 0.27 U	1110	< 1.3 U	0.097 J+	506	220 J+	< 0.53 U	0.51 J	552	0.37 J	1.1	39.4	32.1
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0	0.4 J	17.1	< 0.27 U	1760	< 1.3 U	0.1 J+	267	137 J+	0.19 J	0.56	543	0.27 J	0.73	32.8	34
Parcel H	TSB-HR-03	TSB-HR-03-10	N	1/25/2008	10	0.39 J	18.2	< 0.27 U	1280	< 1.3 U	0.1 J+	828	278 J+	< 0.53 U	0.56	520	0.29 J	2.3	41.4	35.7
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0	0.41 J	17.3	< 0.26 U	1840	< 1 U	< 0.42 U	203	122 J+	< 0.42 U	0.084 J	526	0.29 J	0.9	35.3 J+	31.7 J+
Parcel H	TSB-HR-04	TSB-HR-04-10	N	1/24/2008	10	0.6 J	17.4	< 2.7 U	1300	< 1.3 U	< 0.53 U	656	500 J+	< 0.53 U	< 0.53 U	538	< 13.3 U	1.7 J	32.1 J+	25.7 J+
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0	< 5.4 U	11.8	< 1.1 U	704	< 5.4 U	< 2.2 U	138 J	217 J	< 2.2 U	< 2.2 U	294	< 5.4 U	0.81 J	29.4	22.1
Parcel H	TSB-HR-05	TSB-HR-05-10	N	1/28/2008	10	0.46 J	14.9	< 0.27 U	1350	< 1.3 U	0.11 J	868	394 J	< 0.54 U	0.5 J	576	0.27 J	1.4	44	31.6
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0	0.58 J	15.6	< 0.26 U	1970	< 1.3 U	0.09 J	232	111 J	< 0.52 U	0.55	623	0.36 J	0.72	34.2	34.8
Parcel H	TSB-HR-06	TSB-HR-06-0FD	FD	1/28/2008	0	0.36 J	17.3	< 0.27 U	1960	< 1.4 U	0.094 J	184	115 J	< 0.54 U	0.46 J	488	< 1.4 U	0.66	34.4	34.5
Parcel H	TSB-HR-06	TSB-HR-06-10	N	1/28/2008	10	0.43 J	15	< 0.27 U	1190	< 1.3 U	0.1 J	605	277 J	< 0.53 U	0.47 J	582	0.35 J	1.4	40.5	31.4
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0	0.56 J	14.2	< 0.54 U	1930	< 1.1 U	< 0.43 U	346	169 J+	< 0.43 U	< 0.43 U	652	< 2.7 U	0.99	37.9 J+	29.6 J+
Parcel H	TSB-HR-07	TSB-HR-07-10	N	1/24/2008	10	0.27 J	13.7	< 1.1 U	1490	< 1.4 U	< 0.54 U	760	433 J+	< 0.54 U	< 0.54 U	566	< 5.4 U	1.8	37 J+	28.9 J+
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0	0.49 J	14.5	< 0.53 U	1480	< 1.1 U	< 0.43 U	160	77.1 J+	< 0.43 U	< 0.43 U	499	< 2.7 U	0.6	28.6 J+	27.5 J+
Parcel H	TSB-HR-08	TSB-HR-08-10	N	1/24/2008	10	0.59 J	14.1	< 1.1 U	1480	< 1.1 U	< 0.44 U	657	332 J+	< 0.44 U	< 0.44 U	665	< 5.5 U	2.1	39.3 J+	28.1 J+

Soil sample excavated and data excluded from HRA calculations

TABLE D-2
Parcel Radionuclides Soil Results

						Analyte Name	Ra-226	Ra-228	Th-228	Th-230	Th-232	U-234	U-235	U-238
						Units	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g
						NDEP 2010 BCLs	0.023	0.041	0.025	8.3	7.4	11	0.35	1.4
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel C	TSB-CJ-01	TSB-CJ-01-0 FD_11/12/2007	FD	11/12/2007	0	1.17	1.87	1.63	1.55	1.28	1.5	0.022	1.11	
Parcel C	TSB-CJ-01	TSB-CJ-01-0_11/12/2007	N	11/12/2007	0	1.05	1.83	1.47	1.33	1.58				
Parcel C	TSB-CJ-01	TSB-CJ-01-0_12/12/2007	N	12/12/2007	0						1.47	0.033 J	1.29	
Parcel C	TSB-CJ-01	TSB-CJ-01-10_11/12/2007	N	11/12/2007	10	1.07	1.81	1.6	1.17	1.51	1.27	0.059 J	1.36	
Parcel C	TSB-CJ-02	TSB-CJ-02-0_11/12/2007	N	11/12/2007	0	1.03	1.69	1.83	1.1	1.63				
Parcel C	TSB-CJ-02	TSB-CJ-02-0_12/12/2007	N	12/12/2007	0						1.37	0.016	1.08	
Parcel C	TSB-CJ-02	TSB-CJ-02-10_11/12/2007	N	11/12/2007	10	1.1	1.49	1.39	1.51	1.36				
Parcel C	TSB-CJ-02	TSB-CJ-02-10_12/12/2007	N	12/12/2007	10						1.7	0.047 J	1.43	
Parcel C	TSB-CJ-03	TSB-CJ-03-0_11/09/2007	N	11/09/2007	0	1.02	1.86	1.95	1.75	1.8	1.39	0.025	1.1	
Parcel C	TSB-CJ-03	TSB-CJ-03-10_11/09/2007	N	11/09/2007	10	0.844	1.66	1.71	1.98	1.43	1.26	0.015	1.04	
Parcel C	TSB-CJ-04	TSB-CJ-04-0_11/09/2007	N	11/09/2007	0	1.07	1.83	1.9	1.46	1.64	1.55	0.078 J	1.23	
Parcel C	TSB-CJ-04	TSB-CJ-04-10_11/09/2007	N	11/09/2007	10	1.1	1.77	1.63	2.03	1.85	1.79	0.056 J	1.32	
Parcel C	TSB-CJ-05	TSB-CJ-05-0_11/12/2007	N	11/12/2007	0	0.956	1.86	2.13	1.08	1.96	1.29	0.046 J	1.15	
Parcel C	TSB-CJ-05	TSB-CJ-05-10_11/12/2007	N	11/12/2007	10	1.04	1.72	1.66	1.39	1.49	1.24	0.016	1.03	
Parcel C	TSB-CJ-06	TSB-CJ-06-0 FD_11/12/2007	FD	11/12/2007	0	0.98	1.52	1.49	0.802	1.46	0.884 J	0.017	0.977 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-0_11/12/2007	N	11/12/2007	0	0.894	1.76	1.86	0.868	1.57	0.982 J	0.03 J	0.891 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-10_11/12/2007	N	11/12/2007	10	1.08	1.86	1.53	1.4	1.62	1.28	0.032 J	1.28	
Parcel C	TSB-CJ-07	TSB-CJ-07-0_11/09/2007	N	11/09/2007	0	1.11	2.13	1.36	1.66	1.46	1.35	0.05 J	1.24	
Parcel C	TSB-CJ-07	TSB-CJ-07-10_11/09/2007	N	11/09/2007	10	1.15	1.78	1.61	1.89	1.69	1.81	0.025	1.34	
Parcel C	TSB-CJ-08	TSB-CJ-08-0_11/09/2007	N	11/09/2007	0	0.999	1.62	1.68	1.84	1.39	1.53	0.044 J	0.97 J	
Parcel C	TSB-CJ-08	TSB-CJ-08-0-FD_11/09/2007	FD	11/09/2007	0	0.929	1.6	1.68	1.47	1.93	1.15	0.036 J	0.984 J	
Parcel C	TSB-CJ-08	TSB-CJ-08-10_11/09/2007	N	11/09/2007	10	1.04	1.71	1.43	1.67	1.57	1.55	0.039 J	1.28	
Parcel C	TSB-CR-01	TSB-CR-01-0_11/12/2007	N	11/12/2007	0	0.755	1.57	2.09	1.17	1.65	0.911 J	0.014	1.02	
Parcel C	TSB-CR-01	TSB-CR-01-10_11/12/2007	N	11/12/2007	10	0.936	1.73	1.78	1.41	2.02	1.37	0.057 J	1.38	
Parcel C	TSB-CR-02	TSB-CR-02-0_11/12/2007	N	11/12/2007	0	0.923	1.68	2.01	0.899	1.81	1.48	0.034	1.15	
Parcel C	TSB-CR-02	TSB-CR-02-10_11/12/2007	N	11/12/2007	10	1.4	1.42	1.22	2.17	1.59	2	0.04 J	1.87	
Parcel C	TSB-CR-03	TSB-CR-03-0_11/12/2007	N	11/12/2007	0	1.1	1.66	2.26	1.17	1.81	0.874 J	0.039 J	0.8 J	
Parcel C	TSB-CR-03	TSB-CR-03-10_11/12/2007	N	11/12/2007	10	1.12	1.23	1.19	1.23	1.37	1.47	0.044 J	1.13	
Parcel C	TSB-CR-04	TSB-CR-04-0_11/13/2007	N	11/13/2007	0	1.01	1.95	1.61	1.12	1.77	0.967 J	0.078 J	1.07	
Parcel C	TSB-CR-04	TSB-CR-04-10_11/13/2007	N	11/13/2007	10	1.09	1.48	1.23	1.19	1.41	1.55	0.047 J	1.07	
Parcel C	TSB-CR-05	TSB-CR-05-0_11/13/2007	N	11/13/2007	0	0.954	2.01	1.64	1.16	1.46	0.951 J	0.032	0.838 J	
Parcel C	TSB-CR-05	TSB-CR-05-10_11/13/2007	N	11/13/2007	10	1.15	1.62	1.27	1.63	1.38	2.05	0.068 J	1.47	
Parcel C	TSB-CR-06	TSB-CR-06-0_11/13/2007	N	11/13/2007	0	1.05	1.89	1.67	1.18	1.38	0.996 J	0.059 J	0.886 J	
Parcel C	TSB-CR-06	TSB-CR-06-10_11/13/2007	N	11/13/2007	10	0.993	1.76	1.53	1.12	1.7	1.18	0.034 J	1.08	
Parcel C	TSB-CR-07	TSB-CR-07-0_11/09/2007	N	11/09/2007	0	0.894	2.02	2.25	1.75	2.15	1.3	0.026	1.13	
Parcel C	TSB-CR-07	TSB-CR-07-10_11/09/2007	N	11/09/2007	10	1.15	1.74	1.7	1.7	1.6	1.52	0.056 J	1.25	
Parcel D	TSB-DJ-01	TSB-DJ-01-0_11/13/2007	N	11/13/2007	0	1.15	1.57	1.48	1.47	1.55	1.12	0.07 J	0.893 J	
Parcel D	TSB-DJ-01	TSB-DJ-01-10_11/13/2007	N	11/13/2007	10	1.04	1.89	1.07	1.29	1.17	1.4	0.034	1.14	
Parcel D	TSB-DR-01	TSB-DR-01-0_11/14/2007	N	11/14/2007	0	0.996	1.97	1.38	1.34	1.51	1.14	0.07 J	0.936 J	

TABLE D-2
Parcel Radionuclides Soil Results

						Analyte Name	Ra-226	Ra-228	Th-228	Th-230	Th-232	U-234	U-235	U-238
						Units	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g
						NDEP 2010 BCLs	0.023	0.041	0.025	8.3	7.4	11	0.35	1.4
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel D	TSB-DR-01	TSB-DR-01-10_11/14/2007	N	11/14/2007	10	1.47	1.67	1.26	1.95	0.92	2.26	0.053 J	1.61	
Parcel D	TSB-DR-02	TSB-DR-02-0_FD_11/14/2007	FD	11/14/2007	0	0.979	1.77	1.47	1.11	1.33	1.3	0.037 J	1.05	
Parcel D	TSB-DR-02	TSB-DR-02-0_11/14/2007	N	11/14/2007	0	1.1	1.84	1.65	1.06	1.57	1.02	0.014	1.03	
Parcel D	TSB-DR-02	TSB-DR-02-10_11/14/2007	N	11/14/2007	10	1.12	1.86	1.52	1.3	1.22	1.83	0.056 J	1.35	
Parcel D	TSB-DR-03	TSB-DR-03-0_11/13/2007	N	11/13/2007	0	1.05	2.01	1.71	0.979	1.65	1.01	0.034 J	1.02	
Parcel D	TSB-DR-03	TSB-DR-03-10_11/13/2007	N	11/13/2007	10	1.04	1.59	1.59	1.35	1.54	1.33	0.054 J	1.19	
Parcel D	TSB-DR-04	TSB-DR-04-0_11/13/2007	N	11/13/2007	0	1.07	1.81	1.75	1.31	1.56	1.16	0.029	0.887 J	
Parcel D	TSB-DR-04	TSB-DR-04-10_11/13/2007	N	11/13/2007	10	1.11	1.9	1.6	1.45	1.56	1.37	0.056 J	1.43	
Parcel D	TSB-DR-05	TSB-DR-05-0_11/13/2007	N	11/13/2007	0	1.07	1.63	1.87	0.998	1.69	0.838 J	0.048 J	0.955 J	
Parcel D	TSB-DR-05	TSB-DR-05-0-FD_11/13/2007	FD	11/13/2007	0	0.971	1.64	1.39	1.02	1.32	0.962 J	0.027	0.816 J	
Parcel D	TSB-DR-05	TSB-DR-05-10_11/13/2007	N	11/13/2007	10	1.06	1.76	1.27	1.47	1.48	1.88	0.027	1.45	
Parcel D	TSB-DR-06	TSB-DR-06-0_11/13/2007	N	11/13/2007	0	0.958	1.65				0.99 J	0.036 J	0.85 J	
Parcel D	TSB-DR-06	TSB-DR-06-10_11/13/2007	N	11/13/2007	10	1.05	1.88	1.46	1.52	1.51	1.33	0.026	0.979 J	
Parcel F	TSB-FJ-01	TSB-FJ-01-0_11/16/2007	N	11/16/2007	0	1.04 J	1.84	2.12	1.35	1.83				
Parcel F	TSB-FJ-01	TSB-FJ-01-10_11/16/2007	N	11/16/2007	10	0.901 J	1.79	1.48	1.16	1.87				
Parcel F	TSB-FJ-02	TSB-FJ-02-0_11/15/2007	N	11/15/2007	0	1.04	1.74	1.84	1.26	1.38	1.07	0.042 J	0.957 J	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-0	N	6/4/2008	0	0.823	6.06	1.96	1.61	1.77	1.09	0.052	0.88	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-10	N	6/10/2008	10	1.1	1.74 J	1.73	0.993	1.53	0.987 J	0.079	1.1	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-20	N	6/10/2008	20	1.5	1.42 J	1.37	2.22	1.36	1.38	0.277	2.09	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-30	N	6/10/2008	30	1.56	1.41 J	1.71	1.15	1.47	1.7	0.108	0.918	
Parcel F	TSB-FJ-02	TSB-FJ-02-0-FD_11/15/2007	FD	11/15/2007	0	0.945	1.81	1.37	1.35	1.92	0.725 J	0.037 J	0.77 J	
Parcel F	TSB-FJ-02	TSB-FJ-02-10_11/15/2007	N	11/15/2007	10	0.98	1.82	1.21	1.03	1.31	1.3	0.032 J	1.04	
Parcel F	TSB-FJ-03	TSB-FJ-03-0_11/15/2007	N	11/15/2007	0	1.02	1.5	1.22	0.958	1.26	0.809 J	0.041 J	0.868 J	
Parcel F	TSB-FJ-03	TSB-FJ-03-0-FD_11/15/2007	FD	11/15/2007	0	0.916	1.7	1.43	1.31	1.74	1.08	0.032	1.08	
Parcel F	TSB-FJ-03	TSB-FJ-03-10_11/15/2007	N	11/15/2007	10	1.04	1.64	1.49	1.05	1.15	0.865 J	0.032	0.738 J	
Parcel F	TSB-FJ-04	TSB-FJ-04-0_11/15/2007	N	11/15/2007	0	0.884	1.72	1.29	0.851	1.27	0.845 J	0.057 J	0.643 J	
Parcel F	TSB-FJ-04	TSB-FJ-04-10_11/15/2007	N	11/15/2007	10	1.12	1.8	1.58	1.11	1.51				
Parcel F	TSB-FJ-05	TSB-FJ-05-0_11/14/2007	N	11/14/2007	0	0.971	1.73	1.39	1.3	1.47	1.33	0.072 J	1.19	
Parcel F	TSB-FJ-05	TSB-FJ-05-10_11/14/2007	N	11/14/2007	10	1.08	1.6	1.66	1.26	1.44	1.17	0.021	1.09	
Parcel F	TSB-FJ-06	TSB-FJ-06-0_FD_11/14/2007	FD	11/14/2007	0	0.95	1.73	1.81	1.07	1.39	1.18	0.024	1.02	
Parcel F	TSB-FJ-06	TSB-FJ-06-0_11/14/2007	N	11/14/2007	0	0.946	1.82	1.33	0.904	1.33	0.937 J	0.073 J	0.836 J	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0	1.53	5.43	1.94	1.01	1.72	1.11	0.102	1.15	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10	1.26	1.38 J	1.85	1.45	1.66	0.829 J	0.105	1.42	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20	1.47	1.04 J	0.285	0.426	0.302	1.03	0.052	0.974	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30	2.08	1.59 J	1.49	2.03	1.29	3	0.952	1.6	
Parcel F	TSB-FJ-06	TSB-FJ-06-10_11/14/2007	N	11/14/2007	10	1.24	1.8	1.6	1.18	1.27	2.56	0.079 J	1.77	
Parcel F	TSB-FJ-07	TSB-FJ-07-0_11/14/2007	N	11/14/2007	0	0.845	1.79	1.96	1.27	1.77	1.15	0.035 J	1.04	
Parcel F	TSB-FJ-07	TSB-FJ-07-10_11/14/2007	N	11/14/2007	10	0.985	1.86	1.31	1.04	1.17	1.26	0.057 J	1.25	
Parcel F	TSB-FJ-08	TSB-FJ-08-0_11/16/2007	N	11/16/2007	0	0.903 J	1.75	1.78	0.925	1.89	1.12	0.037	0.854 J	

TABLE D-2
Parcel Radionuclides Soil Results

						Analyte Name	Ra-226	Ra-228	Th-228	Th-230	Th-232	U-234	U-235	U-238
						Units	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g
NDEP 2010 BCLs						0.023	0.041	0.025	8.3	7.4	11	0.35	1.4	
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel F	TSB-FJ-08	TSB-FJ-08-10_11/16/2007	N	11/16/2007	10	0.972 J	1.9	1.62	1.18	1.65	1.58	0.058 J	1.35	
Parcel F	TSB-FJ-09	TSB-FJ-09-0_11/15/2007	N	11/15/2007	0	0.954	1.6	1.7	0.792	1.3	0.872 J	0.05 J	0.742 J	
Parcel F	TSB-FJ-09	TSB-FJ-09-10_11/15/2007	N	11/15/2007	10	1.07	1.61	1.62	1.38	1.22	1.06	0.006	0.962 J	
Parcel F	TSB-FJ-10	TSB-FJ-10-0_11/15/2007	N	11/15/2007	0	1.01	2	1.87	0.926	1.67	0.94 J	0.023	1.05	
Parcel F	TSB-FJ-10	TSB-FJ-10-10_11/15/2007	N	11/15/2007	10	0.96	1.64	1.52	1.16	1.62	1.03	0.027	0.821 J	
Parcel F	TSB-FR-01	TSB-FR-01-0_11/14/2007	N	11/14/2007	0	1.18	2	1.52	1.04	1.58	1.17	0.034 J	1.14	
Parcel F	TSB-FR-01	TSB-FR-01-10_11/14/2007	N	11/14/2007	10	0.412	0.58	1.27	1.67	1.15	2.4	0.032 J	1.74	
Parcel F	TSB-FR-02	TSB-FR-02-0_11/15/2007	N	11/15/2007	0	0.806	1.63	1.71	1.08	1.75	0.949 J	0.037 J	0.856 J	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0	0.696	14.3	1.59	1.02	1.55	0.839	0	0.861	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10	2.31 J	1.67 J	1.46	1.01	1.25	1.26	-0.018	0.696 J	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10-FD	FD	6/10/2008	10	1.24 J	0.442 J	1.67	0.847	1.12	1.76	0.039	1.73 J	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20	2.57	1.35 J	1.29	4.14	0.85	3.69	0.095	4.01	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30	2.85	0.956 J	1.48	1.92	1.55	1.67	0.116	1.65	
Parcel F	TSB-FR-02	TSB-FR-02-10_11/15/2007	N	11/15/2007	10	0.923	1.6	1.77	1.07	1.31	1.08	0.012	0.74 J	
Parcel F	TSB-FR-03	TSB-FR-03-0_11/15/2007	N	11/15/2007	0	0.878	1.71	1.93	1.03	1.6	0.881 J	0.047 J	0.727 J	
Parcel F	TSB-FR-03	TSB-FR-03-10_11/15/2007	N	11/15/2007	10	0.983	1.49	1.62	1.38	1.15	1.32	0.055 J	1.16	
Parcel F	TSB-FR-04	TSB-FR-04-0_11/16/2007	N	11/16/2007	0	1.03 J	2.02	1.6	1.11	1.69	0.962 J	0.047 J	0.954 J	
Parcel F	TSB-FR-04	TSB-FR-04-0-FD_11/16/2007	FD	11/16/2007	0	0.814 J	1.73	1.52	0.97	1.55	1.38	0.075 J	1.15	
Parcel F	TSB-FR-04	TSB-FR-04-10_11/16/2007	N	11/16/2007	10	0.798 J	1.48	1.89	1.04	1.32	1.21	0.039 J	1.17	
Parcel F	TSB-FR-05	TSB-FR-05-0_11/16/2007	N	11/16/2007	0	0.871 J	1.77	1.58	1.13	1.46	0.728 J	0.041	0.715 J	
Parcel F	TSB-FR-05	TSB-FR-05-10_11/16/2007	N	11/16/2007	10	1.07 J	1.74	1.63	1.14	1.52	1.23	0.035 J	1.13	
Parcel G	TSB-GJ-01	TSB-GJ-01-0_11/16/2007	N	11/16/2007	0	1.01 J	1.87	1.47	1.12	1.44				
Parcel G	TSB-GJ-01	TSB-GJ-01-5_11/16/2007	N	11/16/2007	5	0.914 J	1.58	1.86	1.19	1.73				
Parcel G	TSB-GJ-06	TSB-GJ-06-0_11/16/2007	N	11/16/2007	0	0.991 J	1.93	2.33	1.38	1.86	1.28	0.046 J	1.08	
Parcel G	TSB-GJ-06	TSB-GJ-06-5_11/16/2007	N	11/16/2007	5	1 J	1.68	1.75	1.12	1.55	1.01	0.075 J	1.27	
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	0.77	2.24	1.78	1.19	1.86	1	0.044	0.946	
Parcel G	TSB-GJ-08	TSB-GJ-08-10	N	6/11/2008	10	0.949 J	2.73 J	2.26	1.11	1.71	1.52	0.091	1.53	
Parcel G	TSB-GJ-08	TSB-GJ-08-20	N	6/11/2008	20	1.74	1.61 J	0.65	2.05	1.25	2.37	0.042	2.45	
Parcel G	TSB-GJ-08	TSB-GJ-08-30	N	6/11/2008	30	4.94	1.58 J	1.99	1.88	1.19	3.8	0.284	4.82	
Parcel G	TSB-GJ-08	TSB-GJ-08-40	N	6/11/2008	40	1.84	1.83 J	1.71	3.13	0.921	1.48	0.222	1.39	
Parcel G	TSB-GJ-09	TSB-GJ-09-0	N	6/4/2008	0	1.07 J	2.32 J	1.51	0.933	1.28	1.41	0.056	0.897	
Parcel G	TSB-GJ-09	TSB-GJ-09-0-FD	FD	6/4/2008	0	0.92 J	0.85 J	1.76	1.03	1.52	1.18	0.068	0.659	
Parcel G	TSB-GJ-09	TSB-GJ-09-10	N	6/11/2008	10	1.07	1.71 J	2.08	1.44	1.79	1.5	0.17	1.16	
Parcel G	TSB-GJ-09	TSB-GJ-09-20	N	6/11/2008	20	5.34	1.5 J	1.62	5.36	1.43	4.87	0.32	5.14	
Parcel G	TSB-GJ-09	TSB-GJ-09-30	N	6/11/2008	30	0.327 J	1.21 J	1.38	1.96	0.969	1.93	0.18	1.56	
Parcel G	TSB-GJ-09	TSB-GJ-09-40	N	6/11/2008	40	1.59	0.905 J	1.34	1.49	1.27	1.39	0.219	1.31	
Parcel G	TSB-GR-01	TSB-GR-01-0_11/16/2007	N	11/16/2007	0	1.05 J	1.7	2.23	1.28	1.97	1.09	0.049 J	1.01	
Parcel G	TSB-GR-01	TSB-GR-01-5_11/16/2007	N	11/16/2007	5	0.864 J	1.68	1.67	1.16	1.46	0.795 J	0.056 J	0.899 J	
Parcel H	TSB-HJ-01	TSB-HJ-01 SURF	N	3/6/2008	0	1.16	1.58							

TABLE D-2
Parcel Radionuclides Soil Results

Analyte Name						Ra-226	Ra-228	Th-228	Th-230	Th-232	U-234	U-235	U-238
Units						pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g
NDEP 2010 BCLs						0.023	0.041	0.025	8.3	7.4	11	0.35	1.4
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result
Parcel H	TSB-HJ-01	TSB-HJ-01-0_01/25/2008	N	1/25/2008	0	1.01	1.89 J	1.73	1.22	1.55	1.05	0.024	1.09
Parcel H	TSB-HJ-01	TSB-HJ-01-10_01/25/2008	N	1/25/2008	10	1.37	1.42 J	1.82	1.65	2.41	1.69	0.085 J	1.61
Parcel H	TSB-HJ-02	TSB-HJ-02-0_01/25/2008	N	1/25/2008	0	0.83 J	1.54 J	1.88	1.29	1.76	0.981 J	0.038 J	1.11
Parcel H	TSB-HJ-02	TSB-HJ-02-10_01/25/2008	N	1/25/2008	10	1.58	1.45 J	1.97	1.79	1.49	2.11	0.061 J	1.55
Parcel H	TSB-HJ-03	TSB-HJ-03-0_FD_01/25/2008	FD	1/25/2008	0	1.05	1.57 J	2.15	1.37	2.13	0.99 J	0.062 J	1.06
Parcel H	TSB-HJ-03	TSB-HJ-03-0_01/25/2008	N	1/25/2008	0	1.12	1.55 J	1.58	0.959	1.74	1.17	0.03 J	0.976 J
Parcel H	TSB-HJ-03	TSB-HJ-03-10_01/25/2008	N	1/25/2008	10	1.25	1.53 J	1.86	1.49	1.57	1.59	0.03 J	1.33
Parcel H	TSB-HJ-04	TSB-HJ-04-0_01/24/2008	N	1/24/2008	0	1.17	2.22	1.61	0.84	1.17	0.979 J	0.057 J	0.88 J
Parcel H	TSB-HJ-04	TSB-HJ-04-10_01/24/2008	N	1/24/2008	10	1.07	1.4 J	1.72	1.51	1.54	1.96	0.059 J	1.6
Parcel H	TSB-HJ-05	TSB-HJ-05-0_01/24/2008	N	1/24/2008	0	0.901	1.45 J	1.84	1.41	1.95	1.09	0.045 J	1.01
Parcel H	TSB-HJ-05	TSB-HJ-05-10_01/24/2008	N	1/24/2008	10	1.25	1.46 J	1.52	1.14	1.61	1.56	0.06 J	1.25
Parcel H	TSB-HJ-06	TSB-HJ-06-0_01/24/2008	N	1/24/2008	0	0.858	1.68 J						
Parcel H	TSB-HJ-06	TSB-HJ-06-0_01/24/2008_RE	N	1/24/2008	0			2.29	1.06	2.1	0.962 J	0.05 J	1.13
Parcel H	TSB-HJ-06	TSB-HJ-06-10_01/24/2008	N	1/24/2008	10	1.18	1.47 J						
Parcel H	TSB-HJ-06	TSB-HJ-06-10_01/24/2008_RE	N	1/24/2008	10			1.72	1.32	1.54	1.67	0.065 J	1.31
Parcel H	TSB-HJ-07	TSB-HJ-07-0_01/24/2008	N	1/24/2008	0	1.26	2.32	2.25	1.06	1.93	1.07	0.052 J	1.11
Parcel H	TSB-HJ-07	TSB-HJ-07-0_FD_01/24/2008	FD	1/24/2008	0	1.52	3.01	2.62	1.31	2.55	1.11	0.045 J	1.21
Parcel H	TSB-HJ-07	TSB-HJ-07-10_01/24/2008	N	1/24/2008	10	1.41	1.33 J	1.71	1.61	1.16	1.79	0.051	1.31
Parcel H	TSB-HJ-08	TSB-HJ-08-0_01/28/2008	N	1/28/2008	0	1.44	1.4 J	1.62	1.14	1.77	1.2	0.047 J	0.971 J
Parcel H	TSB-HJ-08	TSB-HJ-08-10_01/28/2008	N	1/28/2008	10	1.8	1.16 J	2.09	2.05	1.72	2.93	0.094 J	2.36
Parcel H	TSB-HJ-09	TSB-HJ-09-0_01/25/2008	N	1/25/2008	0	1.25	1.56 J	2.05	0.94	1.62	1.01	0.011	1.05
Parcel H	TSB-HJ-09	TSB-HJ-09-10_01/25/2008	N	1/25/2008	10	1.7	1.68 J	1.82	1.5	1.39	2.64	0.1 J	2.37
Parcel H	TSB-HJ-10	TSB-HJ-10-0_01/28/2008	N	1/28/2008	0	1.22	1.91 J	2.79	1.47	2.16	1.29	0.053 J	1.13
Parcel H	TSB-HJ-10	TSB-HJ-10-10_01/28/2008	N	1/28/2008	10	2.37	1.17 J	1.75	2.7	1.45	3.06	0.072 J	2.49
Parcel H	TSB-HJ-10	TSB-HJ-10-SURF	N	3/6/2008	0	0.93	1.85						
Parcel H	TSB-HJ-11	TSB-HJ-11-0_01/25/2008	N	1/25/2008	0	1.26	2.1	2.92	1.52	2.74	1.29	0.056 J	1.17
Parcel H	TSB-HJ-11	TSB-HJ-11-10_FD_01/25/2008	FD	1/25/2008	10	1.55	1.59 J	1.87	1.49 J	1.99	1.36 J	0.017	1.3
Parcel H	TSB-HJ-11	TSB-HJ-11-10_01/25/2008	N	1/25/2008	10	2.32	1.59 J	2.09	3.02 J	1.62	2.68 J	0.11 J	1.79
Parcel H	TSB-HR-01	TSB-HR-01-0_01/25/2008	N	1/25/2008	0	0.807 J	1.41 J	1.91	1.25	2.02	0.983 J	0.025	0.839 J
Parcel H	TSB-HR-01	TSB-HR-01-10_01/25/2008	N	1/25/2008	10	1.8	1.83 J	1.6	1.89	1.73	2.25	0.057 J	1.79
Parcel H	TSB-HR-02	TSB-HR-02-0_01/25/2008	N	1/25/2008	0	1.25	2.24 J	2.58	1.41	2.08	1.11	0.043 J	1.15
Parcel H	TSB-HR-02	TSB-HR-02-10_01/25/2008	N	1/25/2008	10	2.46	1.48 J	1.79	2.81	1.78	3.52	0.159 J	2.57
Parcel H	TSB-HR-03	TSB-HR-03-0_01/25/2008	N	1/25/2008	0	0.805 J	1.05 J	2.29	1.38	1.78	1.09	0.042 J	0.958 J
Parcel H	TSB-HR-03	TSB-HR-03-10_01/25/2008	N	1/25/2008	10	2.09	1.21 J	2.02	3.03	1.92	3.36	0.07 J	2.6
Parcel H	TSB-HR-04	TSB-HR-04-0_01/24/2008	N	1/24/2008	0	1.31	1.87 J	2.08	1.24	2.16	0.937 J	0.041	1.2
Parcel H	TSB-HR-04	TSB-HR-04-10_01/24/2008	N	1/24/2008	10	1.6	1.4 J	1.67	1.15	1.11	1.43	0.071 J	1.17
Parcel H	TSB-HR-05	TSB-HR-05-0_01/28/2008	N	1/28/2008	0	1.54	1.3 J	2.44	1.24	1.98	1.21	0.049 J	1.23
Parcel H	TSB-HR-05	TSB-HR-05-10_01/28/2008	N	1/28/2008	10	1.48	1.06 J	2.14	2.15	2.08	2.05	0.087 J	1.71
Parcel H	TSB-HR-05	TSB-HR-05-SURF	N	3/6/2008	0	0.785	1.65						

TABLE D-2
Parcel Radionuclides Soil Results

						Analyte Name	Ra-226	Ra-228	Th-228	Th-230	Th-232	U-234	U-235	U-238
						Units	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g	pci/g
						NDEP 2010 BCLs	0.023	0.041	0.025	8.3	7.4	11	0.35	1.4
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result
Parcel H	TSB-HR-06	TSB-HR-06-0 FD_01/28/2008	FD	1/28/2008	0	0.698 J	1.17 J	1.57	0.992	1.71	1.29	0.011	1.15	
Parcel H	TSB-HR-06	TSB-HR-06-0_01/28/2008	N	1/28/2008	0	0.711 J	1.63 J	1.94	1.07	1.87	1.35	0.029 J	1.23	
Parcel H	TSB-HR-06	TSB-HR-06-10_01/28/2008	N	1/28/2008	10	2.1	1.58 J	1.72	2.14	1.42	2.87	0.058 J	2.49	
Parcel H	TSB-HR-07	TSB-HR-07-0_01/24/2008	N	1/24/2008	0	0.996	1.33 J	2.49	1.26	1.97	1.1	0.063 J	1.1	
Parcel H	TSB-HR-07	TSB-HR-07-10_01/24/2008	N	1/24/2008	10	1.74	1.55 J	1.95	1.9	1.41	2.39	0.058 J	1.67	
Parcel H	TSB-HR-08	TSB-HR-08-0_01/24/2008	N	1/24/2008	0	1.17	1.85 J	2.04	1	1.97	1.17	0.049 J	1.39	
Parcel H	TSB-HR-08	TSB-HR-08-10_01/24/2008	N	1/24/2008	10	1.59	1.41 J	2.38	1.55	2.23	1.61	0.062 J	1.39	

**TABLE D-4
Parcel Volatile Organic Compounds (VOCs) Soil Results**

						Analyte Units mg/kg	Toluene mg/kg	trans-1,2-Dichloroethylene mg/kg	trans-1,3-Dichloropropene mg/kg	Trichloroethene mg/kg	Trichlorofluoromethane mg/kg	Vinylchloride mg/kg	Xylene (Total) mg/kg
2010 NDEP BCLs						521	547	--	5.49	1980	1.86	214	
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	
Parcel C	TSB-CJ-01	TSB-CJ-01-0	N	11/12/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CJ-01	TSB-CJ-01-0 FD	FD	11/12/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CJ-01	TSB-CJ-01-10	N	11/12/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel C	TSB-CJ-02	TSB-CJ-02-0	N	11/12/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel C	TSB-CJ-02	TSB-CJ-02-10	N	11/12/2007	10	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CJ-03	TSB-CJ-03-0	N	11/9/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel C	TSB-CJ-03	TSB-CJ-03-10	N	11/9/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U	
Parcel C	TSB-CJ-04	TSB-CJ-04-0	N	11/9/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	0.0014 J	
Parcel C	TSB-CJ-04	TSB-CJ-04-10	N	11/9/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U	
Parcel C	TSB-CJ-05	TSB-CJ-05-0	N	11/12/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CJ-05	TSB-CJ-05-10	N	11/12/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U	
Parcel C	TSB-CJ-06	TSB-CJ-06-0	N	11/12/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U	
Parcel C	TSB-CJ-06	TSB-CJ-06-0 FD	FD	11/12/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	0.0015 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-10	N	11/12/2007	10	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.011 U	
Parcel C	TSB-CJ-07	TSB-CJ-07-0	N	11/9/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CJ-07	TSB-CJ-07-10	N	11/9/2007	10	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.011 U	
Parcel C	TSB-CJ-08	TSB-CJ-08-0	N	11/9/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CJ-08	TSB-CJ-08-0 FD	FD	11/9/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CJ-08	TSB-CJ-08-10	N	11/9/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U	
Parcel C	TSB-CR-01	TSB-CR-01-0	N	11/12/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	0.015	
Parcel C	TSB-CR-01	TSB-CR-01-10	N	11/12/2007	10	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CR-02	TSB-CR-02-0	N	11/12/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U	
Parcel C	TSB-CR-02	TSB-CR-02-10	N	11/12/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel C	TSB-CR-03	TSB-CR-03-0	N	11/12/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U	
Parcel C	TSB-CR-03	TSB-CR-03-10	N	11/12/2007	10	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel C	TSB-CR-04	TSB-CR-04-0	N	11/13/2007	0	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.01 U	
Parcel C	TSB-CR-04	TSB-CR-04-10	N	11/13/2007	10	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.011 U	
Parcel C	TSB-CR-05	TSB-CR-05-0	N	11/13/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel C	TSB-CR-05	TSB-CR-05-10	N	11/13/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U	
Parcel C	TSB-CR-06	TSB-CR-06-0	N	11/13/2007	0	0.00056 J	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	0.0016 J	
Parcel C	TSB-CR-06	TSB-CR-06-10	N	11/13/2007	10	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U	
Parcel C	TSB-CR-07	TSB-CR-07-0	N	11/9/2007	0	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.01 U	
Parcel C	TSB-CR-07	TSB-CR-07-10	N	11/9/2007	10	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U	
Parcel D	TSB-DJ-01	TSB-DJ-01-0	N	11/13/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel D	TSB-DJ-01	TSB-DJ-01-10	N	11/13/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel D	TSB-DR-01	TSB-DR-01-0	N	11/14/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	0.01	
Parcel D	TSB-DR-01	TSB-DR-01-10	N	11/14/2007	10	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel D	TSB-DR-02	TSB-DR-02-0	N	11/14/2007	0	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.01 U	
Parcel D	TSB-DR-02	TSB-DR-02-0 FD	FD	11/14/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U	
Parcel D	TSB-DR-02	TSB-DR-02-10	N	11/14/2007	10	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U	
Parcel D	TSB-DR-03	TSB-DR-03-0	N	11/13/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U	
Parcel D	TSB-DR-03	TSB-DR-03-10	N	11/13/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel D	TSB-DR-04	TSB-DR-04-0	N	11/13/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U	
Parcel D	TSB-DR-04	TSB-DR-04-10	N	11/13/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel D	TSB-DR-05	TSB-DR-05-0	N	11/13/2007	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U	
Parcel D	TSB-DR-05	TSB-DR-05-0 FD	FD	11/13/2007	0	0.00051 J	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.01 U	
Parcel D	TSB-DR-05	TSB-DR-05-10	N	11/13/2007	10	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U	
Parcel D	TSB-DR-06	TSB-DR-06-0	N	11/13/2007	0	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.01 U	
Parcel D	TSB-DR-06	TSB-DR-06-10	N	11/13/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel F	TSB-FJ-01	TSB-FJ-01-0	N	11/16/2007	0	< 0.0051 UJ	< 0.0051 UJ	< 0.0051 UJ	< 0.0051 UJ	< 0.0051 UJ	< 0.0051 UJ	< 0.01 UJ	
Parcel F	TSB-FJ-01	TSB-FJ-01-10	N	11/16/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel F	TSB-FJ-02	TSB-FJ-02-0	N	11/15/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U	
Parcel F	TSB-FJ-02	TSB-FJ-02-0 FD	FD	11/15/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U	
Parcel F	TSB-FJ-02	TSB-FJ-02-10	N	11/15/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U	

**TABLE D-4
Parcel Volatile Organic Compounds (VOCs) Soil Results**

Analyte Units						Toluene	trans-1,2-Dichloroethylene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinylchloride	Xylene (Total)
2010 NDEP BCLs						521	547	--	5.49	1980	1.86	214
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-0	N	6/4/2008	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-10	N	6/10/2008	10	< 0.0066 U	< 0.0066 U	< 0.0066 U	< 0.0066 U	< 0.0066 U	< 0.0066 U	< 0.013 U
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-20	N	6/10/2008	20	< 0.0061 U	< 0.0061 U	< 0.0061 U	< 0.0061 U	< 0.0061 U	< 0.0061 U	< 0.012 U
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-30	N	6/10/2008	30	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.0065 U	< 0.013 U
Parcel F	TSB-FJ-03	TSB-FJ-03-0	N	11/15/2007	0	0.00061 J	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel F	TSB-FJ-03	TSB-FJ-03-0 FD	FD	11/15/2007	0	0.00057 J	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel F	TSB-FJ-03	TSB-FJ-03-10	N	11/15/2007	10	0.00051 J	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FJ-04	TSB-FJ-04-0	N	11/15/2007	0	0.0008 J	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel F	TSB-FJ-04	TSB-FJ-04-10	N	11/15/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FJ-05	TSB-FJ-05-0	N	11/14/2007	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FJ-05	TSB-FJ-05-10	N	11/14/2007	10	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel F	TSB-FJ-06	TSB-FJ-06-0	N	11/14/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel F	TSB-FJ-06	TSB-FJ-06-0 FD	FD	11/14/2007	0	0.00047 J	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	0.0028 J
Parcel F	TSB-FJ-06	TSB-FJ-06-10	N	11/14/2007	10	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20	< 0.0064 U	< 0.0064 U	< 0.0064 U	< 0.0064 U	< 0.0064 U	< 0.0064 U	< 0.013 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FJ-07	TSB-FJ-07-0	N	11/14/2007	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FJ-07	TSB-FJ-07-10	N	11/14/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel F	TSB-FJ-08	TSB-FJ-08-10	N	11/16/2007	10	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.011 U
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel F	TSB-FJ-09	TSB-FJ-09-10	N	11/15/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0	0.0017 J	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	0.0034 J
Parcel F	TSB-FJ-10	TSB-FJ-10-10	N	11/15/2007	10	0.00067 J	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel F	TSB-FR-01	TSB-FR-01-0	N	11/14/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel F	TSB-FR-01	TSB-FR-01-10	N	11/14/2007	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0	0.00078 J	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U
Parcel F	TSB-FR-02	TSB-FR-02-10	N	11/15/2007	10	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.0057 U	< 0.011 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10-FD	FD	6/10/2008	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.0056 U	< 0.011 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.014 U
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.005 U	< 0.01 U
Parcel F	TSB-FR-03	TSB-FR-03-10	N	11/15/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel F	TSB-FR-04	TSB-FR-04-0-FD	FD	11/16/2007	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FR-04	TSB-FR-04-10	N	11/16/2007	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel F	TSB-FR-05	TSB-FR-05-10	N	11/16/2007	10	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U
Parcel G	TSB-GJ-01	TSB-GJ-01-0	N	11/16/2007	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel G	TSB-GJ-01	TSB-GJ-01-5	N	11/16/2007	5	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel G	TSB-GJ-06	TSB-GJ-06-0	N	11/16/2007	0	0.00059 J	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel G	TSB-GJ-06	TSB-GJ-06-5	N	11/16/2007	5	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U
Parcel G	TSB-GJ-08	TSB-GJ-08-10	N	6/11/2008	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel G	TSB-GJ-08	TSB-GJ-08-20	N	6/11/2008	20	< 0.006 U	< 0.006 U	< 0.006 U	< 0.006 U	< 0.006 U	< 0.006 U	< 0.012 U
Parcel G	TSB-GJ-08	TSB-GJ-08-30	N	6/11/2008	30	< 0.009 U	< 0.009 U	< 0.009 U	< 0.009 U	< 0.009 U	< 0.009 U	< 0.018 U
Parcel G	TSB-GJ-08	TSB-GJ-08-40	N	6/11/2008	40	< 0.0081 U	< 0.0081 U	< 0.0081 U	0.0047 J	< 0.0081 U	< 0.0081 U	< 0.016 U
Parcel G	TSB-GJ-09	TSB-GJ-09-0	N	6/4/2008	0	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.0051 U	< 0.01 U
Parcel G	TSB-GJ-09	TSB-GJ-09-0-FD	FD	6/4/2008	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel G	TSB-GJ-09	TSB-GJ-09-10	N	6/11/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U

**TABLE D-4
Parcel Volatile Organic Compounds (VOCs) Soil Results**

						Toluene	trans-1,2-Dichloroethylene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinylchloride	Xylene (Total)
Analyte Units						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
2010 NDEP BCLs						521	547	--	5.49	1980	1.86	214
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result
Parcel G	TSB-GJ-09	TSB-GJ-09-20	N	6/11/2008	20	< 0.0063 U	< 0.0063 U	< 0.0063 U	< 0.0063 U	< 0.0063 U	< 0.0063 U	< 0.013 U
Parcel G	TSB-GJ-09	TSB-GJ-09-30	N	6/11/2008	30	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.0072 U	< 0.014 U
Parcel G	TSB-GJ-09	TSB-GJ-09-40	N	6/11/2008	40	< 0.0079 U	< 0.0079 U	< 0.0079 U	< 0.0079 U	< 0.0079 U	< 0.0079 U	< 0.016 U
Parcel G	TSB-GR-01	TSB-GR-01-0	N	11/16/2007	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel G	TSB-GR-01	TSB-GR-01-5	N	11/16/2007	5	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-01	TSB-HJ-01-0	N	1/25/2008	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HJ-01	TSB-HJ-01-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-02	TSB-HJ-02-0	N	1/25/2008	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HJ-02	TSB-HJ-02-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-03	TSB-HJ-03-0	N	1/25/2008	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-03	TSB-HJ-03-0-FD	FD	1/25/2008	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HJ-03	TSB-HJ-03-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-04	TSB-HJ-04-0	N	1/24/2008	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HJ-04	TSB-HJ-04-10	N	1/24/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-05	TSB-HJ-05-0	N	1/24/2008	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HJ-05	TSB-HJ-05-10	N	1/24/2008	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HJ-06	TSB-HJ-06-0 RE	N	1/24/2008	0	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U
Parcel H	TSB-HJ-06	TSB-HJ-06-10 RE	N	1/24/2008	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HJ-07	TSB-HJ-07-0	N	1/24/2008	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HJ-07	TSB-HJ-07-0-FD	FD	1/24/2008	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-07	TSB-HJ-07-10	N	1/24/2008	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HJ-08	TSB-HJ-08-0	N	1/28/2008	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HJ-08	TSB-HJ-08-10	N	1/28/2008	10	0.0017 J	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HJ-09	TSB-HJ-09-0	N	1/25/2008	0	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U
Parcel H	TSB-HJ-09	TSB-HJ-09-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-10	TSB-HJ-10-0	N	1/28/2008	0	0.00069 J	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-10	TSB-HJ-10-10	N	1/28/2008	10	0.0007 J	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HJ-11	TSB-HJ-11-0	N	1/25/2008	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HJ-11	TSB-HJ-11-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HJ-11	TSB-HJ-11-10-FD	FD	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-01	TSB-HR-01-0	N	1/25/2008	0	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U
Parcel H	TSB-HR-01	TSB-HR-01-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-02	TSB-HR-02-0	N	1/25/2008	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-02	TSB-HR-02-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-03	TSB-HR-03-10	N	1/25/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HR-04	TSB-HR-04-10	N	1/24/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0	0.001 J	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HR-05	TSB-HR-05-10	N	1/28/2008	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0	0.00054 J	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.0052 U	< 0.01 U
Parcel H	TSB-HR-06	TSB-HR-06-0-FD	FD	1/28/2008	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HR-06	TSB-HR-06-10	N	1/28/2008	10	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HR-07	TSB-HR-07-10	N	1/24/2008	10	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.0054 U	< 0.011 U
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.0053 U	< 0.011 U
Parcel H	TSB-HR-08	TSB-HR-08-10	N	1/24/2008	10	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.0055 U	< 0.011 U

**TABLE D-5
Parcel Dioxins Soil Results**

Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Analyte Name																				Total TEQ (Calculated)																															
						Units	1,2,3,4,5,6,7,8-Octachlorodibenzofuran	1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-Heptachlorodibenzo-p-dioxin	1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,7,8-Pentachlorodibenzofuran	2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-Tetrachlorodibenzo-p-dioxin																																	
Parcel F	TSB-FJ-06	TSB-FJ-06-0 FD	FD	11/14/2007	0	<	51	UJ	<	59	UJ	<	4.7	UJ	<	3.5	UJ	<	16	UJ	<	4.2	UJ	<	12	UJ	<	17	UJ	<	1.8	UJ	<	91	UJ	<	3	UJ	<	3.4	UJ	<	3.7	UJ	<	4	UJ	<	5.5	UJ	<	33	UJ	<	4.6	UJ	0
Parcel F	TSB-FJ-06	TSB-FJ-06-10	N	11/14/2007	10	<	110	U	<	7	U	<	1.7	U	<	13	U	<	740	U	<	18	U	<	5.1	U	<	1800	U	<	55	U	<	3300	U	<	11	U	<	370	U	<	39	U	<	44	U	<	260	U	<	360	U	<	8.7	U	0
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0	<	410	J	<	34	J	<	160	J	<	20	J	<	66	J	<	100	J	<	3.2	J	<	60	J	<	6.4	J	<	8.9	J	<	6	J	<	68	J	<	6.5	J	<	16	J	<	40	J	<	87	J	<	3.4	J	55.2832
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10	<	0.21	U	<	0.64	U	<	0.2	U	<	0.11	U	<	0.23	U	<	0.045	U	<	0.072	U	<	0.023	U	<	0.18	U	<	0.072	U	<	0.15	U	<	0.059	U	<	0.095	U	<	0.068	U	<	0.038	U	<	0.02	U	<	0.11	U	0
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20	<	6.1	UJ	<	4.8	UJ	<	1.6	UJ	<	2	UJ	<	2.1	UJ	<	0.94	U	<	1.4	U	<	0.82	U	<	1.1	U	<	1	U	<	1.1	U	<	0.68	U	<	1.1	U	<	0.91	U	<	0.68	U	<	0.47	U	<	0.49	U	0
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30	<	0.031	U	<	0.36	U	<	0.1	U	<	0.042	U	<	0.13	U	<	0.028	U	<	0.081	U	<	0.025	U	<	0.064	U	<	0.031	U	<	0.068	U	<	0.037	U	<	0.062	U	<	0.029	U	<	0.039	U	<	0.014	U	<	0.071	U	0
Parcel F	TSB-FJ-07	TSB-FJ-07-0	N	11/14/2007	0	<	290	J	<	78	J	<	92	J	<	19	J	<	24	J	<	35	J	<	2.8	J	<	25	J	<	3.3	J	<	2.9	J	<	5.8	J	<	17	J	<	6.1	J	<	10	J	<	17	J	<	120	J	13.9004			
Parcel F	TSB-FJ-07	TSB-FJ-07-10	N	11/14/2007	10	<	1600	U	<	260	U	<	780	U	<	3.1	U	<	16	U	<	660	U	<	11	U	<	590	U	<	210	U	<	3100	U	<	97	U	<	26	U	<	19	U	<	1100	U	<	49	U	<	4.3	U	<	7	U	0
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0	<	27	U	<	64	U	<	11	U	<	21000	U	<	3.4	J	<	4.6	J	<	630	U	<	2.7	J	<	110	U	<	420	U	<	18	U	<	36	U	<	7.6	U	<	1200	U	<	2600	U	<	1.5	U	<	63	U	1.0321
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0	<	90	U	<	18	U	<	560	U	<	18	U	<	69	U	<	6	U	<	16	U	<	260	U	<	110	U	<	31	U	<	5.3	U	<	4	U	<	16	U	<	11	U	<	9.9	U	<	11	U	<	24	U	0
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0	<	64	U	<	13	U	<	16	U	<	240	U	<	9.8	U	<	9.4	U	<	6.5	U	<	13	U	<	42	U	<	83	U	<	300	U	<	26	U	<	34	U	<	33	U	<	28	U	<	61	U	<	4	U	0
Parcel F	TSB-FR-01	TSB-FR-01-0	N	11/14/2007	0	<	58	U	<	8.4	J	<	21	U	<	110	U	<	7.4	U	<	10	U	<	21	U	<	7	U	<	39	U	<	11	U	<	19	U	<	6	U	<	5.9	U	<	3.1	U	<	3.2	J	<	6.6	J	<	0.88	U	3.80392
Parcel F	TSB-FR-01	TSB-FR-01-10	N	11/14/2007	10	<	3.2	U	<	6	U	<	57	U	<	92	U	<	13	U	<	10	U	<	6.5	U	<	2.6	U	<	31	U	<	12	U	<	11	U	<	38	U	<	9.3	U	<	15	U	<	6.8	U	<	1100	U	<	1.7	U	0
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0	<	1700	U	<	58	J	<	160	U	<	22	U	<	59	U	<	91	U	<	40	U	<	43	J	<	340	U	<	1100	U	<	230	U	<	51	U	<	72	U	<	95	U	<	210	U	<	91	U	<	1300	U	17.6474
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0	<	860	U	<	89	U	<	200	U	<	25	U	<	76	U	<	110	U	<	2.3	U	<	57	U	<	6.2	U	<	7.7	U	<	6.3	U	<	60	U	<	5	J	<	18	U	<	36	U	<	72	J	<	2.5	J	51.1147
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10	<	3.1	UJ	<	4.3	UJ	<	2.1	UJ	<	1.2	UJ	<	2.5	UJ	<	0.82	UJ	<	0.92	UJ	<	0.79	UJ	<	0.81	UJ	<	0.9	UJ	<	0.78	UJ	<	0.46	UJ	<	0.67	UJ	<	0.82	UJ	<	0.48	UJ	<	0.29	UJ	<	0.37	UJ	0
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20	<	0.048	U	<	0.33	U	<	0.071	U	<	0.075	U	<	0.085	U	<	0.021	U	<	0.056	U	<	0.019	U	<	0.086	U	<	0.025	U	<	0.1	U	<	0.025	U	<	0.057	U	<	0.022	U	<	0.027	U	<	0.012	U	<	0.064	U	0
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30	<	0.2	U	<	1.1	U	<	0.21	U	<	0.12	U	<	0.25	U	<	0.066	U	<	0.1	U	<	0.061	U	<	0.1	U	<	0.076	U	<	0.095	U	<	0.071	U	<	0.13	U	<	0.071	U	<	0.058	U	<	0.026	U	<	0.14	U	0
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0	<	14	U	<	800	U	<	72	U	<	86	U	<	2.9	U	<	11	U	<	3.3	U	<	6.2	U	<	3100	U	<	29	U	<	77	U	<	77	U	<	290	U	<	73	U	<	1.7	U	<	3.5	U	<	51	U	0
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0	<	16	U	<	250	U	<	230	U	<	17	U	<	78	U	<	94	U	<	4.6	U	<	570	U	<	31	U	<	210	U	<	28	U	<	2.9	U	<	35	U	<	5.3	U	<	17	U	<	290	U	<	250	U	0
Parcel F	TSB-FR-04	TSB-FR-04-0-FD	FD	11/16/2007	0	<	1.5	U	<	4.1	U	<	24	U	<	94	U	<	19	U	<	56	U	<	7.7	U	<	17	U	<	40	U	<	140	U	<	13	U	<	75	U	<	4.2	U	<	56	U	<	8.3	U	<	9.2	U	<	15	U	0
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0	<	11	UJ	<	2.7	UJ	<	58	UJ	<	7	UJ	<	120	UJ	<	160	UJ	<	850	UJ	<	3.1	UJ	<	1700	UJ	<	43	UJ	<	3.9	UJ	<	27	UJ	<	52	UJ	<	92	UJ	<	12	UJ	<	9.8	UJ	<	7.2	UJ	0
Parcel G	TSB-GJ-01	TSB-GJ-01-0	N	11/16/2007	0	<	28	J	<	9.2	J	<	8.6	J	<	44	J	<	4	J	<	7.8	J	<	66	J	<	4.3	J	<	150	J	<	79	J	<	220	J	<	5.3	J	<	20	J	<	73	J	<	2.8	J	<	5	J	<	2.7	J	2.84616
Parcel G	TSB-GJ-06	TSB-GJ-06-0	N	11/16/2007	0	<	140	U	<	56	U	<	56	U	<	9.2	U	<	17	U	<	24	U	<	25	U	<	15	U	<	4.1	J	<	21	U	<	4.6	J	<	13	U	<	3.1	U	<	4.2	J	<	7.7	U	<	17	U	<	7.8	U	10.4708
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	<	190	U	<	39	U	<	69	U	<	11	U	<	24	J	<	38	U	<	0.19	U	<	19	U	<	2.3	U	<	2.7	J	<	2.1	U	<	18	U	<	1.3	U	<												

**TABLE D-5
Parcel Dioxins Soil Results**

Analyte Name						1,2,3,4,5,6,7,8-Octachlorodibenzofuran	1,2,3,4,5,6,7,8-Octachlorodibenzo-p-dioxin	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,7,8-Pentachlorodibenzofuran	2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Total TEQ (Calculated)
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Parcel H	TSB-HR-02	TSB-HR-02-10	N	1/25/2008	10	< 3.6 U	< 3.6 U	< 1.1 U	< 1.7 U	< 1.4 U	< 1.4 U	< 2.1 U	< 1.2 U	< 2 U	< 1.4 U	< 1.7 U	< 0.67 U	< 1 U	< 1.4 U	< 0.68 U	< 0.43 U	< 0.58 U	0
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0	< 3.5 U	< 2.6 U	< 0.67 U	< 1.5 U	< 0.85 U	< 0.64 U	< 1.1 U	< 0.55 U	< 1 U	< 0.64 U	< 0.88 U	< 0.67 U	< 1.2 U	< 0.64 U	< 0.68 U	< 0.4 U	< 0.58 U	0
Parcel H	TSB-HR-03	TSB-HR-03-10	N	1/25/2008	10	< 2.5 U	< 2.9 U	< 0.7 U	< 1.6 U	< 0.89 U	< 0.71 U	< 1.2 U	< 0.62 U	< 1.1 U	< 0.71 U	< 0.97 U	< 0.78 U	< 1.3 U	< 0.71 U	< 0.8 U	< 0.41 U	< 0.6 U	0
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0	< 10 U	< 10 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 1 U	< 1 U	0
Parcel H	TSB-HR-04	TSB-HR-04-10	N	1/24/2008	10	< 11 U	< 11 U	0.071 J	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	0.088 J	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 1.1 U	< 1.1 U	0.00951
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0	< 11 U	< 11 U	0.6 J	1.6 J	0.21 J	0.26 J	< 5.4 U	< 0.16 J	0.29 J	< 5.4 U	< 0.16 J	0.19 J	< 5.4 U	< 5.4 U	< 5.4 U	0.41 J	< 1.1 U	0.1258
Parcel H	TSB-HR-05	TSB-HR-05-10	N	1/28/2008	10	< 11 U	< 11 U	0.04 J	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 1.1 U	< 1.1 U	0.0004
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0	< 10 U	< 10 U	0.19 J	0.16 J	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 5.2 U	< 1 U	< 1 U	0.0019
Parcel H	TSB-HR-06	TSB-HR-06-0-FD	FD	1/28/2008	0	< 11 U	< 11 U	0.26 J	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 1.1 U	< 1.1 U	0.0026
Parcel H	TSB-HR-06	TSB-HR-06-10	N	1/28/2008	10	< 11 U	< 11 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 1.1 U	< 1.1 U	0
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0	< 11 U	< 11 U	0.035 J	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 1.1 U	< 1.1 U	0.00035
Parcel H	TSB-HR-07	TSB-HR-07-10	N	1/24/2008	10	< 11 U	< 11 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	0.14 J	< 5.4 U	< 5.4 U	< 5.4 U	< 5.4 U	< 1.1 U	< 1.1 U	0.014
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0	< 11 U	< 11 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 5.3 U	< 1.1 U	< 1.1 U	0
Parcel H	TSB-HR-08	TSB-HR-08-10	N	1/24/2008	10	< 11 U	< 11 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 5.5 U	< 1.1 U	< 1.1 U	0

Soil sample excavated and data excluded from HRA calculations

TABLE D-7
Parcel General Chemistry Soil Results

						Analyte Units	Bromide mg/kg	Chlorate mg/kg	Chloride mg/kg	Nitrite mg/kg	ortho-Phosphate mg/kg	Perchlorate mg/kg	Sulfate mg/kg	Total Phosphorus-P mg/kg
2010 NDEP BCL						--	--	--	--	--	795	--	--	
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result	
Parcel C	TSB-CJ-01	TSB-CJ-01-0	N	11/12/2007	0	< 2.6 U	< 5.2 UJ	164	< 0.21 U	< 5.2 U	0.395	357 J	954 J	
Parcel C	TSB-CJ-01	TSB-CJ-01-0 FD	FD	11/12/2007	0	< 2.6 U	< 5.2 UJ	223	< 0.21 U	< 5.2 U	0.268	1090 J	1230 J	
Parcel C	TSB-CJ-01	TSB-CJ-01-10	N	11/12/2007	10	< 2.6 U	2.6 J	578	< 0.21 U	< 5.3 U	2.61	201	895 J	
Parcel C	TSB-CJ-02	TSB-CJ-02-0	N	11/12/2007	0	< 2.6 U	< 5.3 UJ	268	< 0.21 U	< 5.3 U	0.504	1160	743 J	
Parcel C	TSB-CJ-02	TSB-CJ-02-10	N	11/12/2007	10	< 2.6 U	< 5.2 UJ	96.5	< 0.21 U	< 5.2 U	1.3	1390	560 J	
Parcel C	TSB-CJ-03	TSB-CJ-03-0	N	11/9/2007	0	< 2.6 U	< 5.3 U	222	< 0.21 U	< 5.3 U	1.08	552 J-	967 J	
Parcel C	TSB-CJ-03	TSB-CJ-03-10	N	11/9/2007	10	< 2.7 U	1.3 J	362	< 0.21 U	< 5.4 U	4.01	7040 J-	980 J	
Parcel C	TSB-CJ-04	TSB-CJ-04-0	N	11/9/2007	0	< 2.6 U	< 5.3 U	339	< 0.21 U	< 5.3 U	1.01	1300 J-	1270 J	
Parcel C	TSB-CJ-04	TSB-CJ-04-10	N	11/9/2007	10	< 2.7 U	< 5.4 U	1350	< 0.22 U	< 5.4 U	4.74	2070 J-	1320 J	
Parcel C	TSB-CJ-05	TSB-CJ-05-0	N	11/12/2007	0	< 2.6 U	< 5.2 UJ	21.2	< 0.21 U	< 5.2 U	0.129	27.9	913 J	
Parcel C	TSB-CJ-05	TSB-CJ-05-10	N	11/12/2007	10	< 2.7 U	< 5.4 UJ	1.4 J	< 0.22 U	< 5.4 U	< 0.0432 U	10.3	774 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-0	N	11/12/2007	0	< 2.5 U	< 5.1 UJ	1.8 J	< 0.2 U	< 5.1 U	0.0333 J	5.4	712 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-0 FD	FD	11/12/2007	0	< 2.6 U	< 5.1 UJ	7.5 J	< 0.2 U	< 5.1 U	0.088 J	6.6	938 J	
Parcel C	TSB-CJ-06	TSB-CJ-06-10	N	11/12/2007	10	< 2.9 U	< 5.7 UJ	65.6	< 0.23 U	< 5.7 U	2.27	1770	1260 J	
Parcel C	TSB-CJ-07	TSB-CJ-07-0	N	11/9/2007	0	2.7	< 5.2 U	538	< 0.21 U	< 5.2 U	1.07	1440 J-	1080 J	
Parcel C	TSB-CJ-07	TSB-CJ-07-10	N	11/9/2007	10	< 2.8 U	< 5.6 U	138	< 0.22 U	< 5.6 U	3.7	86.5 J-	1020 J	
Parcel C	TSB-CJ-08	TSB-CJ-08-0	N	11/9/2007	0	< 2.6 U	< 5.2 U	245	< 0.21 U	< 5.2 U	1.11	1390 J	1230 J	
Parcel C	TSB-CJ-08	TSB-CJ-08-0-FD	FD	11/9/2007	0	0.85 J	< 5.2 U	371	< 0.21 U	< 5.2 U	0.821	583 J	869 J	
Parcel C	TSB-CJ-08	TSB-CJ-08-10	N	11/9/2007	10	< 2.7 U	5.8	1390	< 0.22 U	< 5.4 U	6.19	212 J-	725 J	
Parcel C	TSB-CR-01	TSB-CR-01-0	N	11/12/2007	0	< 2.5 U	< 5.1 UJ	43.7	< 0.2 U	< 5.1 U	0.242	20.7	840 J	
Parcel C	TSB-CR-01	TSB-CR-01-10	N	11/12/2007	10	3.6	< 5.2 UJ	1130	< 0.21 U	< 5.2 U	0.0225 J	874	973 J	
Parcel C	TSB-CR-02	TSB-CR-02-0	N	11/12/2007	0	< 2.6 U	< 5.1 UJ	176	< 0.21 U	< 5.1 U	0.116	46.2	655 J	
Parcel C	TSB-CR-02	TSB-CR-02-10	N	11/12/2007	10	1.3 J	< 5.3 UJ	917	< 0.21 U	< 5.3 U	0.018 J	240	652 J	
Parcel C	TSB-CR-03	TSB-CR-03-0	N	11/12/2007	0	< 2.5 U	< 5.1 UJ	39.1	< 0.2 U	< 5.1 U	0.446	9	748 J	
Parcel C	TSB-CR-03	TSB-CR-03-10	N	11/12/2007	10	3.7	< 5.2 UJ	1180	< 0.21 U	< 5.2 U	0.063	206	589 J	
Parcel C	TSB-CR-04	TSB-CR-04-0	N	11/13/2007	0	< 2.5 U	< 5 UJ	2		< 5 U	0.112 J	70.7	872 J	
Parcel C	TSB-CR-04	TSB-CR-04-10	N	11/13/2007	10	7.3	< 5.6 UJ	1450		< 5.6 U	0.604	16700	667 J	
Parcel C	TSB-CR-05	TSB-CR-05-0	N	11/13/2007	0	< 2.6 U	< 5.3 UJ	0.42 J		< 5.3 U	0.0871	31.5	896 J	
Parcel C	TSB-CR-05	TSB-CR-05-10	N	11/13/2007	10	< 2.7 U	4.5 J-	1130		< 5.4 U	4.27	2750	913 J	
Parcel C	TSB-CR-06	TSB-CR-06-0	N	11/13/2007	0	< 2.6 U	< 5.1 UJ	196		< 5.1 U	3.12	143	1150 J	
Parcel C	TSB-CR-06	TSB-CR-06-10	N	11/13/2007	10	< 2.7 U	4.4 J-	527		< 5.5 U	6.38	481	623 J	
Parcel C	TSB-CR-07	TSB-CR-07-0	N	11/9/2007	0	< 2.5 U	< 5 U	11.9	< 0.2 U	< 5 U	0.904	43.2 J-	1440 J	
Parcel C	TSB-CR-07	TSB-CR-07-10	N	11/9/2007	10	< 2.8 U	2.9 J	344	< 0.22 U	< 5.5 U	18.5	133 J-	859 J	
Parcel D	TSB-DJ-01	TSB-DJ-01-0	N	11/13/2007	0	< 2.6 U	< 5.2 UJ	12.2		< 5.2 U	0.102	23.1	870 J	
Parcel D	TSB-DJ-01	TSB-DJ-01-10	N	11/13/2007	10	0.91 J	1.1 J-	256		< 5.3 U	1.24	6660	752 J	
Parcel D	TSB-DR-01	TSB-DR-01-0	N	11/14/2007	0	< 2.5 U	< 5.1 U	9.2	< 0.2 U	< 5.1 U	0.411	27.9 J+	777 J-	
Parcel D	TSB-DR-01	TSB-DR-01-10	N	11/14/2007	10	4.8	< 5.2 U	1750	< 0.21 U	< 5.2 U	0.952	3280 J+	1020 J-	
Parcel D	TSB-DR-02	TSB-DR-02-0	N	11/14/2007	0	< 2.5 U	< 5 U	25.7	< 0.2 U	< 5 U	0.0921	165 J+	757 J-	
Parcel D	TSB-DR-02	TSB-DR-02-0 FD	FD	11/14/2007	0	< 2.5 U	< 5.1 U	23.1	< 0.2 U	< 5.1 U	0.04 J	99.8 J+	1030 J-	
Parcel D	TSB-DR-02	TSB-DR-02-10	N	11/14/2007	10	2.8	< 5.5 U	1340	< 0.22 U	< 5.5 U	0.0603 J	393 J+	865 J-	
Parcel D	TSB-DR-03	TSB-DR-03-0	N	11/13/2007	0	2.8	< 5.1 UJ	1030		< 5.1 U	0.22	537	865 J	
Parcel D	TSB-DR-03	TSB-DR-03-10	N	11/13/2007	10	3.6	< 5.3 UJ	1870		< 5.3 U	0.0596	257	973 J	
Parcel D	TSB-DR-04	TSB-DR-04-0	N	11/13/2007	0	< 2.5 U	< 5.1 UJ	22.9		< 5.1 U	0.306	65.5	1640 J	

TABLE D-7
Parcel General Chemistry Soil Results

Analyte Units						Bromide mg/kg	Chlorate mg/kg	Chloride mg/kg	Nitrite mg/kg	ortho-Phosphate mg/kg	Perchlorate mg/kg	Sulfate mg/kg	Total Phosphorus-P mg/kg
2010 NDEP BCL						--	--	--	--	--	795	--	--
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result
Parcel D	TSB-DR-04	TSB-DR-04-10	N	11/13/2007	10	< 2.6 U	< 5.3 UJ	168		< 5.3 U	1.04	103	751 J
Parcel D	TSB-DR-05	TSB-DR-05-0	N	11/13/2007	0	< 2.5 U	< 5.1 UJ	9.9		< 5.1 U	1.47 J	233 J	845 J
Parcel D	TSB-DR-05	TSB-DR-05-0-FD	FD	11/13/2007	0	< 2.5 U	< 5 UJ	6.7		< 5 U	0.633 J	8.9 J	823 J
Parcel D	TSB-DR-05	TSB-DR-05-10	N	11/13/2007	10	< 2.7 U	6.3 J-	1840		< 5.5 U	10.4	4240	780 J
Parcel D	TSB-DR-06	TSB-DR-06-0	N	11/13/2007	0	< 2.5 U	< 5 UJ	24.7		< 5 U	0.557	150	651 J
Parcel D	TSB-DR-06	TSB-DR-06-10	N	11/13/2007	10	< 2.7 U	12.2 J-	897		< 5.3 U	28.3	3660	377 J
Parcel F	TSB-FJ-01	TSB-FJ-01-0	N	11/16/2007	0	< 2.6 U	54.3	1900		< 5.1 UJ	1.76	706	1000 J
Parcel F	TSB-FJ-01	TSB-FJ-01-10	N	11/16/2007	10	2.7	< 5.3 U	707		< 5.3 UJ	0.0482	139	1010 J
Parcel F	TSB-FJ-02	TSB-FJ-02-0	N	11/15/2007	0	< 2.7 U	119	2840		< 5.3 U	107 J	101 J-	680 J
Parcel F	TSB-FJ-02	TSB-FJ-02-0 FD	FD	11/15/2007	0	< 2.6 U	166	3270		< 5.2 U	3 J	114 J-	751 J
Parcel F	TSB-FJ-02	TSB-FJ-02-10	N	11/15/2007	10	< 2.7 U	7	334		< 5.4 U	5.82	72.3 J-	699 J
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-0	N	6/4/2008	0	< 2.5 U	1.4 J	45	< 0.2 U	1.3 J	0.461	46.2	1250 J+
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-10	N	6/10/2008	10	< 3.3 U	22	388	< 2.6 U	< 6.6 U	3.94	235	1190 J
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-20	N	6/10/2008	20	< 3 U	< 6.1 U	14.1	< 0.24 U	< 6.1 U	1.55	18900	382 J
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-30	N	6/10/2008	30	< 3.2 U	< 6.5 U	19.1	< 0.26 U	< 6.5 U	0.189	210	703 J
Parcel F	TSB-FJ-03	TSB-FJ-03-0	N	11/15/2007	0	< 2.6 U	3.8 J	318		< 5.2 U	36.5 J	600 J-	1040 J
Parcel F	TSB-FJ-03	TSB-FJ-03-0 FD	FD	11/15/2007	0	< 2.7 U	8.2	491		< 5.3 U	0.226 J	904 J-	1270 J
Parcel F	TSB-FJ-03	TSB-FJ-03-10	N	11/15/2007	10	< 2.7 U	< 5.4 U	6.9		< 5.4 U	< 0.0431 U	36.6 J-	815 J
Parcel F	TSB-FJ-04	TSB-FJ-04-0	N	11/15/2007	0	< 2.6 U	44.7	1430		< 5.2 U	35.7	198 J-	835 J
Parcel F	TSB-FJ-04	TSB-FJ-04-10	N	11/15/2007	10	< 2.7 U	15	512		< 5.4 U	1.07	269 J-	715 J
Parcel F	TSB-FJ-05	TSB-FJ-05-0	N	11/14/2007	0	< 2.7 U	163	1580	< 0.22 U	< 5.4 U	9.5	573 J+	1090 J-
Parcel F	TSB-FJ-05	TSB-FJ-05-10	N	11/14/2007	10	2.1 J	< 5.2 U	510	< 0.21 U	< 5.2 U	0.0198 J	175 J+	1020 J-
Parcel F	TSB-FJ-06	TSB-FJ-06-0	N	11/14/2007	0	< 2.6 U	32.3	1790	< 0.21 U	< 5.2 U	168 J	150 J	934 J-
Parcel F	TSB-FJ-06	TSB-FJ-06-0 FD	FD	11/14/2007	0	< 2.5 U	41	2630	< 0.2 U	< 5.1 U	9.99 J	553 J	951 J-
Parcel F	TSB-FJ-06	TSB-FJ-06-10	N	11/14/2007	10	2 J	3.2 J	432	< 0.2 U	< 5.1 U	2.37	126 J+	800 J-
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0	< 2.5 U	62.2 J	2850	< 40.6 U	< 5.1 U	69.2	580	1010 J+
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10	2.9	3.2 J	317	< 2.1 U	< 5.3 U	3.62	242	1080 J
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20	1 J	< 6.4 U	311	< 2.6 U	< 6.4 U	0.94	21000	566 J
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30	< 2.7 U	< 5.4 U	65	< 2.1 U	< 5.4 U	0.115	273	649 J
Parcel F	TSB-FJ-07	TSB-FJ-07-0	N	11/14/2007	0	< 2.7 U	< 5.4 U	17	< 0.22 U	< 5.4 U	15.7	182 J+	847 J-
Parcel F	TSB-FJ-07	TSB-FJ-07-10	N	11/14/2007	10	< 2.7 U	12.3	220	< 0.21 U	< 5.4 U	0.82	504 J+	896 J-
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0	< 2.7 U	3.1 J	101		< 5.3 UJ	4.75	2270	1170 J
Parcel F	TSB-FJ-08	TSB-FJ-08-10	N	11/16/2007	10	< 2.8 U	5 J	67.3		< 5.6 UJ	1.35	73.4	808 J
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0	< 2.7 U	< 5.3 U	80		< 5.3 U	0.26	107 J-	892 J
Parcel F	TSB-FJ-09	TSB-FJ-09-10	N	11/15/2007	10	< 2.7 U	< 5.4 U	132		< 5.4 U	0.611	87.7 J-	912 J
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0	< 2.7 U	11.7	426		< 5.3 U	8.78	464 J-	1070 J
Parcel F	TSB-FJ-10	TSB-FJ-10-10	N	11/15/2007	10	5.1	< 5.2 U	887		< 5.2 U	0.166	244 J-	732 J
Parcel F	TSB-FR-01	TSB-FR-01-0	N	11/14/2007	0	< 2.6 U	2 J	195	10.5	< 5.2 U	12.1	41.1 J+	1440 J-
Parcel F	TSB-FR-01	TSB-FR-01-10	N	11/14/2007	10	< 2.7 U	198	1950	< 0.21 U	6.3	9.72	113 J+	1300 J-
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0	< 2.6 U	31	1430		< 5.1 U	59.8	55.5 J-	905 J
Parcel F	TSB-FR-02	TSB-FR-02-10	N	11/15/2007	10	< 2.8 U	4.9 J	134		6	0.188	59.2 J-	843 J
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0	< 2.5 U	310 J	9170	< 40.7 U	< 5.1 U	40.9	634	950 J+
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10	< 2.9 U	1.2 J	22.6 J	< 0.23 U	< 5.7 U	0.0628	305 J	1200 J

TABLE D-7
Parcel General Chemistry Soil Results

Analyte Units						Bromide mg/kg	Chlorate mg/kg	Chloride mg/kg	Nitrite mg/kg	ortho-Phosphate mg/kg	Perchlorate mg/kg	Sulfate mg/kg	Total Phosphorus-P mg/kg
2010 NDEP BCL						--	--	--	--	--	795	--	--
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10-FD	FD	6/10/2008	10	< 2.7 U	< 5.4 U	11 J	< 0.21 U	< 5.4 U	0.061	175 J	1160 J
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20	< 2.8 U	10.9	196	< 2.2 U	< 5.6 U	0.417	18400	317 J
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30	< 3.6 U	4.8	159	< 2.9 U	< 7.2 U	0.465	524	812 J
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0	< 2.5 U	< 5 U	11.2	0.79 J-	< 5 U	0.578	68.4 J-	812 J
Parcel F	TSB-FR-03	TSB-FR-03-10	N	11/15/2007	10	< 2.7 U	41.5	577		< 5.4 U	6.64	62 J-	648 J
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0	< 2.6 U	38.2 J	302 J		< 5.2 UJ	0.0308 J	165 J	922 J
Parcel F	TSB-FR-04	TSB-FR-04-0-FD	FD	11/16/2007	0	< 2.7 U	< 5.4 UJ	13.7 J		< 5.4 UJ	0.0379 J	14.8 J	1090 J
Parcel F	TSB-FR-04	TSB-FR-04-10	N	11/16/2007	10	< 2.7 U	< 5.4 U	6.5		< 5.4 UJ	1.1	428	911 J
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0	< 2.6 U	< 5.3 U	22.3		< 5.3 UJ	0.0397 J	288	1260 J
Parcel F	TSB-FR-05	TSB-FR-05-10	N	11/16/2007	10	< 2.7 U	< 5.5 U	0.93 J		< 5.5 UJ	0.0273 J	195	702 J
Parcel G	TSB-GJ-01	TSB-GJ-01-0	N	11/16/2007	0	< 2.6 U	7.6	348		< 5.3 UJ	39.9	410	990 J
Parcel G	TSB-GJ-01	TSB-GJ-01-5	N	11/16/2007	5	< 2.7 U	10.1	281		< 5.4 UJ	4.15	531	926 J
Parcel G	TSB-GJ-06	TSB-GJ-06-0	N	11/16/2007	0	< 2.7 U	13.9	568		< 5.4 UJ	4.49	461	1100 J
Parcel G	TSB-GJ-06	TSB-GJ-06-5	N	11/16/2007	5	< 2.7 U	6.1	461		< 5.4 UJ	0.705	950	924 J
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	< 2.5 U	< 5.1 UJ	40.2	< 0.2 U	< 5.1 U	0.528	510	984 J+
Parcel G	TSB-GJ-08	TSB-GJ-08-10	N	6/11/2008	10	< 2.7 U	< 5.4 U	5.5	< 0.21 U	< 5.4 U	0.532	14.4	761 J+
Parcel G	TSB-GJ-08	TSB-GJ-08-20	N	6/11/2008	20	< 3 U	1 J	14.6	< 0.24 U	< 6 U	1.27	285	484 J+
Parcel G	TSB-GJ-08	TSB-GJ-08-30	N	6/11/2008	30	< 4.5 U	4.1 J	106	< 3.6 U	< 9 U	0.761	1010	590 J+
Parcel G	TSB-GJ-08	TSB-GJ-08-40	N	6/11/2008	40	< 4 U	31.5	372	< 3.2 U	< 8.1 U	0.12	438	705 J+
Parcel G	TSB-GJ-09	TSB-GJ-09-0	N	6/4/2008	0	8.5 J	253 J	7960	< 41.1 U	< 5.1 U	138	3310	908 J+
Parcel G	TSB-GJ-09	TSB-GJ-09-0-FD	FD	6/4/2008	0	5.1 J	185 J	5470	< 41.4 U	< 5.2 U	124	2160	868 J+
Parcel G	TSB-GJ-09	TSB-GJ-09-10	N	6/11/2008	10	0.8 J	< 5.3 U	218	< 2.1 U	< 5.3 U	0.935	473	975 J+
Parcel G	TSB-GJ-09	TSB-GJ-09-20	N	6/11/2008	20	< 3.1 U	3.7 J	244	< 2.5 U	< 6.3 U	2.38	11600	528 J+
Parcel G	TSB-GJ-09	TSB-GJ-09-30	N	6/11/2008	30	< 3.6 U	< 7.2 U	201	< 2.9 U	< 7.2 U	0.182	809	687 J+
Parcel G	TSB-GJ-09	TSB-GJ-09-40	N	6/11/2008	40	< 3.9 U	< 7.9 U	62.7	< 0.31 U	< 7.9 U	0.265	470	572 J+
Parcel G	TSB-GR-01	TSB-GR-01-0	N	11/16/2007	0	< 2.6 U	7.8	418		< 5.2 UJ	9.11	265	1030 J
Parcel G	TSB-GR-01	TSB-GR-01-5	N	11/16/2007	5	< 2.6 U	5.5	429		< 5.3 UJ	0.89	453	859 J
Parcel H	TSB-HJ-01	TSB-HJ-01-0	N	1/25/2008	0	< 2.6 U	< 5.2 U	2.5	< 0.21 U	< 5.2 U	0.0966	6.5	1670 J-
Parcel H	TSB-HJ-01	TSB-HJ-01-10	N	1/25/2008	10	< 2.7 U	< 5.3 U	41.3	< 0.21 U	< 5.3 U	0.121	526 J-	1100 J-
Parcel H	TSB-HJ-02	TSB-HJ-02-0	N	1/25/2008	0	< 2.6 U	< 5.2 U	4	< 0.21 U	< 5.2 U	0.0903	13.8	1430 J-
Parcel H	TSB-HJ-02	TSB-HJ-02-10	N	1/25/2008	10	< 2.7 U	< 5.3 U	6.7	< 0.21 U	< 5.3 U	0.795	120 J-	1070 J-
Parcel H	TSB-HJ-03	TSB-HJ-03-0	N	1/25/2008	0	< 2.7 U	< 5.3 U	4.4 J	< 0.21 U	< 5.3 U	0.0199 J	92.3 J-	1560 J-
Parcel H	TSB-HJ-03	TSB-HJ-03-0-FD	FD	1/25/2008	0	< 2.6 U	< 5.2 U	0.85 J	< 0.21 U	< 5.2 U	0.284 J	87.4	1350 J-
Parcel H	TSB-HJ-03	TSB-HJ-03-10	N	1/25/2008	10	< 2.7 U	< 5.3 U	3.3	< 0.21 U	< 5.3 U	< 0.0424 U	21.6	1300 J-
Parcel H	TSB-HJ-04	TSB-HJ-04-0	N	1/24/2008	0	< 2.7 U	< 5.4 U	33.5	< 0.22 U	< 5.4 U	0.302	65.8	1360 J-
Parcel H	TSB-HJ-04	TSB-HJ-04-10	N	1/24/2008	10	< 2.7 U	2.2 J	14.4	< 0.21 U	< 5.3 U	1.46	501	857 J-
Parcel H	TSB-HJ-05	TSB-HJ-05-0	N	1/24/2008	0	< 2.6 U	< 5.2 U	1 J	< 0.21 U	< 5.2 U	0.0306	4.8 J	1550 J-
Parcel H	TSB-HJ-05	TSB-HJ-05-10	N	1/24/2008	10	< 2.7 U	< 5.4 U	< 2.1 U	< 0.21 U	< 5.4 U	0.0057 J	3.5 J	1480 J-
Parcel H	TSB-HJ-06	TSB-HJ-06-0_RE	N	1/24/2008	0	< 2.8 U	< 5.5 U	13.9	< 0.22 U	< 5.5 U	0.027	5.3 J	1540 J-
Parcel H	TSB-HJ-06	TSB-HJ-06-10_RE	N	1/24/2008	10	< 2.7 U	10.3	33.3	< 0.22 U	< 5.4 U	4.33	125	1120 J-
Parcel H	TSB-HJ-07	TSB-HJ-07-0	N	1/24/2008	0	< 2.7 U	< 5.4 U	18.2 J	< 0.22 U	< 5.4 U	0.0086 J	8.9	1350 J-
Parcel H	TSB-HJ-07	TSB-HJ-07-0-FD	FD	1/24/2008	0	< 2.7 U	< 5.3 U	7.7 J	< 0.21 U	< 5.3 U	0.0128	6.8	1480 J-
Parcel H	TSB-HJ-07	TSB-HJ-07-10	N	1/24/2008	10	< 2.7 U	< 5.4 U	6.4	< 0.21 U	< 5.4 U	0.0185	20.8	1610 J-

TABLE D-7
Parcel General Chemistry Soil Results

Analyte Units						Bromide mg/kg	Chlorate mg/kg	Chloride mg/kg	Nitrite mg/kg	ortho-Phosphate mg/kg	Perchlorate mg/kg	Sulfate mg/kg	Total Phosphorus-P mg/kg
2010 NDEP BCL						--	--	--	--	--	795	--	--
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result	Result
Parcel H	TSB-HJ-08	TSB-HJ-08-0	N	1/28/2008	0	< 2.7 U	< 5.4 U	97.2	< 0.22 U	< 5.4 U	1.04	24.5	1280
Parcel H	TSB-HJ-08	TSB-HJ-08-10	N	1/28/2008	10	< 2.7 U	< 5.4 U	86.8 J-	< 0.22 U	< 5.4 U	0.468	32.1	1170
Parcel H	TSB-HJ-09	TSB-HJ-09-0	N	1/25/2008	0	0.77 J	< 5.5 U	495	< 0.22 U	< 5.5 U	1.56	78.6 J-	1250 J-
Parcel H	TSB-HJ-09	TSB-HJ-09-10	N	1/25/2008	10	< 2.7 U	< 5.3 U	400	< 0.21 U	< 5.3 U	1.16	148 J-	1570 J-
Parcel H	TSB-HJ-10	TSB-HJ-10-0	N	1/28/2008	0	2 J	< 5.3 U	820	< 0.21 U	< 5.3 U	0.877	403	2020
Parcel H	TSB-HJ-10	TSB-HJ-10-10	N	1/28/2008	10	< 2.6 U	< 5.2 U	2.3	< 0.21 U	< 5.2 U	< 0.0105 U	12.3	832
Parcel H	TSB-HJ-11	TSB-HJ-11-0	N	1/25/2008	0	< 2.6 U	< 5.2 U	1.8 J	< 0.21 U	< 5.2 U	0.0166 J	30	1210 J-
Parcel H	TSB-HJ-11	TSB-HJ-11-10	N	1/25/2008	10	< 2.7 U	< 5.3 U	10.8	< 0.21 U	< 5.3 U	< 0.0427 UJ	24.4	1210 J-
Parcel H	TSB-HJ-11	TSB-HJ-11-10-FD	FD	1/25/2008	10	< 2.6 U	< 5.3 U	8.9	< 0.21 U	< 5.3 U	0.17 J	29.1	1240 J-
Parcel H	TSB-HR-01	TSB-HR-01-0	N	1/25/2008	0	< 2.7 U	< 5.5 U	1.3 J	< 0.22 U	< 5.5 U	< 0.0438 U	2.2 J	894 J-
Parcel H	TSB-HR-01	TSB-HR-01-10	N	1/25/2008	10	1.5 J	1.4 J	266	< 0.21 U	< 5.3 U	0.862	114	860 J-
Parcel H	TSB-HR-02	TSB-HR-02-0	N	1/25/2008	0	< 2.6 U	< 5.3 U	0.65 J	< 0.21 U	< 5.3 U	< 0.0422 U	211	1480 J-
Parcel H	TSB-HR-02	TSB-HR-02-10	N	1/25/2008	10	< 2.6 U	2.5 J	63.4	< 0.21 U	< 5.3 U	0.899	324	1080 J-
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0	< 2.6 U	< 5.3 U	0.99 J	0.13 J	< 5.3 U	0.0119 J	5.1 J	1890 J-
Parcel H	TSB-HR-03	TSB-HR-03-10	N	1/25/2008	10	2.3 J	< 5.3 U	360	< 0.21 U	< 5.3 U	0.0191 J	60.9	1440 J-
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0	< 2.6 U	6.3	130	< 0.21 U	< 5.2 U	22.2	53.7	1010 J-
Parcel H	TSB-HR-04	TSB-HR-04-10	N	1/24/2008	10	< 2.7 U	3.1 J	49.3	< 0.21 U	< 5.3 U	1.39	640	1330 J-
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0	< 2.7 U	< 5.4 U	11.2 J-	< 0.22 U	< 5.4 U	0.108	40.5	667 J
Parcel H	TSB-HR-05	TSB-HR-05-10	N	1/28/2008	10	1.8 J	< 5.4 U	391	< 0.21 U	< 5.4 U	0.0191	14.3	1120
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0	< 2.6 U	< 5.2 U	0.4 J	< 0.21 U	< 5.2 U	< 0.0104 U	4.8 J	1600
Parcel H	TSB-HR-06	TSB-HR-06-0-FD	FD	1/28/2008	0	< 2.7 U	< 5.4 U	0.81 J	< 0.22 U	< 5.4 U	0.0024 J	15.4 J	1250
Parcel H	TSB-HR-06	TSB-HR-06-10	N	1/28/2008	10	< 2.7 U	< 5.3 U	6.1	< 0.21 U	< 5.3 U	0.0595	31.1	1120
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0	< 2.7 U	< 5.4 U	< 2.1 U	< 0.21 U	< 5.4 U	< 0.0107 U	3.9 J	1150 J-
Parcel H	TSB-HR-07	TSB-HR-07-10	N	1/24/2008	10	< 2.7 U	1.2 J	5.9	< 0.22 U	< 5.4 U	0.4	41.3	1290 J-
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0	< 2.7 U	< 5.3 U	4.1	< 0.21 U	< 5.3 U	0.114	10.6	1940 J-
Parcel H	TSB-HR-08	TSB-HR-08-10	N	1/24/2008	10	< 2.7 U	< 5.5 U	5.2	< 0.22 U	< 5.5 U	0.253	311	1220 J-

**TABLE D-8
Parcel Aroclors Soil Results**

Analyte Units						Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260
2010 NDEP BCL						23.6	0.826	0.826	0.826	0.826	0.826	0.826
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result
Parcel F	TSB-FJ-01	TSB-FJ-01-0	N	11/16/2007	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel F	TSB-FJ-02	TSB-FJ-02-0	N	11/15/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-02	TSB-FJ-02-0 FD	FD	11/15/2007	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-0	N	6/4/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-10	N	6/10/2008	10	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-20	N	6/10/2008	20	< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U	< 0.04 U
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-30	N	6/10/2008	30	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U	< 0.043 U
Parcel F	TSB-FJ-03	TSB-FJ-03-0	N	11/15/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-03	TSB-FJ-03-0 FD	FD	11/15/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	0.074 J	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-04	TSB-FJ-04-0	N	11/15/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0	< 0.033 U	< 0.033 U	< 0.033 U	< 0.033 U	< 0.033 U	0.29 J+	< 0.033 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20	< 0.042 U	< 0.042 U	< 0.042 U	< 0.042 U	< 0.042 U	< 0.042 U	< 0.042 U
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FR-02	Q3-PF-3-1-0.0	N	4/6/2010	0	< 0.0083 U	< 0.011 U	< 0.0083 U	< 0.0083 U	< 0.0083 U	< 0.0083 U	< 0.0083 U
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	0.76 J+	< 0.034 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10	< 0.038 U	< 0.038 U	< 0.038 U	< 0.038 U	< 0.038 U	< 0.038 U	< 0.038 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10-FD	FD	6/10/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30	< 0.048 U	< 0.048 U	< 0.048 U	< 0.048 U	< 0.048 U	< 0.048 U	< 0.048 U
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0	< 0.033 U	< 0.033 U	< 0.033 U	< 0.033 U	< 0.033 U	< 0.033 U	< 0.033 U
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel F	TSB-FR-04	TSB-FR-04-0-FD	FD	11/16/2007	0	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel G	TSB-GJ-08	TSB-GJ-08-10	N	6/11/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel G	TSB-GJ-08	TSB-GJ-08-20	N	6/11/2008	20	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U
Parcel G	TSB-GJ-08	TSB-GJ-08-30	N	6/11/2008	30	< 0.059 U	< 0.059 U	< 0.059 U	< 0.059 U	< 0.059 U	< 0.059 U	< 0.059 U
Parcel G	TSB-GJ-08	TSB-GJ-08-40	N	6/11/2008	40	< 0.053 U	< 0.053 U	< 0.053 U	< 0.053 U	< 0.053 U	< 0.053 U	< 0.053 U
Parcel G	TSB-GJ-09	TSB-GJ-09-0	N	6/4/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel G	TSB-GJ-09	TSB-GJ-09-0-FD	FD	6/4/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel G	TSB-GJ-09	TSB-GJ-09-10	N	6/11/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel G	TSB-GJ-09	TSB-GJ-09-20	N	6/11/2008	20	< 0.041 U	< 0.041 U	< 0.041 U	< 0.041 U	< 0.041 U	< 0.041 U	< 0.041 U
Parcel G	TSB-GJ-09	TSB-GJ-09-30	N	6/11/2008	30	< 0.047 U	< 0.047 U	< 0.047 U	< 0.047 U	< 0.047 U	< 0.047 U	< 0.047 U
Parcel G	TSB-GJ-09	TSB-GJ-09-40	N	6/11/2008	40	< 0.052 U	< 0.052 U	< 0.052 U	< 0.052 U	< 0.052 U	< 0.052 U	< 0.052 U
Parcel H	TSB-HJ-01	TSB-HJ-01-0	N	1/25/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-01	TSB-HJ-01-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-02	TSB-HJ-02-0	N	1/25/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-02	TSB-HJ-02-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-03	TSB-HJ-03-0	N	1/25/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U

**TABLE D-8
Parcel Aroclors Soil Results**

Analyte Units						Aroclor-1016	Aroclor-1221	Aroclor-1232	Aroclor-1242	Aroclor-1248	Aroclor-1254	Aroclor-1260
2010 NDEP BCL						23.6	0.826	0.826	0.826	0.826	0.826	0.826
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Result	Result	Result	Result	Result	Result	Result
Parcel H	TSB-HJ-03	TSB-HJ-03-0-FD	FD	1/25/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel H	TSB-HJ-03	TSB-HJ-03-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-04	TSB-HJ-04-0	N	1/24/2008	0	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HJ-04	TSB-HJ-04-10	N	1/24/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-05	TSB-HJ-05-0	N	1/24/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-05	TSB-HJ-05-10	N	1/24/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-06	TSB-HJ-06-0_RE	N	1/24/2008	0	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U
Parcel H	TSB-HJ-06	TSB-HJ-06-10_RE	N	1/24/2008	10	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HJ-07	TSB-HJ-07-0	N	1/24/2008	0	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HJ-07	TSB-HJ-07-0-FD	FD	1/24/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-07	TSB-HJ-07-10	N	1/24/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-08	TSB-HJ-08-0	N	1/28/2008	0	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HJ-08	TSB-HJ-08-10	N	1/28/2008	10	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HJ-09	TSB-HJ-09-0	N	1/25/2008	0	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U	< 0.037 U
Parcel H	TSB-HJ-09	TSB-HJ-09-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-10	TSB-HJ-10-0	N	1/28/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-10	TSB-HJ-10-10	N	1/28/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-11	TSB-HJ-11-0	N	1/25/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-11	TSB-HJ-11-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HJ-11	TSB-HJ-11-10-FD	FD	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-01	TSB-HR-01-0	N	1/25/2008	0	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HR-01	TSB-HR-01-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-02	TSB-HR-02-0	N	1/25/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-02	TSB-HR-02-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-03	TSB-HR-03-10	N	1/25/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel H	TSB-HR-04	TSB-HR-04-10	N	1/24/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HR-05	TSB-HR-05-10	N	1/28/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U	< 0.034 U
Parcel H	TSB-HR-06	TSB-HR-06-0-FD	FD	1/28/2008	0	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HR-06	TSB-HR-06-10	N	1/28/2008	10	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-07	TSB-HR-07-10	N	1/24/2008	10	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U	< 0.035 U
Parcel H	TSB-HR-08	TSB-HR-08-10	N	1/24/2008	10	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U


 Soil sample excavated and data excluded from HRA calculations

TABLE D-9
Parcel Total Petroleum Hydrocarbons (TPH) Soil Results

Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Analyte Name		Total petroleum hydrocarbon-diesel		Total petroleum hydrocarbon-gasoline	
						Units	mg/kg	mg/kg	mg/kg		
							Result		Result		Result
Parcel C	TSB-CJ-01	TSB-CJ-01-0	N	11/12/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-01	TSB-CJ-01-0 FD	FD	11/12/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-01	TSB-CJ-01-10	N	11/12/2007	10		< 26	U	< 0.11	U	
Parcel C	TSB-CJ-02	TSB-CJ-02-0	N	11/12/2007	0		< 26	U	< 0.11	U	
Parcel C	TSB-CJ-02	TSB-CJ-02-10	N	11/12/2007	10		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-03	TSB-CJ-03-0	N	11/9/2007	0		< 26	U	< 0.11	U	
Parcel C	TSB-CJ-03	TSB-CJ-03-10	N	11/9/2007	10		< 27	U	< 0.11	U	
Parcel C	TSB-CJ-04	TSB-CJ-04-0	N	11/9/2007	0		< 26	U	< 0.11	U	
Parcel C	TSB-CJ-04	TSB-CJ-04-10	N	11/9/2007	10		< 27	U	< 0.11	U	
Parcel C	TSB-CJ-05	TSB-CJ-05-0	N	11/12/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-05	TSB-CJ-05-10	N	11/12/2007	10		< 27	U	< 0.11	U	
Parcel C	TSB-CJ-06	TSB-CJ-06-0	N	11/12/2007	0		< 25	U	< 0.1	UJ	
Parcel C	TSB-CJ-06	TSB-CJ-06-0 FD	FD	11/12/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-06	TSB-CJ-06-10	N	11/12/2007	10		< 29	U	< 0.11	U	
Parcel C	TSB-CJ-07	TSB-CJ-07-0	N	11/9/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-07	TSB-CJ-07-10	N	11/9/2007	10		< 28	U	< 0.11	U	
Parcel C	TSB-CJ-08	TSB-CJ-08-0	N	11/9/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-08	TSB-CJ-08-0-FD	FD	11/9/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CJ-08	TSB-CJ-08-10	N	11/9/2007	10		< 27	U	< 0.11	U	
Parcel C	TSB-CR-01	TSB-CR-01-0	N	11/12/2007	0		< 25	U	< 0.1	U	
Parcel C	TSB-CR-01	TSB-CR-01-10	N	11/12/2007	10		< 26	U	< 0.1	U	
Parcel C	TSB-CR-02	TSB-CR-02-0	N	11/12/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CR-02	TSB-CR-02-10	N	11/12/2007	10		< 27	U	< 0.11	U	
Parcel C	TSB-CR-03	TSB-CR-03-0	N	11/12/2007	0		< 25	U	< 0.1	U	
Parcel C	TSB-CR-03	TSB-CR-03-10	N	11/12/2007	10		< 26	U	< 0.1	U	
Parcel C	TSB-CR-04	TSB-CR-04-0	N	11/13/2007	0		< 25	U	< 0.1	UJ	
Parcel C	TSB-CR-04	TSB-CR-04-10	N	11/13/2007	10		< 28	U	< 0.11	UJ	
Parcel C	TSB-CR-05	TSB-CR-05-0	N	11/13/2007	0		< 26	U			
Parcel C	TSB-CR-05	TSB-CR-05-10	N	11/13/2007	10		< 27	U	< 0.11	UJ	
Parcel C	TSB-CR-06	TSB-CR-06-0	N	11/13/2007	0		< 26	U	< 0.1	U	
Parcel C	TSB-CR-06	TSB-CR-06-10	N	11/13/2007	10		< 27	U	< 0.11	U	
Parcel C	TSB-CR-07	TSB-CR-07-0	N	11/9/2007	0		< 25	U	< 0.1	U	

TABLE D-9
Parcel Total Petroleum Hydrocarbons (TPH) Soil Results

Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Analyte Name		Total petroleum hydrocarbon-diesel		Total petroleum hydrocarbon-gasoline	
						Units	mg/kg	mg/kg	mg/kg		
							Result		Result		Result
Parcel C	TSB-CR-07	TSB-CR-07-10	N	11/9/2007	10		< 28	U	< 0.11	U	
Parcel D	TSB-DJ-01	TSB-DJ-01-0	N	11/13/2007	0		< 26	U	< 0.1	UJ	
Parcel D	TSB-DJ-01	TSB-DJ-01-10	N	11/13/2007	10		< 27	U	< 0.11	UJ	
Parcel D	TSB-DR-01	TSB-DR-01-0	N	11/14/2007	0		< 25	U	< 0.1	UJ	
Parcel D	TSB-DR-01	TSB-DR-01-10	N	11/14/2007	10		< 26	U	< 0.1	UJ	
Parcel D	TSB-DR-02	TSB-DR-02-0	N	11/14/2007	0		< 25	U	< 0.1	U	
Parcel D	TSB-DR-02	TSB-DR-02-0 FD	FD	11/14/2007	0		< 25	U			
Parcel D	TSB-DR-02	TSB-DR-02-10	N	11/14/2007	10		< 27	U	< 0.11	UJ	
Parcel D	TSB-DR-03	TSB-DR-03-0	N	11/13/2007	0		< 25	U	< 0.1	U	
Parcel D	TSB-DR-03	TSB-DR-03-10	N	11/13/2007	10		< 27	U	< 0.11	UJ	
Parcel D	TSB-DR-04	TSB-DR-04-0	N	11/13/2007	0		< 25	U	< 0.1	UJ	
Parcel D	TSB-DR-04	TSB-DR-04-10	N	11/13/2007	10		< 26	U	< 0.11	UJ	
Parcel D	TSB-DR-05	TSB-DR-05-0	N	11/13/2007	0		< 25	U	< 0.1	UJ	
Parcel D	TSB-DR-05	TSB-DR-05-0-FD	FD	11/13/2007	0		< 25	U	< 0.1	UJ	
Parcel D	TSB-DR-05	TSB-DR-05-10	N	11/13/2007	10		< 27	U	< 0.11	UJ	
Parcel D	TSB-DR-06	TSB-DR-06-0	N	11/13/2007	0		< 25	U	< 0.1	UJ	
Parcel D	TSB-DR-06	TSB-DR-06-10	N	11/13/2007	10		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-01	TSB-FJ-01-0	N	11/16/2007	0		< 26	U	< 0.1	UJ	
Parcel F	TSB-FJ-01	TSB-FJ-01-10	N	11/16/2007	10		< 27	U	< 0.11	UJ	
Parcel F	TSB-FJ-02	TSB-FJ-02-0	N	11/15/2007	0		< 27	U			
Parcel F	TSB-FJ-02	TSB-FJ-02-0 FD	FD	11/15/2007	0		< 26	U	< 0.1	UJ	
Parcel F	TSB-FJ-02	TSB-FJ-02-10	N	11/15/2007	10		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-0	N	6/4/2008	0		< 25	U	< 0.1	U	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-10	N	6/10/2008	10		< 33	U	< 0.13	U	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-20	N	6/10/2008	20		< 30	U	< 0.12	U	
Parcel F	TSB-FJ-02-02	TSB-FJ-02-02-30	N	6/10/2008	30		< 32	U	< 0.13	U	
Parcel F	TSB-FJ-03	TSB-FJ-03-0	N	11/15/2007	0		< 26	U	< 0.1	UJ	
Parcel F	TSB-FJ-03	TSB-FJ-03-0 FD	FD	11/15/2007	0		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-03	TSB-FJ-03-10	N	11/15/2007	10		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-04	TSB-FJ-04-0	N	11/15/2007	0		< 26	U	< 0.1	UJ	
Parcel F	TSB-FJ-04	TSB-FJ-04-10	N	11/15/2007	10		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-05	TSB-FJ-05-0	N	11/14/2007	0		< 27	U	< 0.11	UJ	

TABLE D-9
Parcel Total Petroleum Hydrocarbons (TPH) Soil Results

Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Analyte Name		Total petroleum hydrocarbon-diesel		Total petroleum hydrocarbon-gasoline	
						Units	mg/kg	mg/kg	mg/kg		
							Result		Result		Result
Parcel F	TSB-FJ-05	TSB-FJ-05-10	N	11/14/2007	10		< 26	U	< 0.1	UJ	
Parcel F	TSB-FJ-06	TSB-FJ-06-0	N	11/14/2007	0		< 26	U	< 0.1	UJ	
Parcel F	TSB-FJ-06	TSB-FJ-06-0 FD	FD	11/14/2007	0		< 25	U	< 0.1	UJ	
Parcel F	TSB-FJ-06	TSB-FJ-06-10	N	11/14/2007	10		< 25	U	< 0.1	U	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-0	N	6/4/2008	0		41		< 0.1	U	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-10	N	6/10/2008	10		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-20	N	6/10/2008	20		< 32	U	< 0.13	U	
Parcel F	TSB-FJ-06-02	TSB-FJ-06-02-30	N	6/10/2008	30		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-07	TSB-FJ-07-0	N	11/14/2007	0		< 27	U	< 0.11	UJ	
Parcel F	TSB-FJ-07	TSB-FJ-07-10	N	11/14/2007	10		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0		< 27	U	< 0.11	UJ	
Parcel F	TSB-FJ-08	TSB-FJ-08-10	N	11/16/2007	10		< 28	U	< 0.11	U	
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-09	TSB-FJ-09-10	N	11/15/2007	10		< 27	U	< 0.11	U	
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0		< 27	U	0.29	J-	
Parcel F	TSB-FJ-10	TSB-FJ-10-10	N	11/15/2007	10		< 26	U	< 0.1	U	
Parcel F	TSB-FR-01	TSB-FR-01-0	N	11/14/2007	0		< 26	U	< 0.1	U	
Parcel F	TSB-FR-01	TSB-FR-01-10	N	11/14/2007	10		< 27	U	< 0.11	UJ	
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0		66		< 0.1	UJ	
Parcel F	TSB-FR-02	TSB-FR-02-10	N	11/15/2007	10		< 28	U	< 0.11	UJ	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-0	N	6/4/2008	0		36		< 0.1	U	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10	N	6/10/2008	10		< 29	U	< 0.11	U	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-10-FD	FD	6/10/2008	10		< 27	U	< 0.11	U	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-20	N	6/10/2008	20		< 28	U	< 0.11	U	
Parcel F	TSB-FR-02-02	TSB-FR-02-02-30	N	6/10/2008	30		< 36	U	< 0.14	U	
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0		< 25	U	< 0.1	UJ	
Parcel F	TSB-FR-03	TSB-FR-03-10	N	11/15/2007	10		< 27	U	< 0.11	UJ	
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0		280	J	< 0.1	U	
Parcel F	TSB-FR-04	TSB-FR-04-0-FD	FD	11/16/2007	0		5500	J	< 0.11	UJ	
Parcel F	TSB-FR-04	TSB-FR-04-10	N	11/16/2007	10		< 27	U	< 0.11	UJ	
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0		< 26	U			
Parcel F	TSB-FR-05	TSB-FR-05-10	N	11/16/2007	10		< 27	U	< 0.11	U	

TABLE D-9
Parcel Total Petroleum Hydrocarbons (TPH) Soil Results

Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Analyte Name		Total petroleum hydrocarbon-diesel		Total petroleum hydrocarbon-gasoline	
						Units	mg/kg	mg/kg	mg/kg		
							Result		Result		Result
Parcel G	TSB-GJ-01	TSB-GJ-01-0	N	11/16/2007	0		< 26	U	< 0.11		U
Parcel G	TSB-GJ-01	TSB-GJ-01-5	N	11/16/2007	5		< 27	U	< 0.11		UJ
Parcel G	TSB-GJ-06	TSB-GJ-06-0	N	11/16/2007	0		< 27	U	< 0.11		UJ
Parcel G	TSB-GJ-06	TSB-GJ-06-5	N	11/16/2007	5		< 27	U	< 0.11		U
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0		< 1300	U	< 0.1		U
Parcel G	TSB-GJ-08	TSB-GJ-08-10	N	6/11/2008	10		< 27	U	< 0.11		U
Parcel G	TSB-GJ-08	TSB-GJ-08-20	N	6/11/2008	20		< 30	UJ	< 0.12		U
Parcel G	TSB-GJ-08	TSB-GJ-08-30	N	6/11/2008	30		< 45	U	< 0.18		U
Parcel G	TSB-GJ-08	TSB-GJ-08-40	N	6/11/2008	40		< 40	U	< 0.16		U
Parcel G	TSB-GJ-09	TSB-GJ-09-0	N	6/4/2008	0		< 260	U	< 0.1		U
Parcel G	TSB-GJ-09	TSB-GJ-09-0-FD	FD	6/4/2008	0		< 26	U	< 0.1		U
Parcel G	TSB-GJ-09	TSB-GJ-09-10	N	6/11/2008	10		< 27	U	< 0.11		U
Parcel G	TSB-GJ-09	TSB-GJ-09-20	N	6/11/2008	20		< 31	U	< 0.13		U
Parcel G	TSB-GJ-09	TSB-GJ-09-30	N	6/11/2008	30		< 36	U	< 0.14		U
Parcel G	TSB-GJ-09	TSB-GJ-09-40	N	6/11/2008	40		< 39	U	< 0.16		U
Parcel G	TSB-GR-01	TSB-GR-01-0	N	11/16/2007	0		< 26	U			
Parcel G	TSB-GR-01	TSB-GR-01-5	N	11/16/2007	5		< 26	U	< 0.11		UJ
Parcel H	TSB-HJ-01	TSB-HJ-01-0	N	1/25/2008	0		< 26	U	< 0.1		U
Parcel H	TSB-HJ-01	TSB-HJ-01-10	N	1/25/2008	10		< 27	UJ	< 0.11		U
Parcel H	TSB-HJ-02	TSB-HJ-02-0	N	1/25/2008	0		< 26	U	< 0.1		U
Parcel H	TSB-HJ-02	TSB-HJ-02-10	N	1/25/2008	10		< 27	U	< 0.11		U
Parcel H	TSB-HJ-03	TSB-HJ-03-0	N	1/25/2008	0		< 27	U	< 0.11		U
Parcel H	TSB-HJ-03	TSB-HJ-03-0-FD	FD	1/25/2008	0		< 26	U	< 0.1		U
Parcel H	TSB-HJ-03	TSB-HJ-03-10	N	1/25/2008	10		< 27	U	< 0.11		U
Parcel H	TSB-HJ-04	TSB-HJ-04-0	N	1/24/2008	0		6.6	J	< 0.11		U
Parcel H	TSB-HJ-04	TSB-HJ-04-10	N	1/24/2008	10		< 27	U	< 0.11		U
Parcel H	TSB-HJ-05	TSB-HJ-05-0	N	1/24/2008	0		< 26	U	< 0.1		U
Parcel H	TSB-HJ-05	TSB-HJ-05-10	N	1/24/2008	10		< 27	U	< 0.11		U
Parcel H	TSB-HJ-06	TSB-HJ-06-0_RE	N	1/24/2008	0		< 28	U	< 0.11		U
Parcel H	TSB-HJ-06	TSB-HJ-06-10_RE	N	1/24/2008	10		< 27	UJ	< 0.11		U
Parcel H	TSB-HJ-07	TSB-HJ-07-0	N	1/24/2008	0		< 27	U	< 0.11		U
Parcel H	TSB-HJ-07	TSB-HJ-07-0-FD	FD	1/24/2008	0		< 27	U			

TABLE D-9
Parcel Total Petroleum Hydrocarbons (TPH) Soil Results

Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	Analyte Name		Total petroleum hydrocarbon-diesel		Total petroleum hydrocarbon-gasoline	
						Units	mg/kg	mg/kg	mg/kg		
							Result		Result		
Parcel H	TSB-HJ-07	TSB-HJ-07-10	N	1/24/2008	10		< 27	U	< 0.11	U	
Parcel H	TSB-HJ-08	TSB-HJ-08-0	N	1/28/2008	0		< 27	U	< 0.11	U	
Parcel H	TSB-HJ-08	TSB-HJ-08-10	N	1/28/2008	10		< 27	U	< 0.11	U	
Parcel H	TSB-HJ-09	TSB-HJ-09-0	N	1/25/2008	0		< 28	UJ	< 0.11	U	
Parcel H	TSB-HJ-09	TSB-HJ-09-10	N	1/25/2008	10		< 27	U	< 0.11	U	
Parcel H	TSB-HJ-10	TSB-HJ-10-0	N	1/28/2008	0		< 26	U	< 0.11	U	
Parcel H	TSB-HJ-10	TSB-HJ-10-10	N	1/28/2008	10		< 26	U	< 0.1	U	
Parcel H	TSB-HJ-11	TSB-HJ-11-0	N	1/25/2008	0		< 26	U	< 0.1	U	
Parcel H	TSB-HJ-11	TSB-HJ-11-10	N	1/25/2008	10		< 27	U	< 0.11	U	
Parcel H	TSB-HJ-11	TSB-HJ-11-10-FD	FD	1/25/2008	10		< 26	U	< 0.11	U	
Parcel H	TSB-HR-01	TSB-HR-01-0	N	1/25/2008	0		< 27	U	< 0.11	U	
Parcel H	TSB-HR-01	TSB-HR-01-10	N	1/25/2008	10		< 26	U	< 0.11	U	
Parcel H	TSB-HR-02	TSB-HR-02-0	N	1/25/2008	0		< 26	U	< 0.11	U	
Parcel H	TSB-HR-02	TSB-HR-02-10	N	1/25/2008	10		< 26	U	< 0.11	U	
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0		< 26	U	< 0.11	U	
Parcel H	TSB-HR-03	TSB-HR-03-10	N	1/25/2008	10		< 26	U	< 0.11	U	
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0		< 26	U	< 0.1	U	
Parcel H	TSB-HR-04	TSB-HR-04-10	N	1/24/2008	10		< 27	U	< 0.11	U	
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0		< 27	U	< 0.11	U	
Parcel H	TSB-HR-05	TSB-HR-05-10	N	1/28/2008	10		< 27	UJ	< 0.11	U	
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0		< 26	U	< 0.1	U	
Parcel H	TSB-HR-06	TSB-HR-06-0-FD	FD	1/28/2008	0		< 27	U	< 0.11	U	
Parcel H	TSB-HR-06	TSB-HR-06-10	N	1/28/2008	10		< 27	U	< 0.11	U	
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0		13	J	< 0.11	U	
Parcel H	TSB-HR-07	TSB-HR-07-10	N	1/24/2008	10		< 27	U	< 0.11	U	
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0		< 27	U	< 0.11	U	
Parcel H	TSB-HR-08	TSB-HR-08-10	N	1/24/2008	10		< 27	UJ	< 0.11	U	

TABLE D-10
Parcel Asbestos Soil Results

Analyte Name Units						Long Amphibole Protocol Structures Count	Long Asbestos Protocol Structures Count	Long Chrysotile Protocol Structures Count	Short Amphibole Protocol Structures Count (1)	Short Asbestos Protocol Structures Count (1)	Short Chrysotile Protocol Structures Count (1)	Total Amphibole Protocol Structures Count	Total Asbestos Protocol Structures Count	Total Chrysotile Protocol Structures Count	s/gPM10
Parcel	Sample ID	Sample Name	Sample Type	Sample Date	Start Depth (ft)	s/samp	s/samp	s/samp	s/samp	s/samp	s/samp	s/samp	s/samp	s/samp	
Parcel C	G1-PC-1-1	G1-PC-1-1-0.0	N	4/13/2010	0	0	0	0	0	0	0	0	0	0	2960000
Parcel C	H2-PC-1-1	H2-PC-1-1-0.0	N	4/13/2010	0	0	0	0	0	0	0	0	0	0	2970000
Parcel C	TSB-CJ-01	TSB-CJ-01-0	N	11/12/2007	0	0	1	1	0	0	0	0	1	1	2996902
Parcel C	TSB-CJ-02	TSB-CJ-02-0	N	11/12/2007	0	0	0	0	0	0	0	0	0	0	2985422
Parcel C	TSB-CJ-03	TSB-CJ-03-0	N	11/9/2007	0	1	1	1	0	2	2	1	3	3	2669977
Parcel C	TSB-CJ-04	TSB-CJ-04-0	N	11/9/2007	0	0	1	1	0	1	1	0	2	2	2939784
Parcel C	TSB-CJ-05	TSB-CJ-05-0	N	11/12/2007	0	0	0	0	0	0	0	0	0	0	2975225
Parcel C	TSB-CJ-06	TSB-CJ-06-0	N	11/12/2007	0	0	0	0	1	2	2	1	2	2	2989641
Parcel C	TSB-CJ-07	TSB-CJ-07-0	N	11/9/2007	0	0	0	0	1	1	0	1	1	0	2977917
Parcel C	TSB-CJ-08	TSB-CJ-08-0	N	11/9/2007	0	0	1	1	1	4	4	1	5	5	2985422
Parcel C	TSB-CJ-10	TSB-CJ-10-0	N	7/8/2008	0	0	0	0	0	0	0	0	0	0	2973432
Parcel C	TSB-CJ-11	TSB-CJ-11-0	N	7/8/2008	0	0	0	0	1	0	0	1	1	0	2999026
Parcel C	TSB-CR-01	TSB-CR-01-0	N	11/12/2007	0	0	1	1	1	2	2	1	3	3	2978516
Parcel C	TSB-CR-01	TSB-CR-01-0 FD	FD	11/12/2007	0	0	1	1	0	1	1	0	2	2	2978516
Parcel C	TSB-CR-02	TSB-CR-02-0	N	11/12/2007	0	1	3	3	1	5	5	2	8	8	2959171
Parcel C	TSB-CR-03	TSB-CR-03-0	N	11/12/2007	0	0	7	7	0	2	2	0	9	9	2958580
Parcel C	TSB-CR-04	TSB-CR-04-0	N	11/13/2007	0	0	0	0	0	0	0	0	0	0	2985422
Parcel C	TSB-CR-05	TSB-CR-05-0	N	11/13/2007	0	0	2	2	0	0	0	0	2	2	2854495
Parcel C	TSB-CR-06	TSB-CR-06-0	N	11/13/2007	0	0	0	0	0	0	0	0	0	0	2997509
Parcel C	TSB-CR-07	TSB-CR-07-0	N	11/9/2007	0	0	2	2	0	4	4	0	6	6	2975225
Parcel C	E1-PC-1-1	E1-PC-1-1-0.0	N	4/13/2010	0	0	0	0	0	0	0	0	0	0	2960000
Parcel D	F4-PD-1-1	F4-PD-1-1-0.0	N	4/13/2010	0	0	0	0	0	0	0	0	0	0	2990000
Parcel D	TSB-DJ-01	TSB-DJ-01-0	N	11/13/2007	0	0	2	2	0	1	1	0	3	3	2956512
Parcel D	TSB-DR-01	TSB-DR-01-0	N	11/14/2007	0	0	0	0	0	0	0	0	0	0	2981515
Parcel D	TSB-DR-02	TSB-DR-02-0	N	11/14/2007	0	0	0	0	0	0	0	0	0	0	2964503
Parcel D	TSB-DR-02	TSB-DR-02-0 FD	FD	11/14/2007	0	0	0	0	0	0	0	0	0	0	2964503
Parcel D	TSB-DR-03	TSB-DR-03-0	N	11/13/2007	0	0	0	0	1	1	0	1	1	0	2997812
Parcel D	TSB-DR-04	TSB-DR-04-0	N	11/13/2007	0	0	4	4	0	1	1	0	5	5	2983016
Parcel D	TSB-DR-05	TSB-DR-05-0	N	11/13/2007	0	0	0	0	0	0	0	0	0	0	2995083
Parcel D	TSB-DR-06	TSB-DR-06-0	N	11/13/2007	0	0	2	2	0	0	0	0	2	2	2960058
Parcel D	TSB-DR-04E	TSB-DR-04E-0	N	6/4/2008	0	0	3	3	0	3	3	0	6	6	2961242
Parcel D	TSB-DR-04W	TSB-DR-04W-0	N	6/4/2008	0	0	0	0	0	1	1	0	1	1	2998419
Parcel D	TSB-DR-04W	TSB-DR-04W-0-FD	FD	6/4/2008	0	0	0	0	0	0	0	0	0	0	2972537
Parcel F	P2-PF-1-1	P2-PF-1-1-0.0	N	4/6/2010	0	0	0	0	0	0	0	0	0	0	2960000
Parcel F	P3-PF-1-1	P3-PF-1-1-0.0	N	4/6/2010	0	0	0	0	0	0	0	0	0	0	2980000
Parcel F	P3-PF-2-1	P3-PF-2-1-0.0	N	4/6/2010	0	0	0	0	0	0	0	0	0	0	3000000
Parcel F	Q2-PF-1-1	Q2-PF-1-1-0.0	N	4/6/2010	0	0	0	0	0	0	0	0	0	0	2990000
Parcel F	Q3-PF-1-1	Q3-PF-1-1-0.0	N	4/6/2010	0	0	0	0	0	0	0	0	0	0	2960000
Parcel F	TSB-FJ-01	TSB-FJ-01-0	N	11/16/2007	0	0	0	15	0	23	8	0	23	23	2997509
Parcel F	TSB-FJ-02	TSB-FJ-02-0	N	11/15/2007	0	0	20	20	0	20	20	0	40	40	2970152
Parcel F	TSB-FJ-03	TSB-FJ-03-0	N	11/15/2007	0	0	8	8	0	16	16	0	24	24	2991453
Parcel F	TSB-FJ-04	TSB-FJ-04-0	N	11/15/2007	0	0	2	2	1	5	5	1	7	7	2955627
Parcel F	TSB-FJ-05	P4-PF-1-1-0.0-FD	FD	4/6/2010	0	0	0	0	0	0	0	0	0	0	2970000
Parcel F	TSB-FJ-05	P4-PH-1-1-0.0	N	4/6/2010	0	0	0	0	0	0	0	0	0	0	2960000
Parcel F	TSB-FJ-05	TSB-FJ-05-0	N	11/14/2007	0	1	1	3				1	5	5	2991453
Parcel F	TSB-FJ-05	TSB-FJ-05-0-FD	FD	11/14/2007	0	0	0	0	0	3	3	0	3	3	2833466
Parcel F	TSB-FJ-06	TSB-FJ-06-0	N	11/14/2007	0	1	1	0	0	0	1	1	1	1	2973432
Parcel F	TSB-FJ-07	TSB-FJ-07-0	N	11/14/2007	0	4	4	0	21	21	0	25	25	0	7582024
Parcel F	TSB-FJ-08	TSB-FJ-08-0	N	11/16/2007	0	3	3	0	23	23	0	26	26	0	13710826
Parcel F	TSB-FJ-09	TSB-FJ-09-0	N	11/15/2007	0	0	3	3	0	7	7	0	10	10	2997509
Parcel F	TSB-FJ-10	TSB-FJ-10-0	N	11/15/2007	0	0	3	3	0	4	4	0	7	7	2946804

TABLE D-10
Parcel Asbestos Soil Results

Analyte Name Units						Long Amphibole Protocol Structures Count s/samp	Long Asbestos Protocol Structures Count s/samp	Long Chrysotile Protocol Structures Count s/samp	Short Amphibole Protocol Structures Count (1) s/samp	Short Asbestos Protocol Structures Count (1) s/samp	Short Chrysotile Protocol Structures Count (1) s/samp	Total Amphibole Protocol Structures Count s/samp	Total Asbestos Protocol Structures Count s/samp	Total Chrysotile Protocol Structures Count s/samp	s/gPM10
Parcel F	TSB-FR-01	TSB-FR-01-0	N	11/14/2007	0	0	0	0	0	1	1	0	1	1	2954448
Parcel F	TSB-FR-02	Q3-PF-3-1-0.0	N	4/6/2010	0	0	0	0	0	0	0	0	0	0	3000000
Parcel F	TSB-FR-02	TSB-FR-02-0	N	11/15/2007	0	0	7	7	0	20	20	0	27	27	2993267
Parcel F	TSB-FR-03	TSB-FR-03-0	N	11/15/2007	0	0	0	0	0	0	0	0	0	0	2986626
Parcel F	TSB-FR-04	TSB-FR-04-0	N	11/16/2007	0	0	3	3	0	2	2	0	5	5	2986626
Parcel F	TSB-FR-04	TSB-FR-04-0-FD	FD	11/16/2007	0	0	4	4	0	5	5	0	9	9	2954448
Parcel F	TSB-FR-05	TSB-FR-05-0	N	11/16/2007	0	0	0	0	0	0	0	0	0	0	2978516
Parcel G	S3-PG-1-1	S3-PG-1-1-0.0	N	4/13/2010	0	0	0	0	0	0	0	0	0	0	2960000
Parcel G	TSB-GJ-01	TSB-GJ-01-0	N	11/16/2007	0	0	0	0	0	1	1	0	1	1	2678913
Parcel G	TSB-GJ-06	TSB-GJ-06-0	N	11/16/2007	0	0	0	0	0	0	0	0	0	0	2980614
Parcel G	TSB-GJ-08	TSB-GJ-08-0	N	6/4/2008	0	0	0	0	0	0	0	0	0	0	2983016
Parcel G	TSB-GJ-09	TSB-GJ-09-0.00	N	6/4/2008	0	13	13	0	15	15	0	28	28	0	2975224
Parcel G	TSB-GR-01	TSB-GR-01-0	N	11/16/2007	0	0	0	0	1	1	0	1	1	0	2992057
Parcel G	TSB-GR-01	TSB-GR-01-0-FD	FD	11/16/2007	0	0	0	0	0	0	0	0	0	0	2966285
Parcel H	TSB-HJ-01	TSB-HJ-01-0	N	1/25/2008	0	0	0	0	0	0	0	0	0	0	2999026
Parcel H	TSB-HJ-02	TSB-HJ-02-0	N	1/25/2008	0	0	0	0	0	1	1	0	1	1	2991453
Parcel H	TSB-HJ-03	TSB-HJ-03-0	N	1/25/2008	0	0	0	0	0	0	0	0	0	0	2986626
Parcel H	TSB-HJ-04	TSB-HJ-04-0	N	1/24/2008	0	0	0	0	0	0	0	0	0	0	2999026
Parcel H	TSB-HJ-05	TSB-HJ-05-0	N	1/24/2008	0	0	0	0	0	1	1	0	1	1	2960354
Parcel H	TSB-HJ-06	TSB-HJ-06-0	N	1/24/2008	0	0	0	0	0	0	0	0	0	0	2960354
Parcel H	TSB-HJ-07	TSB-HJ-07-0	N	1/24/2008	0	0	0	0	0	0	0	0	0	0	2310813
Parcel H	TSB-HJ-08	TSB-HJ-08-0	N	1/28/2008	0	0	0	1	0	0	0	0	0	1	2974627
Parcel H	TSB-HJ-09	TSB-HJ-09-0	N	1/25/2008	0	2	8	8	1	15	15	3	23	23	4170006
Parcel H	TSB-HJ-10	TSB-HJ-10-0	N	1/28/2008	0	0	0	0	0	0	0	0	0	0	2985422
Parcel H	TSB-HJ-11	TSB-HJ-11-0	N	1/25/2008	0	0	1	1	0	1	1	0	2	2	2868318
Parcel H	TSB-HJ-12	TSB-HJ-12-0	N	7/8/2008	0	0	0	0	0	0	0	0	0	0	2952092
Parcel H	TSB-HJ-13	TSB-HJ-13-0	N	7/8/2008	0	0	0	0	0	0	0	0	0	0	2914900
Parcel H	TSB-HR-01	TSB-HR-01-0	N	1/25/2008	0	0	0	0	0	0	0	0	0	0	2978516
Parcel H	TSB-HR-02	TSB-HR-02-0	N	1/25/2008	0	0	0	0	0	1	1	0	1	1	2993267
Parcel H	TSB-HR-03	TSB-HR-03-0	N	1/25/2008	0	0	1	1	0	1	1	0	2	2	2985422
Parcel H	TSB-HR-04	TSB-HR-04-0	N	1/24/2008	0	0	0	0	0	1	1	0	1	1	2971046
Parcel H	TSB-HR-05	TSB-HR-05-0	N	1/28/2008	0	0	0	0	0	0	0	0	0	0	2996902
Parcel H	TSB-HR-06	TSB-HR-06-0	N	1/28/2008	0	1	1	0	0	0	0	1	1	0	2960354
Parcel H	TSB-HR-07	TSB-HR-07-0	N	1/24/2008	0	0	0	0	0	0	0	0	0	0	2956512
Parcel H	TSB-HR-08	TSB-HR-08-0	N	1/24/2008	0	0	0	0	0	0	0	0	0	0	2978217
Parcel H	V5-PH-1-1	V5-PH-1-1-0.0	N	4/9/2010	0	0	0	0	0	0	0	0	0	0	2980000
Parcel H	W4-PH-1-1	W4-PH-1-1-0.0	N	4/9/2010	0	0	0	0	0	0	0	0	0	0	2980000

(1) Data reported for samples collected in 2010; data calculated (short = total minus long) for earlier data.

 Soil sample excavated and data excluded from HRA calculations

APPENDIX E

Data Sets for Background Evaluation

(Provided on CD)



APPENDIX F

Background Metals and Radionuclides Evaluation



To: Deni Chambers and Scott McLaughlin
Northgate Environmental Management

From: Christopher Stubbs and John Pekala

Date: June 4, 2013

Re: Background Metals and Radionuclides Evaluation for Parcels C, D, F, G, and H Soils,
Nevada Environmental Response Trust Site, Henderson, Nevada

Please find attached tables and figures presenting the background evaluation of metals and radionuclides for Parcels C, D, F, G, and H soils for inclusion in the *Post-Remediation Screening Health Risk Assessment Report for Parcels C, D, F, G, and H* (HRA).

The background evaluation was based on soil data sets that Northgate provided to ENVIRON. We understand that these data sets are being included in Appendix F of the HRA. The Parcels soil data for metals and radionuclides were evaluated relative to background concentrations using the RZ-A soils data to represent background. The summary statistics and background evaluation tables and figures were developed using EnviroGiSdT software and following the approach described in Section 5.2.1 of the HRA.

The attached tables present summary statistics, background comparisons, secular equilibrium test results, and correlation matrices, as listed below:

- Table F-1: Summary statistics of metal concentrations in the upper 10 feet of soil for the background and Parcels data sets, sorted alphabetically by metal
- Table F-2: Background comparisons for metals in the upper 10 feet of soil in the Parcels using the results for four statistical tests, sorted alphabetically by metal
- Table F-3: Summary statistics of radionuclide concentrations in the upper 10 feet of soil for the background and Parcels data sets, sorted alphabetically by radionuclide
- Table F-4: Background comparisons for radionuclides in the upper 10 feet of soil in the Parcels using the results for four statistical tests, sorted alphabetically by radionuclides
- Tables F-5a: Results of the equivalence test for secular equilibrium of the uranium decay series for the background and Parcels data sets
- Table F-5b: Results of the equivalence test for secular equilibrium for the thorium decay series for the background and Parcels data sets
- Table F-6: Correlation matrices for the thorium decay series and the uranium decay series for the background and Parcels data sets

The attached figures present box plots and Q-Q plots for both untransformed and log-transformed data for metals and radionuclides, as listed below:

- Figures 1-1 through 1-31: Boxplots for the background and Parcels datasets for metals, sorted alphabetically by metal

- Figures 2-1A through 2-31B: Normal and lognormal Q-Q plots for the background and Parcels datasets for metals, sorted alphabetically by metal
- Figures 3-1 through 3-8: Boxplots for the background and Parcels datasets for radionuclides, sorted alphabetically by radionuclide
- Figures 4-1A through 4-8B: Normal and lognormal Q-Q plots for the background and Parcels datasets for radionuclides, sorted alphabetically by radionuclide

Please contact Chris Stubbs at (510) 420-2552 or John Pekala at (602) 734-7710 if you have any comments or questions concerning this report.

Tables

Table F1. Summary of Metals Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	No. of Detects	% Detects	Non-detects (mg/kg)		Detects (mg/kg)					Shapiro-Wilk Test	
					Minimum	Maximum	Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
Aluminum	Background	31	31	100%	NA	NA	7340	8970	9020	11400	890	0.6	0.9
	All Parcels	143	143	100%	NA	NA	3430	7550	7410	11600	1220	0.006	<0.001
	Parcel C	33	33	100%	NA	NA	5170	7080	7100	9300	1070	0.7	0.8
	Parcel D	16	16	100%	NA	NA	3430	7730	7360	10800	1710	0.003	<0.001
	Parcel F	41	41	100%	NA	NA	4650	7260	7420	11600	1340	0.05	0.5
	Parcel G	11	11	100%	NA	NA	6410	7820	7720	8870	769	0.6	0.6
	Parcel H	42	42	100%	NA	NA	4320	7580	7580	9970	1070	0.2	0.005
Antimony	Background	31	13	42%	0.50	0.50	0.60	1.3	1.5	3.4	0.68	<0.001	<0.001
	All Parcels	143	113	79%	1.0	5.4	0.088	0.17	0.18	0.32	0.043	<0.001	<0.001
	Parcel C	33	31	94%	1.0	1.2	0.11	0.15	0.16	0.32	0.041	<0.001	<0.001
	Parcel D	16	16	100%	NA	NA	0.088	0.18	0.18	0.28	0.045	0.2	0.05
	Parcel F	41	35	85%	1.0	1.3	0.14	0.18	0.19	0.32	0.051	<0.001	<0.001
	Parcel G	11	6	55%	1.0	1.3	0.18	0.20	0.20	0.22	0.015	0.008	0.007
	Parcel H	42	25	60%	1.0	5.4	0.15	0.17	0.18	0.24	0.021	<0.001	<0.001
Arsenic	Background	31	31	100%	NA	NA	1.6	2.4	2.4	4.3	0.54	0.02	0.5
	All Parcels	144	144	100%	NA	NA	1.3	3.3	3.5	8.0	1.3	<0.001	0.1
	Parcel C	33	33	100%	NA	NA	2.1	3.4	4.1	8.0	1.7	<0.001	0.07
	Parcel D	16	16	100%	NA	NA	1.3	3.2	3.5	6.1	1.2	0.08	0.04
	Parcel F	42	42	100%	NA	NA	2.4	3.5	3.8	6.9	1.1	<0.001	0.1
	Parcel G	11	11	100%	NA	NA	2.7	3.4	3.9	6.1	1.1	0.02	0.09
	Parcel H	42	42	100%	NA	NA	1.3	2.7	2.8	5.2	0.88	0.3	0.8
Barium	Background	31	31	100%	NA	NA	111	162	166	213	22.5	0.6	0.4
	All Parcels	143	143	100%	NA	NA	67	167	185	1420	135	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	86.7	172	175	340	45.7	0.01	0.3
	Parcel D	16	16	100%	NA	NA	82.5	171	163	236	45.7	0.1	0.02
	Parcel F	41	41	100%	NA	NA	67.0	153	224	1420	240	<0.001	<0.001
	Parcel G	11	11	100%	NA	NA	89.1	189	177	230	42.5	0.5	0.09
	Parcel H	42	42	100%	NA	NA	97.2	162	166	275	35.5	0.5	0.8
Beryllium	Background	31	31	100%	NA	NA	0.36	0.46	0.46	0.59	0.048	0.6	0.7
	All Parcels	143	143	100%	NA	NA	0.23	0.52	0.52	0.84	0.091	0.2	<0.001
	Parcel C	33	33	100%	NA	NA	0.34	0.45	0.46	0.59	0.069	0.4	0.5
	Parcel D	16	16	100%	NA	NA	0.23	0.51	0.49	0.68	0.11	0.008	<0.001
	Parcel F	41	41	100%	NA	NA	0.39	0.52	0.53	0.84	0.079	0.003	0.2
	Parcel G	11	11	100%	NA	NA	0.42	0.55	0.53	0.65	0.065	0.9	0.8
	Parcel H	42	42	100%	NA	NA	0.35	0.57	0.57	0.74	0.085	0.5	0.1
Boron	Background	31	31	100%	NA	NA	3.4	6.2	6.8	11.7	1.9	0.3	0.4
	All Parcels	143	118	83%	20.3	265	3.2	7.5	8.0	22.6	3.4	<0.001	<0.001
	Parcel C	33	32	97%	20.4	20.4	3.2	7.3	7.4	15.3	2.7	0.3	0.9
	Parcel D	16	16	100%	NA	NA	3.8	8.3	10	22.6	5.7	0.04	0.1
	Parcel F	41	37	90%	20.7	26.4	3.7	8.4	8.5	13.4	2.7	0.3	0.04
	Parcel G	11	10	91%	20.3	20.3	6.8	8.1	8.8	13.8	2.0	0.01	0.1
	Parcel H	42	23	55%	26.1	265	3.7	5.3	6.4	15.3	3.0	<0.001	<0.001

Table F1. Summary of Metals Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	No. of Detects	% Detects	Non-detects (mg/kg)		Detects (mg/kg)					Shapiro-Wilk Test	
					Minimum	Maximum	Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
Cadmium	Background	31	25	81%	0.04	0.04	0.11	0.19	0.20	0.48	0.085	0.009	<0.001
	All Parcels	143	139	97%	0.54	1.3	0.036	0.092	0.098	0.42	0.045	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	0.049	0.086	0.091	0.25	0.037	<0.001	0.2
	Parcel D	16	16	100%	NA	NA	0.036	0.096	0.091	0.13	0.024	0.2	0.01
	Parcel F	41	41	100%	NA	NA	0.038	0.088	0.11	0.42	0.069	<0.001	<0.001
	Parcel G	11	11	100%	NA	NA	0.069	0.10	0.11	0.17	0.033	0.03	0.2
	Parcel H	42	38	90%	0.54	1.3	0.058	0.093	0.093	0.15	0.023	<0.001	<0.001
Chromium (Total)	Background	31	31	100%	NA	NA	5.6	7.5	7.7	10.7	1.2	0.4	0.7
	All Parcels	143	143	100%	NA	NA	4.1	10.3	10.2	19	2.7	<0.001	0.002
	Parcel C	33	33	100%	NA	NA	4.8	8.8	9.0	13.9	2.5	0.2	0.3
	Parcel D	16	16	100%	NA	NA	4.1	10.9	10.7	17.8	3.4	0.4	0.07
	Parcel F	41	41	100%	NA	NA	5.2	10.1	10.9	19	3.0	<0.001	0.03
	Parcel G	11	11	100%	NA	NA	8.1	10.8	10.4	11.5	1.0	0.2	0.07
	Parcel H	42	42	100%	NA	NA	5.7	10.4	10.3	14.8	2.1	0.5	0.09
Chromium (VI)	Background	31	1	3%	0.18	0.24	0.29	0.29	0.29	0.29	NA	<0.001	<0.001
	All Parcels	101	3	3%	1.0	20	0.49	0.55	0.78	1.3	0.45	<0.001	<0.001
	Parcel C	33	0	0%	1.0	1.0	NA	NA	NA	NA	NA	NA	NA
	Parcel D	16	1	6%	1.0	1.0	1.3	1.3	1.3	1.3	NA	<0.001	<0.001
	Parcel F	41	1	2%	1.0	20	0.55	0.55	0.55	0.55	NA	<0.001	<0.001
	Parcel G	11	1	9%	1.0	1.1	0.49	0.49	0.49	0.49	NA	<0.001	<0.001
	Parcel H	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	Background	31	31	100%	NA	NA	5.4	7.3	7.3	9.1	0.76	0.5	0.4
	All Parcels	143	143	100%	NA	NA	3.2	6.7	6.6	11.2	1.3	0.06	0.009
	Parcel C	33	33	100%	NA	NA	3.6	5.9	6.0	8.2	1.2	0.8	0.5
	Parcel D	16	16	100%	NA	NA	3.2	6.5	6.1	7.5	1.1	0.01	0.001
	Parcel F	41	41	100%	NA	NA	4.7	6.9	6.9	11.2	1.5	0.01	0.4
	Parcel G	11	11	100%	NA	NA	6.4	7.0	7.2	8.1	0.55	0.7	0.7
	Parcel H	42	42	100%	NA	NA	4.7	7.1	6.9	9.5	1.1	0.4	0.2
Copper	Background	31	31	100%	NA	NA	15.8	19.1	23.1	140	21.8	<0.001	<0.001
	All Parcels	135	135	100%	NA	NA	6.0	14.4	14.8	27.4	3.3	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	10.4	12.7	13.1	27.4	3.1	<0.001	<0.001
	Parcel D	16	16	100%	NA	NA	6.0	13.2	12.5	15	2.4	0.002	<0.001
	Parcel F	41	41	100%	NA	NA	10.4	14.4	15.2	25.1	3.6	<0.001	0.001
	Parcel G	11	11	100%	NA	NA	14	15.4	15.4	17.8	1.1	0.2	0.3
	Parcel H	34	34	100%	NA	NA	7.2	16.8	16.7	23.8	2.7	0.002	<0.001
Iron	Background	31	31	100%	NA	NA	11300	15700	15500	20600	2140	0.5	0.3
	All Parcels	143	143	100%	NA	NA	5950	12400	12300	22300	2090	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	7580	10900	11200	15500	2090	0.6	0.6
	Parcel D	16	16	100%	NA	NA	5950	12500	11800	14400	2260	0.003	<0.001
	Parcel F	41	41	100%	NA	NA	8620	12300	12500	22300	2330	<0.001	0.03
	Parcel G	11	11	100%	NA	NA	10800	12500	12800	14300	1170	0.4	0.4
	Parcel H	42	42	100%	NA	NA	7930	13200	13000	15700	1600	0.06	0.001

Table F1. Summary of Metals Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
 Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	No. of Detects	% Detects	Non-detects (mg/kg)		Detects (mg/kg)					Shapiro-Wilk Test	
					Minimum	Maximum	Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
Lead	Background	31	31	100%	NA	NA	7.1	8.9	11.3	72.8	11.6	<0.001	<0.001
	All Parcels	143	143	100%	NA	NA	3.8	8.1	10.9	136	12.4	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	4.9	7.9	9.2	29.4	4.3	<0.001	0.002
	Parcel D	16	16	100%	NA	NA	3.8	9.2	9.5	19.6	3.6	0.05	0.4
	Parcel F	41	41	100%	NA	NA	5.1	8.7	15.1	136	21.6	<0.001	<0.001
	Parcel G	11	11	100%	NA	NA	7.2	12.3	13.5	39.4	8.9	<0.001	0.008
	Parcel H	42	42	100%	NA	NA	4.0	7.4	8.0	14.1	1.9	<0.001	0.01
Magnesium	Background	31	31	100%	NA	NA	7700	9810	9990	13000	1320	0.8	1
	All Parcels	143	143	100%	NA	NA	4100	9060	9450	25000	2760	<0.001	0.09
	Parcel C	33	33	100%	NA	NA	5760	9180	9280	14600	2410	0.2	0.4
	Parcel D	16	16	100%	NA	NA	4100	8950	9080	14300	2740	0.6	0.06
	Parcel F	41	41	100%	NA	NA	5910	9270	9750	18900	2650	0.001	0.09
	Parcel G	11	11	100%	NA	NA	7500	9100	10800	25000	4990	<0.001	0.002
	Parcel H	42	42	100%	NA	NA	5680	9030	9090	17000	2330	<0.001	0.2
Manganese	Background	31	31	100%	NA	NA	262	360	366	537	61.3	0.03	0.4
	All Parcels	143	143	100%	NA	NA	111	313	341	917	129	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	163	276	301	841	117	<0.001	0.01
	Parcel D	16	16	100%	NA	NA	111	330	318	453	86.3	0.4	0.007
	Parcel F	41	41	100%	NA	NA	154	309	360	917	173	<0.001	0.005
	Parcel G	11	11	100%	NA	NA	235	395	424	711	149	0.5	0.9
	Parcel H	42	42	100%	NA	NA	218	338	343	558	79.2	0.01	0.5
Mercury	Background	31	31	100%	NA	NA	0.0060	0.015	0.033	0.36	0.065	<0.001	<0.001
	All Parcels	143	102	71%	0.034	0.044	0.0072	0.012	0.015	0.041	0.0071	<0.001	<0.001
	Parcel C	33	22	67%	0.034	0.038	0.0072	0.0096	0.012	0.033	0.0060	<0.001	0.007
	Parcel D	16	16	100%	NA	NA	0.0082	0.012	0.014	0.021	0.0044	0.02	0.1
	Parcel F	41	37	90%	0.035	0.044	0.0083	0.013	0.017	0.041	0.0088	<0.001	0.008
	Parcel G	11	8	73%	0.034	0.036	0.0086	0.015	0.016	0.024	0.0055	0.9	0.6
	Parcel H	42	19	45%	0.035	0.037	0.0076	0.013	0.014	0.033	0.0065	<0.001	<0.001
Molybdenum	Background	31	31	100%	NA	NA	0.27	0.48	1.6	32.7	5.8	<0.001	<0.001
	All Parcels	143	142	99%	5.4	5.4	0.16	0.53	0.58	1.5	0.20	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	0.38	0.55	0.57	0.92	0.12	0.004	0.2
	Parcel D	16	16	100%	NA	NA	0.32	0.56	0.61	1.1	0.21	0.1	0.7
	Parcel F	41	41	100%	NA	NA	0.29	0.51	0.61	1.5	0.26	<0.001	0.08
	Parcel G	11	11	100%	NA	NA	0.47	0.61	0.67	1.1	0.20	0.05	0.3
	Parcel H	42	41	98%	5.4	5.4	0.16	0.48	0.52	1.0	0.16	<0.001	<0.001
Nickel	Background	31	31	100%	NA	NA	12.7	15.6	15.9	21.4	1.8	0.08	0.5
	All Parcels	143	143	100%	NA	NA	6.0	14.2	14.3	22.6	2.4	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	8.4	13.6	13.4	18.5	2.5	0.3	0.05
	Parcel D	16	16	100%	NA	NA	6.0	13.9	13.2	15.6	2.7	<0.001	<0.001
	Parcel F	41	41	100%	NA	NA	8.1	13.9	14.1	22.6	2.5	0.01	0.1
	Parcel G	11	11	100%	NA	NA	13.6	15	14.8	15.7	0.68	0.6	0.5
	Parcel H	42	42	100%	NA	NA	10.2	15.3	15.3	21.7	2.1	0.5	0.7

Table F1. Summary of Metals Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
 Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	No. of Detects	% Detects	Non-detects (mg/kg)		Detects (mg/kg)					Shapiro-Wilk Test	
					Minimum	Maximum	Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
Platinum	Background	31	31	100%	NA	NA	0.0060	0.010	0.011	0.046	0.0074	<0.001	<0.001
	All Parcels	143	7	5%	0.10	2.7	0.021	0.11	0.41	2.4	0.88	<0.001	<0.001
	Parcel C	33	0	0%	0.20	0.23	NA	NA	NA	NA	NA	<0.001	<0.001
	Parcel D	16	0	0%	0.10	0.22	NA	NA	NA	NA	NA	<0.001	<0.001
	Parcel F	41	7	17%	0.20	0.51	0.021	0.11	0.41	2.4	0.88	<0.001	<0.001
	Parcel G	11	0	0%	0.21	0.27	NA	NA	NA	NA	NA	0.001	0.001
	Parcel H	42	0	0%	0.26	2.7	NA	NA	NA	NA	NA	<0.001	<0.001
Potassium	Background	31	31	100%	NA	NA	1450	2080	2180	4210	658	<0.001	0.02
	All Parcels	143	143	100%	NA	NA	704	1880	2000	4480	655	<0.001	0.2
	Parcel C	33	33	100%	NA	NA	1590	2320	2450	3660	556	0.2	0.7
	Parcel D	16	16	100%	NA	NA	787	2370	2580	4480	954	0.8	0.2
	Parcel F	41	41	100%	NA	NA	1190	1710	1820	3930	510	<0.001	0.007
	Parcel G	11	11	100%	NA	NA	1520	1900	1910	2630	306	0.2	0.6
	Parcel H	42	42	100%	NA	NA	704	1570	1620	2530	396	0.8	0.3
Selenium	Background	31	6	19%	0.70	0.80	0.80	0.95	0.93	1.1	0.12	<0.001	<0.001
	All Parcels	143	0	0%	0.51	5.4	NA	NA	NA	NA	NA	<0.001	<0.001
	Parcel C	33	0	0%	1.0	1.2	NA	NA	NA	NA	NA	<0.001	<0.001
	Parcel D	16	0	0%	0.51	1.1	NA	NA	NA	NA	NA	<0.001	<0.001
	Parcel F	41	0	0%	1.0	1.3	NA	NA	NA	NA	NA	<0.001	<0.001
	Parcel G	11	0	0%	1.0	1.3	NA	NA	NA	NA	NA	0.002	0.003
	Parcel H	42	0	0%	1.0	5.4	NA	NA	NA	NA	NA	<0.001	<0.001
Silver	Background	31	0	0%	0.20	0.20	NA	NA	NA	NA	NA	NA	NA
	All Parcels	143	127	89%	0.42	2.2	0.038	0.097	0.10	0.21	0.029	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	0.076	0.096	0.10	0.18	0.019	<0.001	0.003
	Parcel D	16	16	100%	NA	NA	0.038	0.095	0.093	0.12	0.023	0.02	<0.001
	Parcel F	41	41	100%	NA	NA	0.052	0.089	0.10	0.21	0.041	<0.001	0.01
	Parcel G	11	11	100%	NA	NA	0.084	0.11	0.12	0.18	0.032	0.06	0.2
	Parcel H	42	26	62%	0.42	2.2	0.072	0.10	0.10	0.13	0.014	<0.001	<0.001
Sodium	Background	31	31	100%	NA	NA	307	630	621	1050	194	0.3	0.3
	All Parcels	143	143	100%	NA	NA	138	626	740	2910	511	<0.001	0.09
	Parcel C	33	33	100%	NA	NA	186	768	860	2300	551	0.005	0.5
	Parcel D	16	16	100%	NA	NA	222	502	686	2100	516	0.005	0.5
	Parcel F	41	41	100%	NA	NA	169	806	913	2910	585	<0.001	0.2
	Parcel G	11	11	100%	NA	NA	359	700	823	1810	486	0.002	0.2
	Parcel H	42	42	100%	NA	NA	138	473	476	1050	249	0.02	0.02
Strontium	Background	31	31	100%	NA	NA	129	214	222	339	57	0.4	0.3
	All Parcels	143	143	100%	NA	NA	50.7	202	213	500	80	<0.001	0.2
	Parcel C	33	33	100%	NA	NA	100	202	217	446	77.4	0.009	0.9
	Parcel D	16	16	100%	NA	NA	50.7	150	172	332	68.8	0.1	0.08
	Parcel F	41	41	100%	NA	NA	117	202	208	355	61.1	0.02	0.2
	Parcel G	11	11	100%	NA	NA	158	240	253	485	84.8	0.003	0.1
	Parcel H	42	42	100%	NA	NA	77.1	202	218	500	95.7	0.007	0.7

Table F1. Summary of Metals Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	No. of Detects	% Detects	Non-detects (mg/kg)		Detects (mg/kg)					Shapiro-Wilk Test	
					Minimum	Maximum	Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
Thallium	Background	31	31	100%	NA	NA	0.071	0.092	0.11	0.19	0.033	<0.001	0.003
	All Parcels	143	61	43%	0.21	2.2	0.10	0.20	0.23	0.45	0.076	<0.001	<0.001
	Parcel C	33	7	21%	0.41	0.46	0.15	0.19	0.23	0.36	0.074	<0.001	<0.001
	Parcel D	16	10	63%	0.21	0.44	0.10	0.22	0.23	0.45	0.10	0.03	0.2
	Parcel F	41	30	73%	0.41	1.1	0.16	0.21	0.23	0.43	0.081	<0.001	<0.001
	Parcel G	11	6	55%	0.43	0.54	0.17	0.19	0.20	0.24	0.031	0.2	0.1
	Parcel H	42	8	19%	0.42	2.2	0.19	0.19	0.22	0.32	0.05	<0.001	<0.001
Tin	Background	31	31	100%	NA	NA	3.1	4.0	4.0	5.8	0.56	0.08	0.5
	All Parcels	143	130	91%	0.42	2.2	0.064	0.52	0.52	1.2	0.18	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	0.16	0.43	0.44	1.2	0.22	<0.001	0.1
	Parcel D	16	16	100%	NA	NA	0.28	0.55	0.54	0.67	0.11	0.05	0.005
	Parcel F	41	41	100%	NA	NA	0.35	0.54	0.58	1.1	0.19	<0.001	<0.001
	Parcel G	11	11	100%	NA	NA	0.42	0.54	0.53	0.66	0.079	0.5	0.4
	Parcel H	42	29	69%	0.42	2.2	0.064	0.52	0.51	0.66	0.13	<0.001	<0.001
Titanium	Background	31	31	100%	NA	NA	480	829	793	1080	162	0.2	0.04
	All Parcels	143	143	NA	NA	NA	257	543	542	1010	118	0.02	0.009
	Parcel C	33	33	100%	NA	NA	287	441	484	695	117	0.02	0.1
	Parcel D	16	16	100%	NA	NA	257	598	563	719	124	0.008	<0.001
	Parcel F	41	41	100%	NA	NA	343	504	535	1010	130	<0.001	0.1
	Parcel G	11	11	100%	NA	NA	436	554	548	675	86	0.4	0.4
	Parcel H	42	42	100%	NA	NA	294	592	587	740	91.7	0.1	<0.001
Tungsten	Background	31	31	100%	NA	NA	0.098	0.17	0.21	0.62	0.11	<0.001	0.02
	All Parcels	143	117	82%	1.0	13.3	0.21	0.36	0.50	9.0	0.82	<0.001	<0.001
	Parcel C	33	31	94%	1.0	1.2	0.22	0.32	0.36	0.95	0.14	<0.001	0.01
	Parcel D	16	16	100%	NA	NA	0.21	0.41	0.46	1.0	0.21	0.004	0.3
	Parcel F	41	39	95%	1.1	1.3	0.22	0.41	0.73	9.0	1.4	<0.001	<0.001
	Parcel G	11	6	55%	1.0	1.3	0.34	0.40	0.42	0.53	0.082	0.3	0.2
	Parcel H	42	25	60%	1.3	13.3	0.27	0.33	0.37	0.85	0.14	<0.001	<0.001
Uranium	Background	31	31	100%	NA	NA	0.66	0.98	1.1	1.9	0.36	0.002	0.05
	All Parcels	143	143	100%	NA	NA	0.39	1.1	1.3	3.9	0.57	<0.001	0.02
	Parcel C	33	33	100%	NA	NA	0.52	1.0	1.3	2.7	0.55	0.002	0.2
	Parcel D	16	16	100%	NA	NA	0.39	0.96	1.2	2.5	0.62	0.05	0.5
	Parcel F	41	41	100%	NA	NA	0.58	1.2	1.3	3.2	0.55	<0.001	0.2
	Parcel G	11	11	100%	NA	NA	0.84	1.2	1.4	3.9	0.85	<0.001	0.004
	Parcel H	42	42	100%	NA	NA	0.60	1.1	1.2	2.4	0.52	<0.001	0.02
Vanadium	Background	31	31	100%	NA	NA	28	46	43.8	54.9	7.6	0.08	0.02
	All Parcels	139	139	100%	NA	NA	19.1	37	36.8	65.8	7.5	0.02	<0.001
	Parcel C	33	33	100%	NA	NA	19.5	28.8	31.6	48.7	8.5	0.02	0.1
	Parcel D	16	16	100%	NA	NA	19.1	36.2	35.1	47.2	7.5	0.3	0.03
	Parcel F	37	37	100%	NA	NA	27.4	37.7	39.8	65.8	7.1	0.005	0.2
	Parcel G	11	11	100%	NA	NA	33.6	40.1	41.4	49.7	4.9	0.8	0.9
	Parcel H	42	42	100%	NA	NA	28.2	38.1	37.7	49.7	5.0	0.9	0.8

Table F1. Summary of Metals Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	No. of Detects	% Detects	Non-detects (mg/kg)		Detects (mg/kg)					Shapiro-Wilk Test	
					Minimum	Maximum	Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
Zinc	Background	31	31	100%	NA	NA	25.8	33.3	40.4	254	39.9	<0.001	<0.001
	All Parcels	143	143	100%	NA	NA	14	30.1	30.7	67.1	7.4	<0.001	<0.001
	Parcel C	33	33	100%	NA	NA	19.4	25.4	27.1	49.8	6.8	<0.001	0.004
	Parcel D	16	16	100%	NA	NA	14	29.8	27.6	32.7	5.3	0.002	<0.001
	Parcel F	41	41	100%	NA	NA	23.6	30.2	33.2	67.1	9.9	<0.001	<0.001
	Parcel G	11	11	100%	NA	NA	30.1	33.6	35.1	52.3	6.0	<0.001	<0.001
	Parcel H	42	42	100%	NA	NA	22.1	31.6	31.3	37.8	3.5	0.6	0.1

Notes:

p-values < 0.01 are shown in italic

NA - value not available

Background dataset is from RZ-A, excluding the 6 borings in LOU 62.

Shapiro Wilk tests use 1/2 the detection limit (DL) for non-detects.

Table F2. Background Comparisons for Metals in Upper 10 ft of Soil in Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	Distribution	t-test (p-value)	t-test (logged data) (p-value)	Gehan Test (p-value)	Quantile Test (0.8) (p-value)	Slippage Test (p-value)	Parcels Samples Greater than Background Samples?	Notes
Aluminum	All Parcels		1	1	1	1	0.8	No	a
	Parcel C	N, LN	1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F	N, LN	1	1	1	1	0.6	No	a
	Parcel G	N, LN	1	1	1	1	1	No	a
	Parcel H	N	1	1	1	1	1	No	a
Antimony	All Parcels		1	1	1	1	1	No	a
	Parcel C		1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F		1	1	1	1	1	No	a
	Parcel G		1	1	1	1	1	No	a
	Parcel H		1	1	1	1	1	No	a
Arsenic	All Parcels	LN	<0.001	<0.001	<0.001	0.006	<0.001	Yes	
	Parcel C	LN	<0.001	<0.001	<0.001	<0.001	<0.001	Yes	
	Parcel D	N, LN	<0.001	<0.001	<0.001	0.001	0.01	Yes	
	Parcel F	LN	<0.001	<0.001	<0.001	0.001	<0.001	Yes	
	Parcel G	N, LN	<0.001	<0.001	<0.001	<0.001	0.01	Yes	
	Parcel H	N, LN	0.01	0.03	0.04	0.009	0.3	Yes	
Barium	All Parcels		0.05	0.3	0.4	0.03	0.03	Yes	c
	Parcel C	LN	0.2	0.3	0.1	0.04	0.3	Yes	c
	Parcel D	N, LN	0.6	0.7	0.4	0.7	0.1	Yes	c
	Parcel F		0.06	0.2	0.8	0.1	0.004	Yes	
	Parcel G	N, LN	0.2	0.3	0.1	0.2	0.06	Yes	c
	Parcel H	N, LN	0.5	0.6	0.6	0.3	0.3	Yes	c
Beryllium	All Parcels	N	<0.001	<0.001	<0.001	0.005	0.004	Yes	
	Parcel C	N, LN	0.6	0.7	0.6	0.3	0.5	Yes	c
	Parcel D		0.2	0.3	0.009	0.03	0.3	Yes	
	Parcel F	LN	<0.001	<0.001	<0.001	0.002	0.02	Yes	
	Parcel G	N, LN	0.003	0.003	0.003	0.005	0.3	Yes	
	Parcel H	N, LN	<0.001	<0.001	<0.001	<0.001	<0.001	Yes	
Boron	All Parcels		<0.001	<0.001	0.003	0.005	0.01	Yes	
	Parcel C	N, LN	0.1	0.2	0.2	0.2	0.3	Yes	c
	Parcel D	N, LN	0.02	0.05	0.1	<0.001	<0.001	Yes	
	Parcel F	N, LN	<0.001	<0.001	<0.001	0.002	0.04	Yes	
	Parcel G	N, LN	0.003	<0.001	0.003	0.3	0.2	Yes	
	Parcel H		<0.001	<0.001	0.01	1	0.2	Yes	
Cadmium	All Parcels		1	0.9	1	1	1	No	a
	Parcel C		1	1	1	1	1	No	a
	Parcel D		1	0.9	1	1	1	No	a
	Parcel F		1	0.9	1	1	1	No	a
	Parcel G		1	0.8	1	1	1	No	a
	Parcel H		1	0.8	1	1	1	No	a

Table F2. Background Comparisons for Metals in Upper 10 ft of Soil in Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	Distribution	t-test (p-value)	t-test (logged data) (p-value)	Gehan Test (p-value)	Quantile Test (0.8) (p-value)	Slippage Test (p-value)	Parcels Samples Greater than Background Samples?	Notes
Chromium (Total)	All Parcels		<0.001	<0.001	<0.001	0.001	<0.001	Yes	
	Parcel C	N, LN	0.007	0.02	0.05	0.008	<0.001	Yes	
	Parcel D	N, LN	0.002	0.004	<0.001	<0.001	<0.001	Yes	
	Parcel F	LN	<0.001	<0.001	<0.001	<0.001	<0.001	Yes	
	Parcel G	N, LN	<0.001	<0.001	<0.001	<0.001	<0.001	Yes	
	Parcel H	N, LN	<0.001	<0.001	<0.001	<0.001	<0.001	Yes	
Chromium (VI)	All Parcels		<0.001	<0.001	<0.001	0.7	<0.001	LDF	b
	Parcel C		<0.001	<0.001	<0.001	1	1	LDF	b
	Parcel D		<0.001	<0.001	<0.001	0.3	0.03	LDF	b
	Parcel F		0.004	<0.001	<0.001	0.8	0.03	LDF	b
	Parcel G		<0.001	<0.001	<0.001	0.5	0.03	LDF	b
	Parcel H		NA	NA	NA	NA	NA	LDF	b
Cobalt	All Parcels	N	1	1	1	0.9	0.4	Yes	c
	Parcel C	N, LN	1	1	1	1	1	No	a
	Parcel D	N	1	1	1	1	1	No	a
	Parcel F	N, LN	0.9	1	1	0.7	0.1	Yes	c
	Parcel G	N, LN	0.8	0.7	0.8	0.8	1	No	a
	Parcel H	N, LN	1	1	0.9	0.4	0.6	No	a
Copper	All Parcels		1	1	1	1	1	No	a
	Parcel C		1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F		1	1	1	1	1	No	a
	Parcel G		1	1	1	1	1	No	a
	Parcel H		0.9	1	1	1	1	No	a
Iron	All Parcels		1	1	1	1	0.8	No	a
	Parcel C	N, LN	1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F	LN	1	1	1	1	0.6	No	a
	Parcel G	N, LN	1	1	1	1	1	No	a
	Parcel H	N	1	1	1	1	1	No	a
Lead	All Parcels		0.6	0.7	0.9	0.3	0.8	Yes	c
	Parcel C		0.8	0.9	1	0.2	1	No	a
	Parcel D		0.8	0.7	0.4	0.2	1	No	a
	Parcel F		0.2	0.2	0.6	0.1	0.6	Yes	c
	Parcel G		0.3	0.09	0.02	0.04	1	Yes	c
	Parcel H		0.9	1	1	1	1	No	a
Magnesium	All Parcels	LN	0.9	1	1	0.6	0.1	Yes	c
	Parcel C	N, LN	0.9	1	0.9	0.6	0.1	Yes	c
	Parcel D	N, LN	0.9	0.9	0.9	0.5	0.3	Yes	c
	Parcel F	LN	0.7	0.9	0.9	0.1	0.3	Yes	c
	Parcel G		0.3	0.4	0.9	0.4	0.06	Yes	c
	Parcel H	LN	1	1	1	1	0.2	Yes	c

Table F2. Background Comparisons for Metals in Upper 10 ft of Soil in Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	Distribution	t-test (p-value)	t-test (logged data) (p-value)	Gehan Test (p-value)	Quantile Test (0.8) (p-value)	Slippage Test (p-value)	Parcels Samples Greater than Background Samples?	Notes
Manganese	All Parcels		0.9	1	1	0.9	0.1	Yes	c
	Parcel C	LN	1	1	1	1	0.5	No	a
	Parcel D	N	1	1	0.9	0.9	1	No	a
	Parcel F		0.6	0.9	1	0.9	0.05	Yes	c
	Parcel G	N, LN	0.1	0.2	0.2	0.04	0.01	Yes	
	Parcel H	N, LN	0.9	1	1	0.8	0.3	No	
Mercury	All Parcels		0.9	1	0.5	0.9	1	No	a
	Parcel C		0.9	1	0.9	1	1	No	a
	Parcel D		0.9	1	0.9	0.7	1	No	a
	Parcel F		0.9	0.9	0.8	0.5	1	No	a
	Parcel G		0.9	0.8	0.2	0.4	1	No	a
	Parcel H		0.9	0.9	0.03	1	1	No	a
Molybdenum	All Parcels		0.8	0.7	0.09	0.8	1	No	a
	Parcel C		0.8	0.7	0.07	0.9	1	No	a
	Parcel D		0.8	0.6	0.1	0.5	1	No	a
	Parcel F		0.8	0.6	0.1	0.5	1	No	a
	Parcel G		0.8	0.3	0.02	0.4	1	Yes	
	Parcel H		0.8	0.8	0.5	0.9	1	No	a
Nickel	All Parcels		1	1	1	1	0.7	No	a
	Parcel C	N, LN	1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F	LN	1	1	1	1	0.6	No	a
	Parcel G	N, LN	1	1	1	1	1	No	a
	Parcel H	N, LN	0.9	0.9	0.9	0.5	0.6	No	
Platinum	All Parcels		<0.001	<0.001	<0.001	1	<0.001	Yes	b
	Parcel C		<0.001	<0.001	<0.001	1	1	No	b
	Parcel D		<0.001	<0.001	<0.001	1	1	No	b
	Parcel F		0.005	<0.001	<0.001	0.8	<0.001	Yes	b
	Parcel G		<0.001	<0.001	<0.001	1	1	No	b
	Parcel H		<0.001	<0.001	<0.001	1	1	No	b
Potassium	All Parcels	LN	0.9	1	1	0.6	0.8	No	
	Parcel C	LN	0.04	0.02	0.009	0.1	1	Yes	
	Parcel D	LN	0.07	0.1	0.05	0.06	0.3	Yes	c
	Parcel F		1	1	1	1	1	No	a
	Parcel G	LN	1	0.9	0.9	1	1	No	a
	Parcel H	LN	1	1	1	1	1	No	a
Selenium	All Parcels		0.01	<0.001	<0.001	1	1	No	b
	Parcel C		0.08	0.003	<0.001	1	1	No	b
	Parcel D		0.3	0.1	<0.001	1	1	No	b
	Parcel F		0.06	0.002	<0.001	1	1	No	b
	Parcel G		0.06	0.002	<0.001	0.9	1	No	b
	Parcel H		0.001	<0.001	<0.001	1	1	No	b

Table F2. Background Comparisons for Metals in Upper 10 ft of Soil in Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	Distribution	t-test (p-value)	t-test (logged data) (p-value)	Gehan Test (p-value)	Quantile Test (0.8) (p-value)	Slippage Test (p-value)	Parcels Samples Greater than Background Samples?	Notes
Silver	All Parcels		0.003	0.004	1	0.003	NA	No	b
	Parcel C		0.4	0.6	1	1	NA	No	b
	Parcel D		0.9	0.9	1	1	NA	No	b
	Parcel F		0.3	0.7	1	0.3	NA	No	b
	Parcel G		0.04	0.05	1	1	NA	No	b
	Parcel H		0.003	<0.001	1	<0.001	NA	No	b
Sodium	All Parcels	LN	0.02	0.4	0.4	0.005	0.003	Yes	
	Parcel C	LN	0.01	0.1	0.08	<0.001	<0.001	Yes	
	Parcel D	LN	0.3	0.7	0.7	0.2	0.01	Yes	
	Parcel F	LN	0.002	0.008	0.006	<0.001	0.002	Yes	
	Parcel G	LN	0.1	0.1	0.2	0.8	0.06	Yes	c
	Parcel H	N, LN	1	1	1	1	1	No	a
Strontium	All Parcels	LN	0.8	0.9	0.9	0.6	0.1	Yes	c
	Parcel C	LN	0.6	0.7	0.8	0.7	0.1	Yes	c
	Parcel D	N, LN	1	1	1	0.9	1	No	a
	Parcel F	N, LN	0.8	0.9	0.9	0.6	0.3	No	
	Parcel G	LN	0.1	0.1	0.2	0.4	0.3	Yes	c
	Parcel H	LN	0.6	0.8	0.8	0.5	0.06	Yes	c
Thallium	All Parcels		<0.001	<0.001	<0.001	0.006	<0.001	Yes	
	Parcel C		<0.001	<0.001	<0.001	0.6	0.004	Yes	b
	Parcel D		<0.001	<0.001	<0.001	0.01	<0.001	Yes	
	Parcel F		<0.001	<0.001	<0.001	<0.001	<0.001	Yes	
	Parcel G		<0.001	<0.001	<0.001	0.005	0.003	Yes	
	Parcel H		<0.001	<0.001	<0.001	0.7	0.006	Yes	b
Tin	All Parcels		1	1	1	1	1	No	a
	Parcel C	LN	1	1	1	1	1	No	a
	Parcel D	N	1	1	1	1	1	No	a
	Parcel F		1	1	1	1	1	No	a
	Parcel G	N, LN	1	1	1	1	1	No	a
	Parcel H		1	1	1	1	1	No	a
Titanium	All Parcels	N	1	1	1	1	1	No	a
	Parcel C	N, LN	1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F	LN	1	1	1	1	1	No	a
	Parcel G	N, LN	1	1	1	1	1	No	a
	Parcel H	N	1	1	1	1	1	No	a
Tungsten	All Parcels		<0.001	<0.001	<0.001	0.006	0.01	Yes	
	Parcel C	LN	<0.001	<0.001	<0.001	0.1	0.5	Yes	
	Parcel D	LN	<0.001	<0.001	<0.001	<0.001	0.03	Yes	
	Parcel F		0.01	<0.001	<0.001	<0.001	<0.001	Yes	
	Parcel G	LN	<0.001	<0.001	<0.001	0.04	1	Yes	
	Parcel H		<0.001	<0.001	<0.001	0.1	0.2	Yes	

Table F2. Background Comparisons for Metals in Upper 10 ft of Soil in Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	Distribution	t-test (p-value)	t-test (logged data) (p-value)	Gehan Test (p-value)	Quantile Test (0.8) (p-value)	Slippage Test (p-value)	Parcels Samples Greater than Background Samples?	Notes
Uranium	All Parcels	LN	<i>0.007</i>	<i>0.02</i>	0.04	0.06	<i>0.02</i>	Yes	
	Parcel C	LN	0.04	0.06	0.1	0.1	0.06	Yes	c
	Parcel D	LN	0.2	0.4	0.4	0.2	0.03	Yes	c
	Parcel F	LN	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	0.1	0.05	Yes	
	Parcel G		0.1	0.05	0.03	0.4	0.3	Yes	c
	Parcel H	LN	0.07	0.1	0.2	0.1	0.06	Yes	c
Vanadium	All Parcels	N	1	1	1	1	0.8	No	a
	Parcel C	N, LN	1	1	1	1	1	No	a
	Parcel D	N, LN	1	1	1	1	1	No	a
	Parcel F	LN	1	1	1	1	0.5	No	a
	Parcel G	N, LN	0.9	0.8	0.9	1	1	No	a
	Parcel H	N, LN	1	1	1	1	1	No	a
Zinc	All Parcels		0.9	1	1	1	1	No	a
	Parcel C		1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F		0.8	0.9	1	0.9	1	No	a
	Parcel G		0.8	0.6	0.2	1	1	No	a
	Parcel H		0.9	1	1	1	1	No	a

Notes:

p-values in italics indicate $p < 0.03$

LDF = Low detection frequency (<25%) in either parcel or background datasets. Background comparison results may not be applicable.

NA - value not available

Background comparison tests use 1/2 the detection limit (DL) for non-detects in the parametric test (t-test) and the DL for non-parametric tests (Gehan test, quantile test, and slippage test).

Distribution:

N = Parcel data and background data consistent with normal distribution

LN = Parcel data and background data consistent with log-normal distribution

Notes:

a = Parcel data lower than background data

b = Less than 25% frequency of detection in either parcel or background data sets.

c = Parcel data greater than background data based on visual inspection of box and Q-Q plots

Table F3. Summary of Radionuclide Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	Concentrations (pCi/g)					Shapiro-Wilk Test	
			Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
Ra-226	Background	95	0.494	1.09	1.15	2.36	0.340	<0.001	0.2
	All Parcels	146	0.412	1.05	1.13	2.46	0.329	<0.001	<0.001
	Parcel C	33	0.755	1.04	1.04	1.40	0.116	0.2	0.3
	Parcel D	16	0.958	1.06	1.08	1.47	0.118	<0.001	0.002
	Parcel F	41	0.412	0.972	1.01	2.31	0.272	<0.001	<0.001
	Parcel G	11	0.770	0.991	0.964	1.07	0.0929	0.4	0.3
	Parcel H	45	0.698	1.25	1.35	2.46	0.442	0.02	0.6
Ra-228	Background	81	0.946	1.93	1.89	2.92	0.391	0.8	0.04
	All Parcels	146	0.442	1.71	1.83	14.3	1.18	<0.001	<0.001
	Parcel C	33	1.23	1.74	1.73	2.13	0.185	0.9	0.3
	Parcel D	16	1.57	1.79	1.78	2.01	0.139	0.4	0.4
	Parcel F	41	0.442	1.74	2.17	14.3	2.16	<0.001	<0.001
	Parcel G	11	0.850	1.71	1.85	2.73	0.482	0.4	0.06
	Parcel H	45	1.05	1.55	1.60	3.01	0.366	<0.001	0.1
Th-228	Background	101	1.15	1.78	1.74	2.28	0.262	0.04	0.002
	All Parcels	142	1.07	1.71	1.75	2.92	0.332	<0.001	0.6
	Parcel C	33	1.19	1.64	1.67	2.26	0.282	0.3	0.6
	Parcel D	15	1.07	1.48	1.50	1.87	0.209	1	0.9
	Parcel F	41	1.21	1.62	1.62	2.12	0.225	0.7	0.6
	Parcel G	11	1.47	1.78	1.88	2.33	0.300	0.3	0.4
	Parcel H	42	1.52	1.93	2.00	2.92	0.345	0.01	0.2
Th-230	Background	101	0.730	1.21	1.29	3.01	0.389	<0.001	0.06
	All Parcels	142	0.792	1.26	1.34	3.03	0.402	<0.001	<0.001
	Parcel C	33	0.802	1.40	1.42	2.17	0.349	0.5	0.6
	Parcel D	15	0.979	1.31	1.31	1.95	0.257	0.1	0.3
	Parcel F	41	0.792	1.08	1.13	1.67	0.197	0.09	0.7
	Parcel G	11	0.933	1.16	1.18	1.44	0.146	0.8	0.9
	Parcel H	42	0.840	1.40	1.53	3.03	0.549	<0.001	0.04
Th-232	Background	101	1.22	1.66	1.66	2.23	0.255	0.01	0.01
	All Parcels	142	0.920	1.58	1.62	2.74	0.298	0.01	0.9
	Parcel C	33	1.28	1.59	1.62	2.15	0.213	0.2	0.5
	Parcel D	15	0.920	1.51	1.44	1.69	0.208	0.04	0.008
	Parcel F	41	1.12	1.51	1.49	1.92	0.233	0.1	0.1
	Parcel G	11	1.28	1.71	1.65	1.97	0.215	0.8	0.7
	Parcel H	42	1.11	1.78	1.81	2.74	0.356	0.8	0.7
U-234	Background	101	0.630	1.05	1.19	2.84	0.456	<0.001	<0.001
	All Parcels	138	0.725	1.25	1.38	3.52	0.528	<0.001	<0.001
	Parcel C	33	0.874	1.37	1.36	2.05	0.306	0.3	0.2
	Parcel D	16	0.838	1.23	1.31	2.26	0.385	0.03	0.4
	Parcel F	38	0.725	1.09	1.16	2.56	0.386	<0.001	0.006
	Parcel G	9	0.795	1.18	1.20	1.52	0.249	0.7	0.6
	Parcel H	42	0.937	1.32	1.64	3.52	0.730	<0.001	0.001

Table F3. Summary of Radionuclide Concentrations in Upper 10 ft of Soil in Background and Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	No. of Samples	Concentrations (pCi/g)					Shapiro-Wilk Test	
			Minimum	Median	Mean	Maximum	Standard Deviation	Normal (p-value)	Lognormal (p-value)
U-235	Background	101	0.0009	0.0600	0.0696	0.210	0.0381	<i>0.002</i>	<i><0.001</i>
	All Parcels	138	NA	0.0462	0.0482	0.170	0.0257	<i><0.001</i>	NA
	Parcel C	33	0.0136	0.0385	0.0397	0.0782	0.0176	0.2	0.2
	Parcel D	16	0.0136	0.0362	0.0418	0.0704	0.0166	0.3	0.3
	Parcel F	38	0.0000	0.0389	0.0438	0.105	0.0243	0.1	NA
	Parcel G	9	0.0438	0.0558	0.0728	0.170	0.0395	<i>0.003</i>	0.1
	Parcel H	42	0.0112	0.0545	0.0559	0.159	0.0274	<i>0.002</i>	<i>0.01</i>
U-238	Background	101	0.650	1.05	1.16	2.37	0.358	<i><0.001</i>	<i><0.001</i>
	All Parcels	138	0.643	1.12	1.19	2.60	0.376	<i><0.001</i>	<i><0.001</i>
	Parcel C	33	0.800	1.13	1.16	1.87	0.213	0.07	0.8
	Parcel D	16	0.816	1.03	1.10	1.61	0.241	0.07	0.2
	Parcel F	38	0.643	1.03	1.04	1.77	0.284	<i>0.002</i>	0.2
	Parcel G	9	0.659	1.01	1.05	1.53	0.251	0.9	1
	Parcel H	42	0.839	1.23	1.42	2.60	0.495	<i><0.001</i>	<i>0.002</i>

Notes:

p-values < 0.01 are shown in italic

NA - value not available

Background dataset is from RZ-A, excluding the 6 borings in LOU 62.

Table F4. Background Comparisons for Radionuclides in Upper 10 ft of Soil in Parcels C, D, F, G, and H
Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	Distribution	t-test (p-value)	t-test (logged data) (p-value)	Gehan Test (p-value)	Quantile Test (0.8) (p-value)	Slippage Test (p-value)	Parcels Samples Greater than Background Samples?	Notes
Ra-226	All Parcels		0.7	0.6	0.9	1	0.4	Yes	b
	Parcel C	LN	1	1	1	1	1	No	a
	Parcel D		0.9	0.8	0.7	1	1	No	a
	Parcel F		1	1	1	1	1	No	a
	Parcel G	LN	1	1	1	1	1	No	a
	Parcel H	LN	0.004	0.004	0.003	0.02	0.1	Yes	
Ra-228	All Parcels		0.7	1	1	1	0.2	Yes	b
	Parcel C	N, LN	1	1	1	1	1	No	a
	Parcel D	N, LN	1	0.9	1	1	1	No	a
	Parcel F		0.2	0.6	1	1	0.04	Yes	b
	Parcel G	N, LN	0.6	0.7	0.7	0.4	1	No	a
	Parcel H	LN	1	1	1	1	0.4	No	a
Th-228	All Parcels		0.4	0.5	0.7	0.4	0.004	Yes	
	Parcel C	N	0.9	0.9	0.9	0.9	1	No	a
	Parcel D	N	1	1	1	1	1	No	a
	Parcel F	N	1	1	1	1	1	No	a
	Parcel G	N	0.07	0.07	0.1	0.2	0.1	No	
	Parcel H	N	<0.001	<0.001	<0.001	0.001	<0.001	Yes	
Th-230	All Parcels		0.2	0.2	0.2	0.7	0.3	Yes	b
	Parcel C	LN	0.04	0.03	0.02	0.03	1	Yes	
	Parcel D	LN	0.4	0.3	0.2	1	1	No	a
	Parcel F	LN	1	1	1	1	1	No	a
	Parcel G	LN	1	0.9	0.8	1	1	No	a
	Parcel H	LN	0.007	0.004	0.004	0.1	0.08	Yes	
Th-232	All Parcels	LN	0.8	0.9	0.9	0.9	0.2	No	
	Parcel C	N, LN	0.8	0.8	0.8	0.9	1	No	a
	Parcel D	N	1	1	1	1	1	No	a
	Parcel F	N, LN	1	1	1	1	1	No	a
	Parcel G	N, LN	0.5	0.5	0.5	0.9	1	No	a
	Parcel H	N, LN	0.008	0.01	0.007	0.01	0.02	Yes	
U-234	All Parcels		0.002	<0.001	<0.001	0.2	0.06	Yes	
	Parcel C		0.007	<0.001	<0.001	0.08	1	Yes	
	Parcel D		0.1	0.06	0.03	0.4	1	No	a
	Parcel F		0.6	0.5	0.3	0.7	1	No	a
	Parcel G		0.4	0.3	0.1	0.3	1	No	a
	Parcel H		<0.001	<0.001	<0.001	0.01	0.002	Yes	
U-235	All Parcels		1	1	1	1	1	No	a
	Parcel C		1	1	1	1	1	No	a
	Parcel D		1	1	1	1	1	No	a
	Parcel F		1	1	1	1	1	No	a
	Parcel G		0.4	0.1	0.5	0.9	1	No	a
	Parcel H		1	0.8	1	1	1	No	a

Table F4. Background Comparisons for Radionuclides in Upper 10 ft of Soil in Parcels C, D, F, G, and H
 Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Chemical Name	Location	Distribution	t-test (p-value)	t-test (logged data) (p-value)	Gehan Test (p-value)	Quantile Test (0.8) (p-value)	Slippage Test (p-value)	Parcels Samples Greater than Background Samples?	Notes
U-238	All Parcels		0.2	0.2	0.1	0.6	0.1	No	
	Parcel C		0.5	0.3	0.1	0.9	1	No	a
	Parcel D		0.8	0.7	0.6	0.7	1	No	a
	Parcel F		1	1	1	1	1	No	a
	Parcel G		0.9	0.8	0.7	0.9	1	No	a
	Parcel H		<i>0.001</i>	<i><0.001</i>	<i><0.001</i>	0.04	<i>0.007</i>	Yes	

Notes:

p-values in italics indicate $p < 0.03$

Distribution:

N = Parcel data and background data consistent with normal distribution

LN = Parcel data and background data consistent with log-normal distribution

Notes:

a = Gilbert's Toolbox results imply parcel data lower than background data

b = Parcel data greater than background based on visual inspection of box and Q-Q plots

Table F5a. Equivalence Test for Secular Equilibrium of Uranium Decay Series (U-238 Chain)¹

Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Location	p-value	Conclusion ²	Delta	Sample Size ³	Number Missing	Analyte	Mean Proportions of Radioactivity	95% Confid. Intervals		Shifts ⁴
								Lower	Upper	
All	<0.0001	in Secular Equilibrium	0.1	222	35	Ra-226	0.2332	0.2246	0.2419	0
						Th-230	0.2691	0.2612	0.2769	0
						U-234	0.2583	0.2508	0.2658	0
						U-238	0.2393	0.2334	0.2453	0
Background	<0.0001	in Secular Equilibrium	0.1	95	6	Ra-226	0.2396	0.2260	0.2531	0
						Th-230	0.2714	0.2595	0.2834	0
						U-234	0.2451	0.2339	0.2563	0
						U-238	0.2439	0.2341	0.2537	0
C	0.0003	in Secular Equilibrium	0.1	29	8	Ra-226	0.2118	0.1934	0.2302	0
						Th-230	0.2849	0.2590	0.3108	0
						U-234	0.2704	0.2531	0.2877	0
						U-238	0.2329	0.2174	0.2483	0
D	0.001	in Secular Equilibrium	0.1	14	3	Ra-226	0.2260	0.1962	0.2557	0
						Th-230	0.2708	0.2418	0.2998	0
						U-234	0.2720	0.2372	0.3067	0
						U-238	0.2313	0.2072	0.2555	0
F	<0.0001	in Secular Equilibrium	0.1	35	9	Ra-226	0.2380	0.2067	0.2693	0
						Th-230	0.2608	0.2369	0.2847	0
						U-234	0.2644	0.2410	0.2878	0
						U-238	0.2368	0.2179	0.2557	0
G	0.0164	in Secular Equilibrium	0.1	9	2	Ra-226	0.2208	0.1835	0.2580	0
						Th-230	0.2707	0.2109	0.3305	0
						U-234	0.2714	0.2059	0.3368	0
						U-238	0.2372	0.1716	0.3028	0
H	<0.0001	in Secular Equilibrium	0.1	40	7	Ra-226	0.2350	0.2149	0.2551	0
						Th-230	0.2583	0.2405	0.2761	0
						U-234	0.2680	0.2508	0.2852	0
						U-238	0.2387	0.2268	0.2506	0

Note:

1. Analyzed in top 10 feet bgs using the EnviroGISdT software tool from Neptune & Company, Inc.
2. Tool states "in Secular Equilibrium" if the computed p-value is less than a standard significance level of 0.05.
3. Sample dataset includes field duplicates
4. Data Shift - Lists the values of the data shift utilized by the tool in case of negative radioactivity measurements. All measurements values for that radioisotope are shifted upwards by the shift value so that all values are non-negative. A zero shift value indicates lack of negative measurements.

Table F5b. Equivalence Test for Secular Equilibrium of Thorium Decay Series (Th-232 Chain)¹

Nevada Environmental Response Trust Remediation Project Site, Henderson, Nevada

Location	p-value	Conclusion ²	Delta	Sample Size ³	Number Missing	Analyte	Mean Proportions of Radioactivity	95% Confid. Intervals		Shifts ⁴
								Lower	Upper	
All	<0.0001	in Secular Equilibrium	0.1	221	28	Ra-228	0.3476	0.3354	0.3598	0
						Th-228	0.3370	0.3291	0.3449	0
						Th-232	0.3154	0.3085	0.3223	0
Background	<0.0001	in Secular Equilibrium	0.1	81	20	Ra-228	0.3564	0.3417	0.3710	0
						Th-228	0.3294	0.3203	0.3385	0
						Th-232	0.3143	0.3052	0.3234	0
C	<0.0001	in Secular Equilibrium	0.1	33	0	Ra-228	0.3466	0.3310	0.3623	0
						Th-228	0.3309	0.3163	0.3455	0
						Th-232	0.3225	0.3096	0.3354	0
D	0.0069	in Secular Equilibrium	0.1	15	1	Ra-228	0.3802	0.3490	0.4114	0
						Th-228	0.3164	0.2947	0.3381	0
						Th-232	0.3034	0.2819	0.3250	0
F	<0.0001	in Secular Equilibrium	0.1	41	0	Ra-228	0.3726	0.3253	0.4198	0
						Th-228	0.3278	0.2985	0.3572	0
						Th-232	0.2996	0.2759	0.3232	0
G	0.006	in Secular Equilibrium	0.1	11	0	Ra-228	0.3401	0.2676	0.4127	0
						Th-228	0.3508	0.3088	0.3929	0
						Th-232	0.3090	0.2728	0.3453	0
H	<0.0001	in Secular Equilibrium	0.1	40	7	Ra-228	0.2950	0.2727	0.3173	0
						Th-228	0.3708	0.3551	0.3864	0
						Th-232	0.3342	0.3167	0.3518	0

Note:

1. Analyzed in top 10 feet bgs using the EnviroGISdT software tool from Neptune & Company, Inc.
2. Tool states "in Secular Equilibrium" if the computed p-value is less than a standard significance level of 0.05.
3. Sample dataset includes field duplicates
4. Data Shift - Lists the values of the data shift utilized by the tool in case of negative radioactivity measurements. All measurements values for that radioisotope are shifted upwards by the shift value so that all values are non-negative. A zero shift value indicates lack of negative measurements.

TABLE F-6
Parcel Radionuclides Decay Chain Correlation Matrices

i) Parcels C, D, F, G and H

Uranium Decay Chain				
Correl.	Ra-226	Th-230	U-234	U-238
Ra-226	1	0.621	0.686	0.671
Th-230	0.621	1	0.778	0.718
U-234	0.686	0.778	1	0.912
U-238	0.671	0.718	0.912	1

Thorium Decay Chain			
Correl.	Ra-228	Th-228	Th-232
Ra-228	1	0.026	0.055
Th-228	0.026	1	0.711
Th-232	0.055	0.711	1

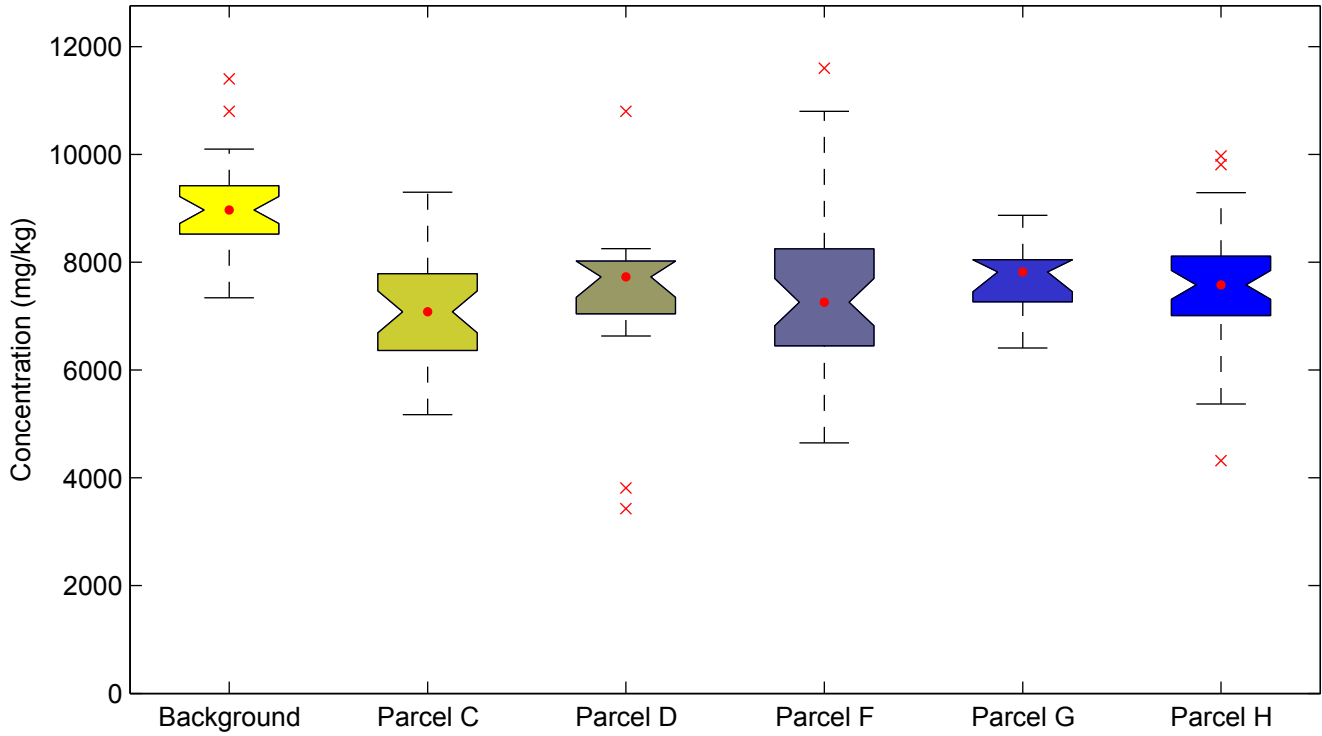
ii) 2005 BRC/TIMET Shallow Background (source: NDEP, 2009d)

Uranium Decay Chain				
Correl.	Ra-226	Th-230	U-234	U-238
Ra-226	1	0.663	0.691	0.707
Th-230	0.663	1	0.784	0.780
U-234	0.691	0.784	1	0.876
U-238	0.707	0.780	0.876	1

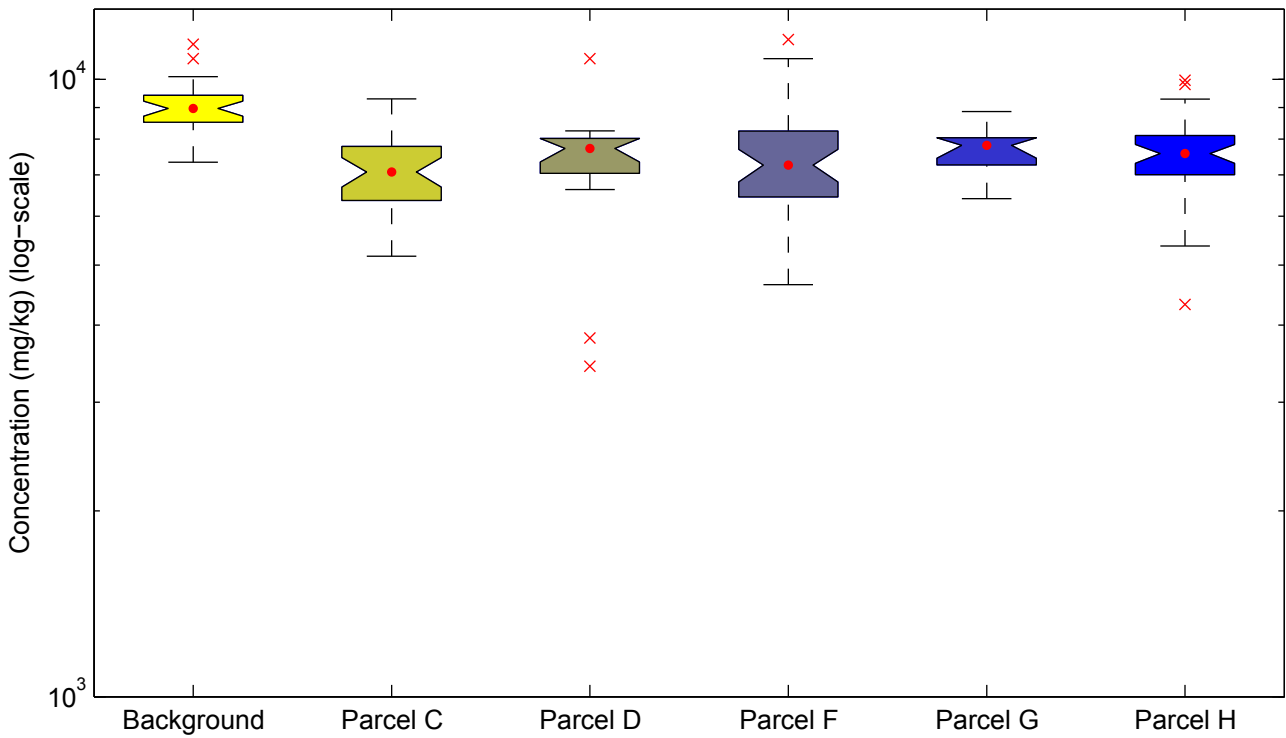
Thorium Decay Chain			
Correl.	Ra-228	Th-228	Th-232
Ra-228	1	0.297	0.341
Th-228	0.297	1	0.732
Th-232	0.341	0.732	1

Figures

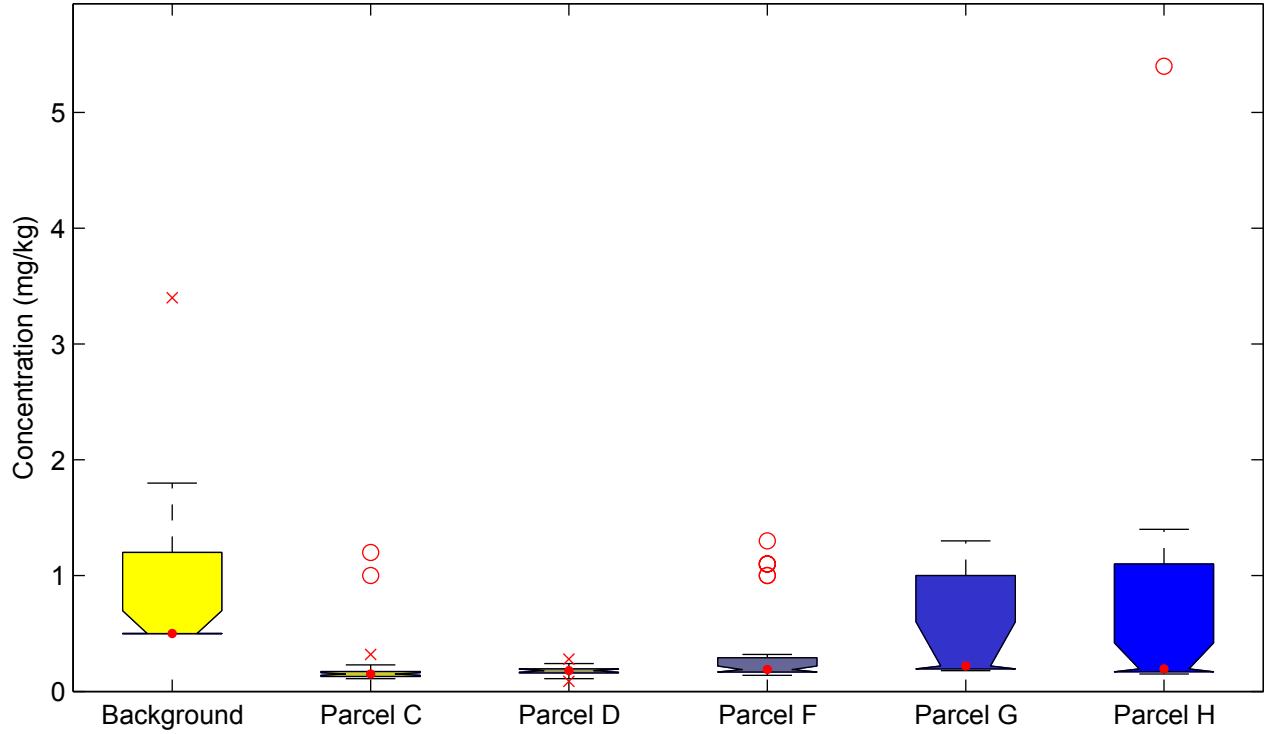
**Figure 1-1. Background vs. Site Boxplots
Aluminum**



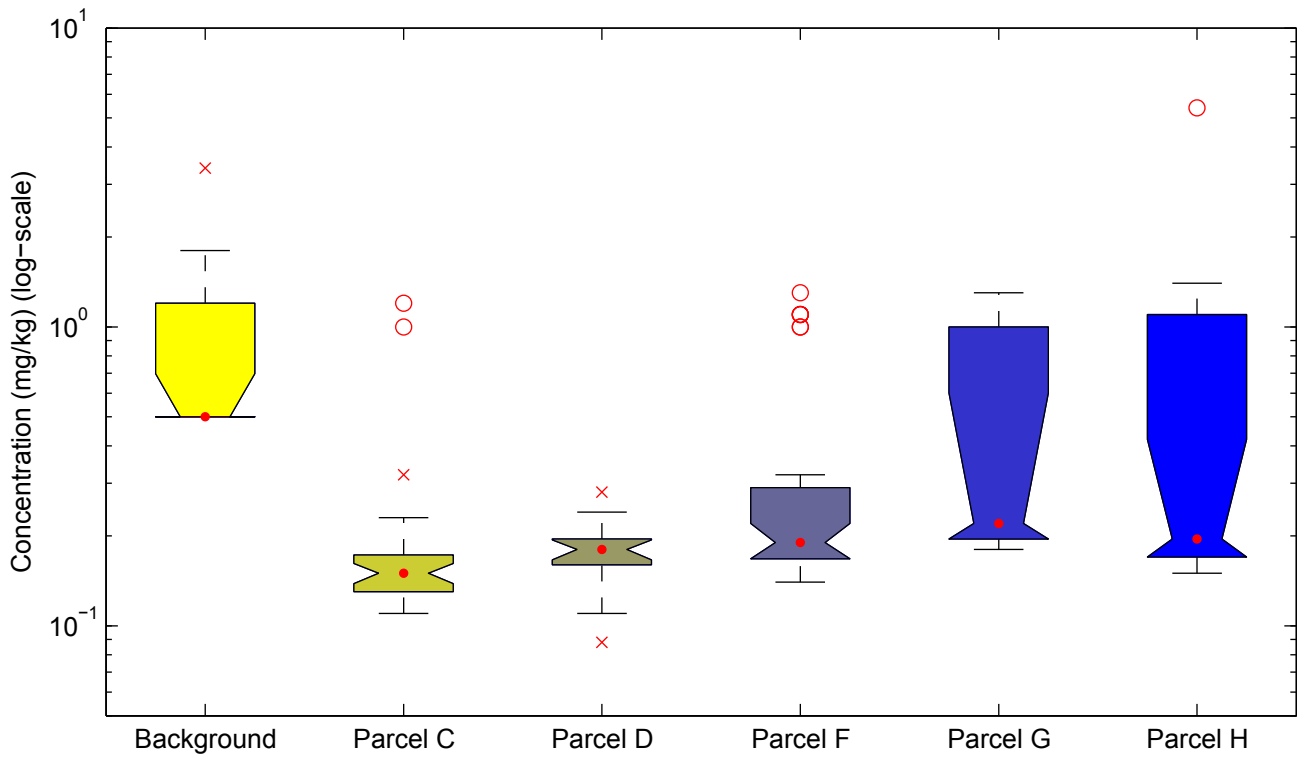
x Detected Outliers



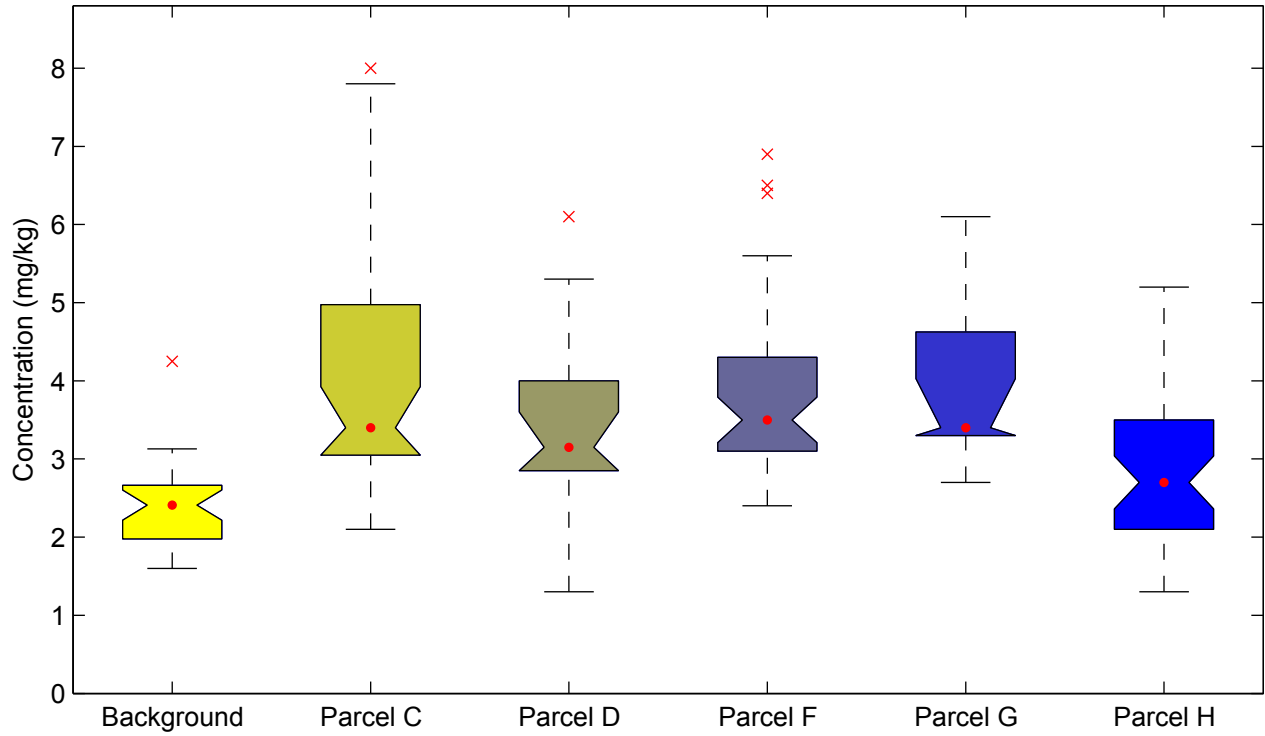
**Figure 1–2. Background vs. Site Boxplots
Antimony**



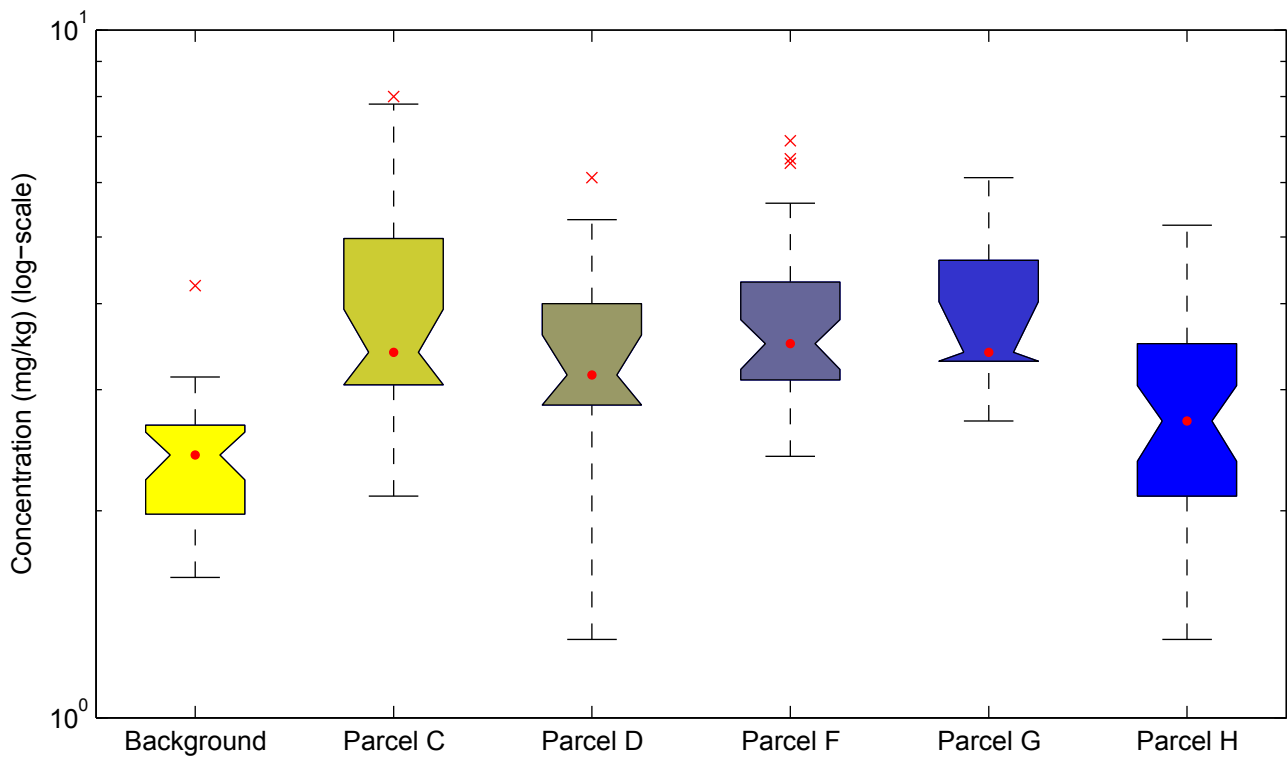
× Detected Outliers ○ Non-Detected Outliers



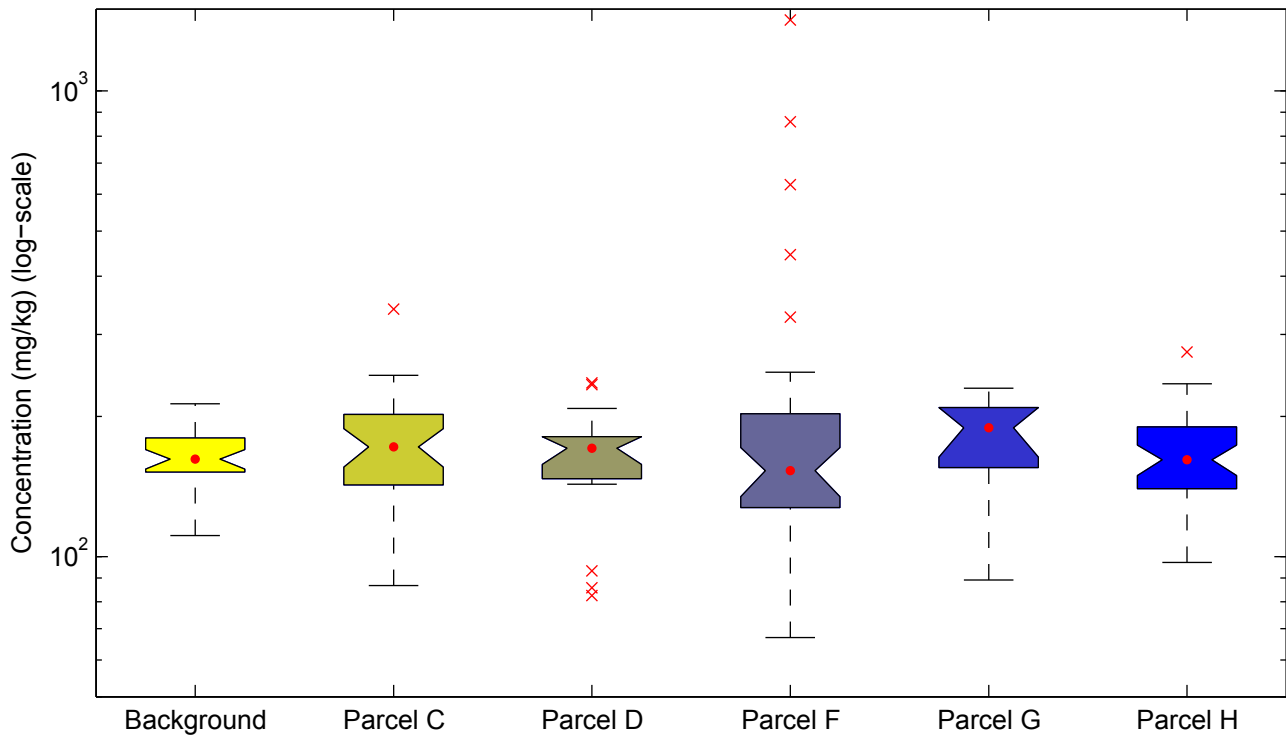
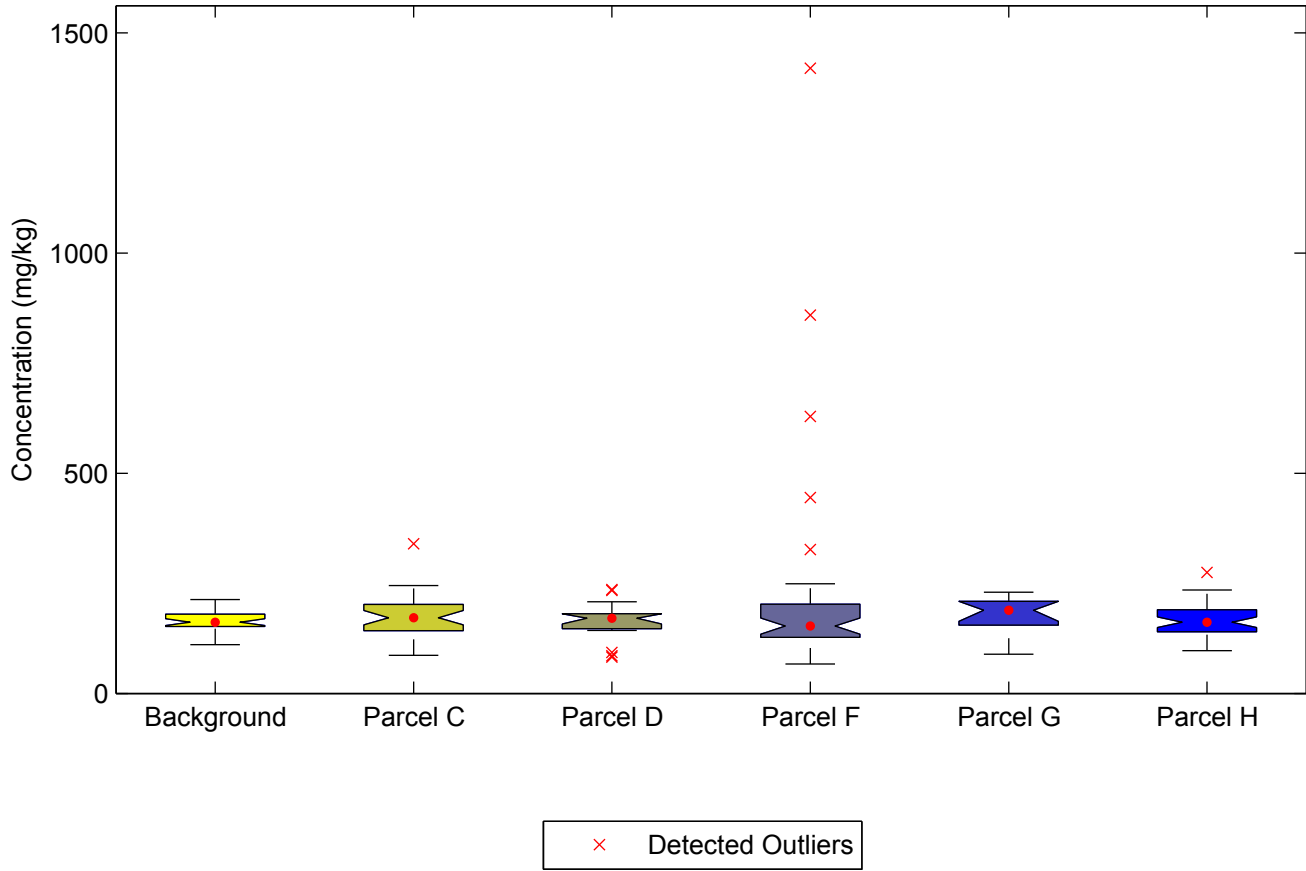
**Figure 1–3. Background vs. Site Boxplots
Arsenic**



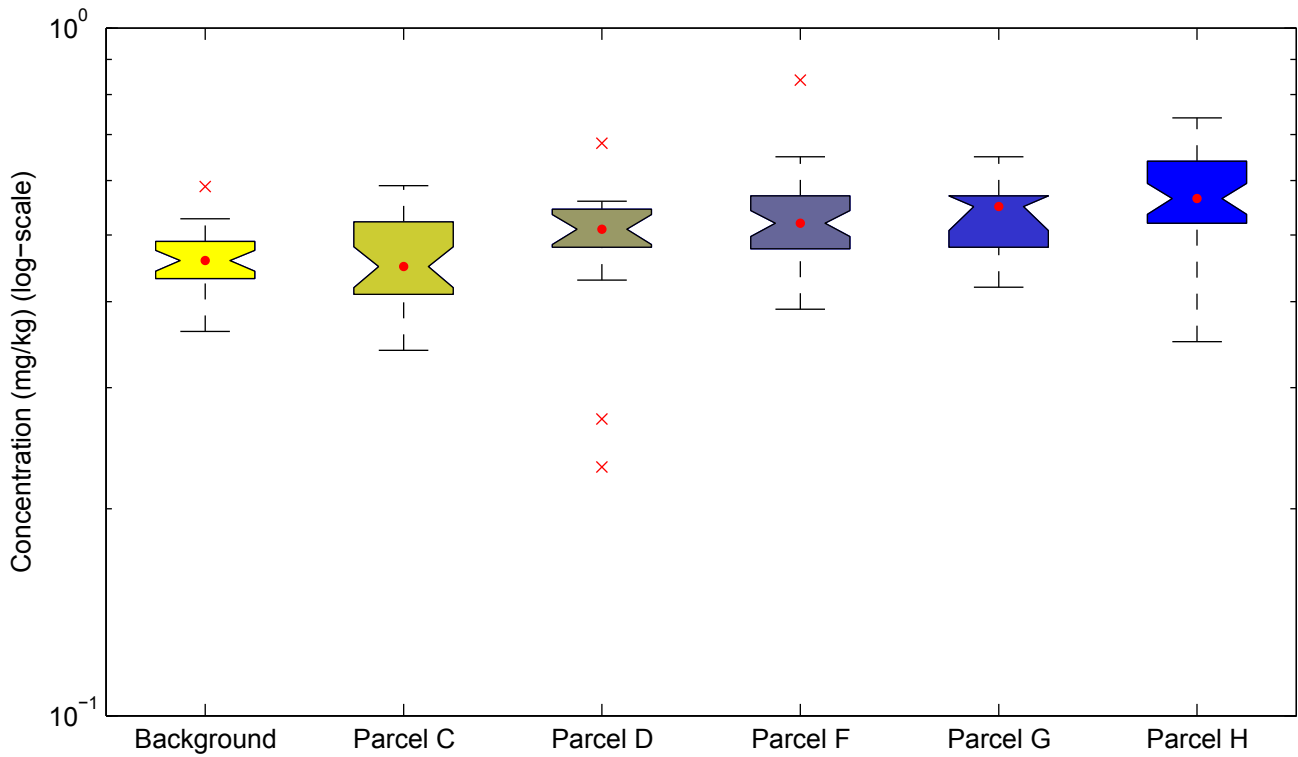
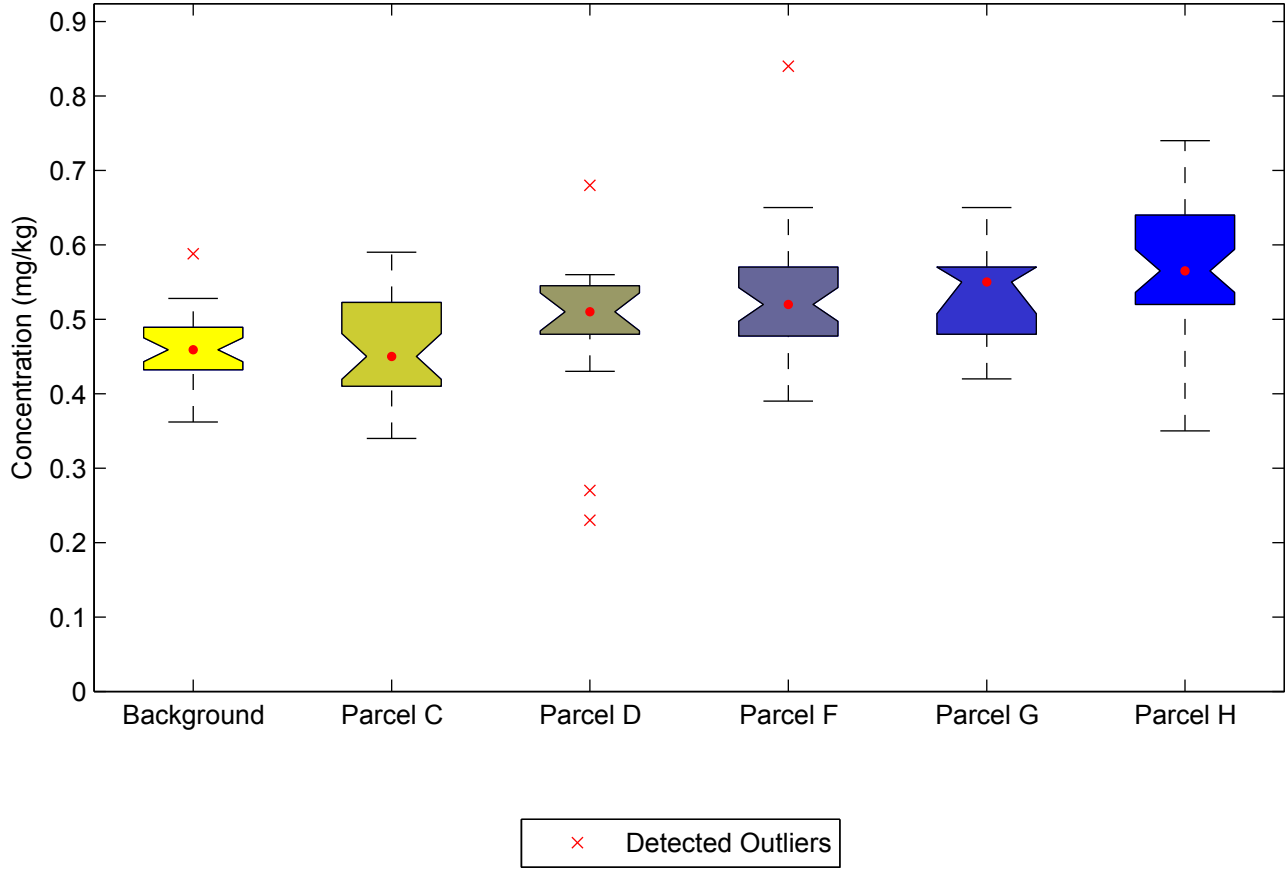
x Detected Outliers



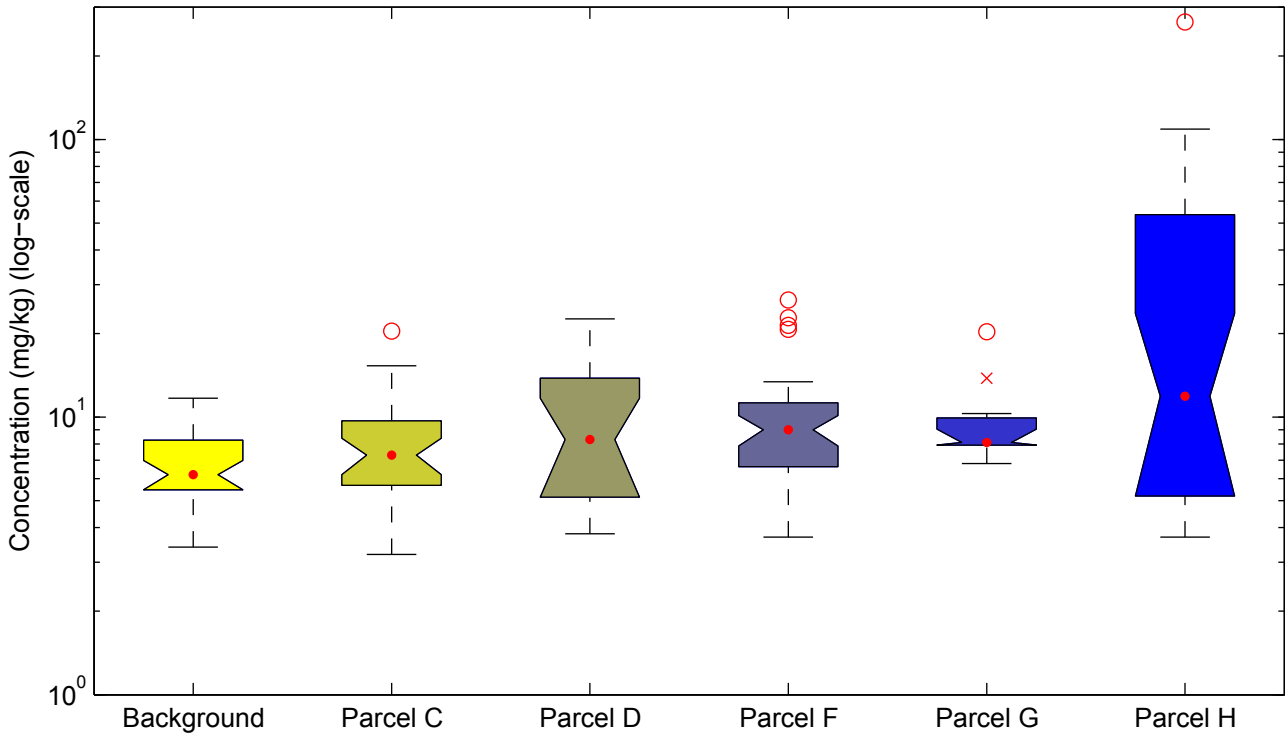
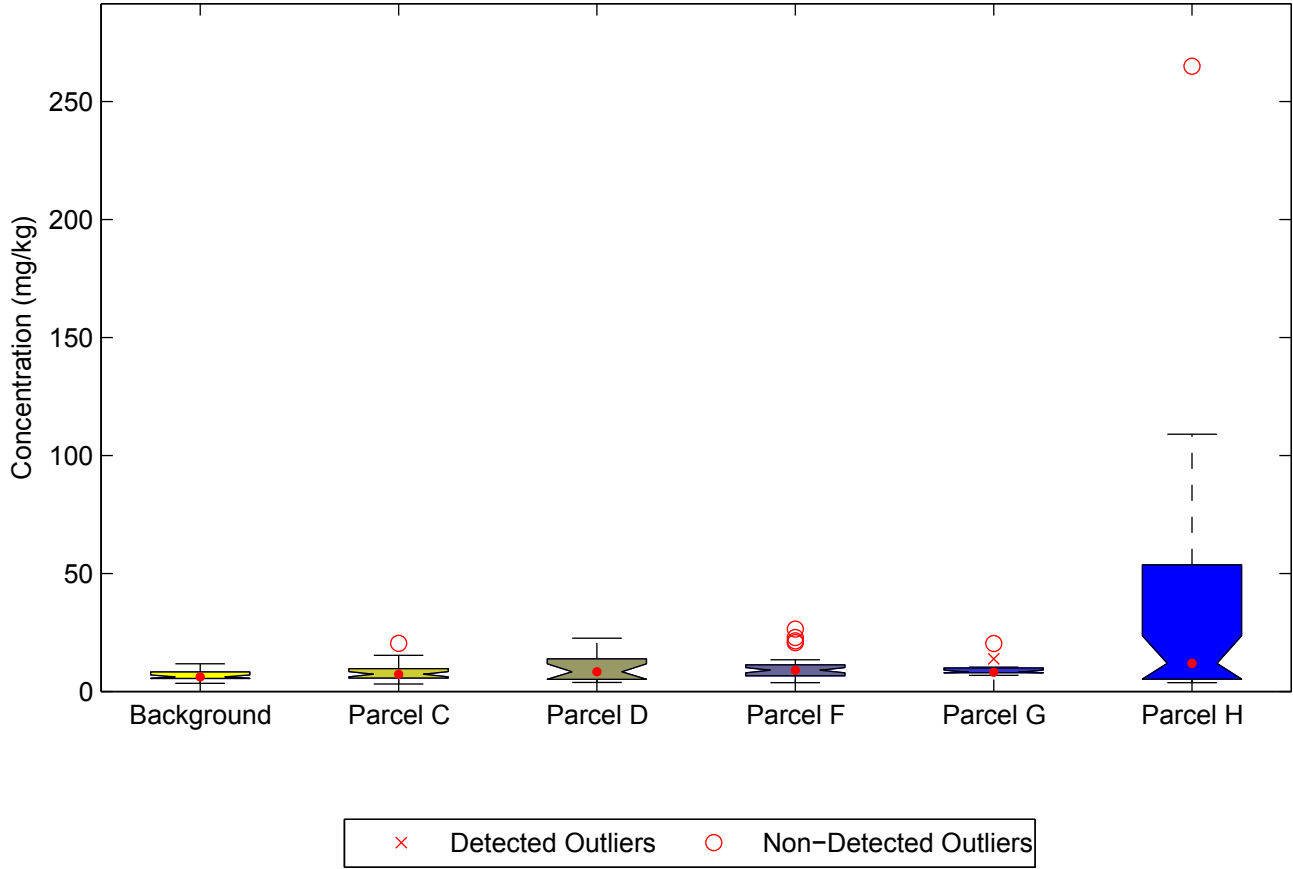
**Figure 1–4. Background vs. Site Boxplots
Barium**



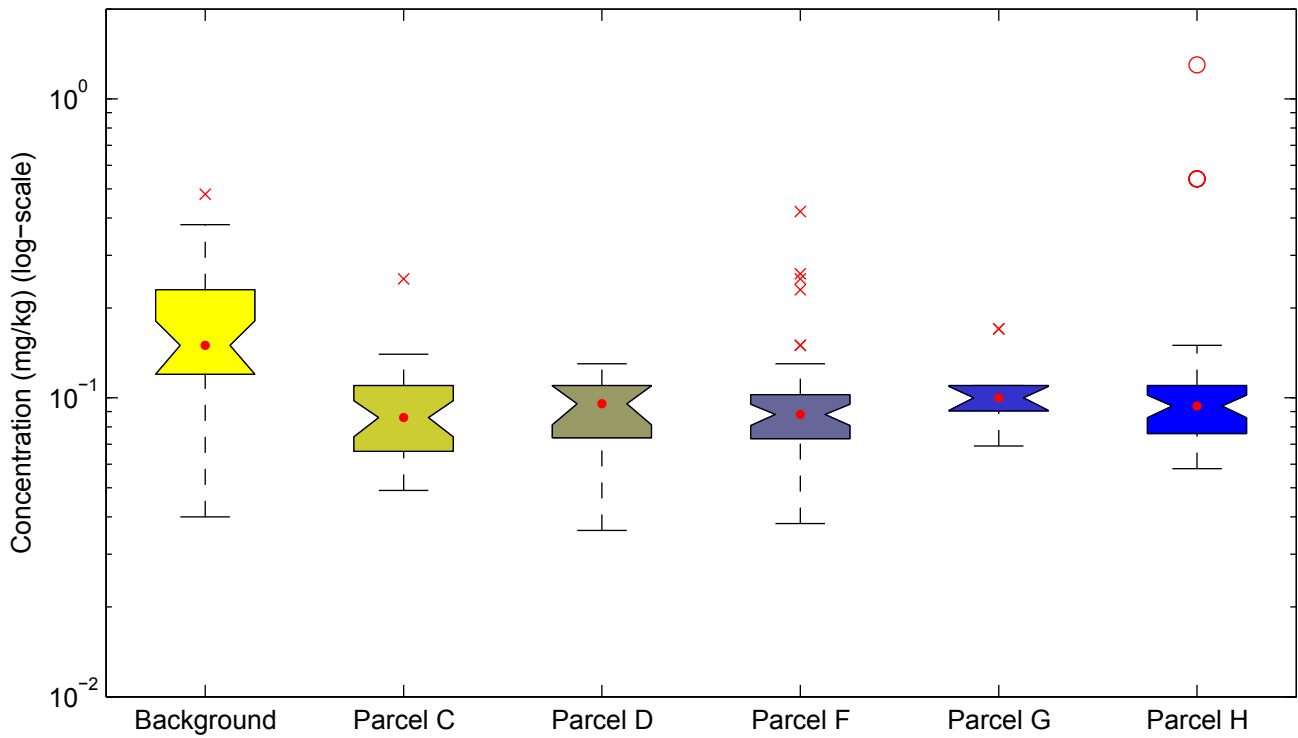
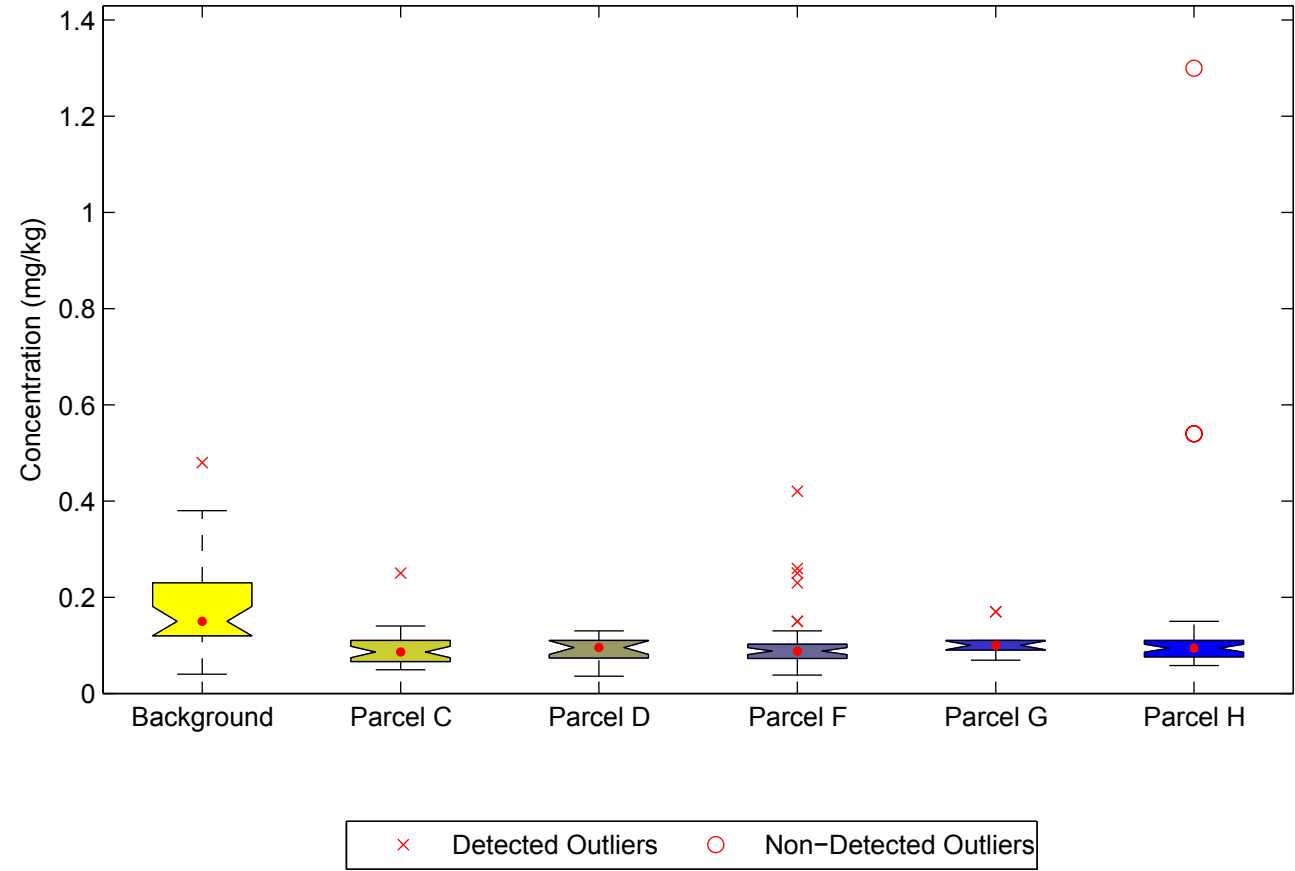
**Figure 1–5. Background vs. Site Boxplots
Beryllium**



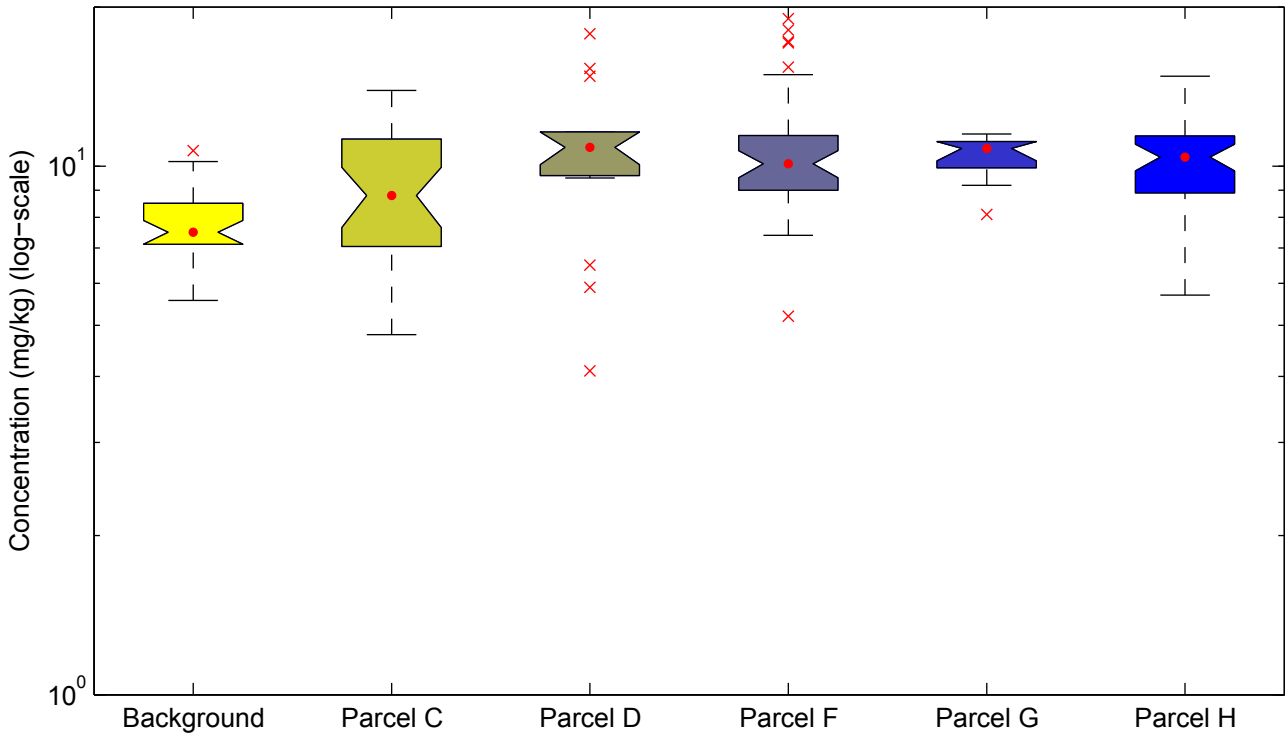
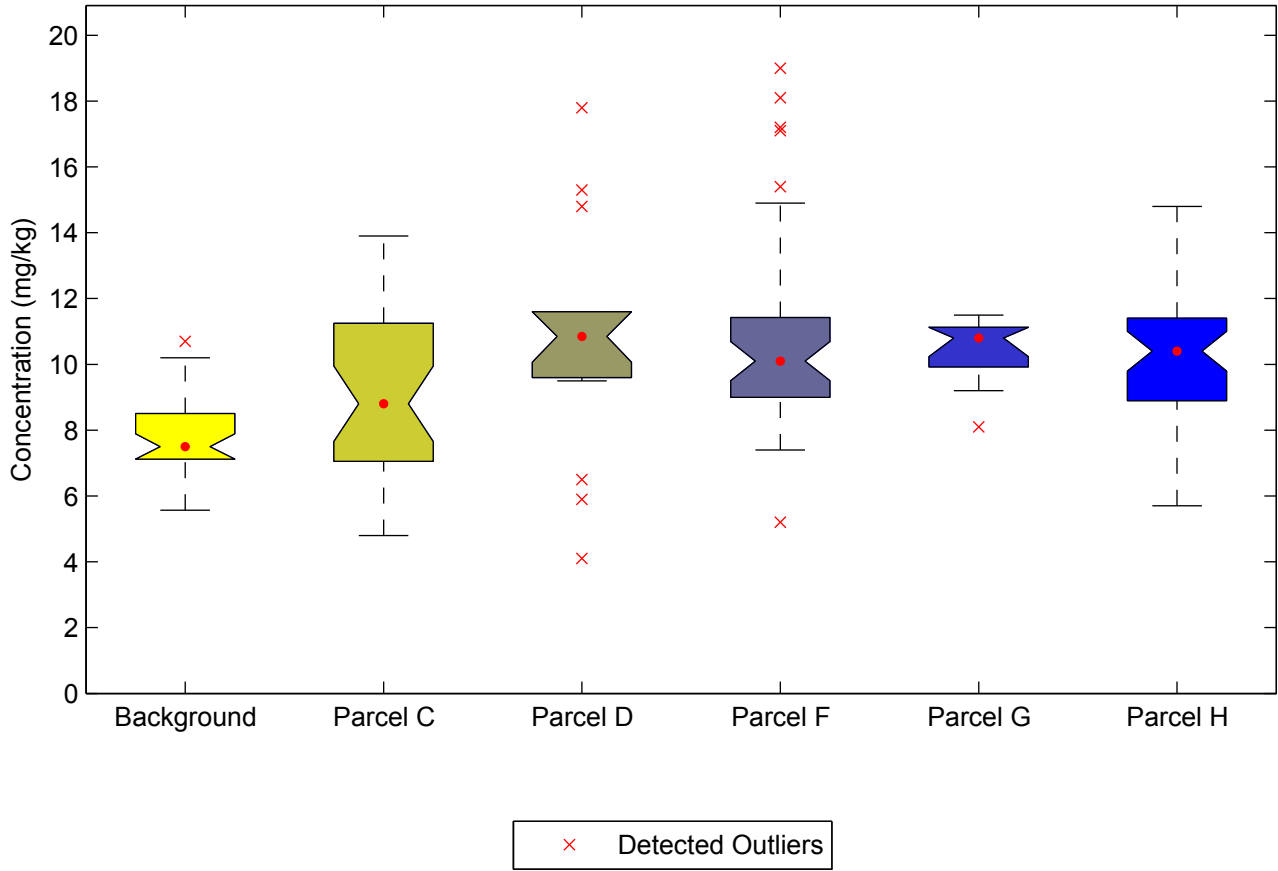
**Figure 1–6. Background vs. Site Boxplots
Boron**



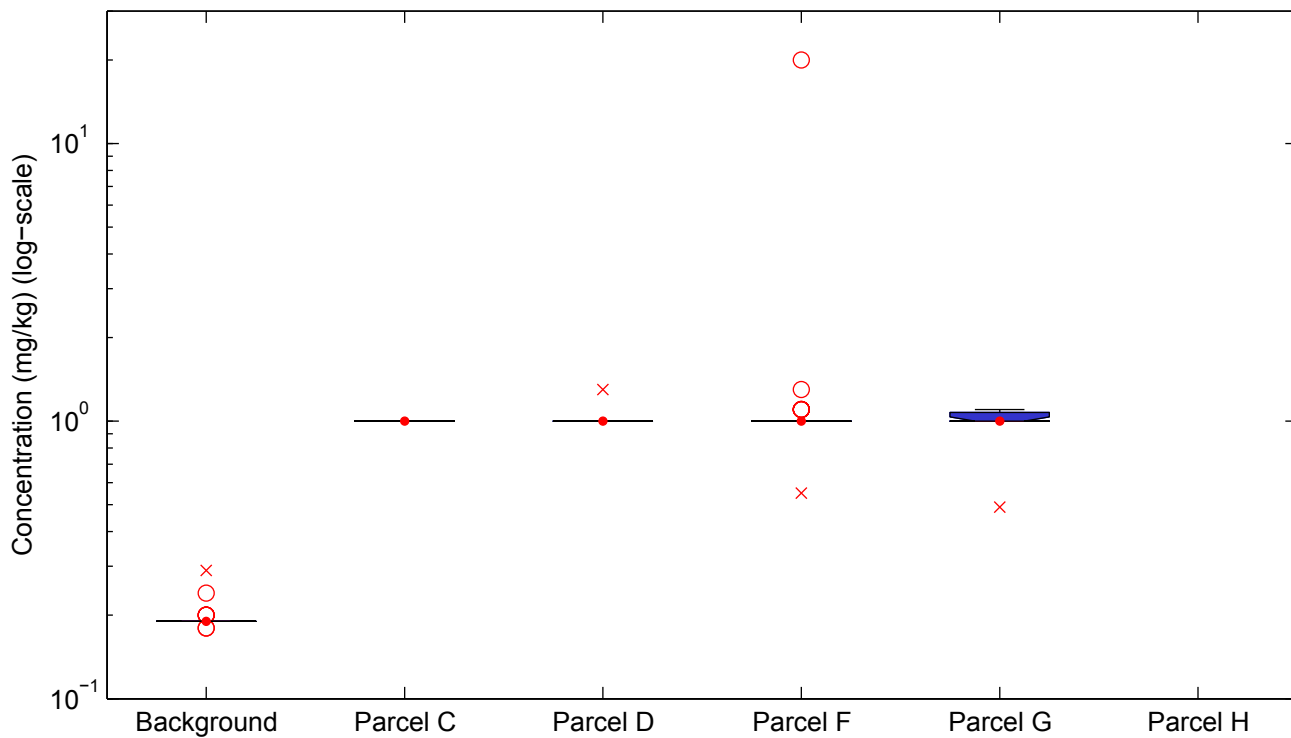
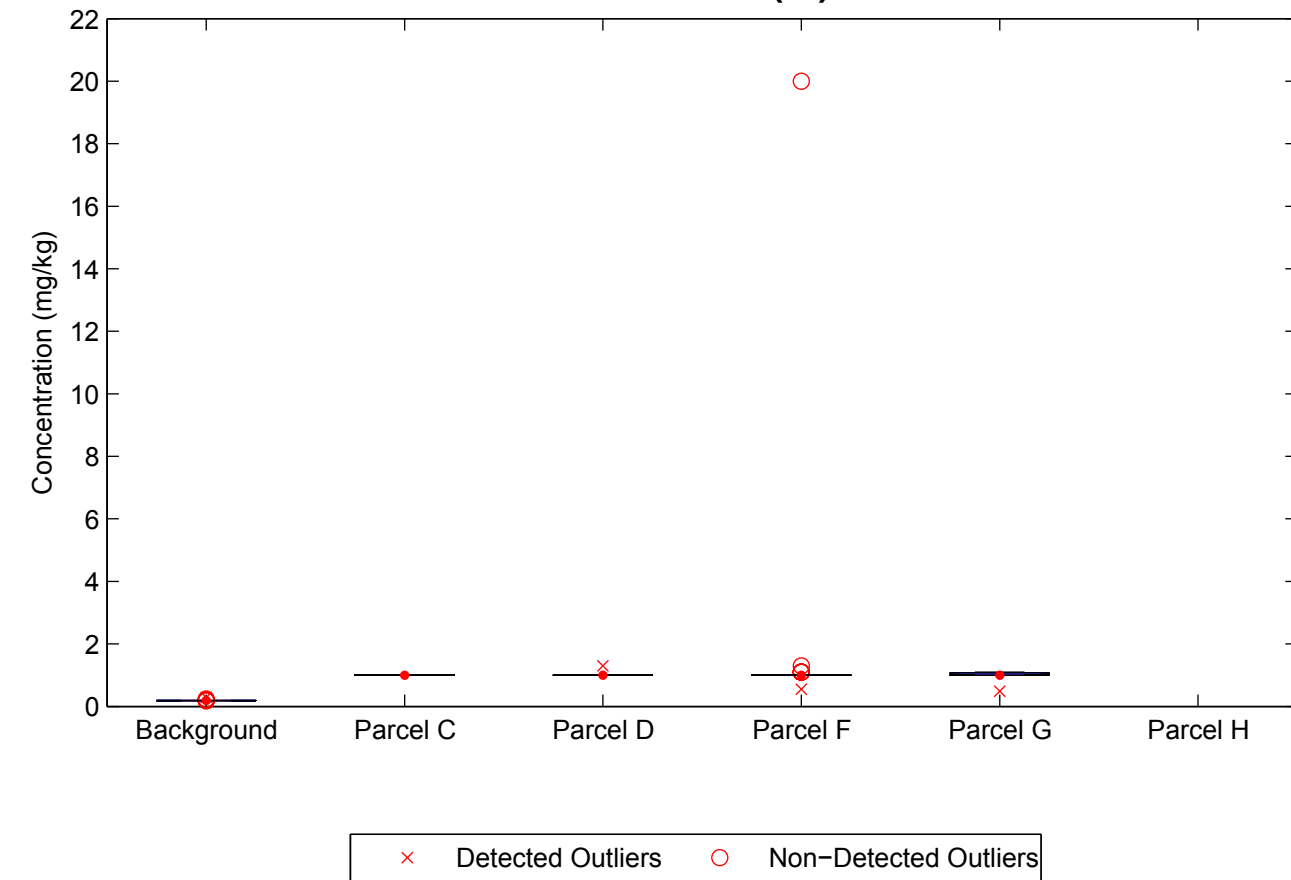
**Figure 1–7. Background vs. Site Boxplots
Cadmium**



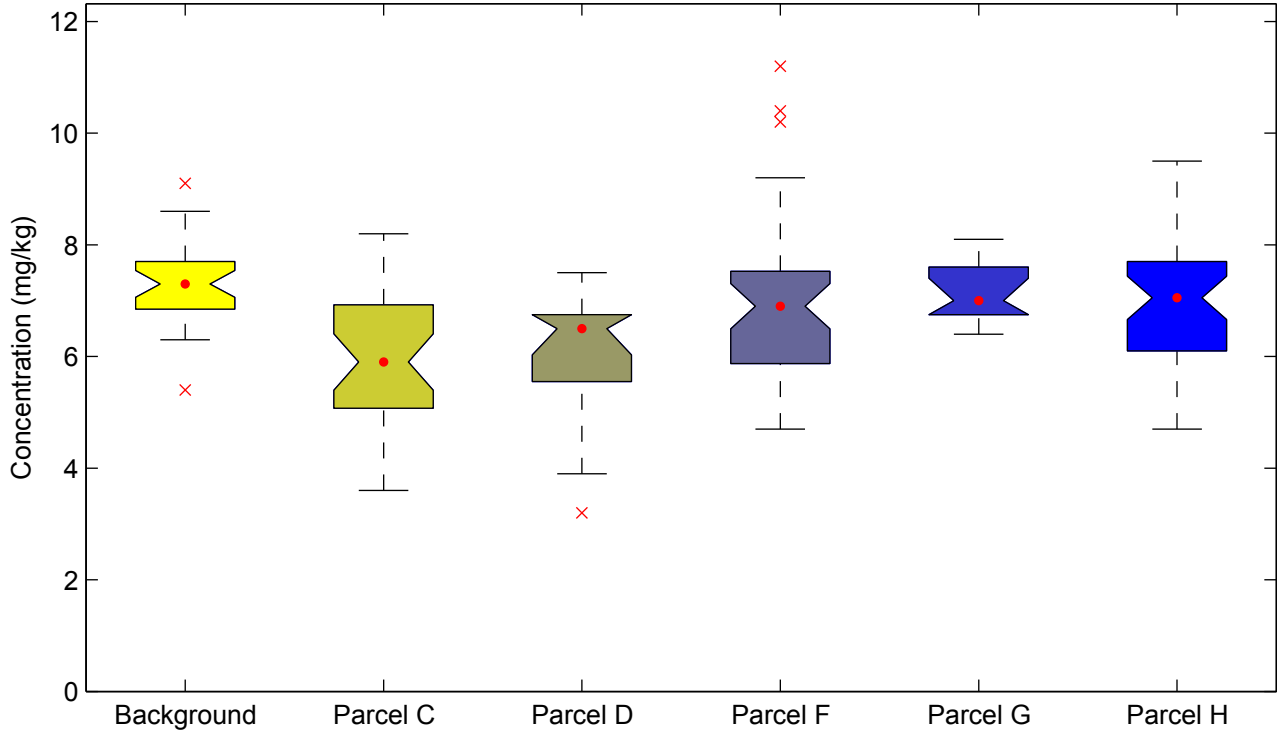
**Figure 1–8. Background vs. Site Boxplots
Chromium (Total)**



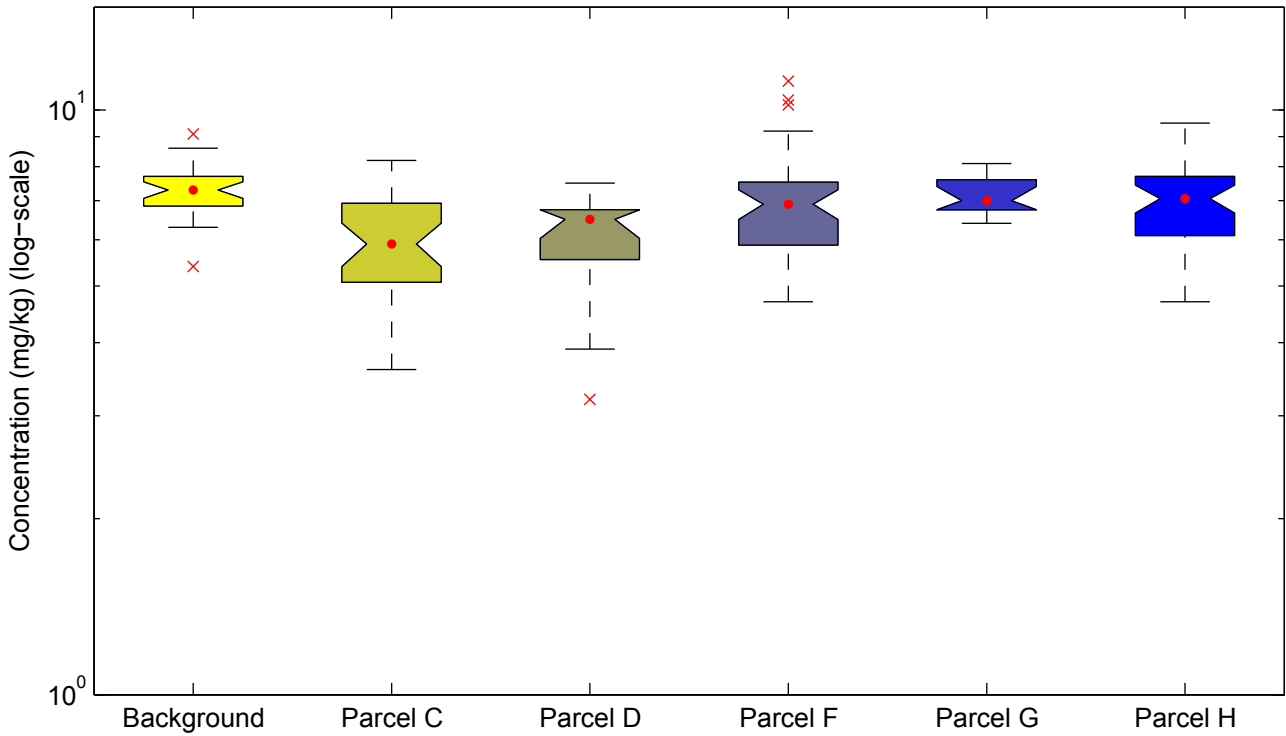
**Figure 1–9. Background vs. Site Boxplots
Chromium (VI)**



**Figure 1–10. Background vs. Site Boxplots
Cobalt**



x Detected Outliers



**Figure 1–11. Background vs. Site Boxplots
Copper**

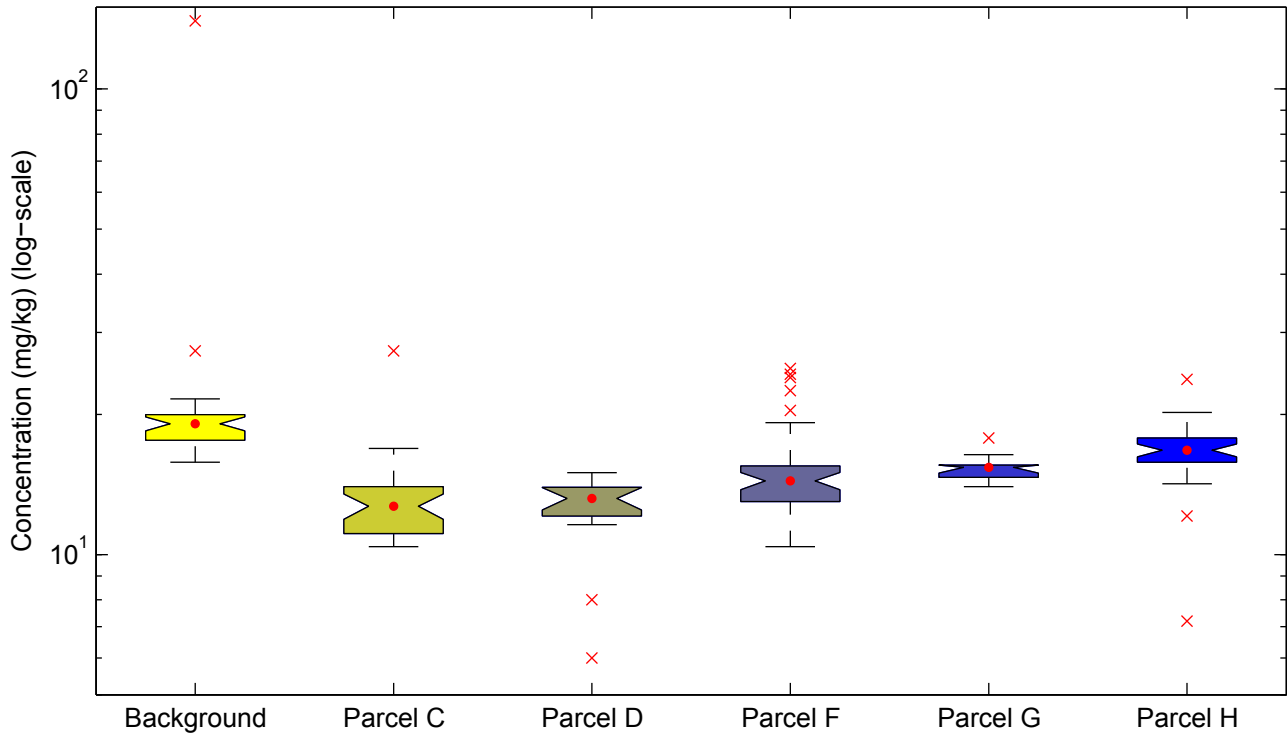
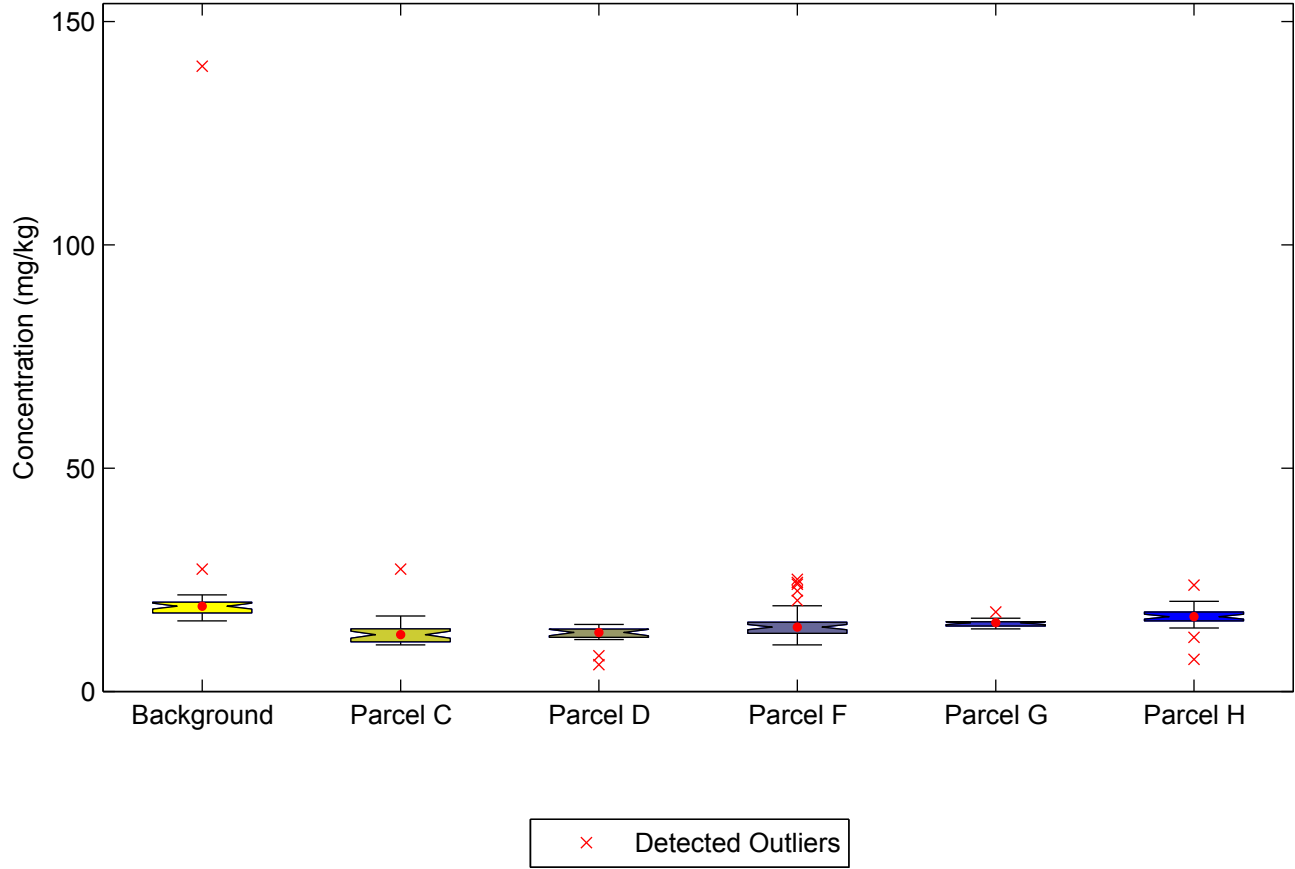
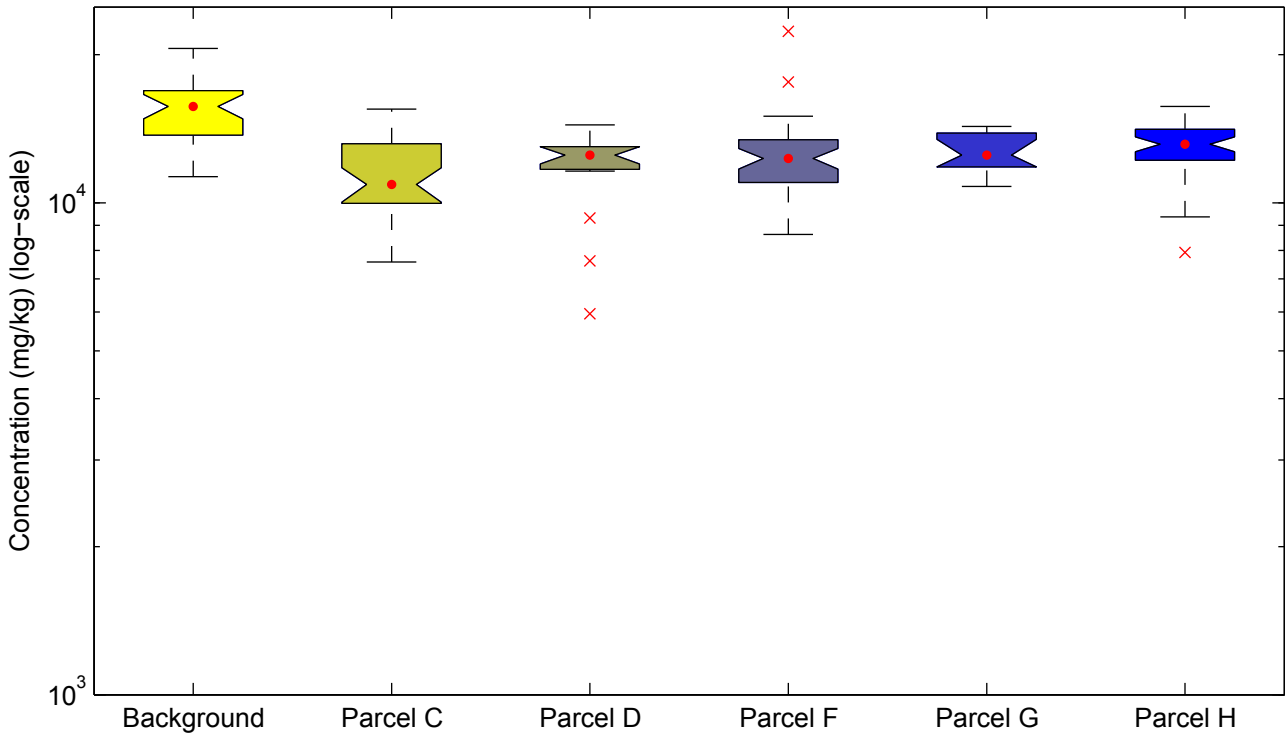
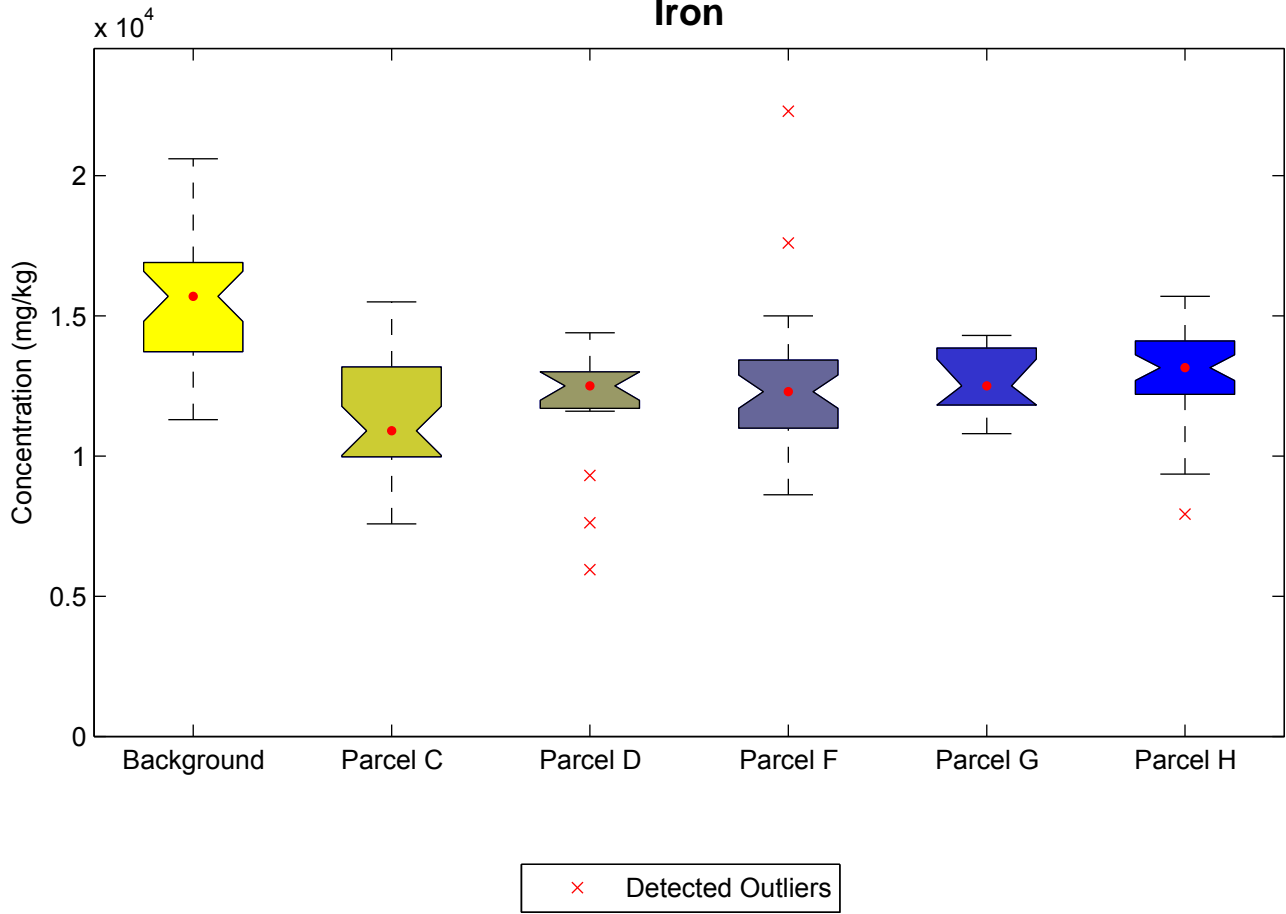


Figure 1–12. Background vs. Site Boxplots
Iron



**Figure 1–13. Background vs. Site Boxplots
Lead**

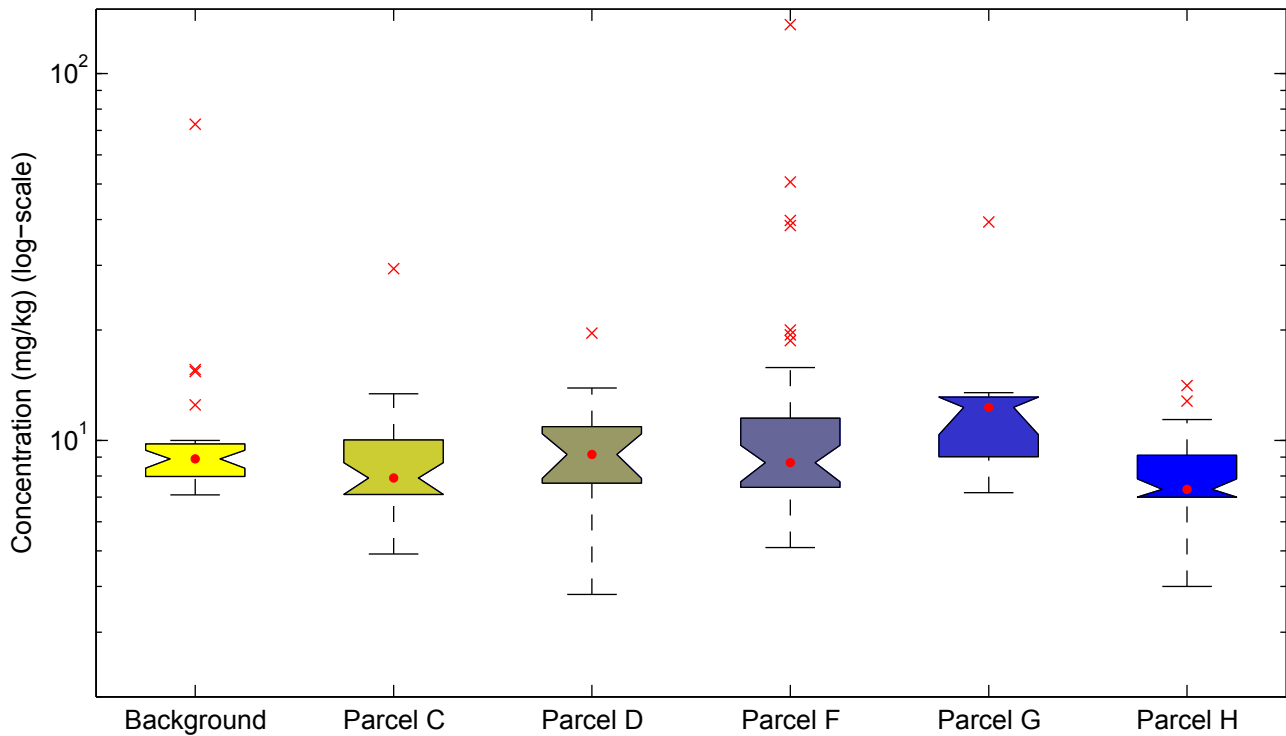
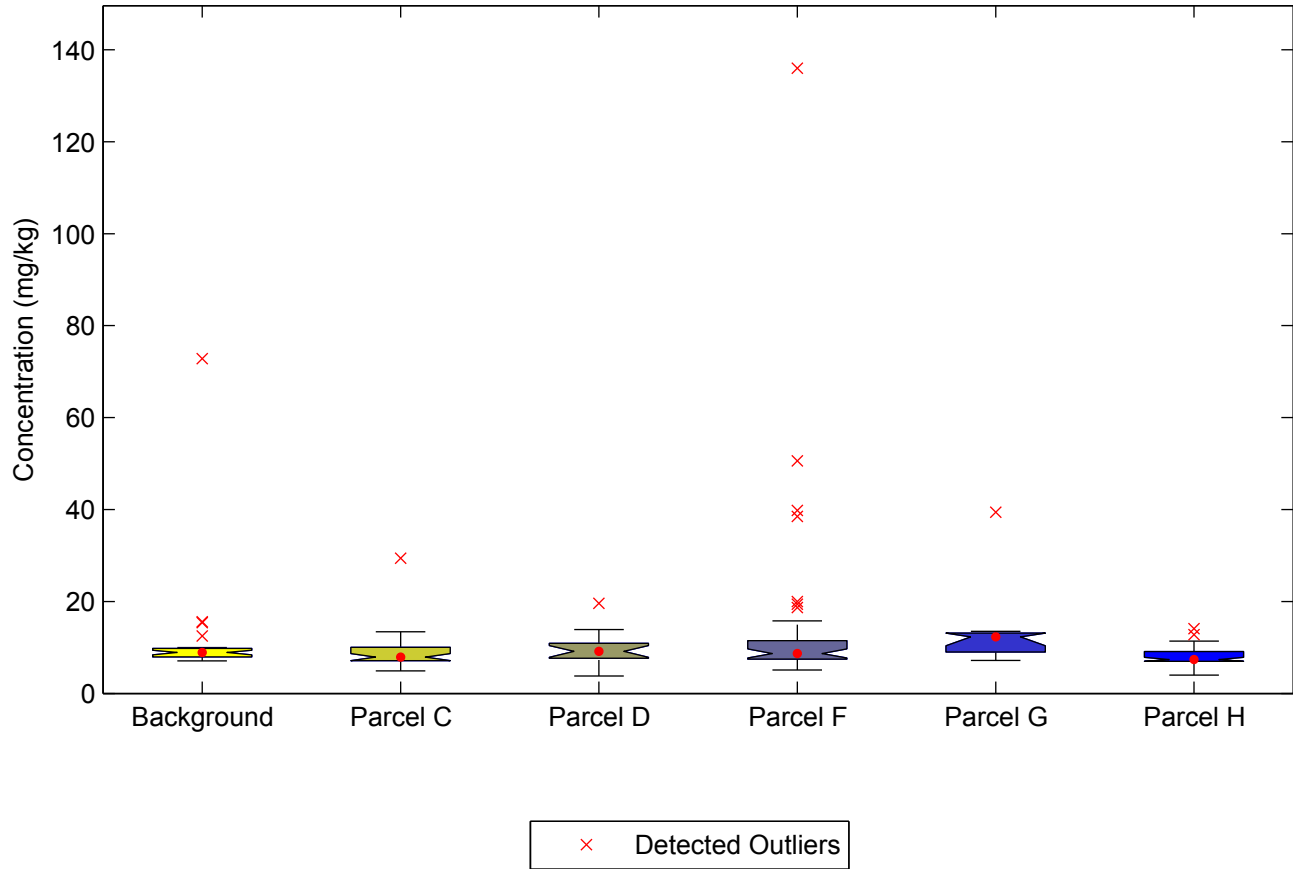
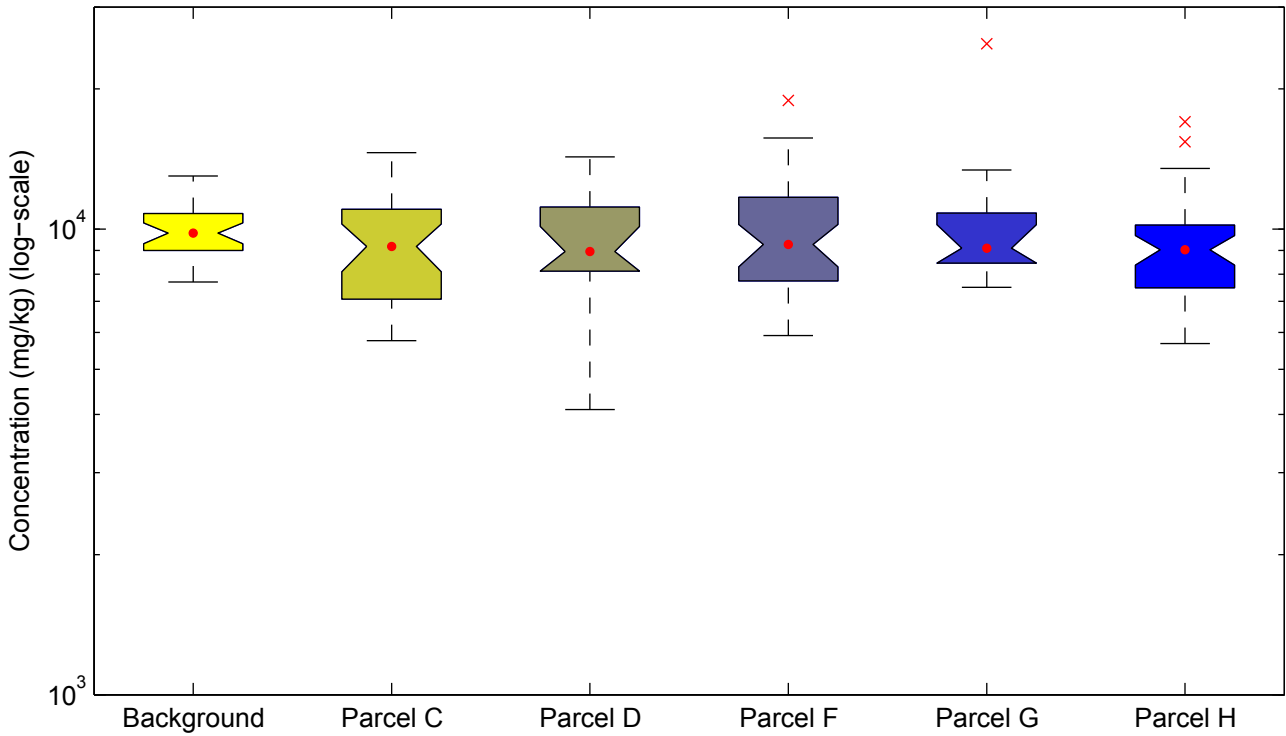
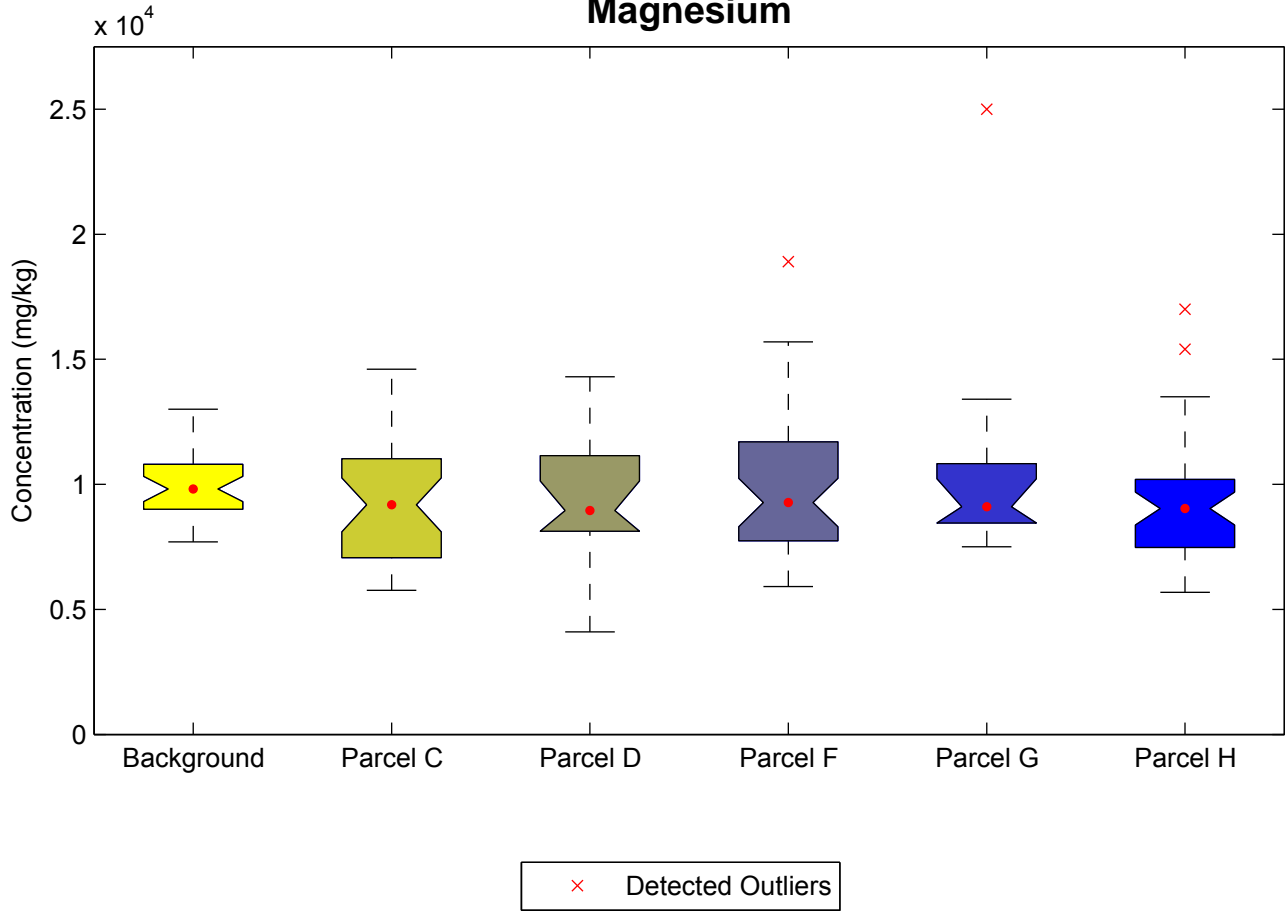
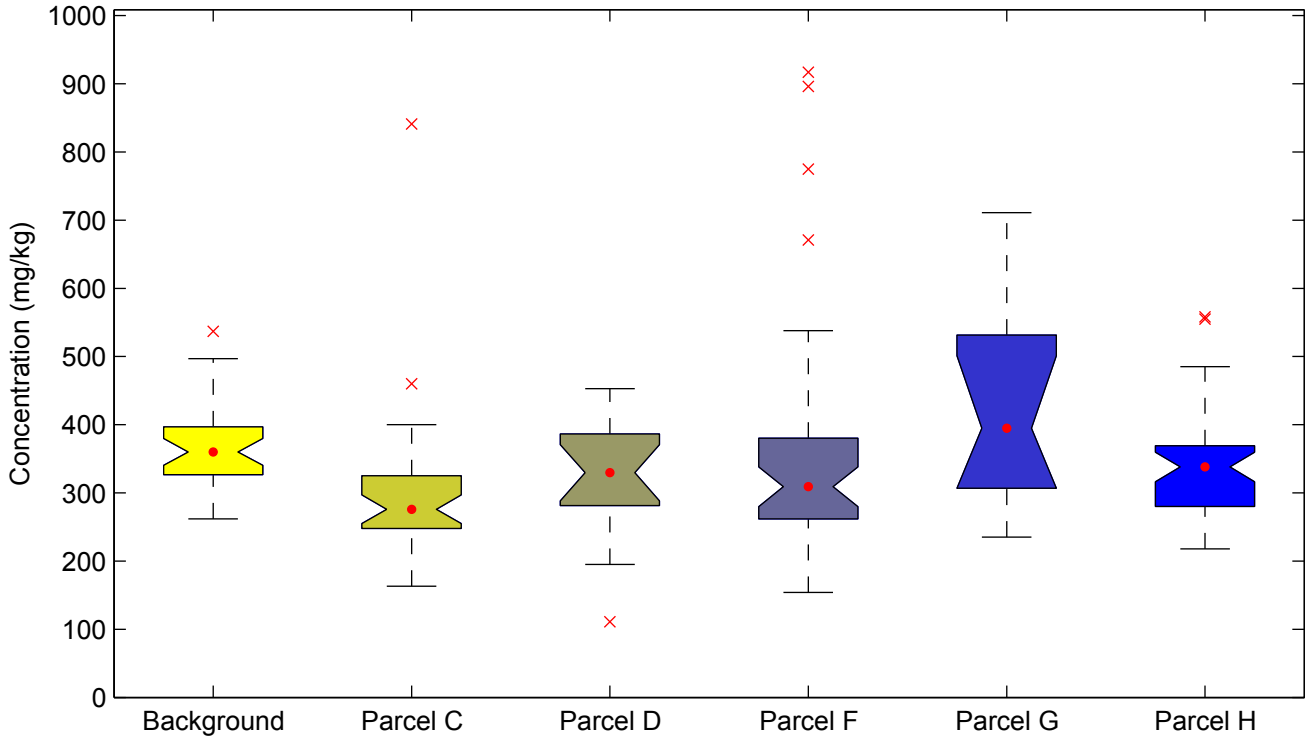


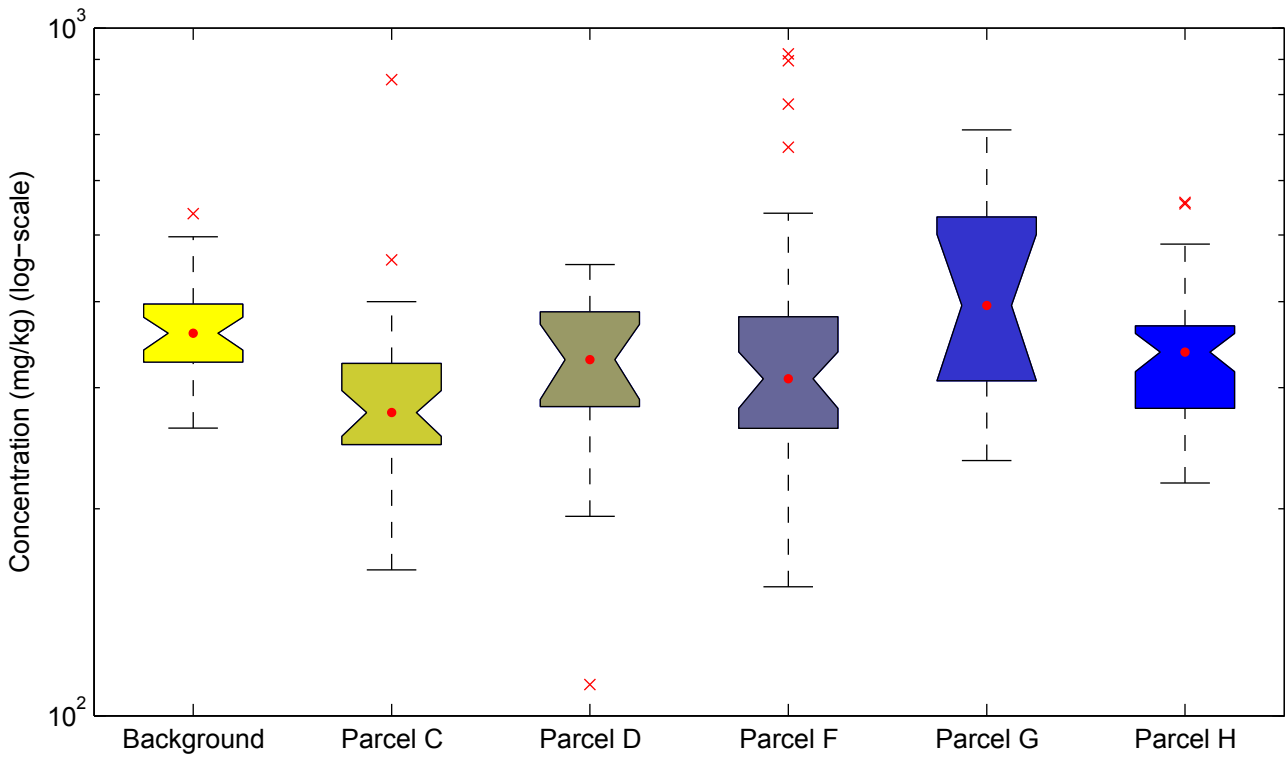
Figure 1–14. Background vs. Site Boxplots
Magnesium



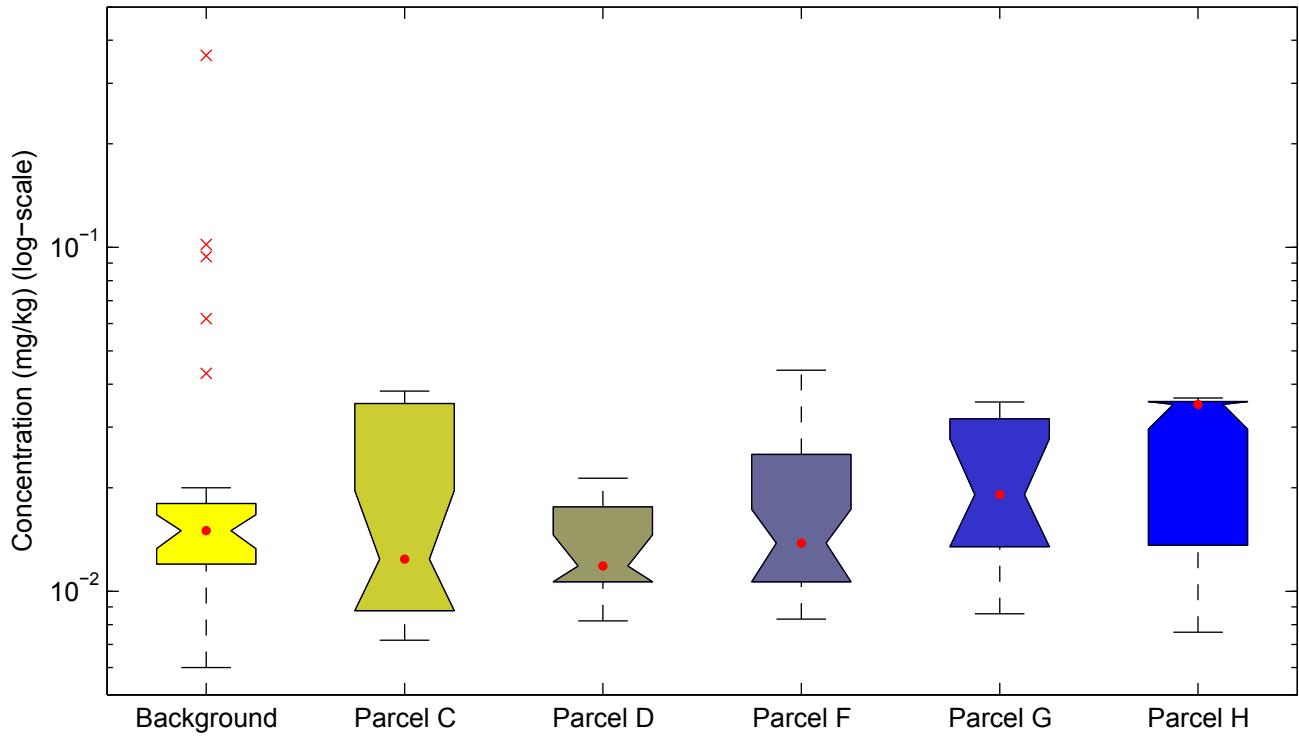
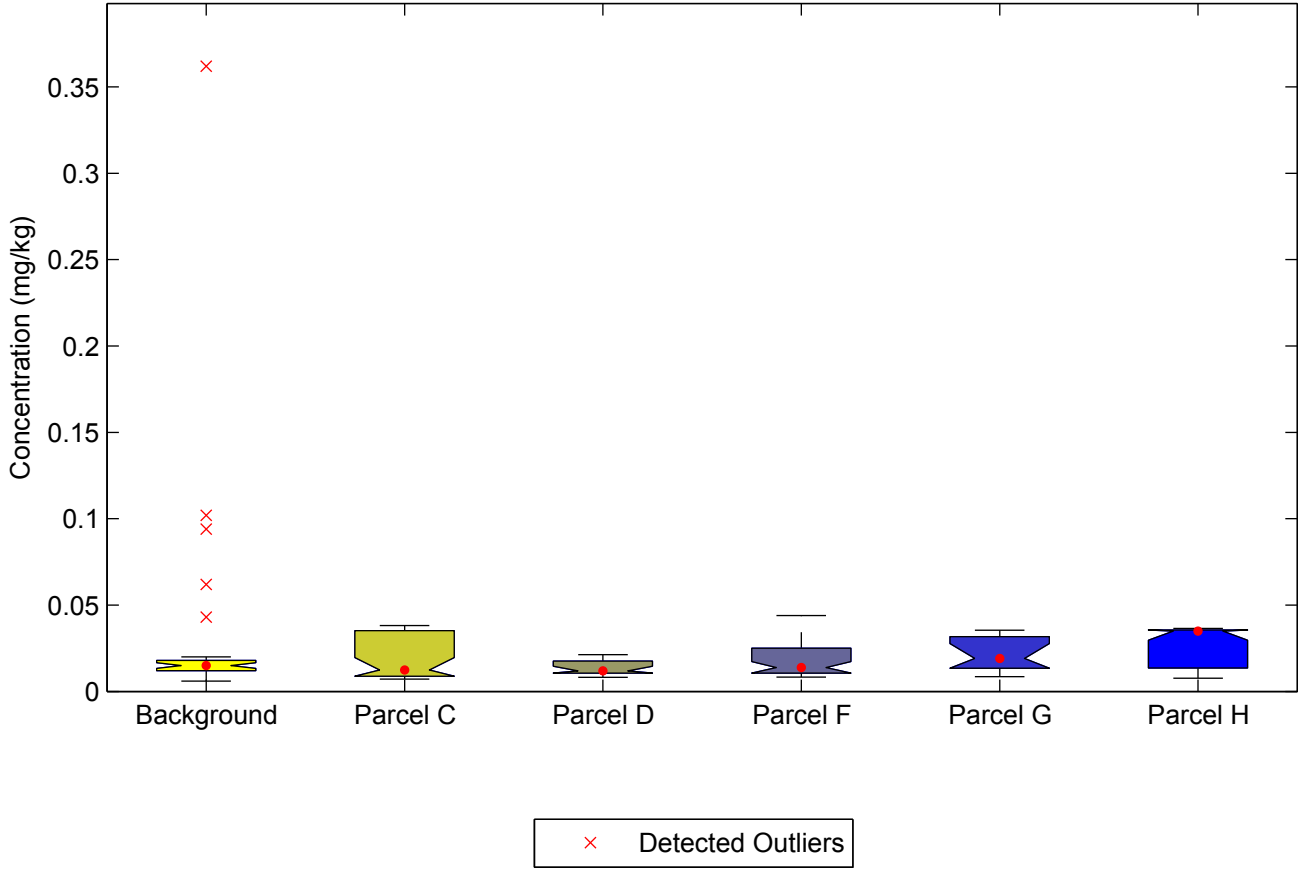
**Figure 1–15. Background vs. Site Boxplots
Manganese**



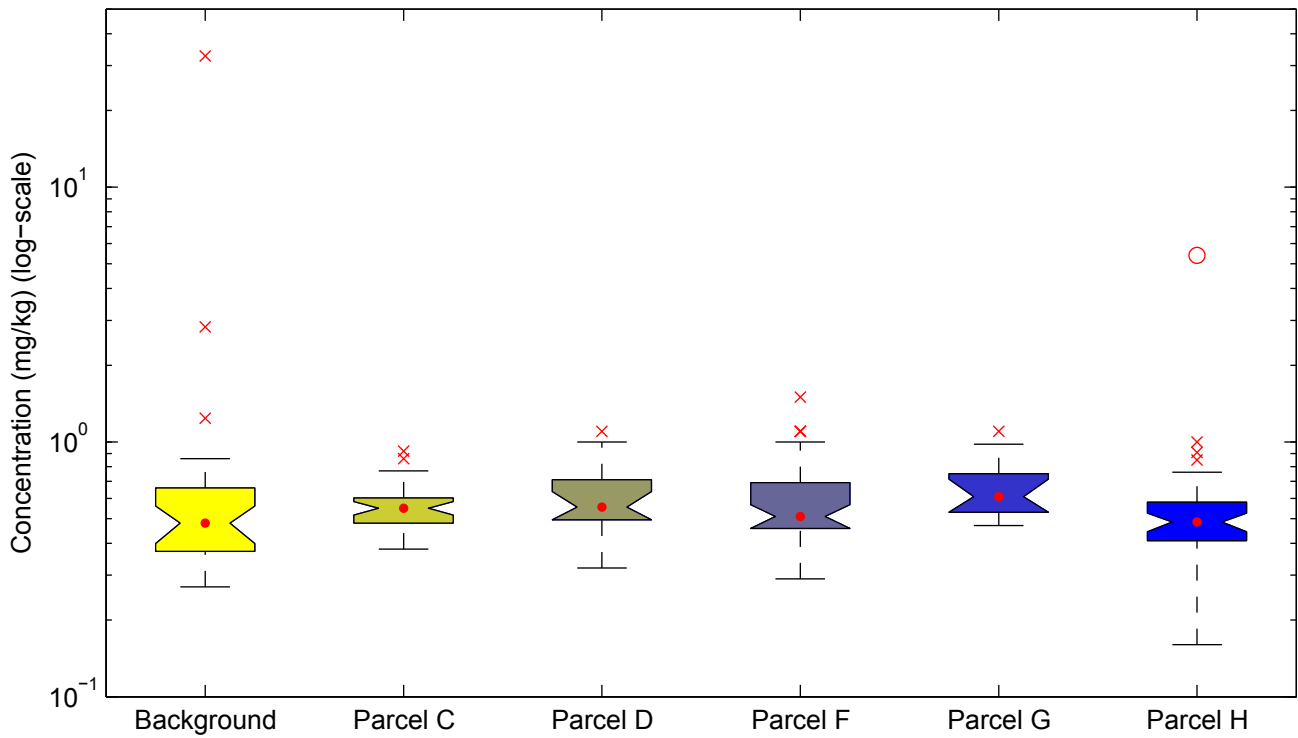
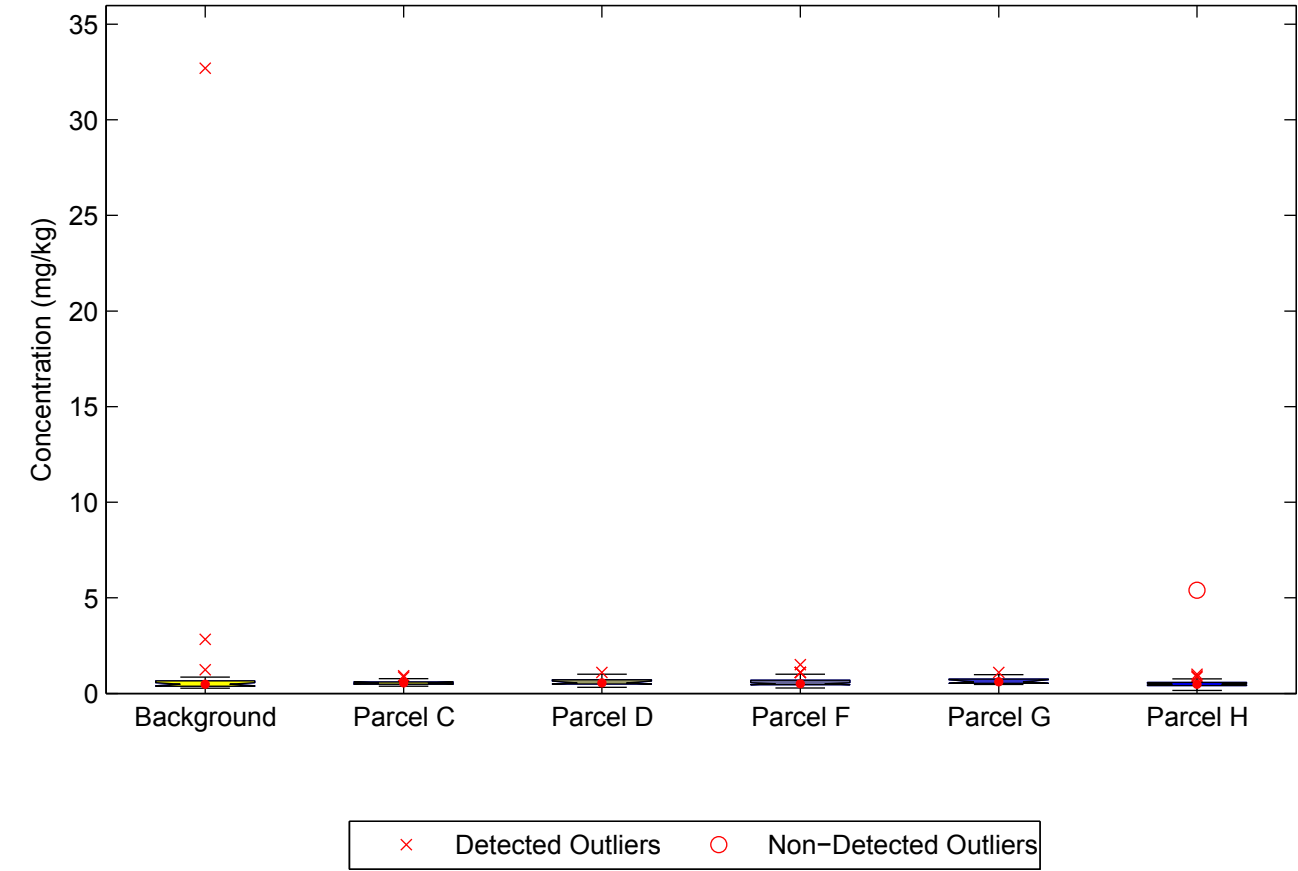
x Detected Outliers



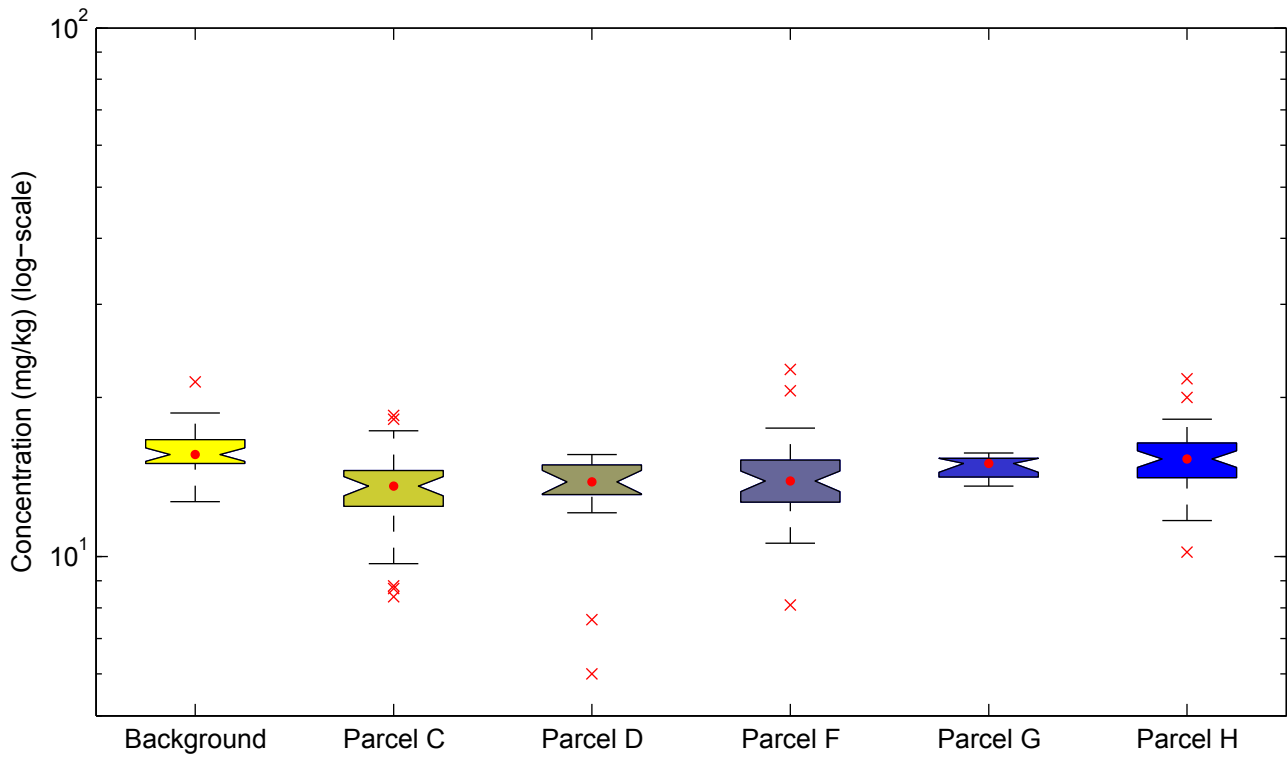
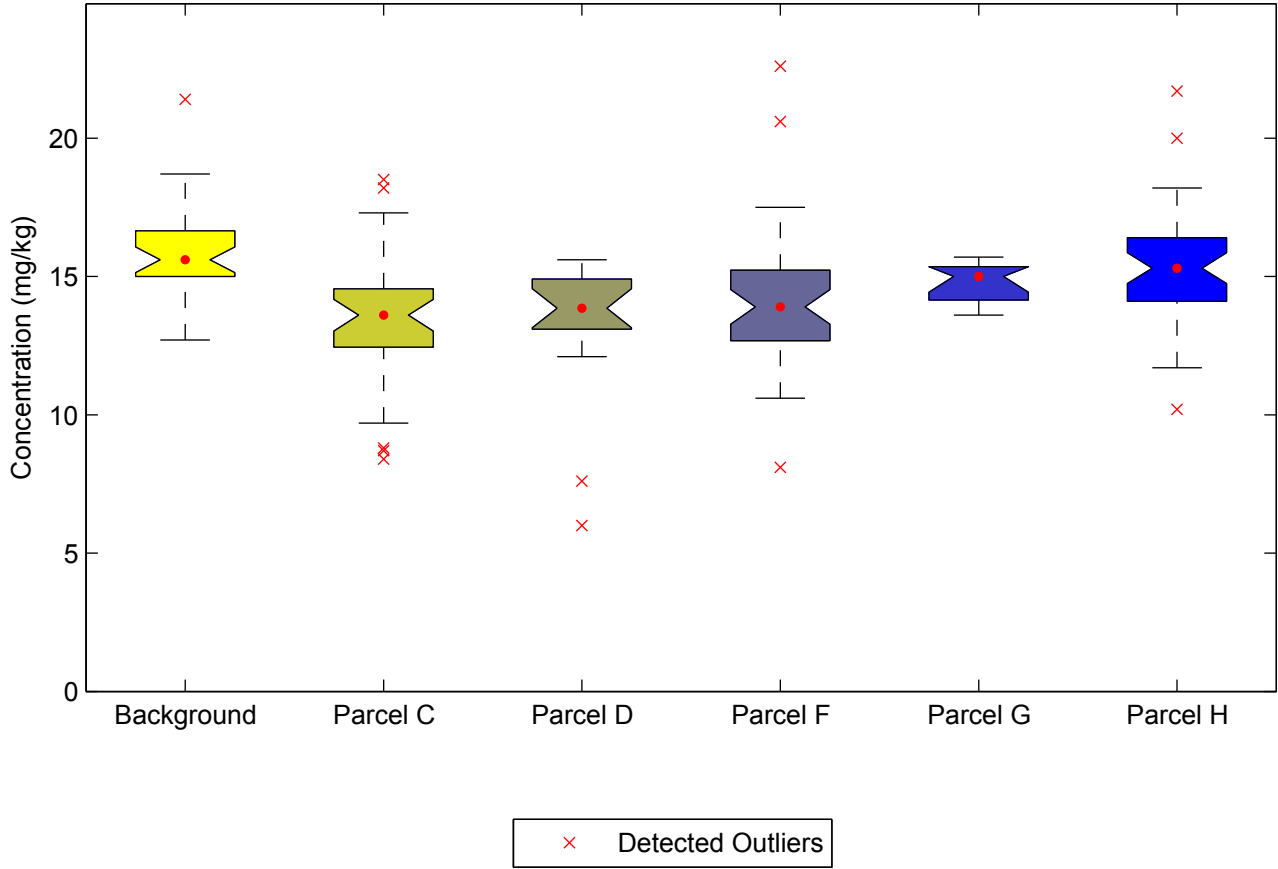
**Figure 1–16. Background vs. Site Boxplots
Mercury**



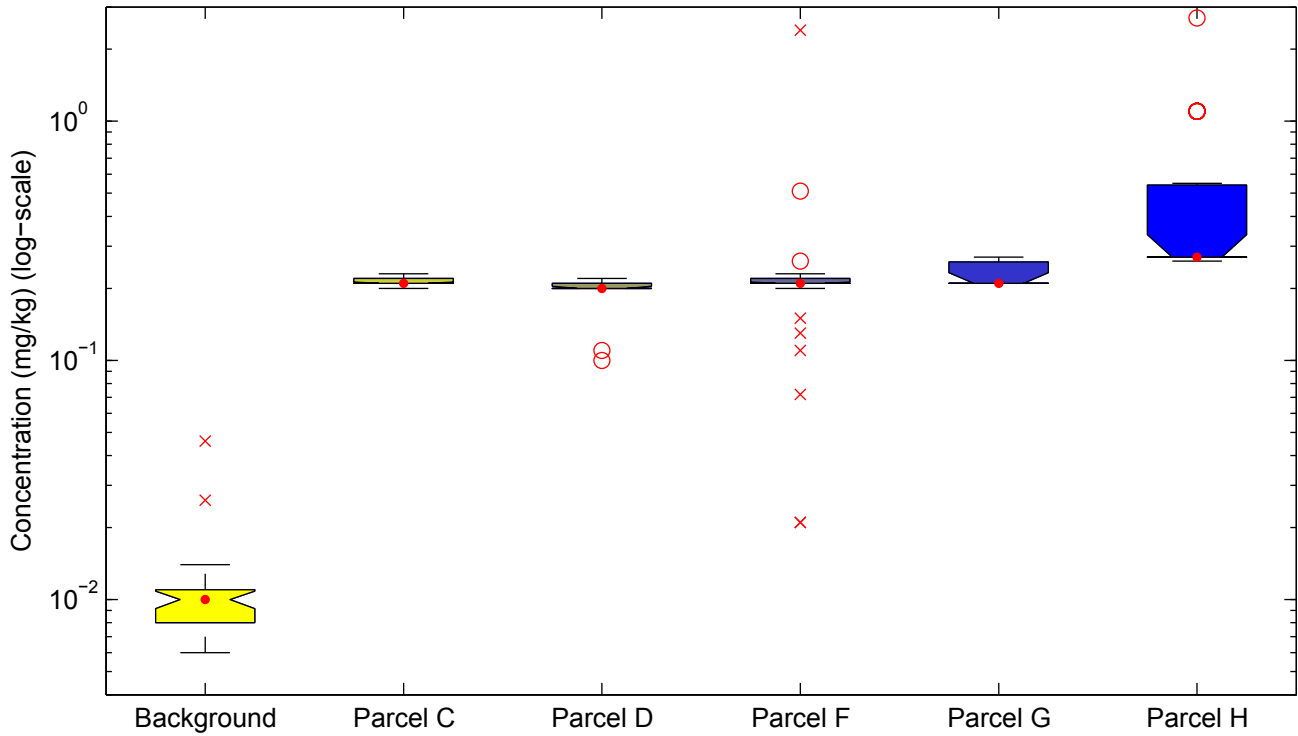
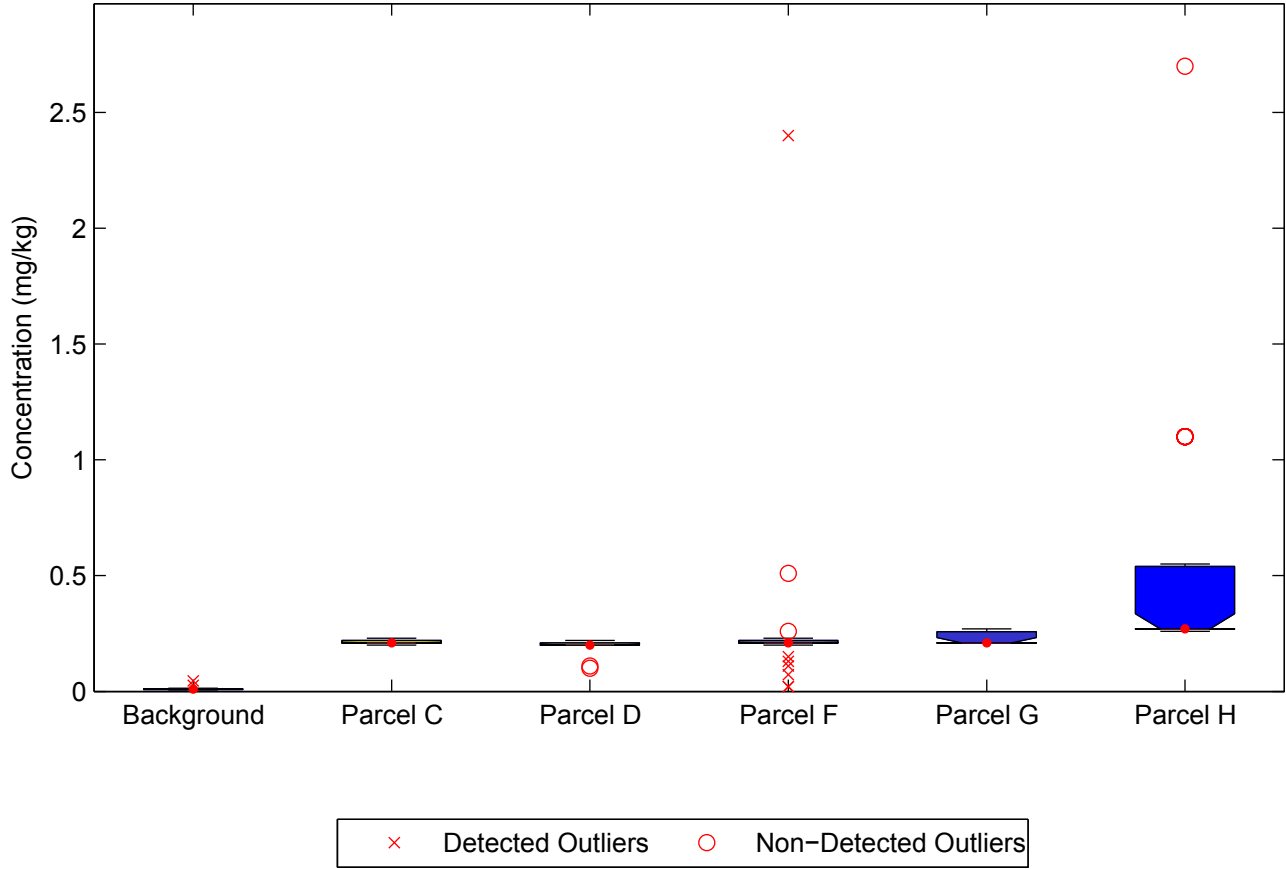
**Figure 1–17. Background vs. Site Boxplots
Molybdenum**



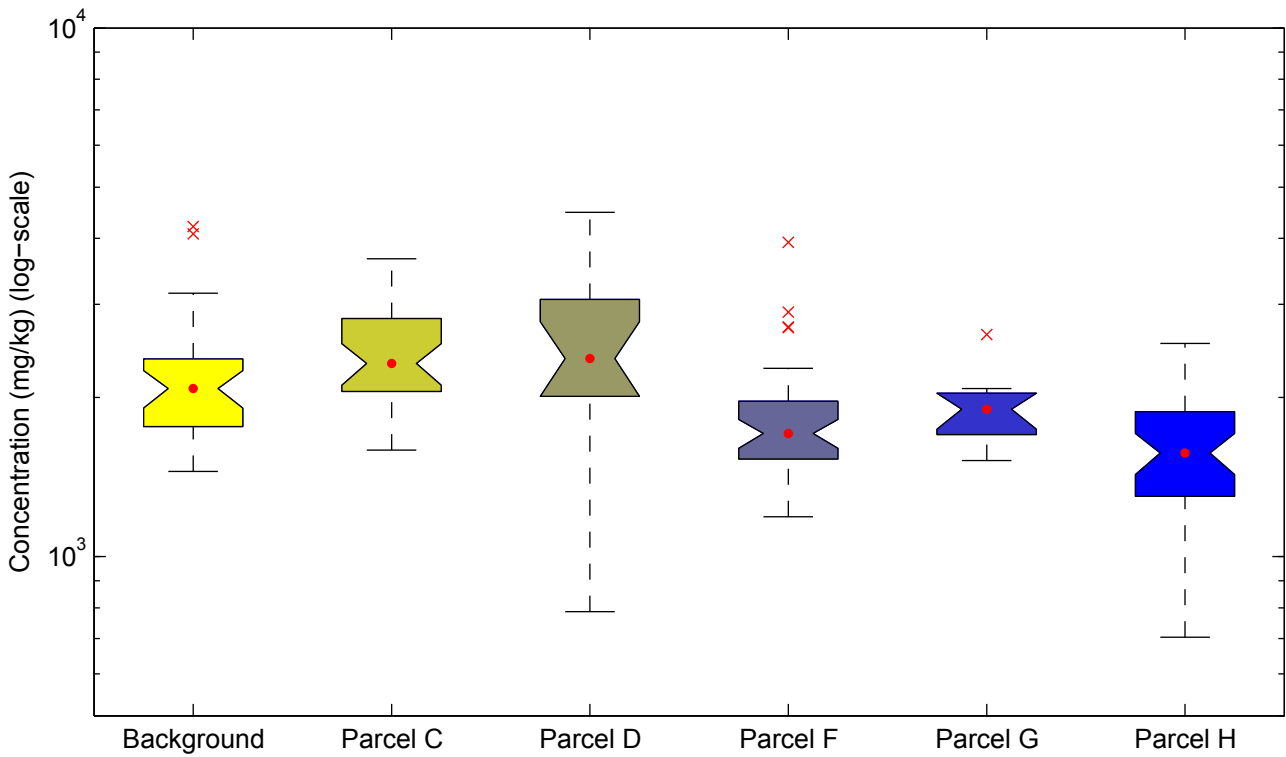
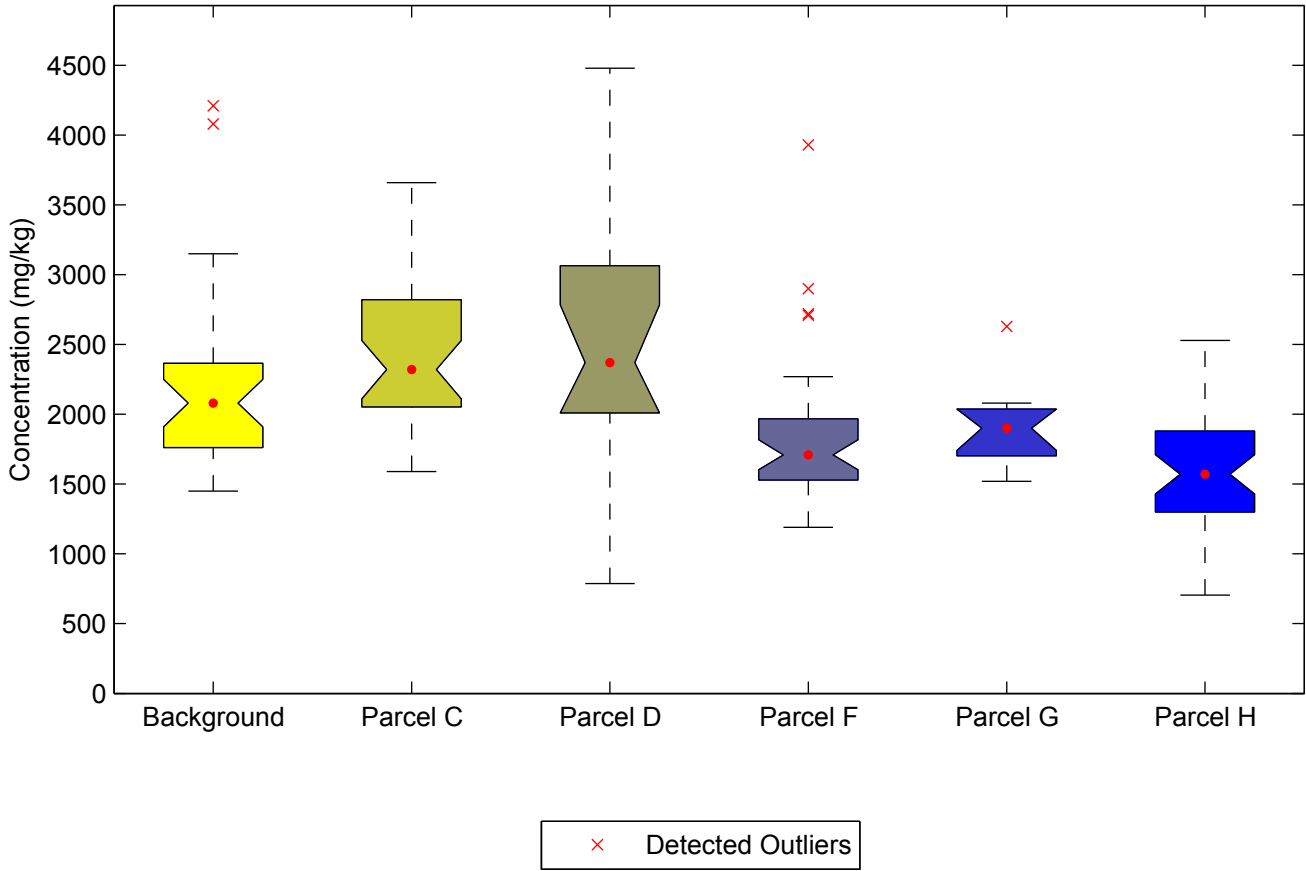
**Figure 1–18. Background vs. Site Boxplots
Nickel**



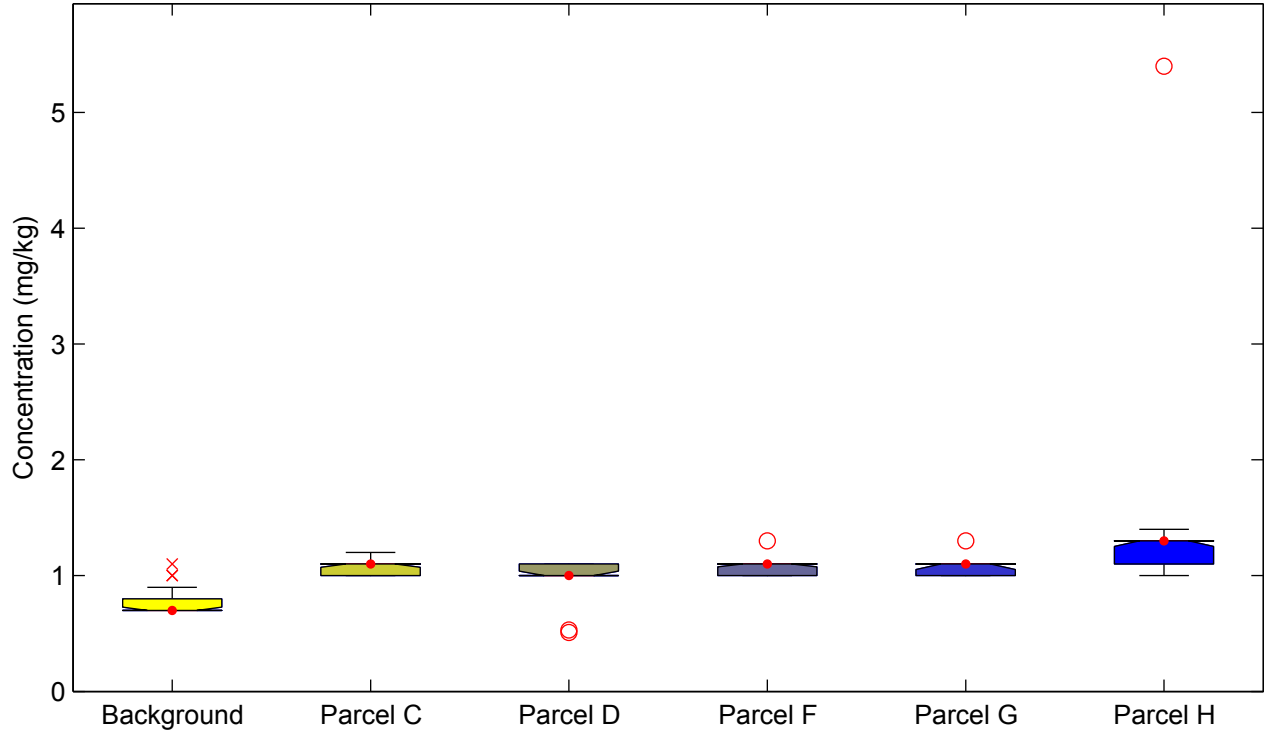
**Figure 1–19. Background vs. Site Boxplots
Platinum**



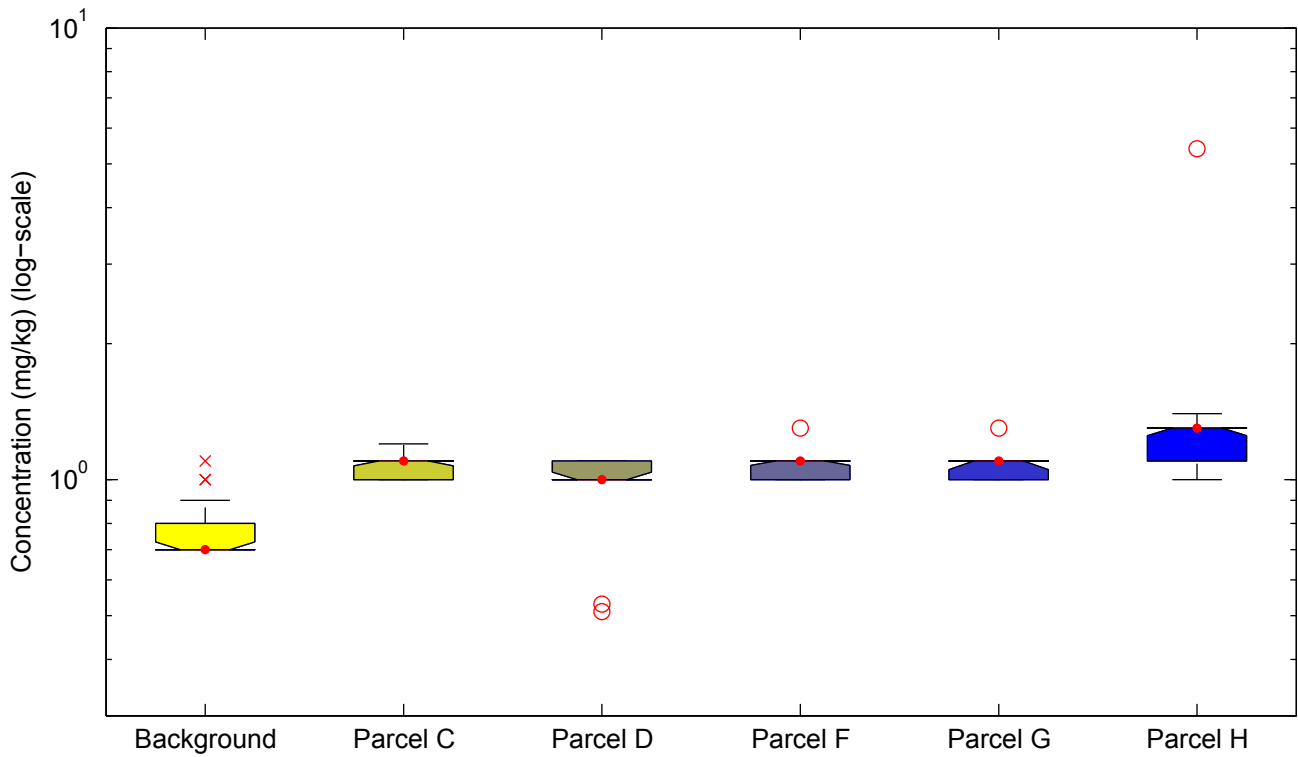
**Figure 1–20. Background vs. Site Boxplots
Potassium**



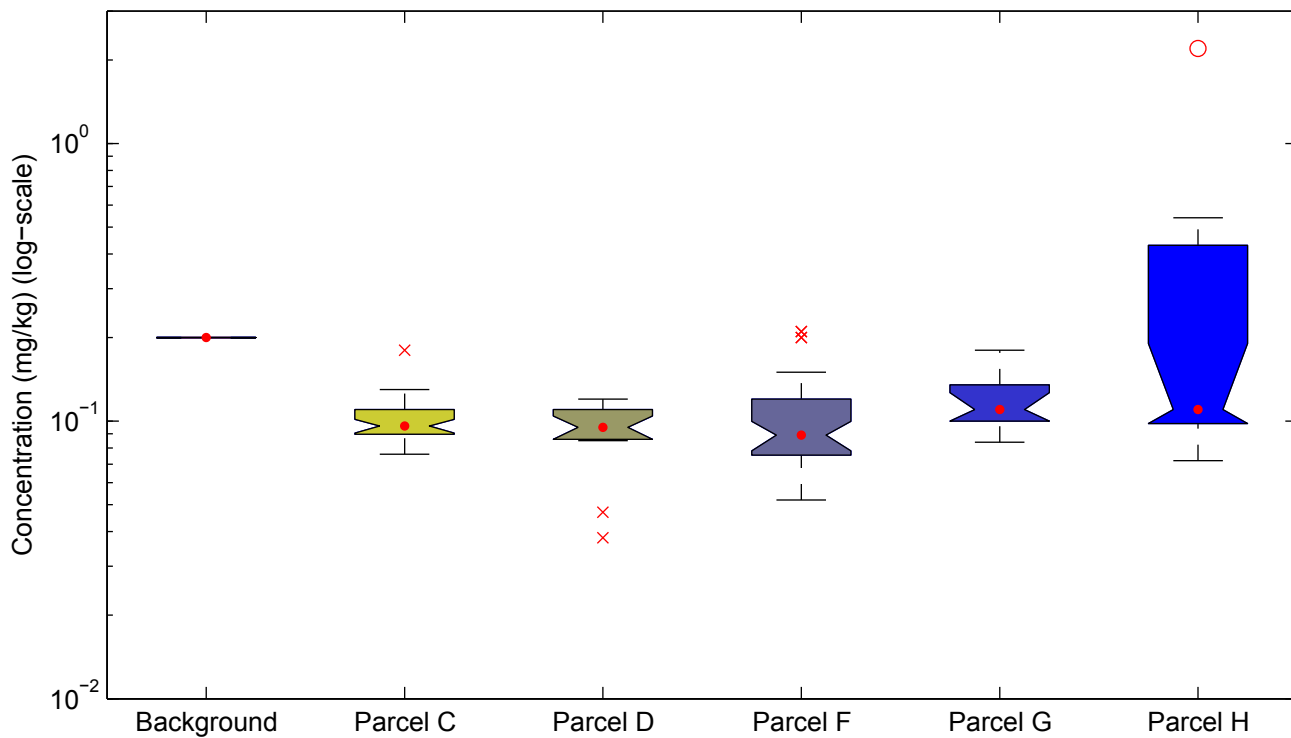
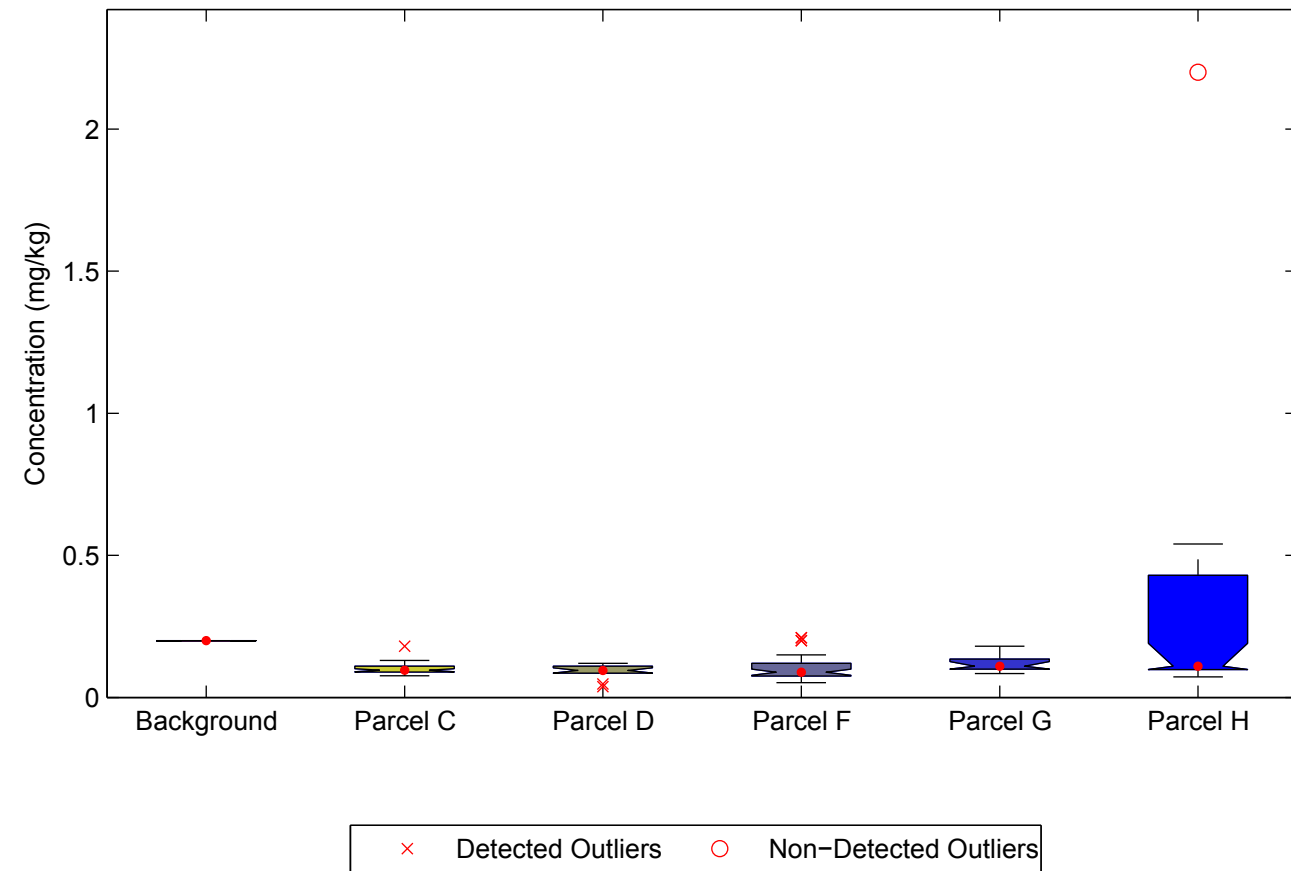
**Figure 1–21. Background vs. Site Boxplots
Selenium**



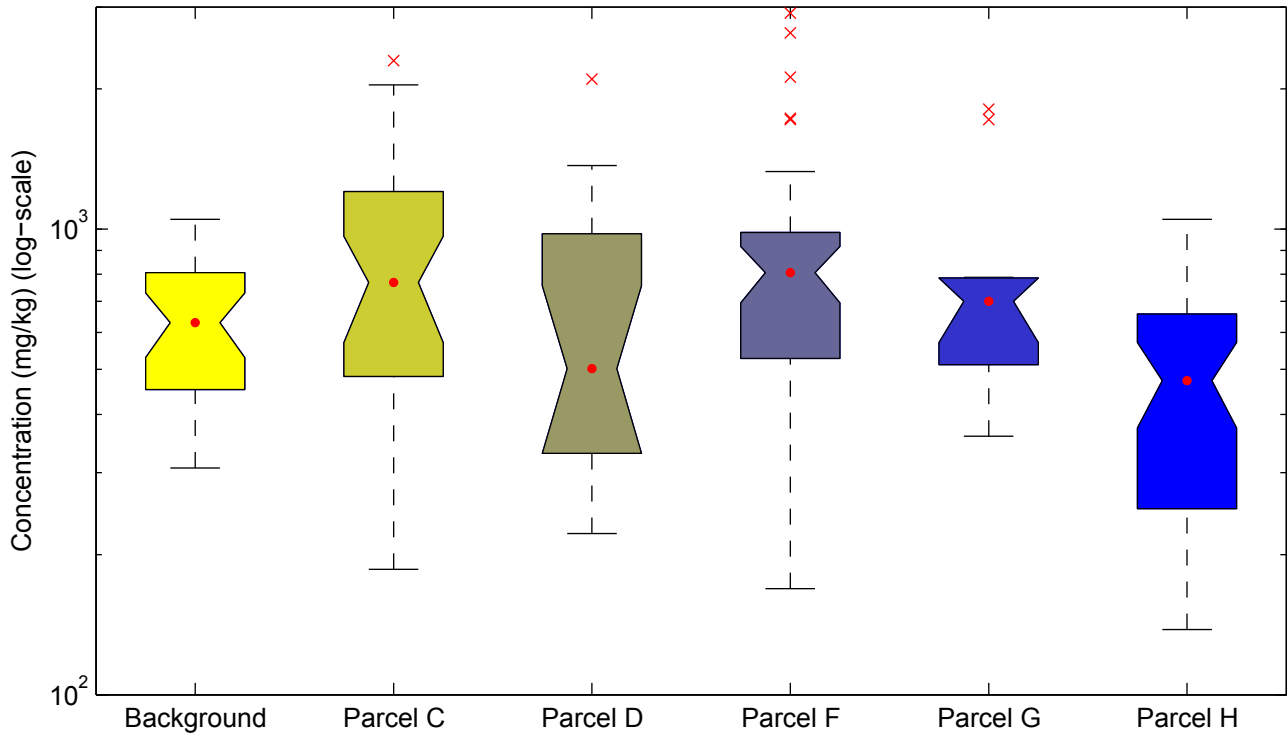
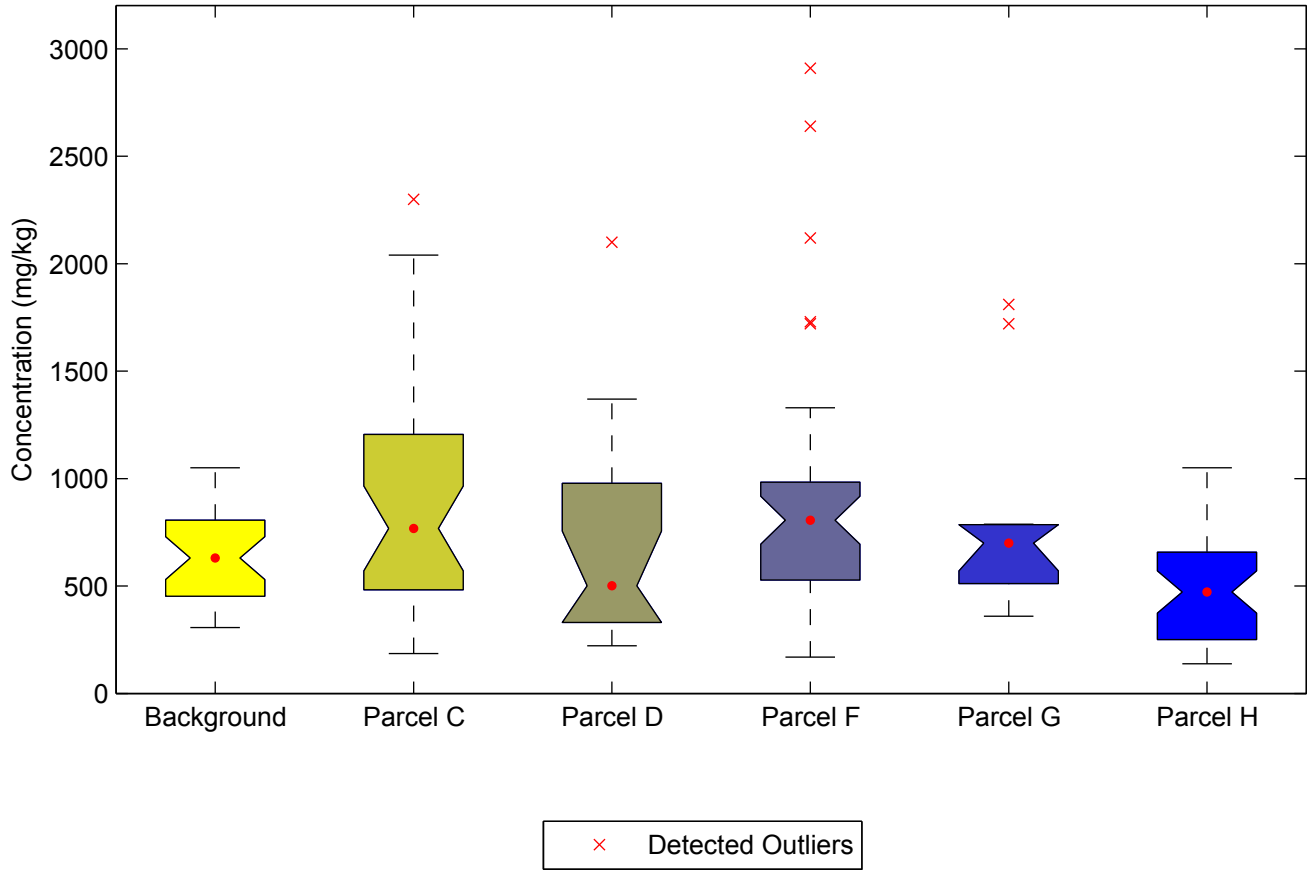
× Detected Outliers ○ Non-Detected Outliers



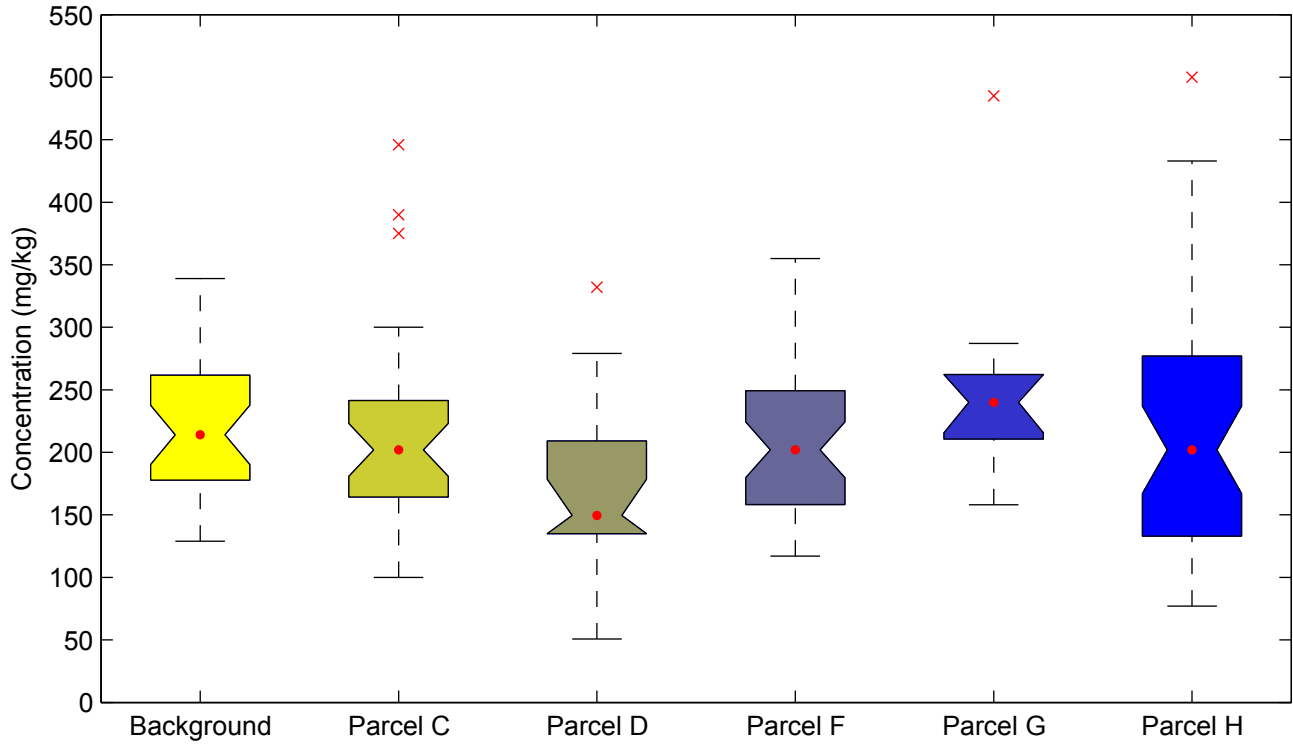
**Figure 1–22. Background vs. Site Boxplots
Silver**



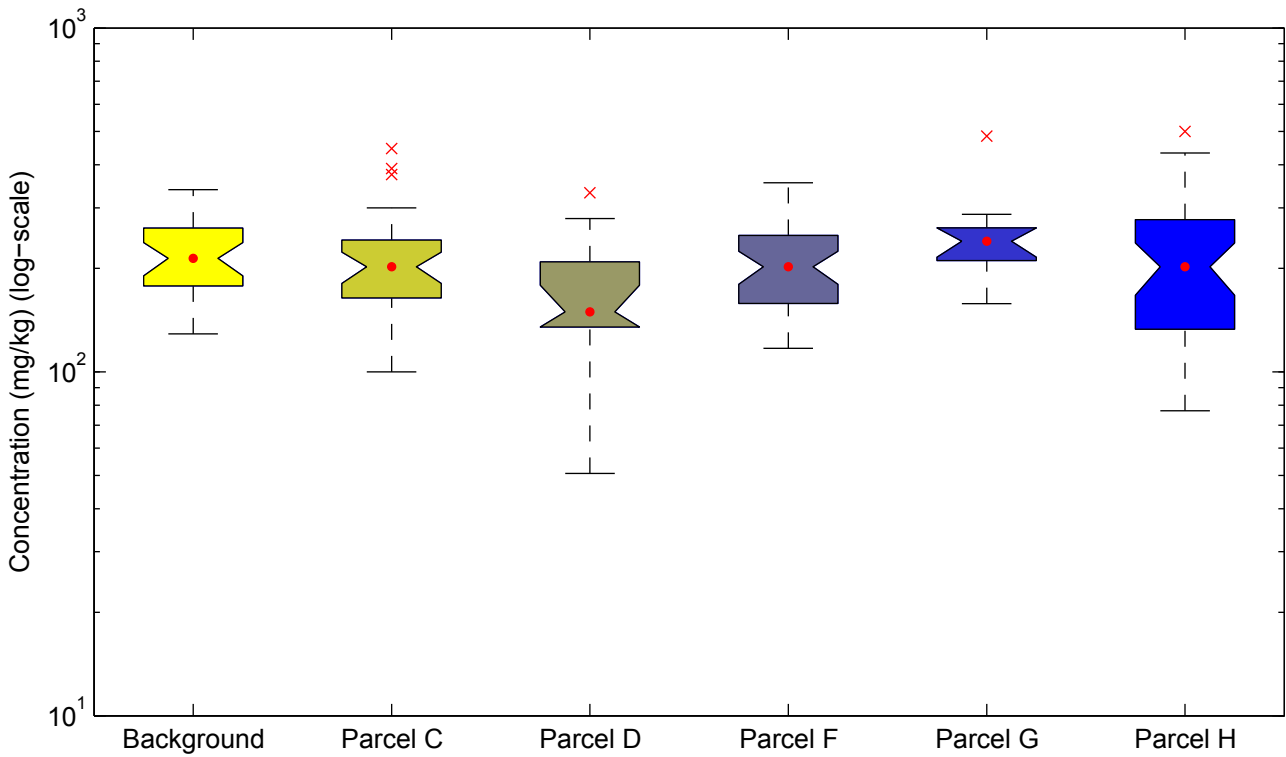
**Figure 1–23. Background vs. Site Boxplots
Sodium**



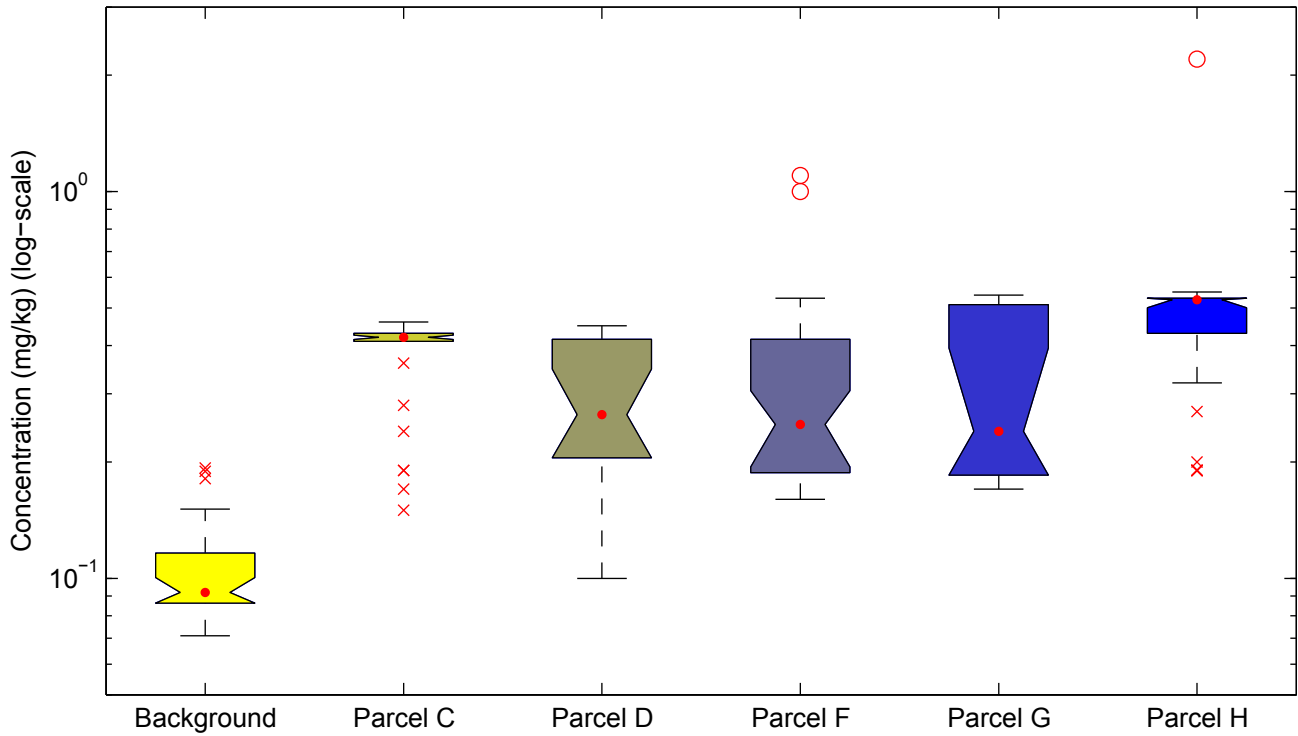
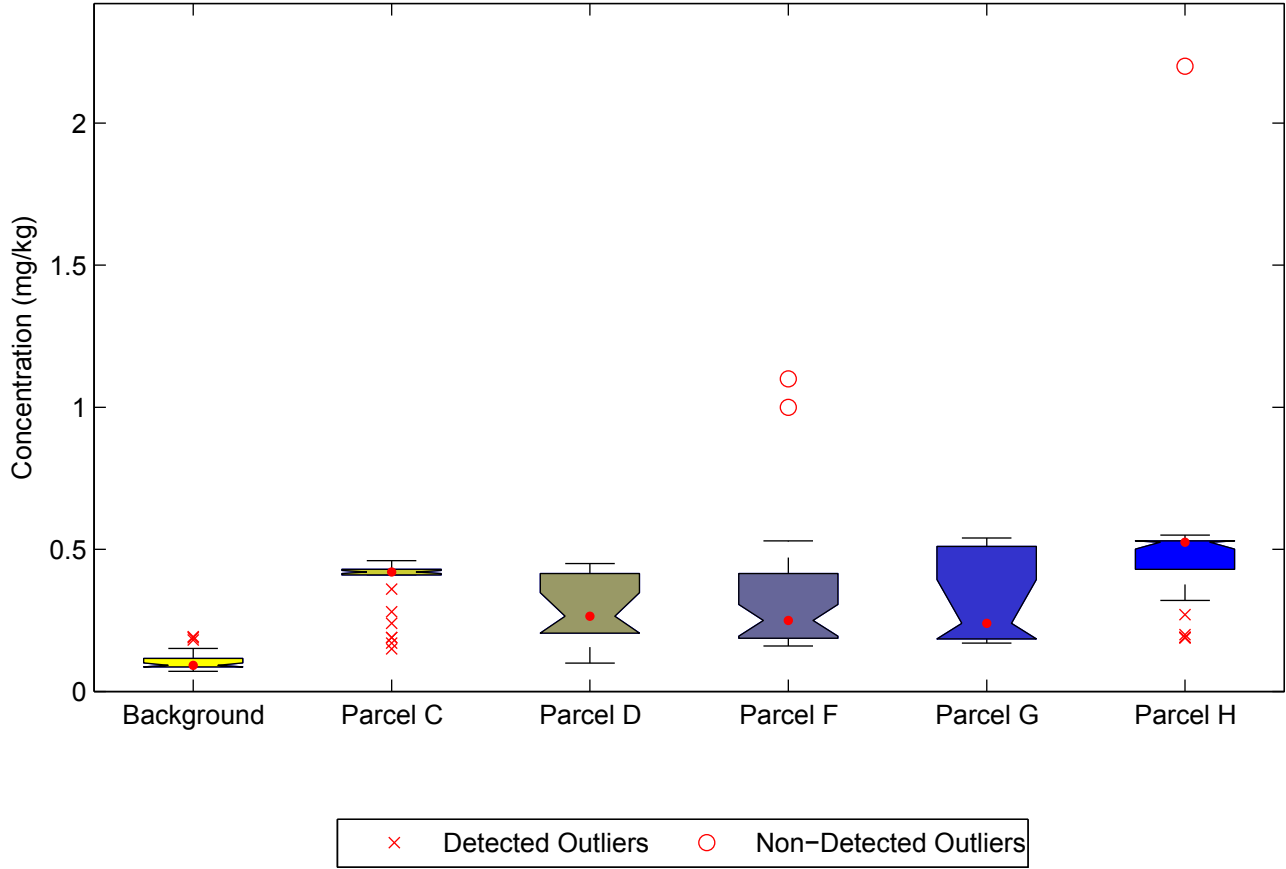
**Figure 1–24. Background vs. Site Boxplots
Strontium**



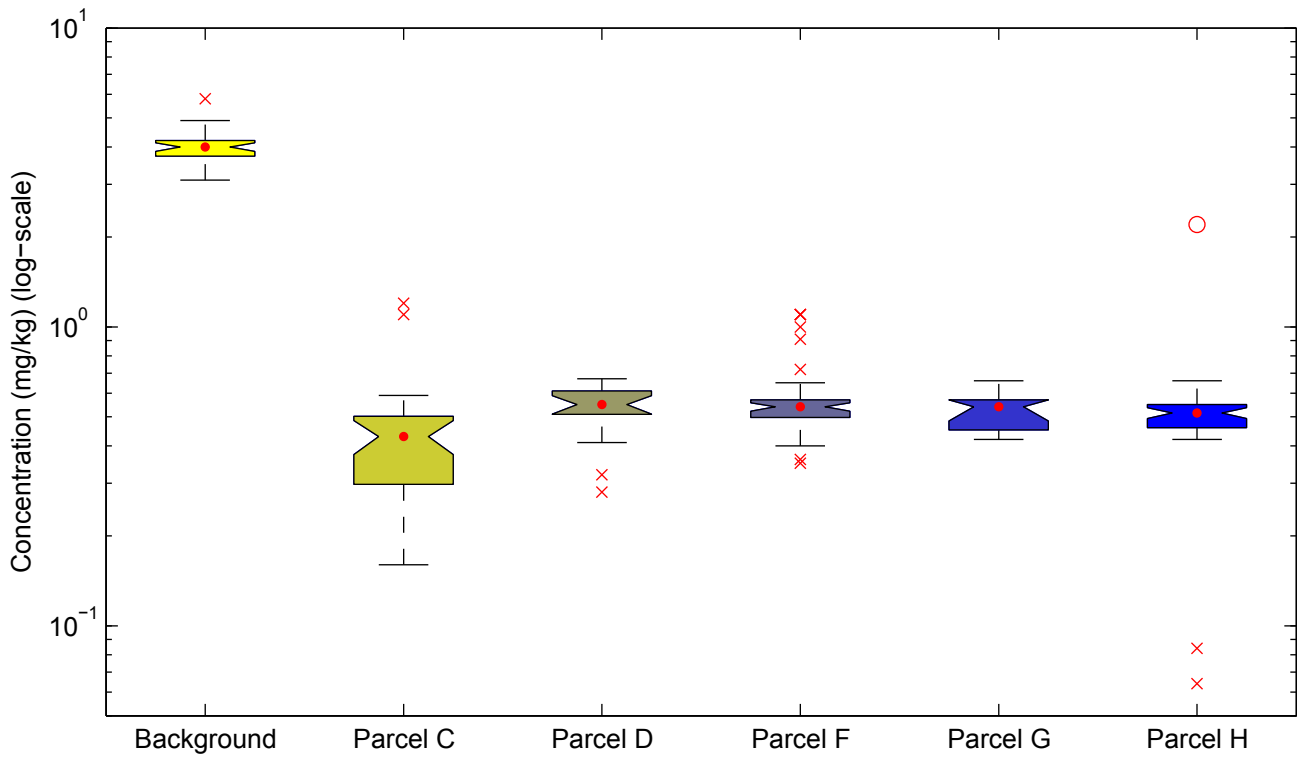
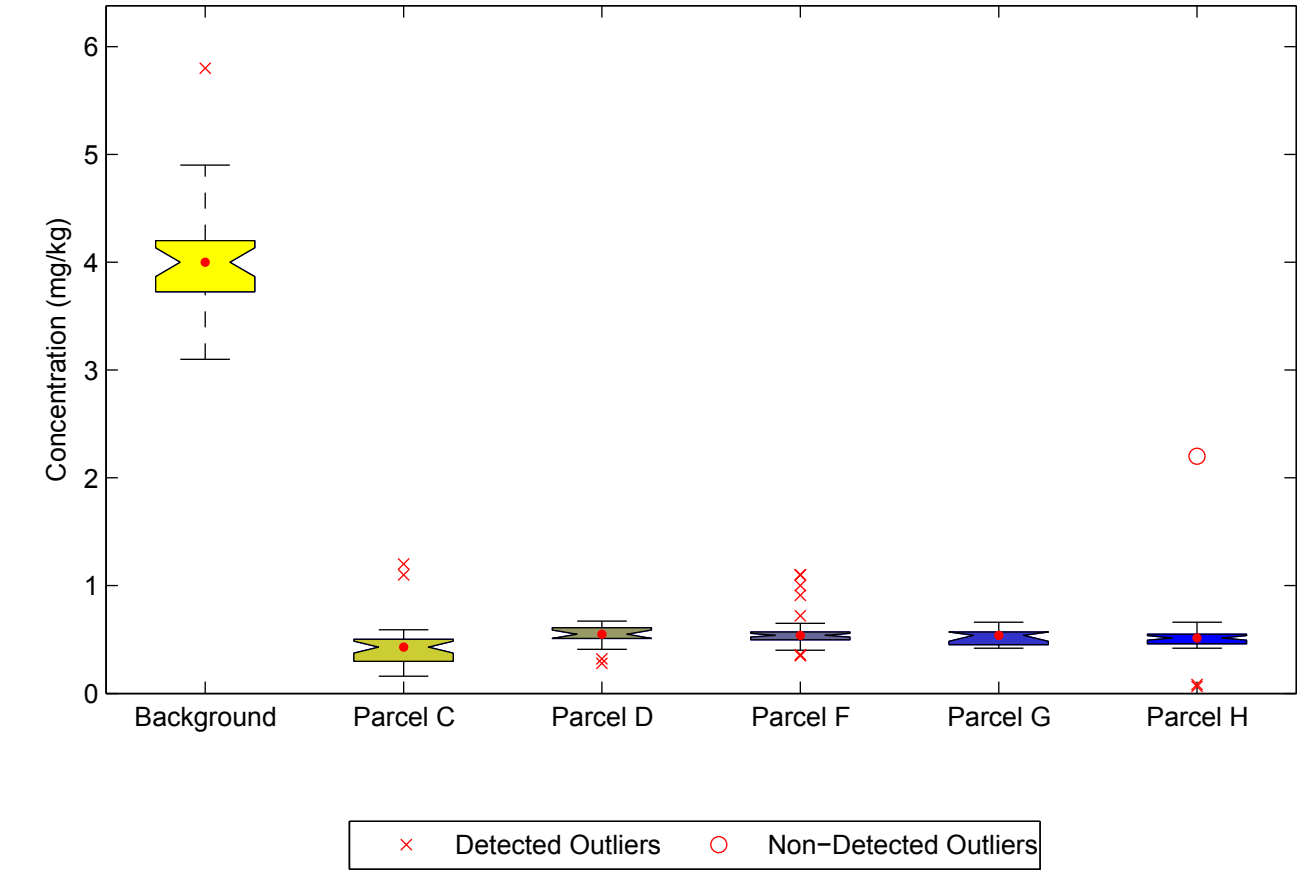
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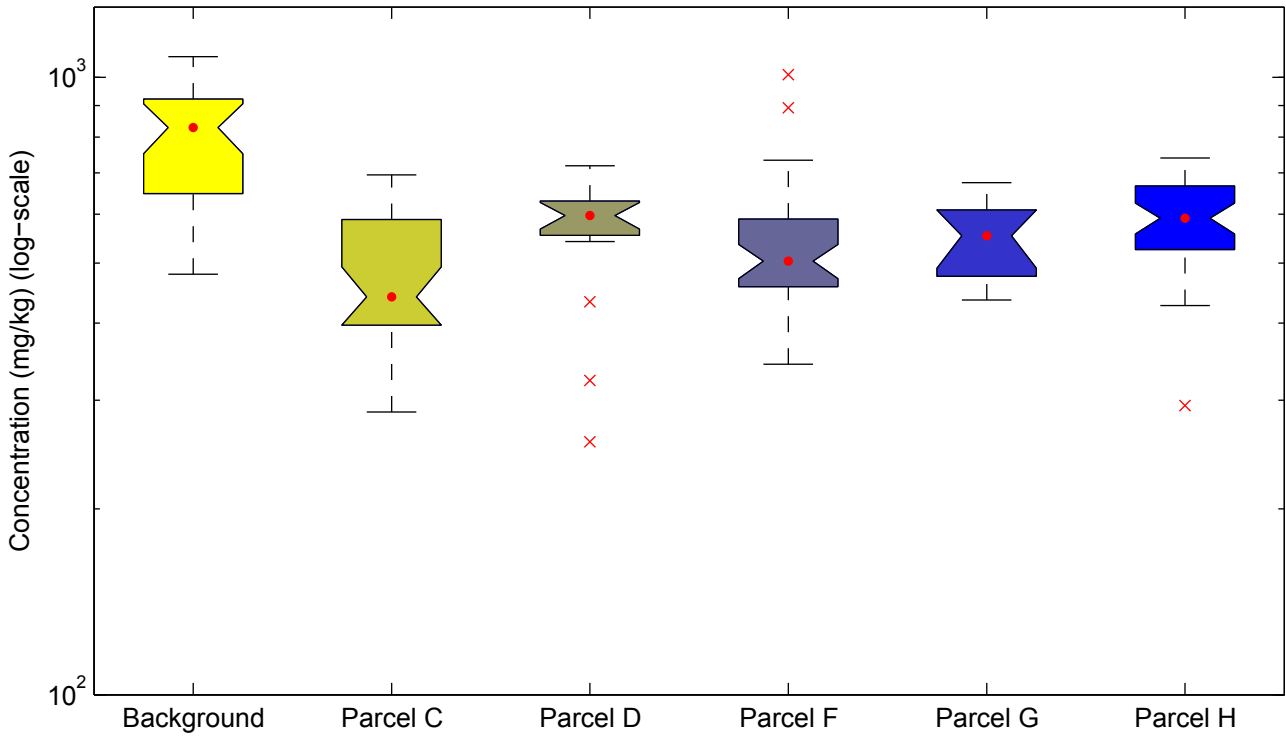
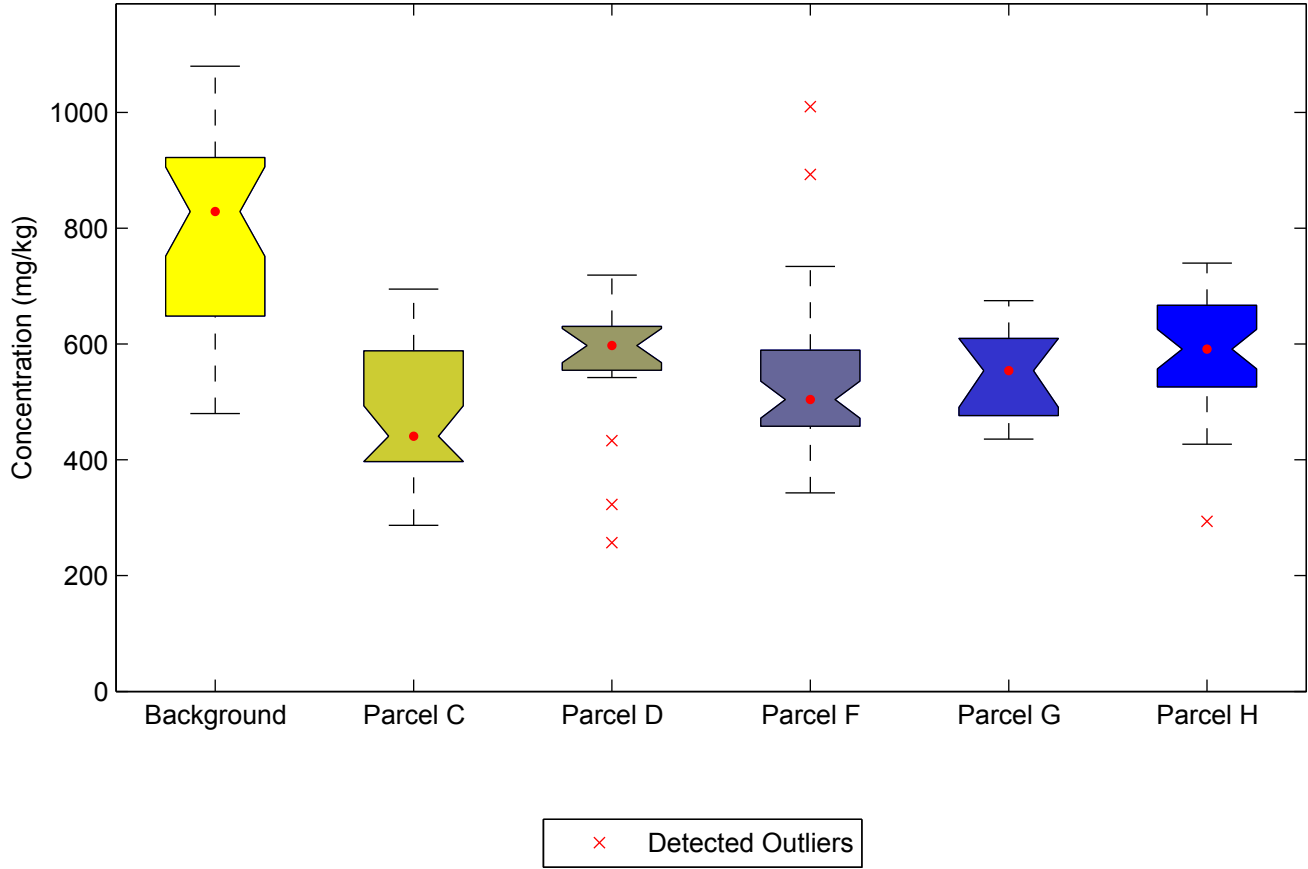
**Figure 1–25. Background vs. Site Boxplots
Thallium**



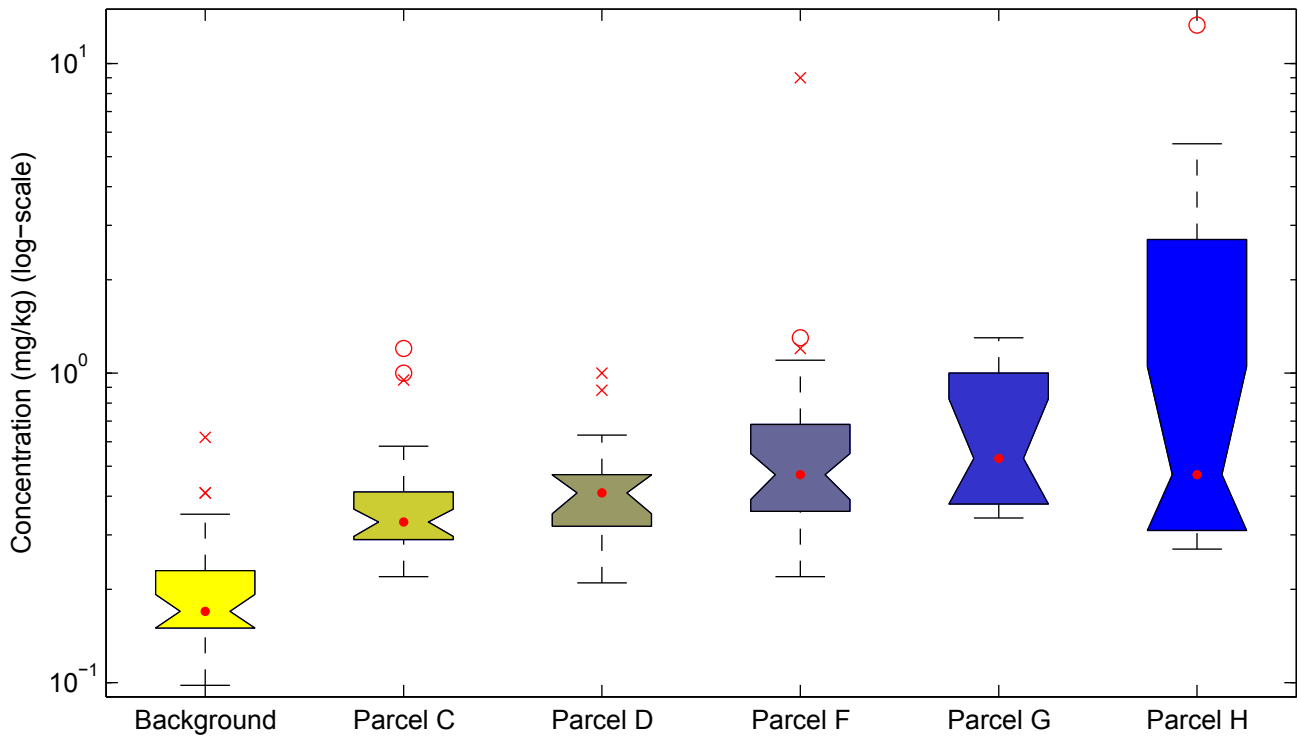
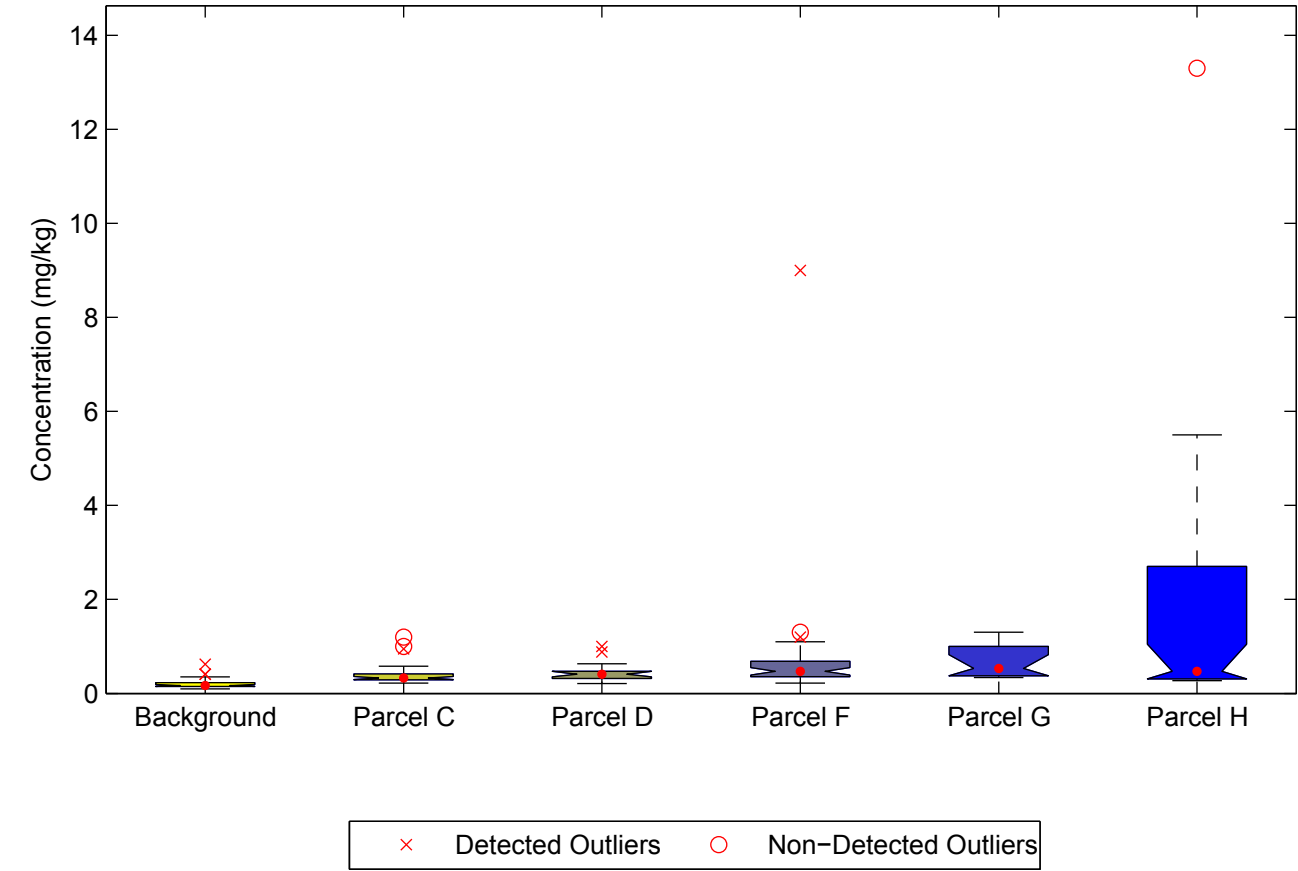
**Figure 1–26. Background vs. Site Boxplots
Tin**



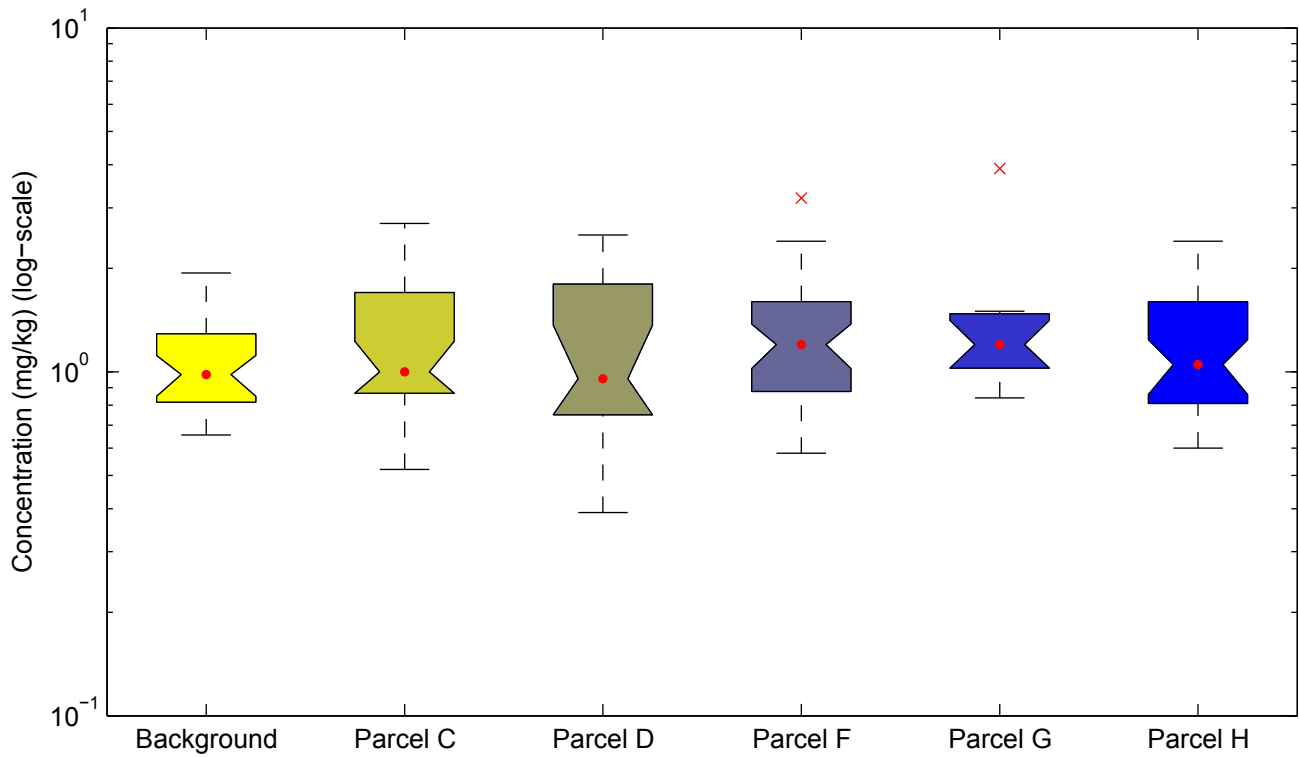
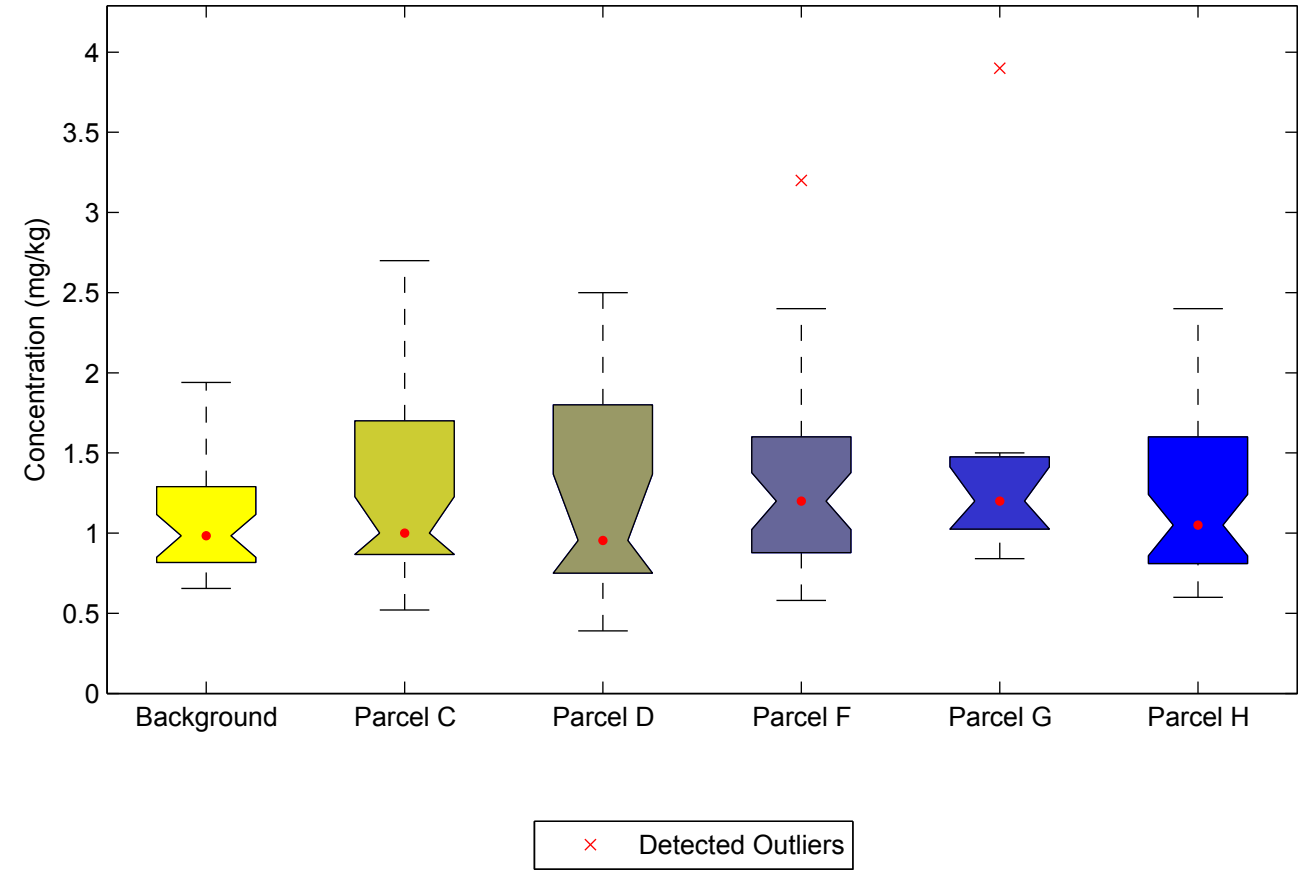
**Figure 1-27. Background vs. Site Boxplots
Titanium**



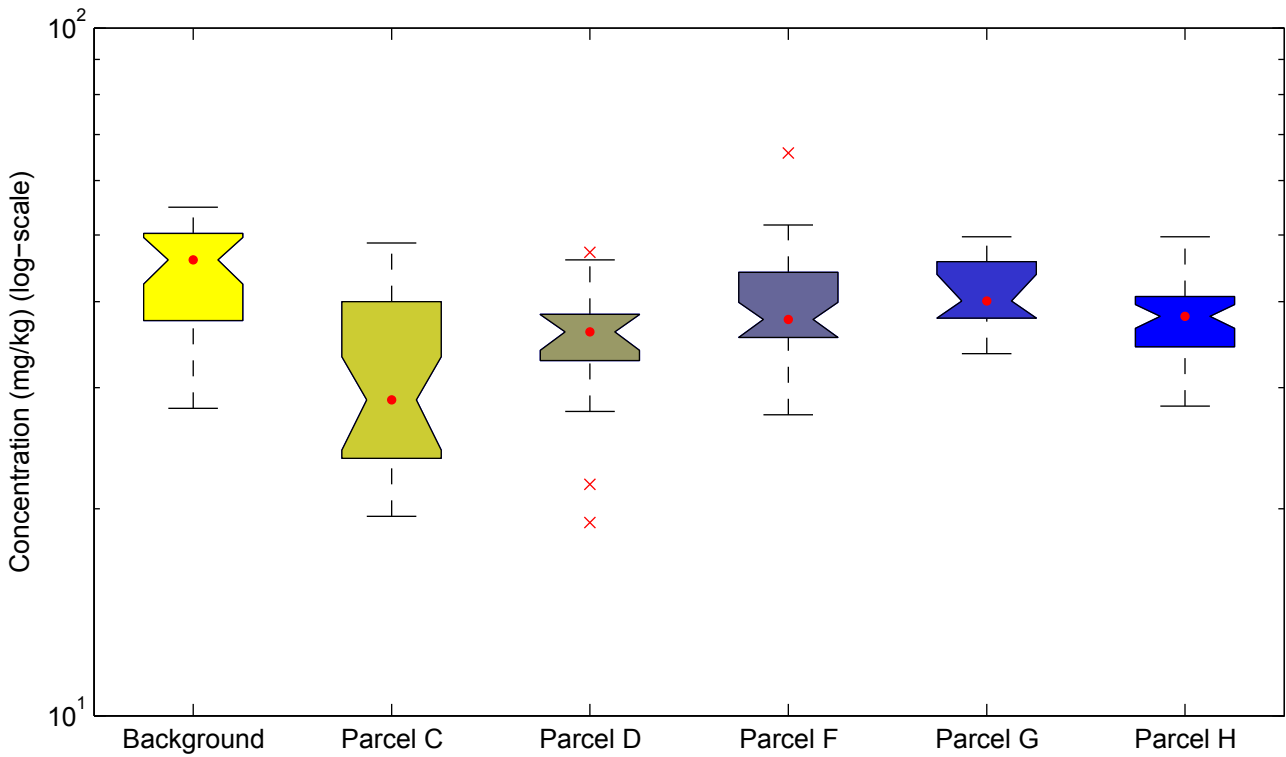
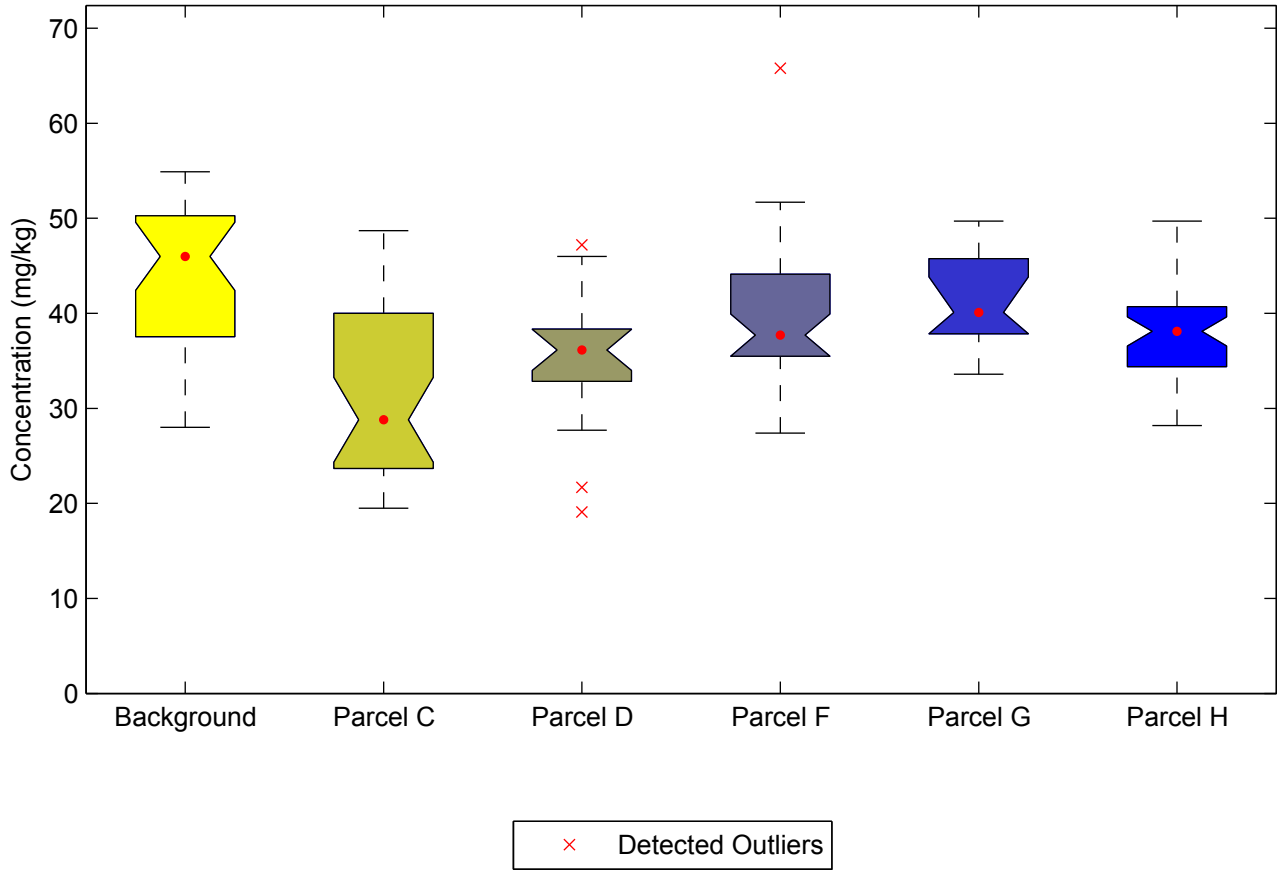
**Figure 1–28. Background vs. Site Boxplots
Tungsten**



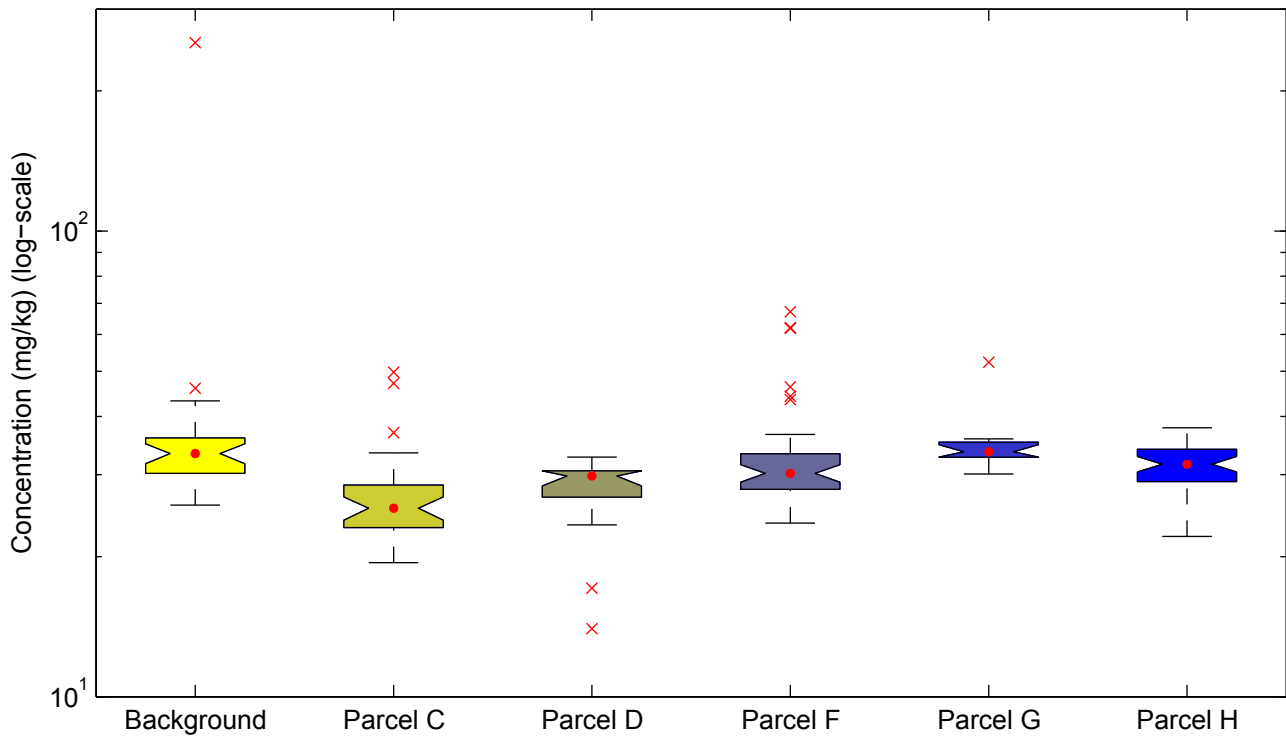
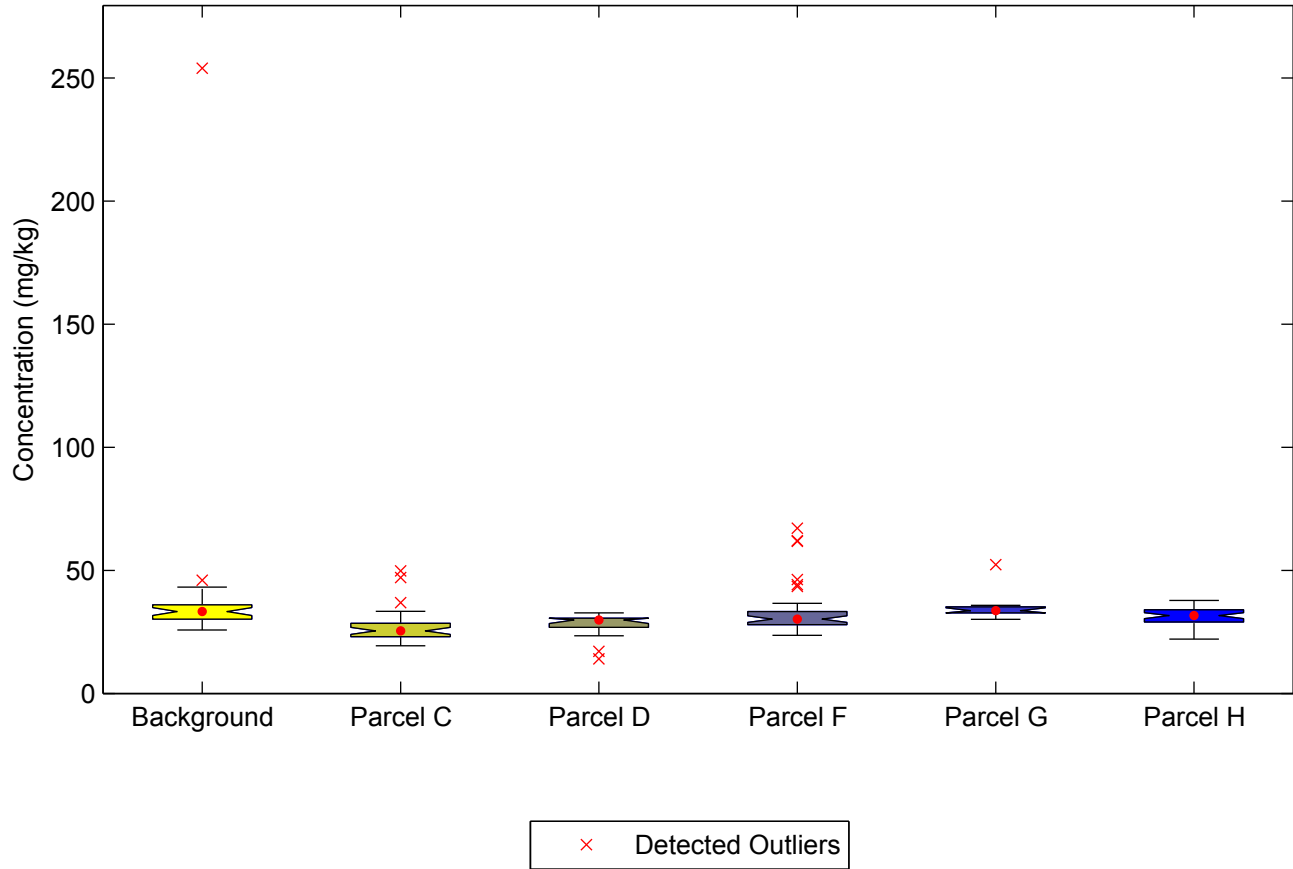
**Figure 1–29. Background vs. Site Boxplots
Uranium**



**Figure 1–30. Background vs. Site Boxplots
Vanadium**



**Figure 1–31. Background vs. Site Boxplots
Zinc**



**Figure 2-1A. Normal Q-Q Plots
Aluminum**

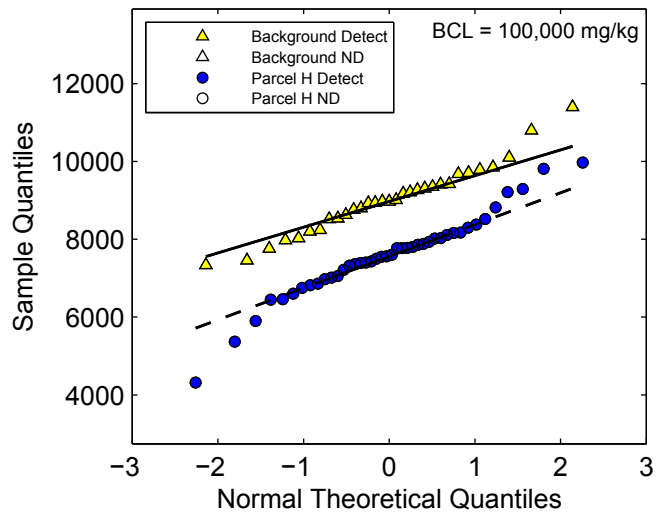
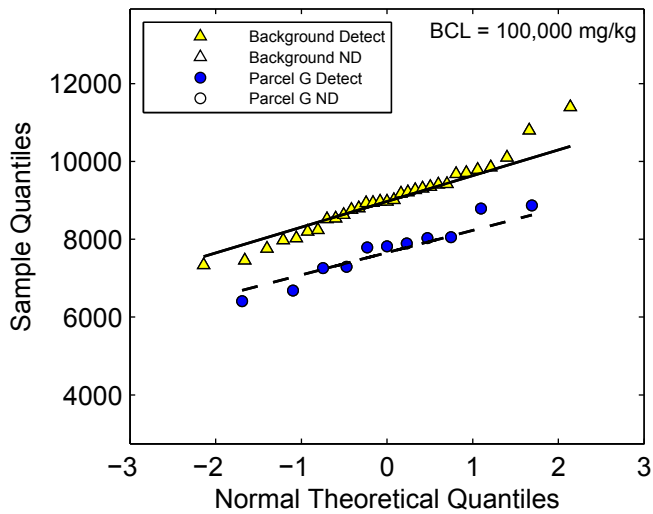
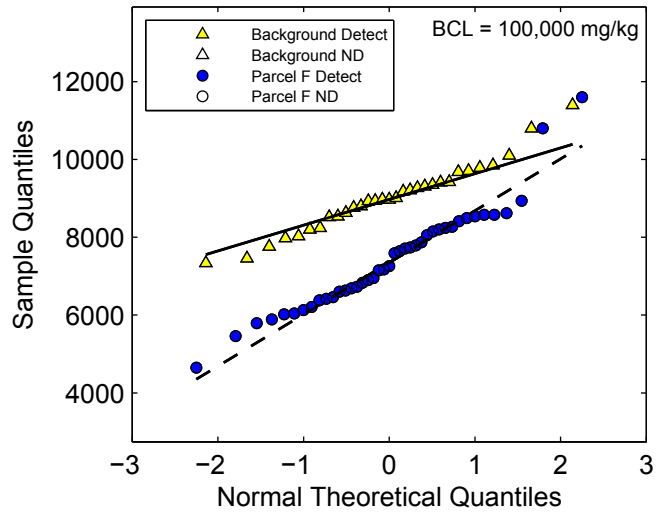
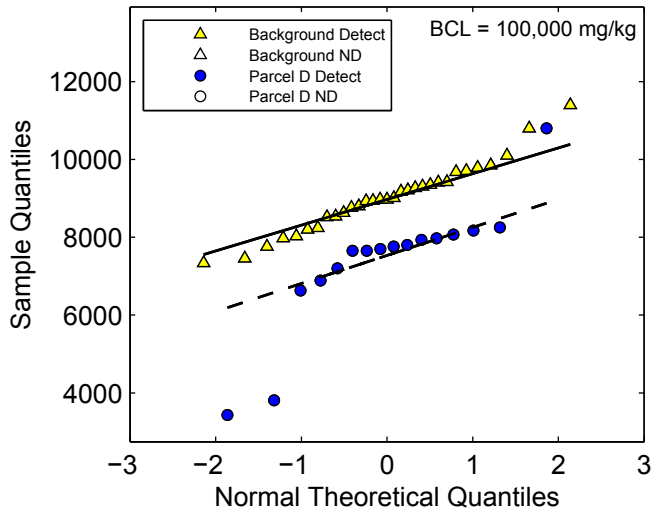
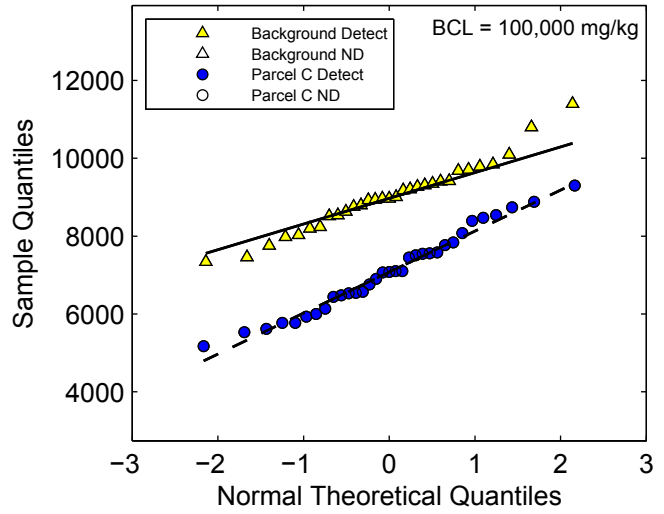
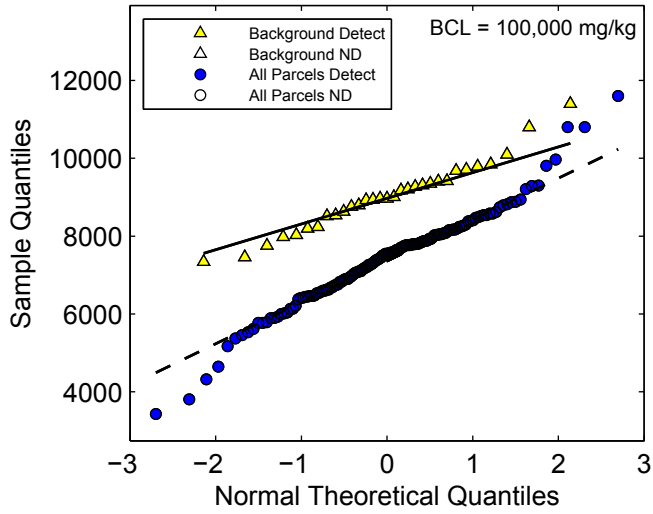
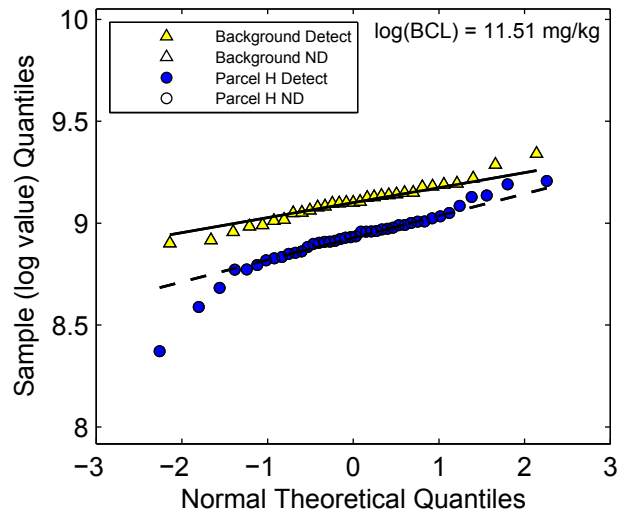
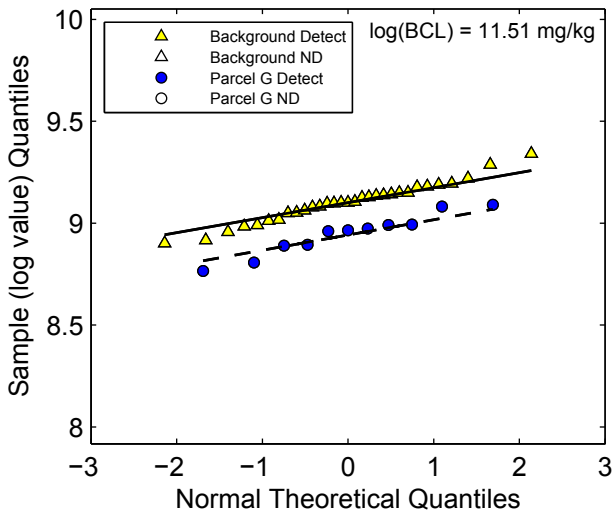
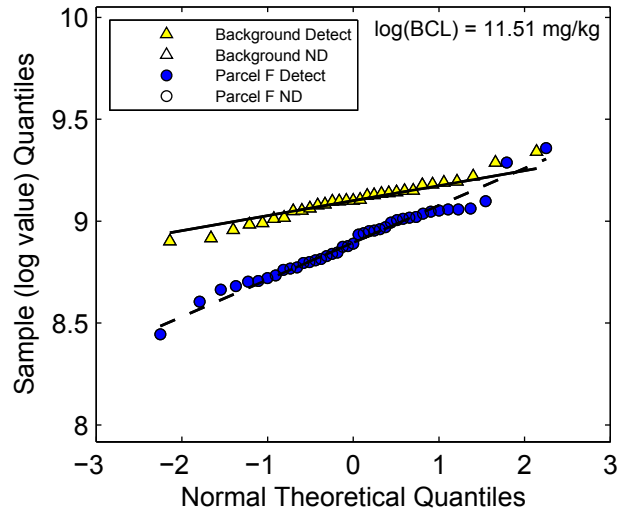
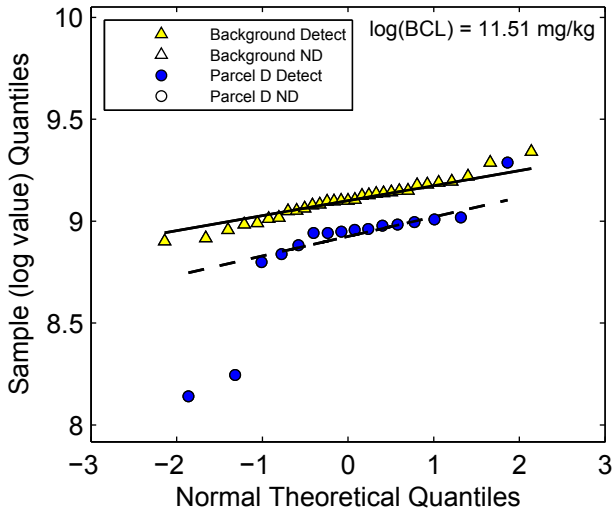
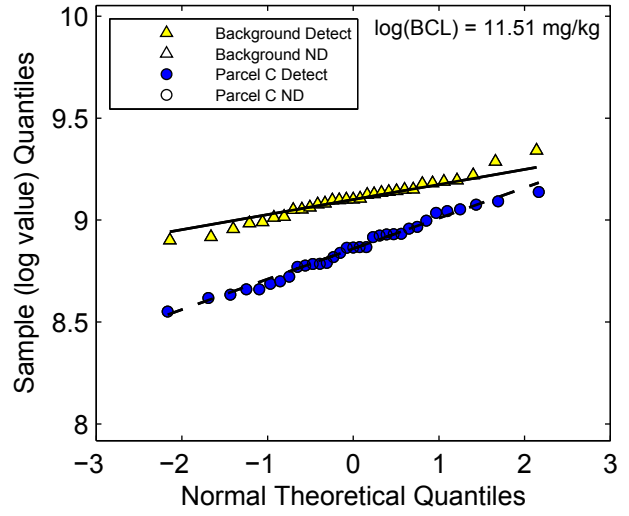
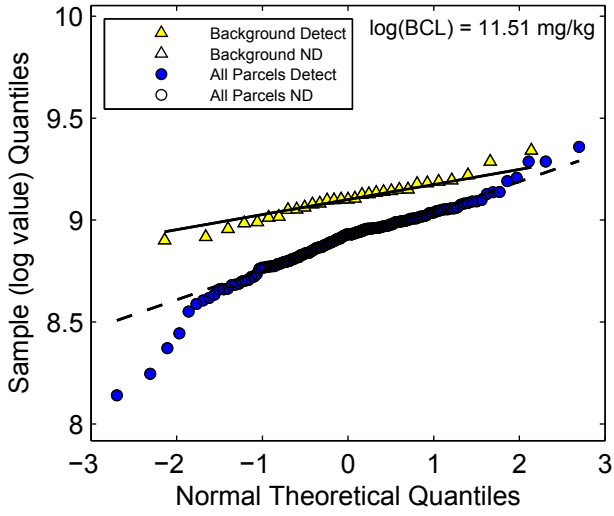
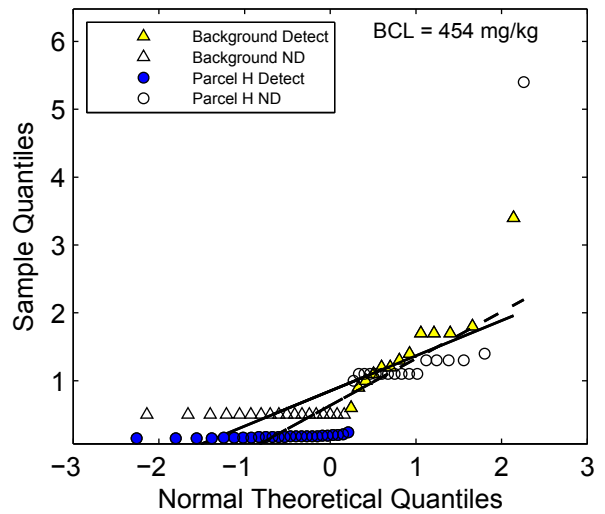
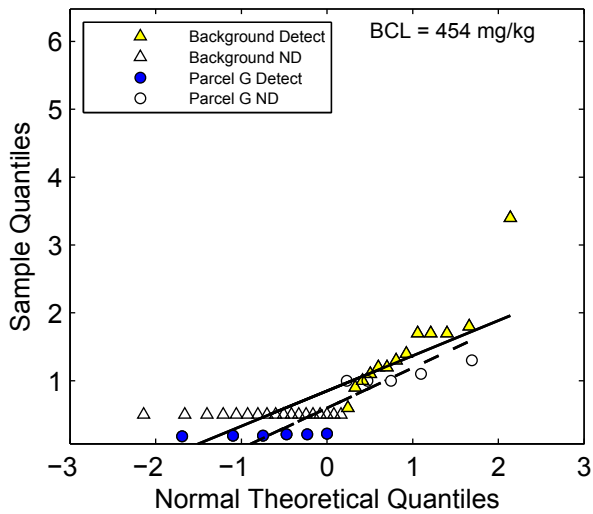
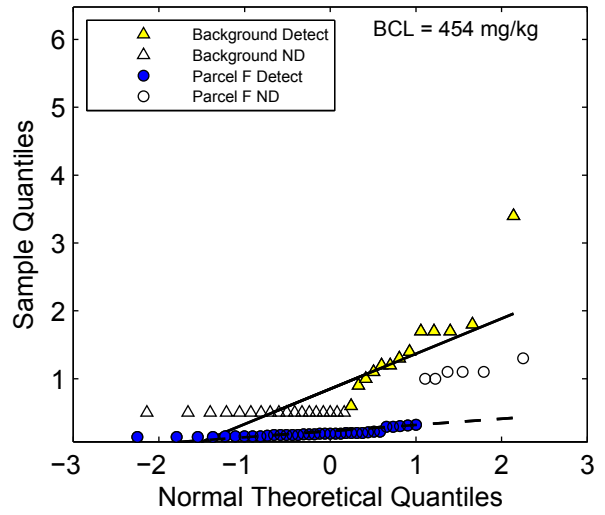
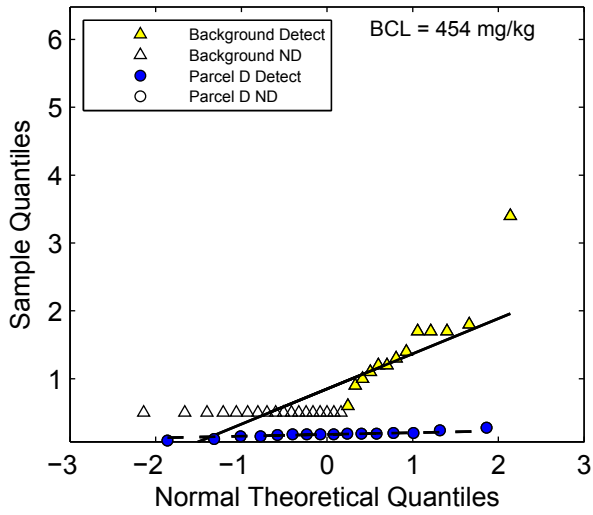
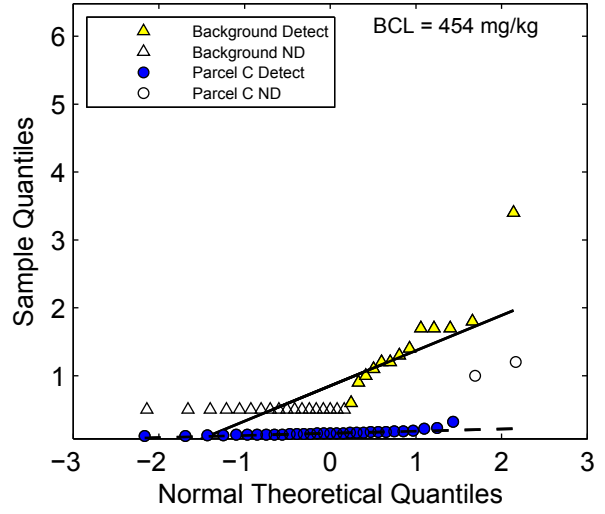
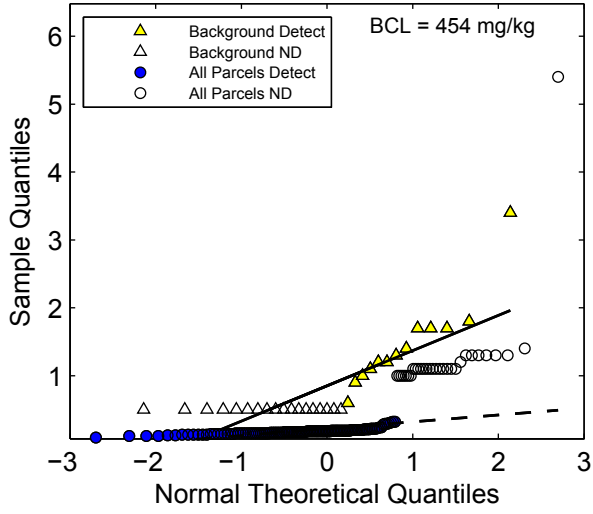


Figure 2-1B. Lognormal Q-Q Plots
Aluminum



**Figure 2-2A. Normal Q-Q Plots
Antimony**



**Figure 2–2B. Lognormal Q–Q Plots
Antimony**

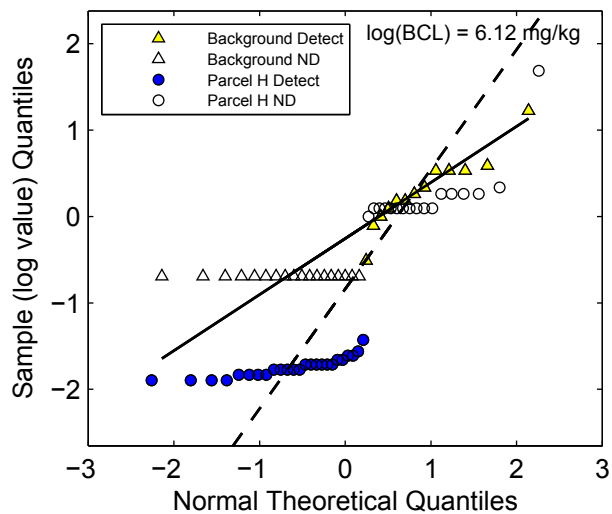
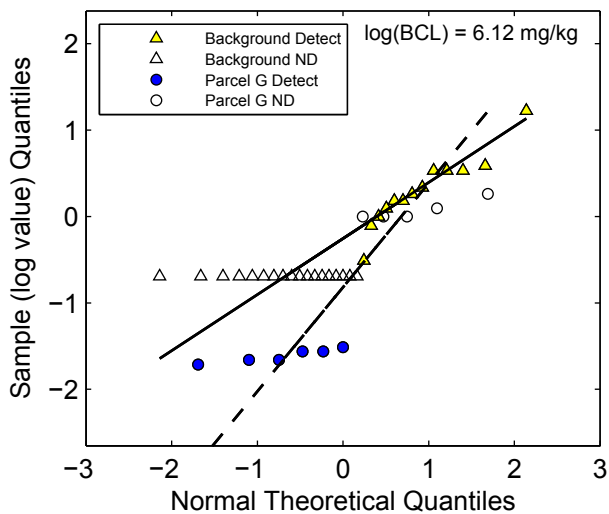
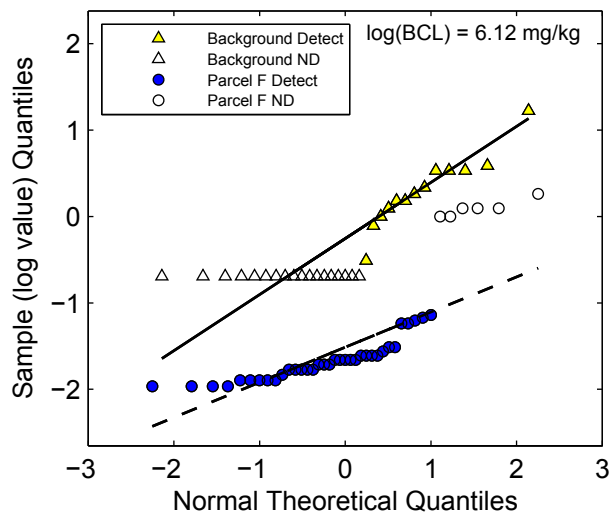
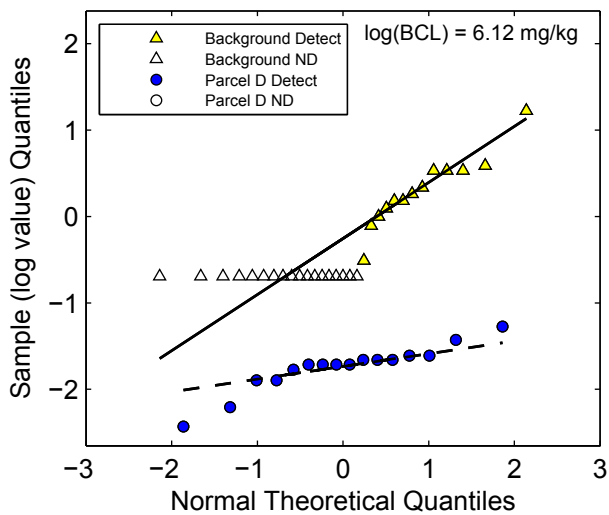
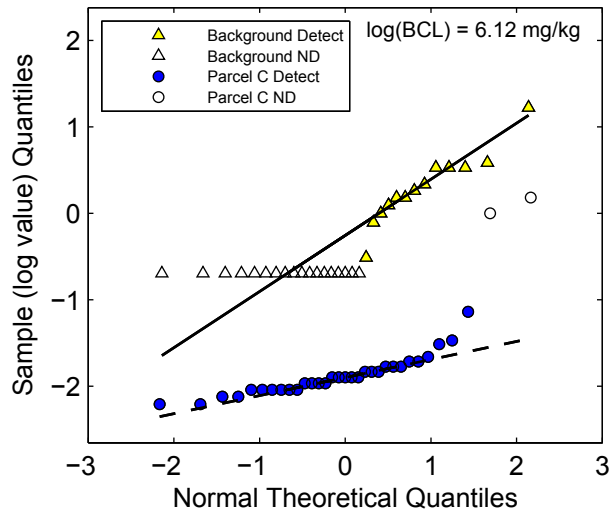
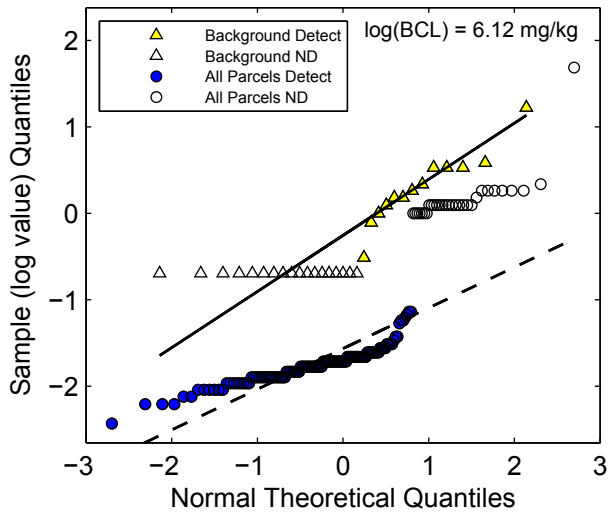
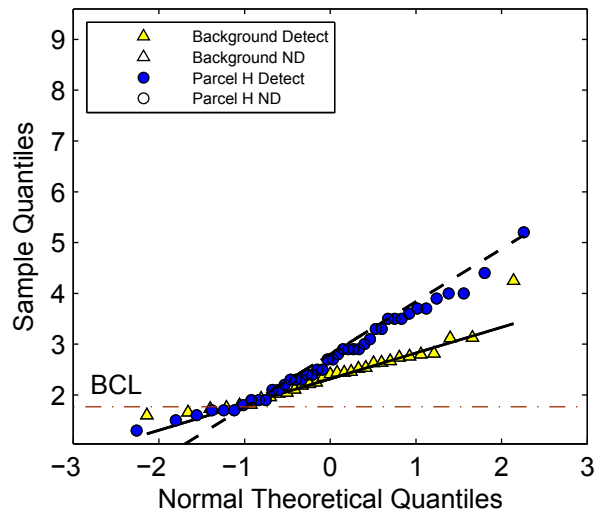
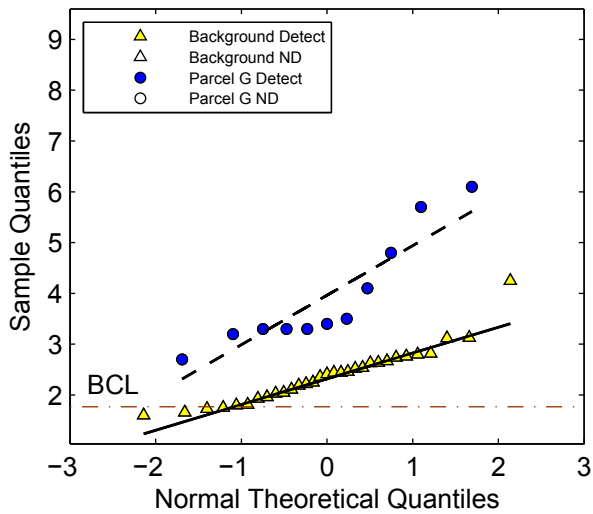
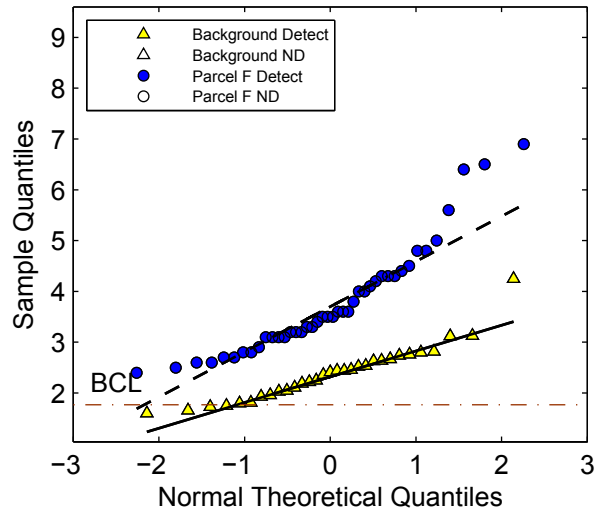
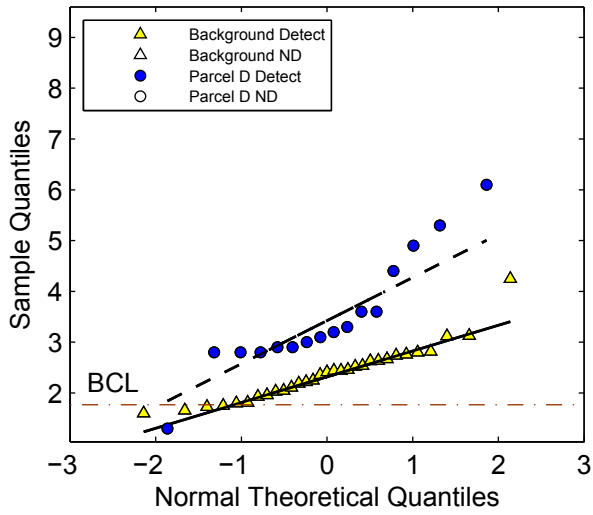
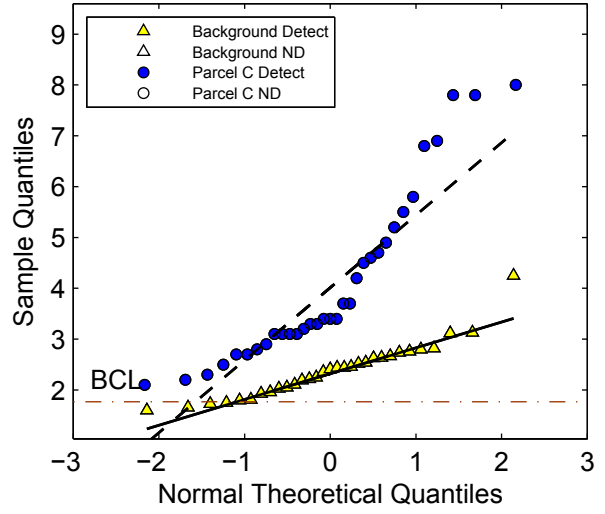
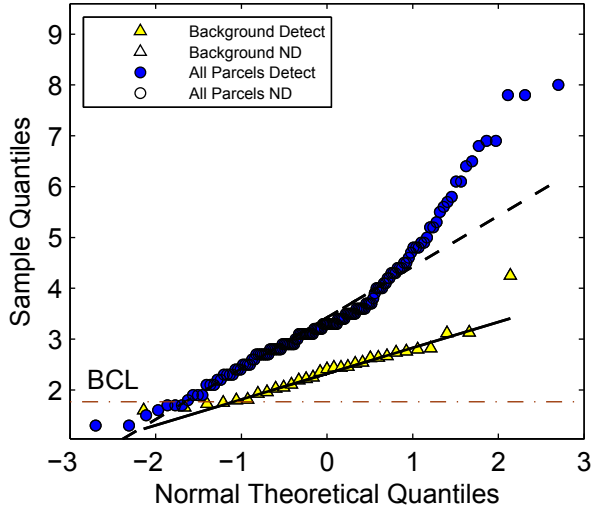


Figure 2-3A. Normal Q-Q Plots
Arsenic



**Figure 2–3B. Lognormal Q–Q Plots
Arsenic**

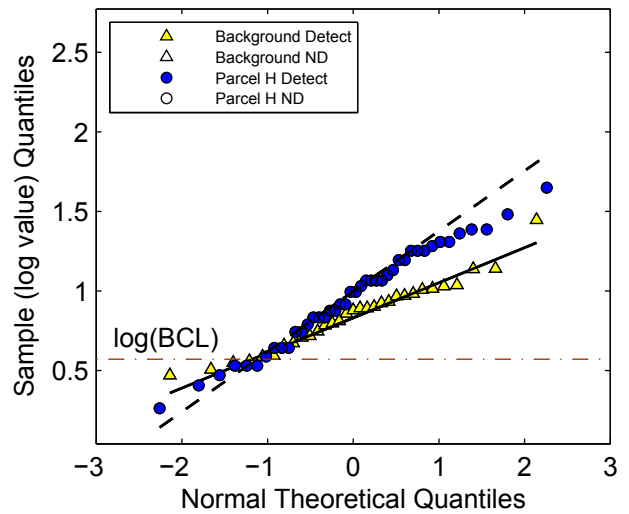
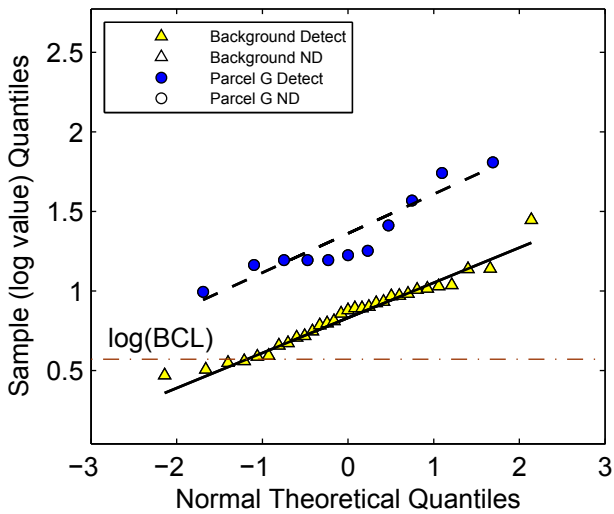
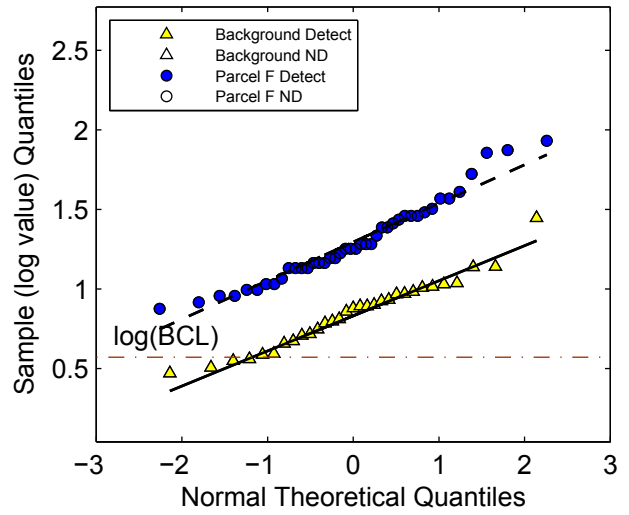
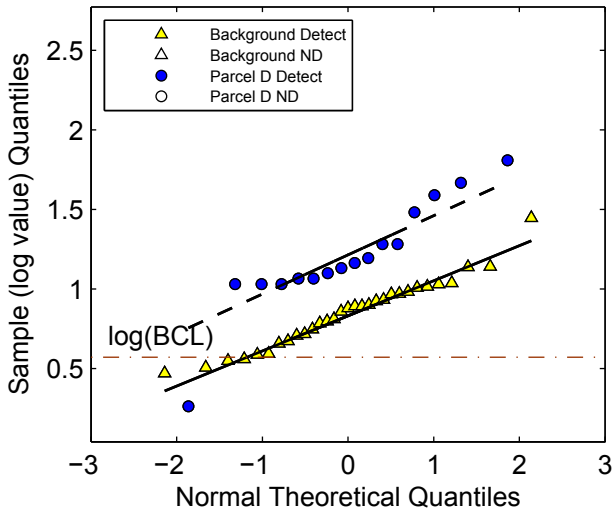
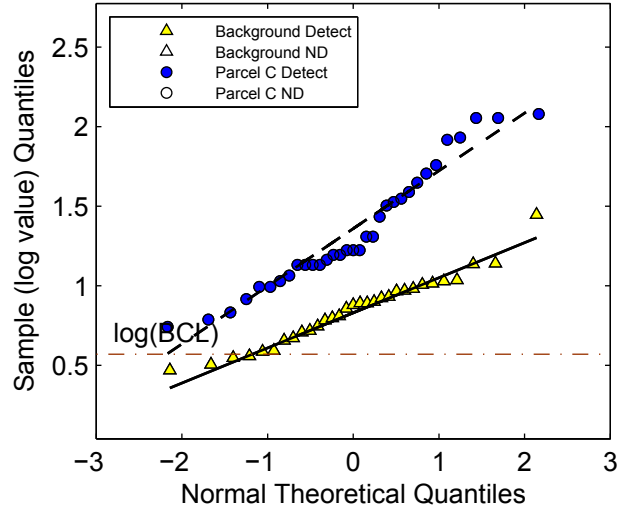
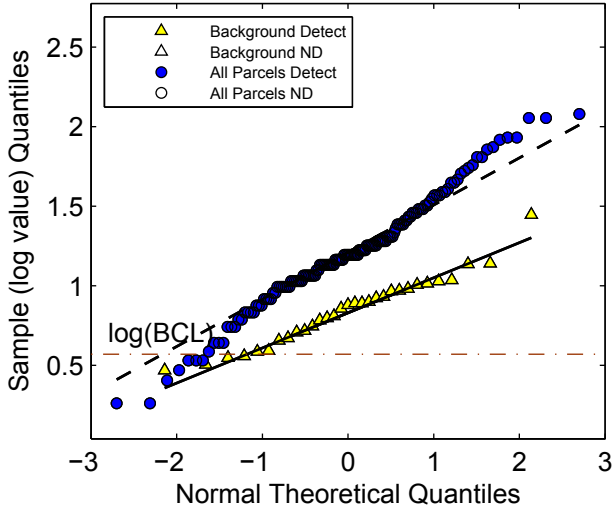


Figure 2-4A. Normal Q-Q Plots
Barium

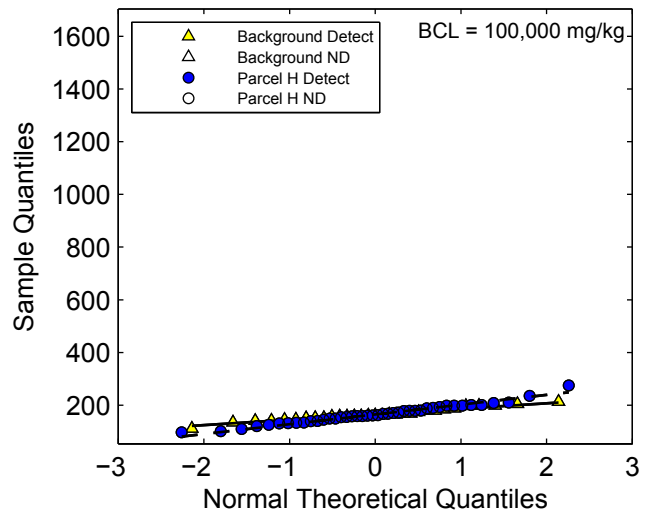
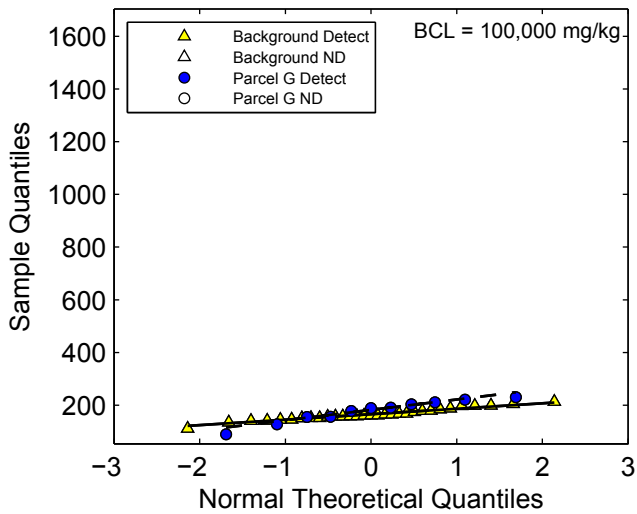
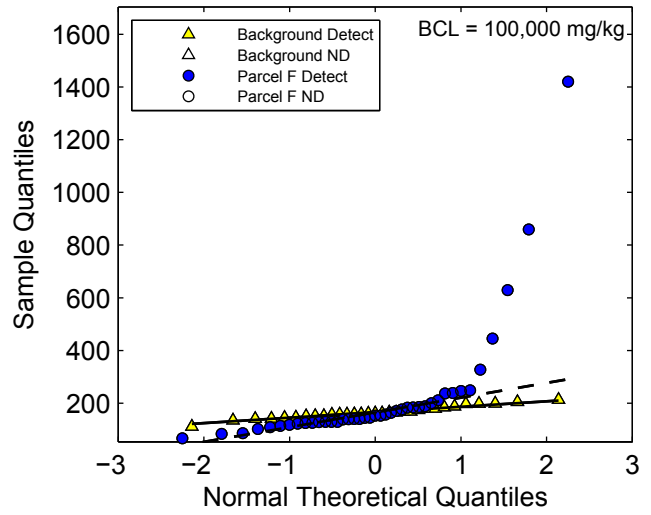
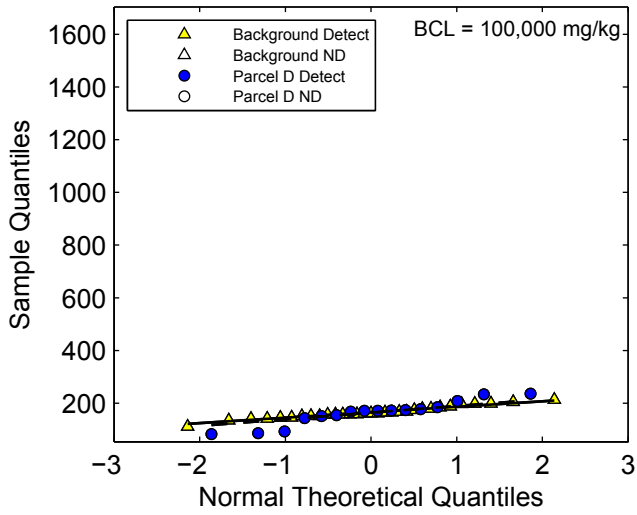
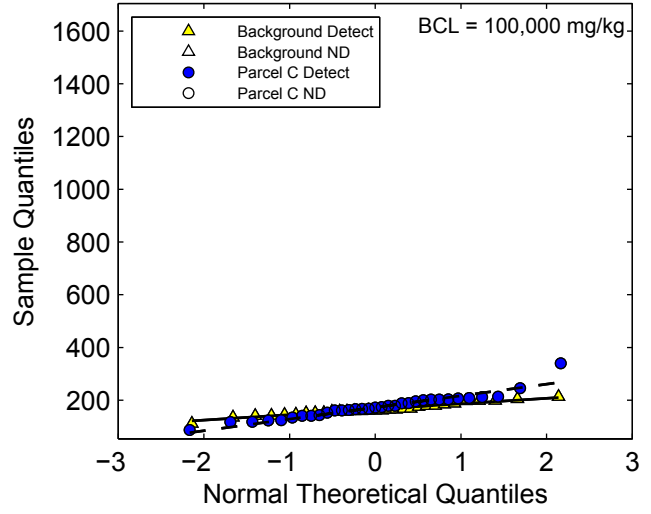
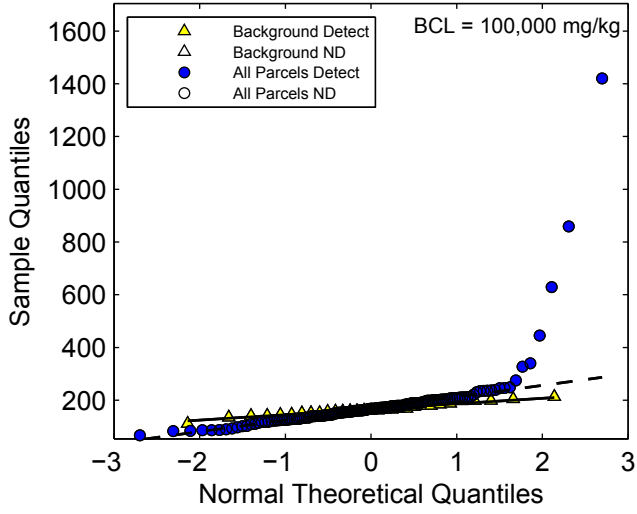
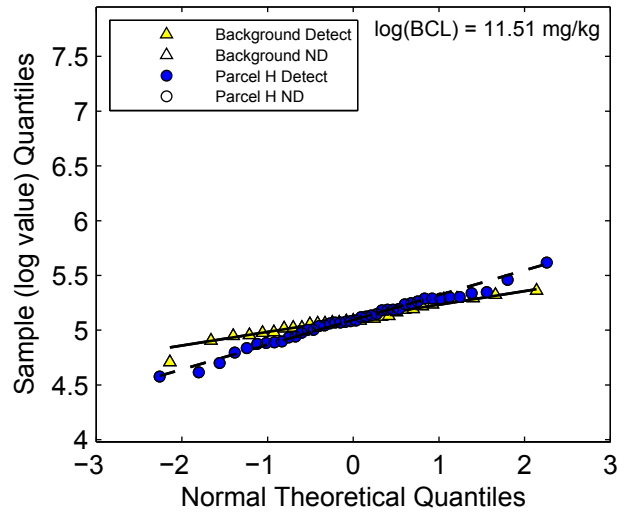
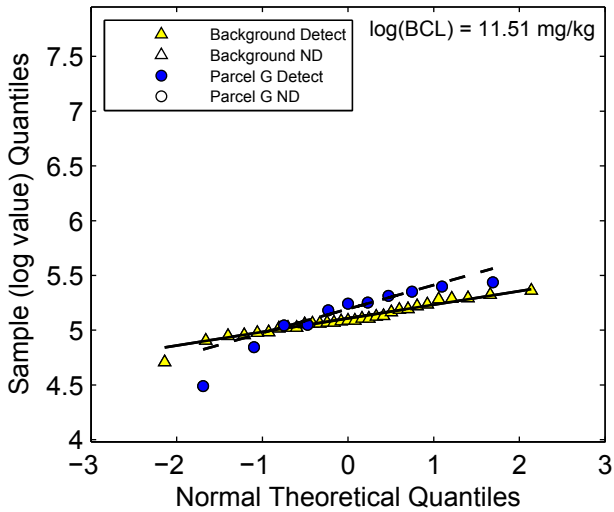
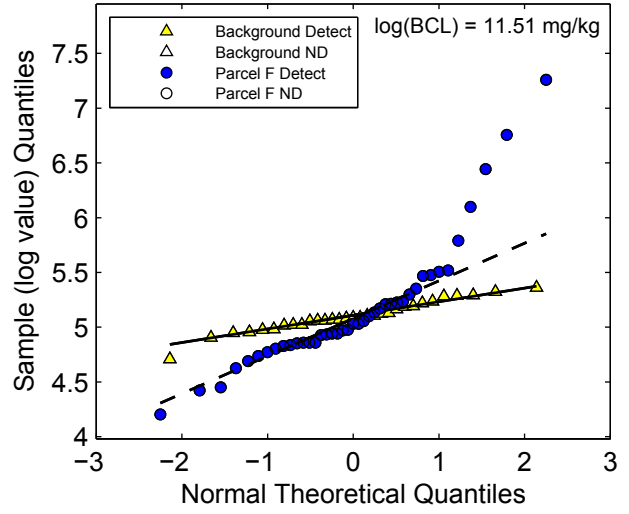
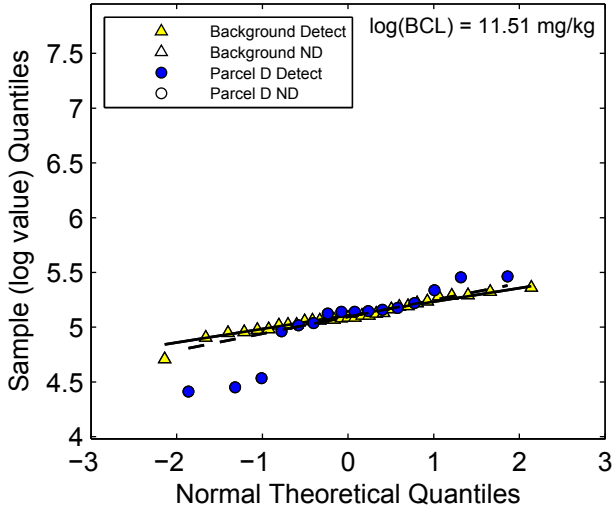
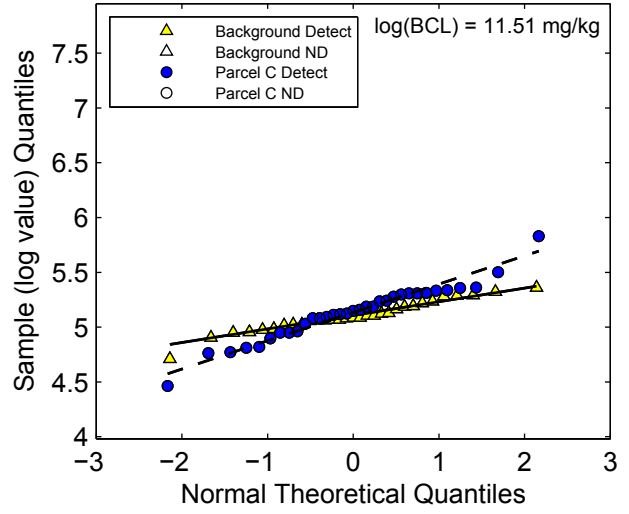
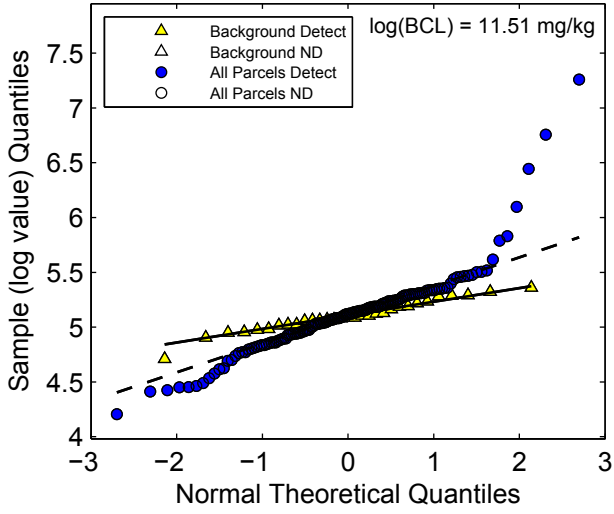
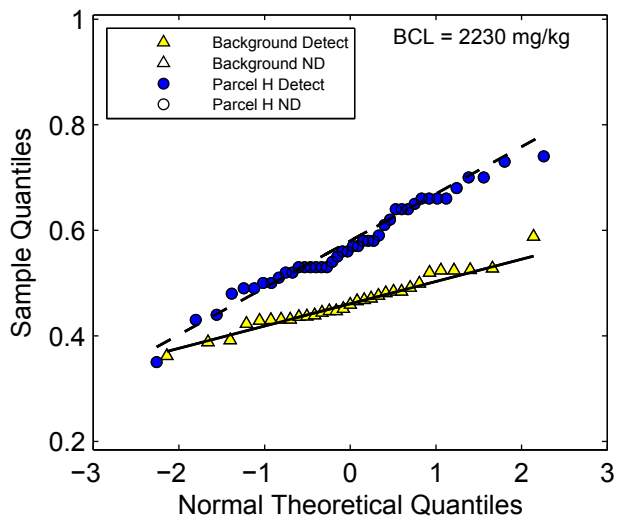
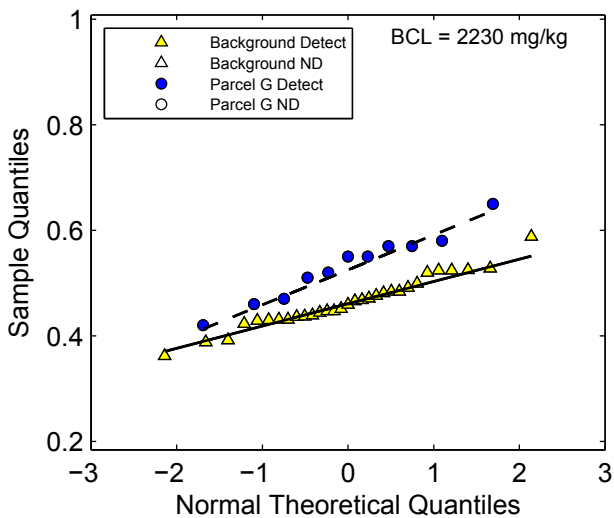
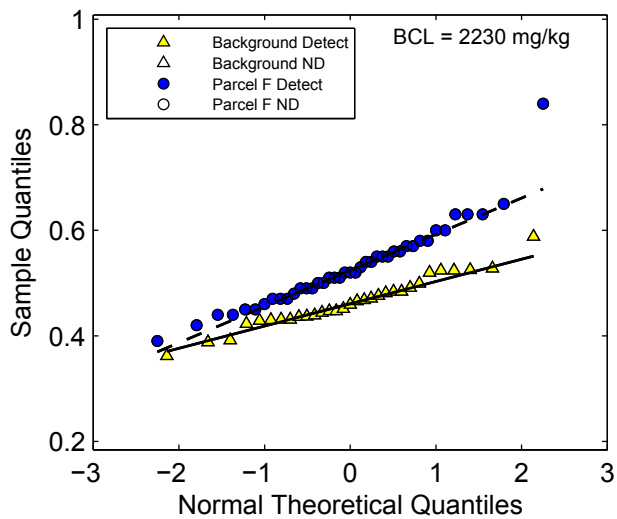
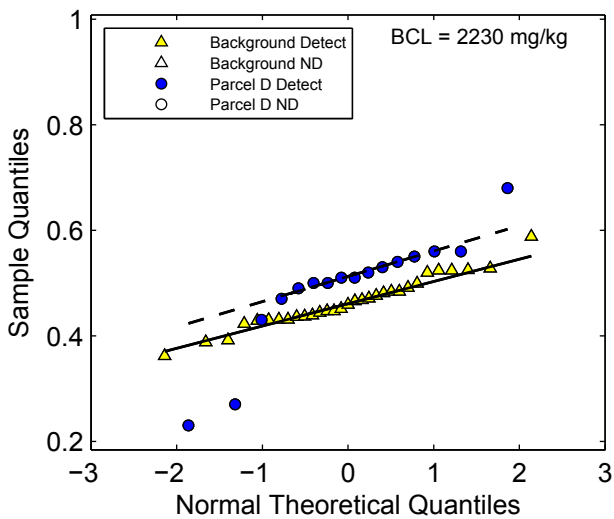
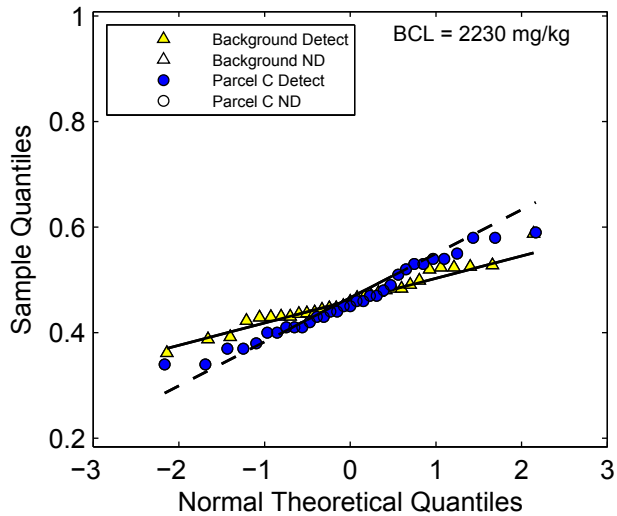
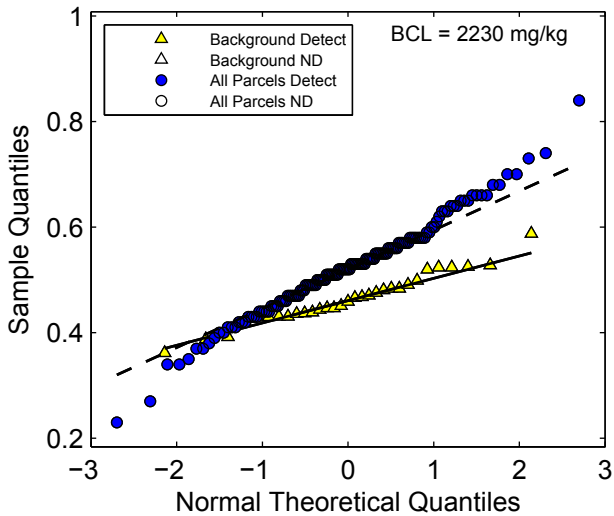


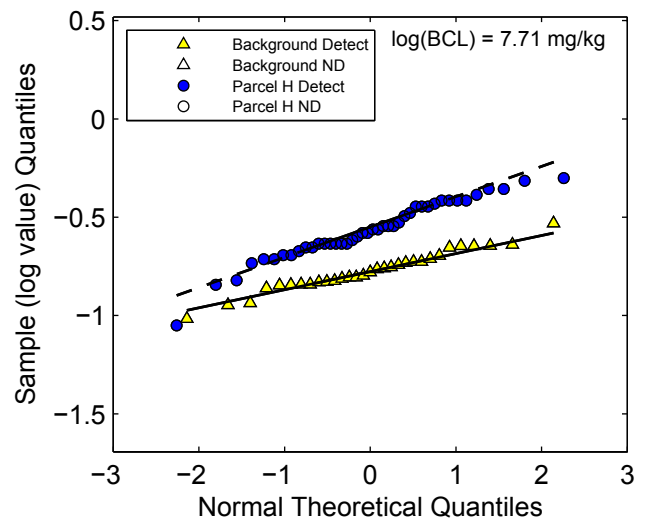
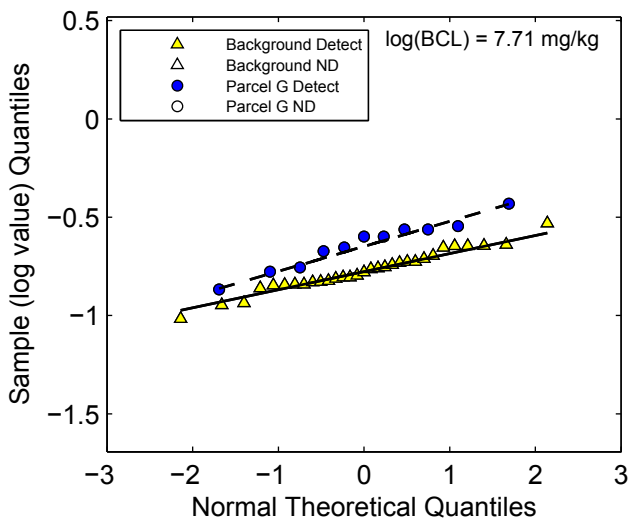
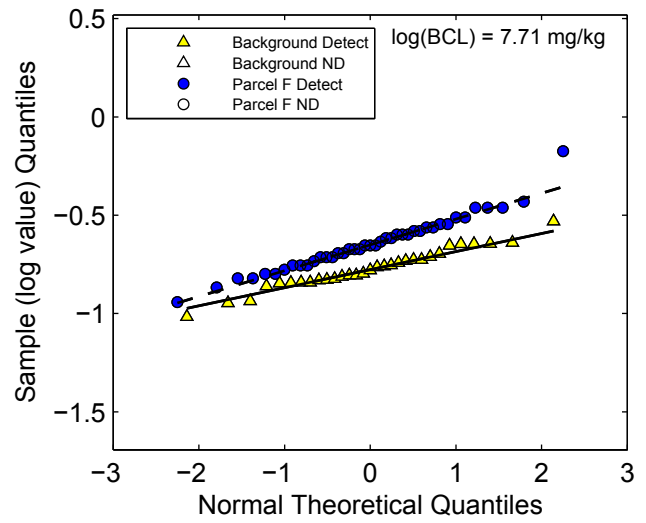
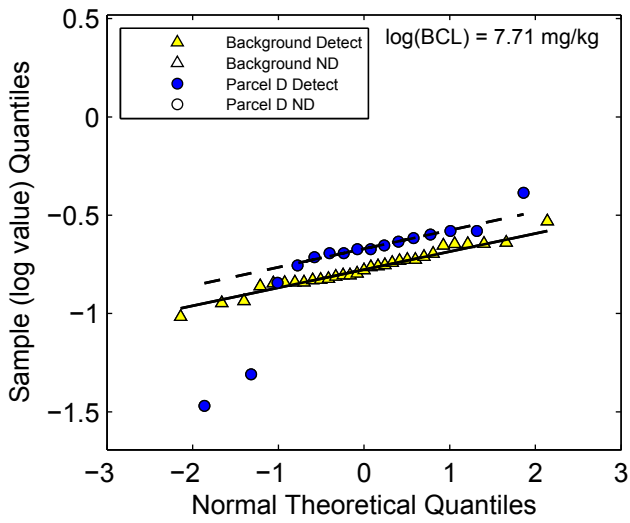
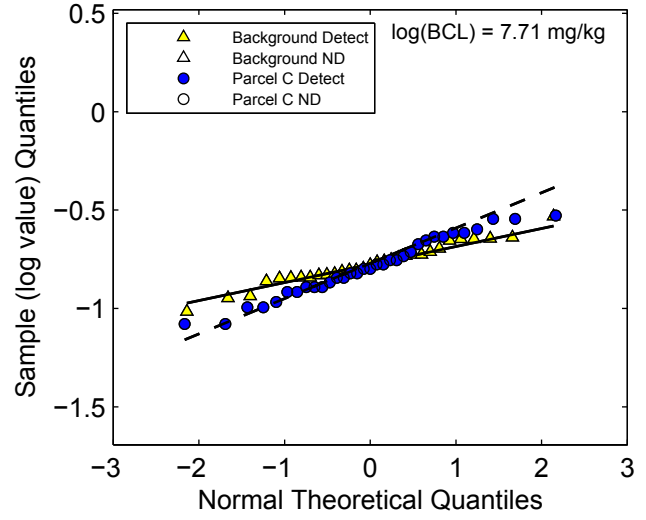
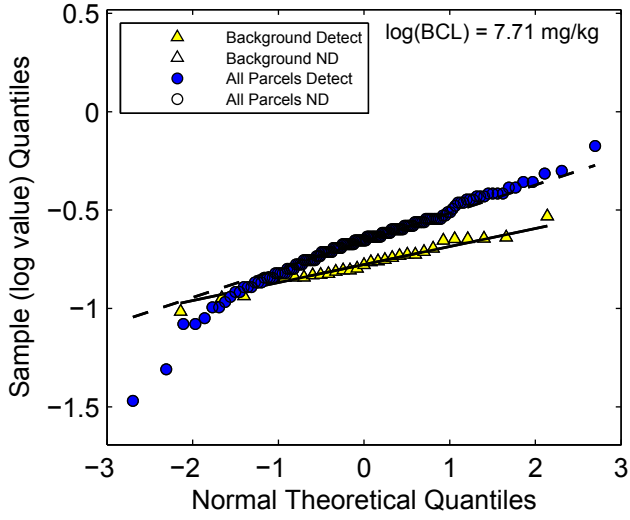
Figure 2-4B. Lognormal Q-Q Plots
Barium



**Figure 2-5A. Normal Q-Q Plots
Beryllium**



**Figure 2-5B. Lognormal Q-Q Plots
Beryllium**



**Figure 2-6A. Normal Q-Q Plots
Boron**

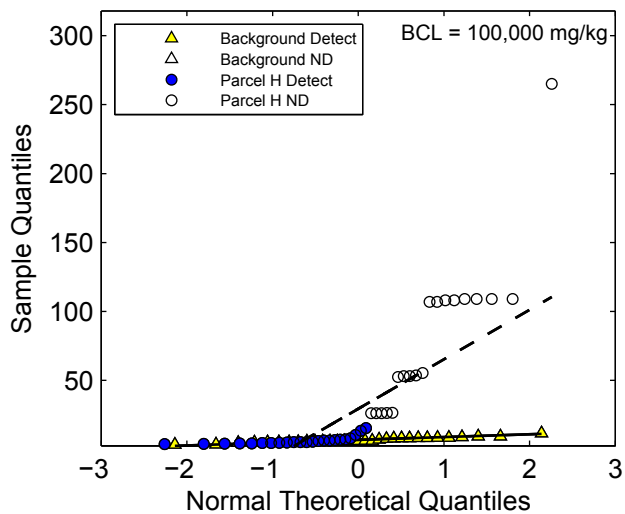
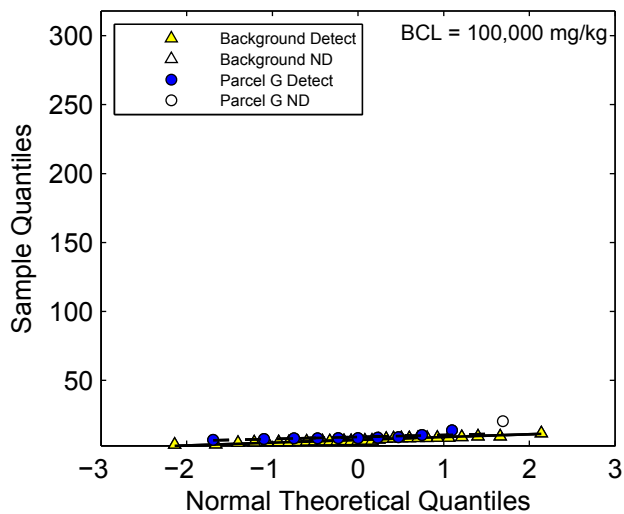
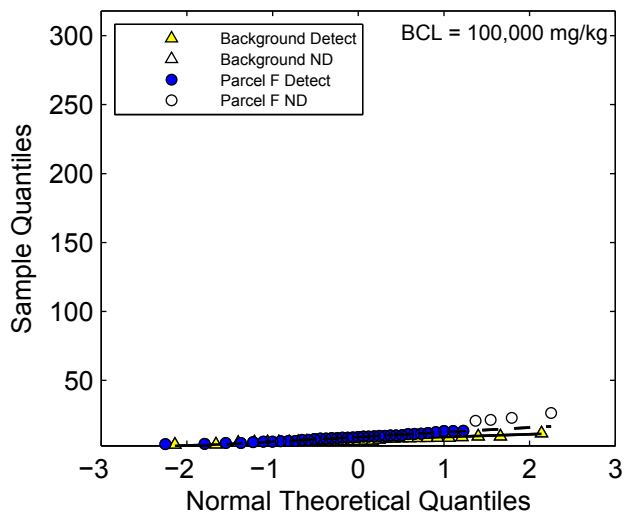
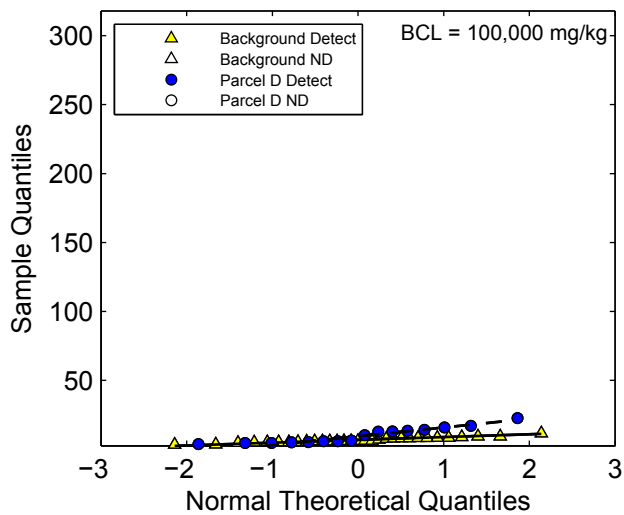
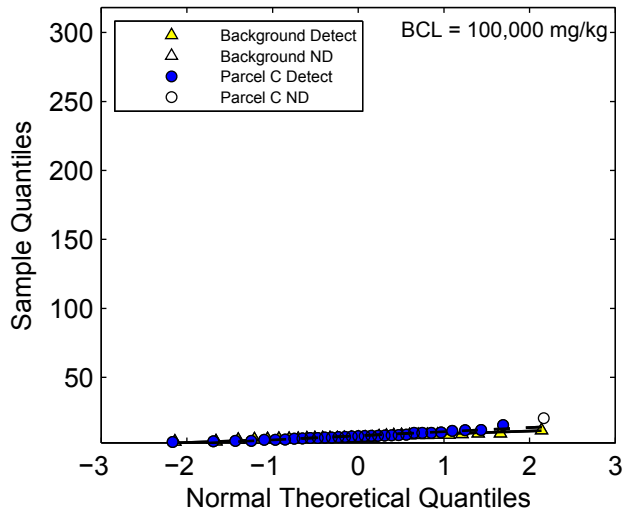
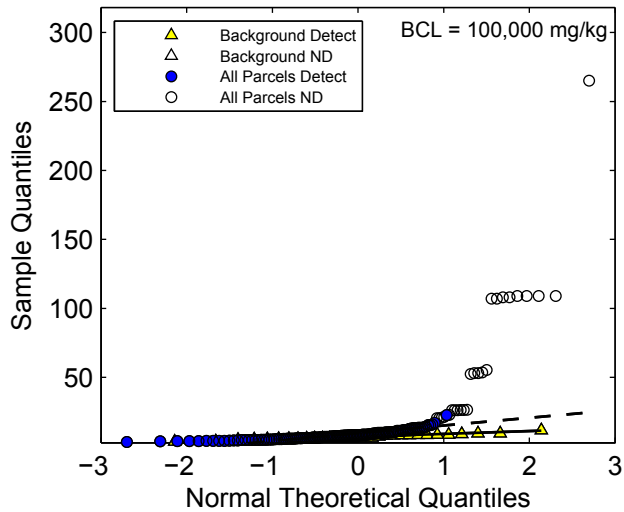
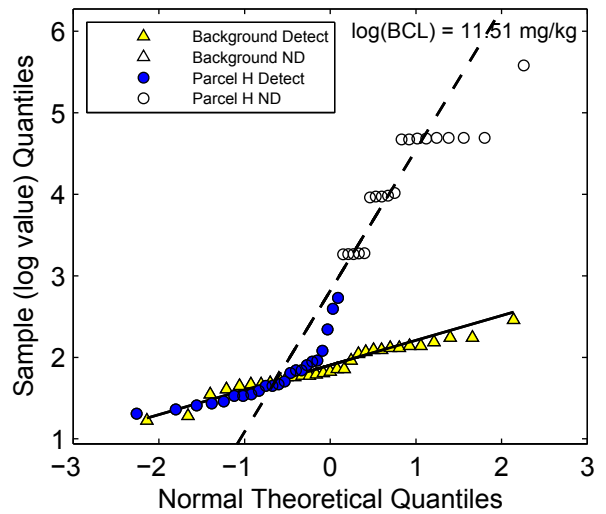
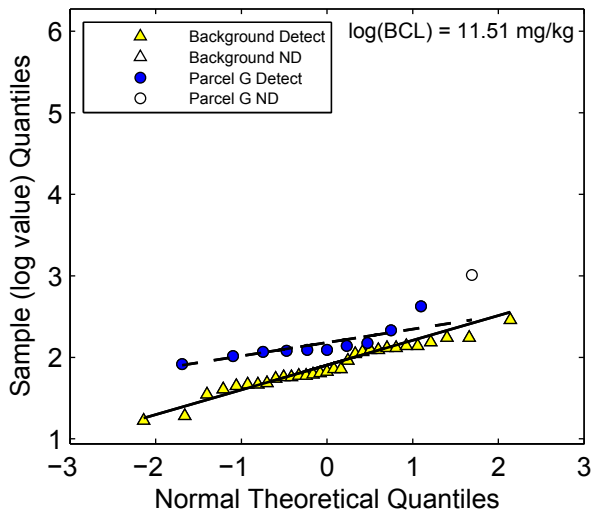
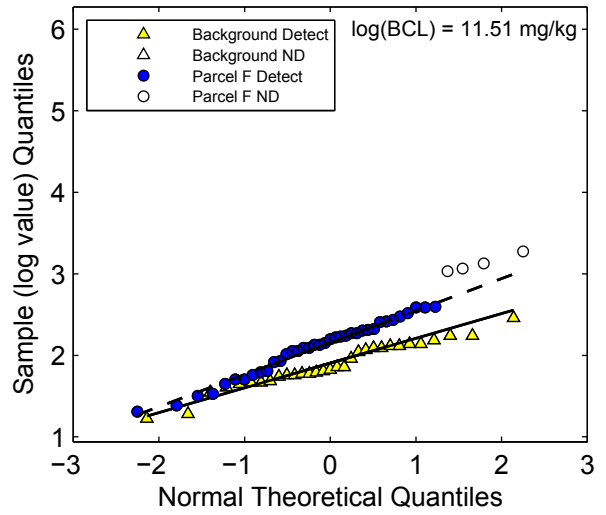
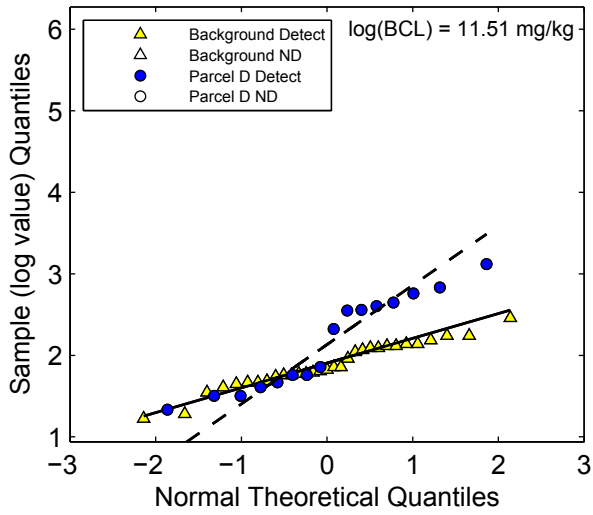
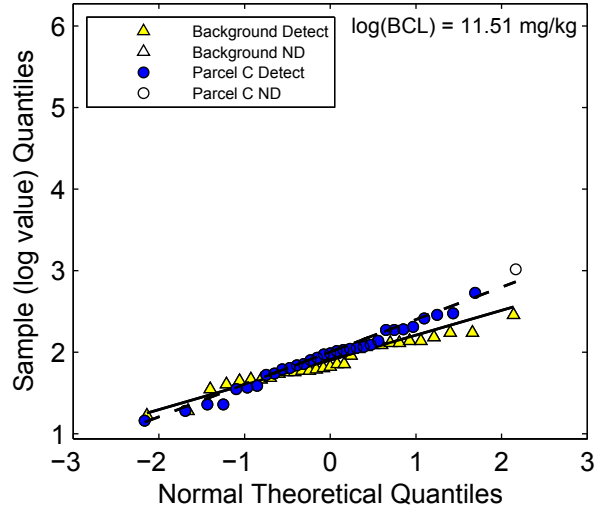
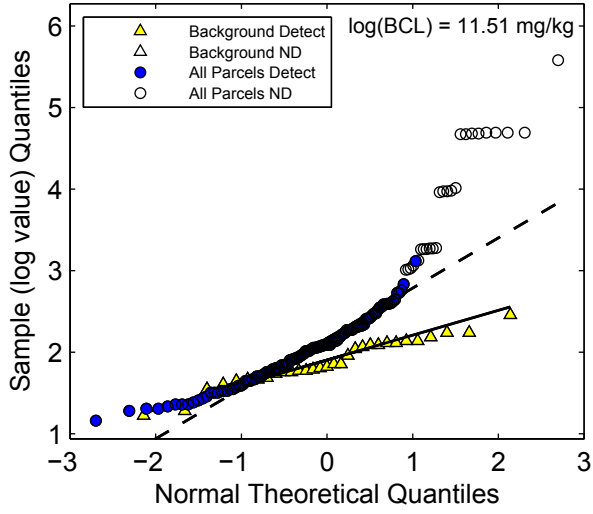
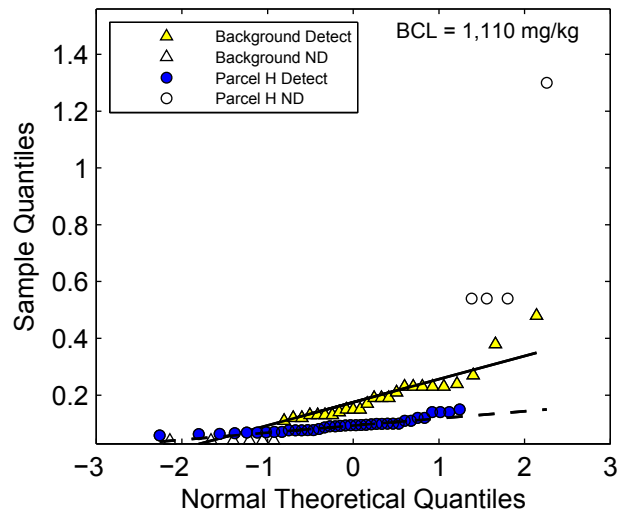
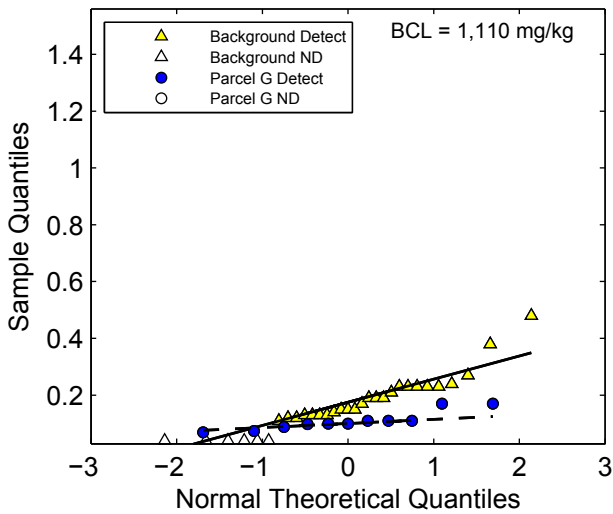
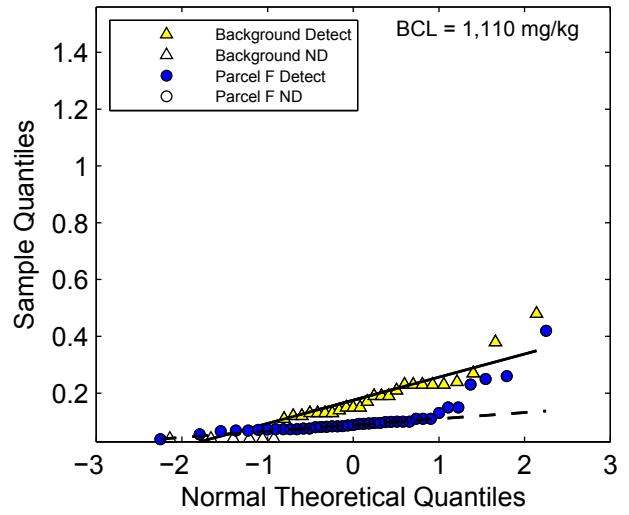
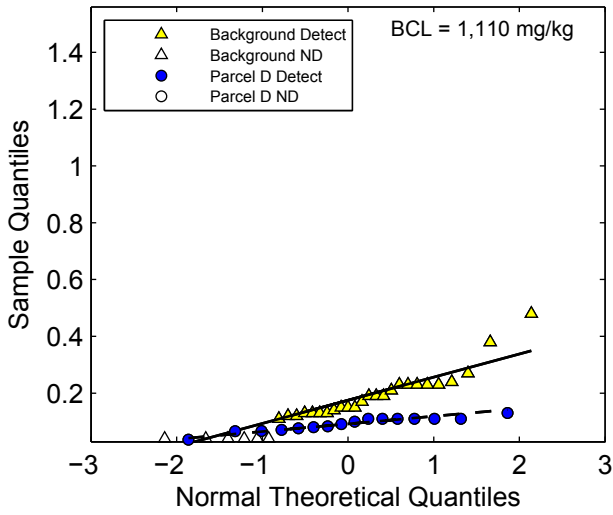
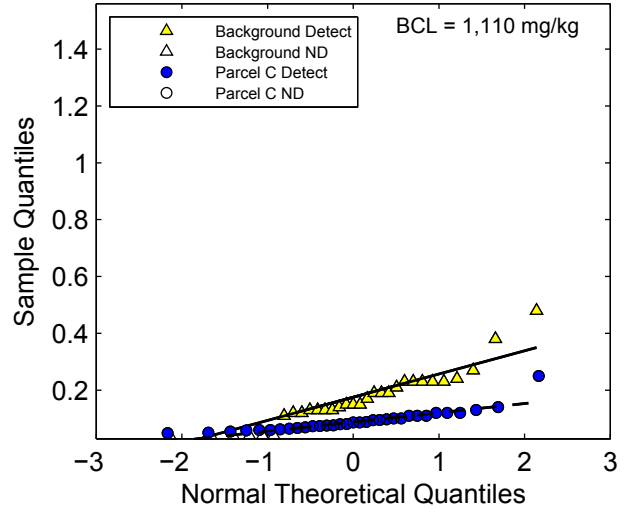
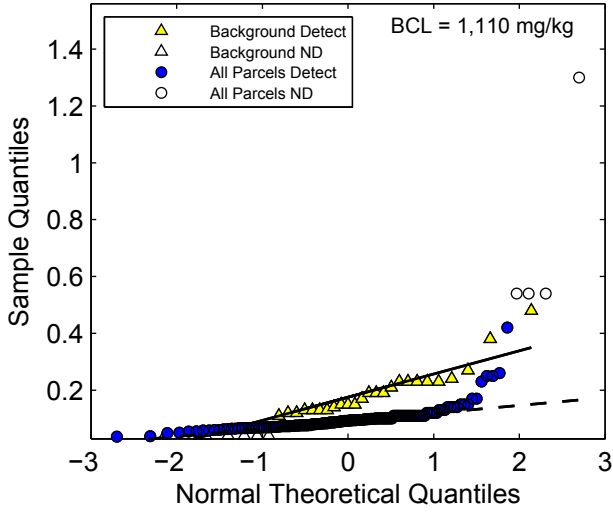


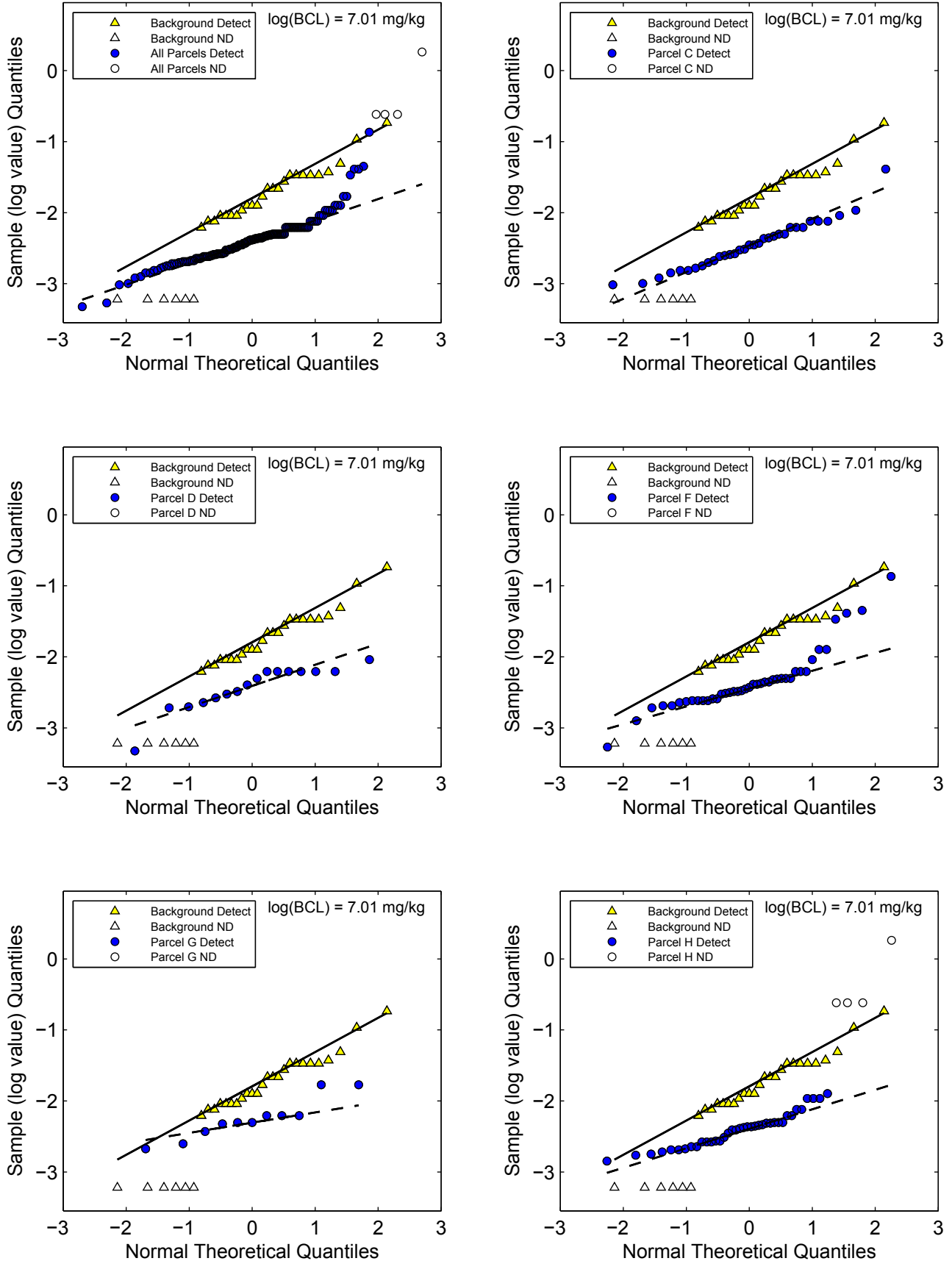
Figure 2-6B. Lognormal Q-Q Plots
Boron



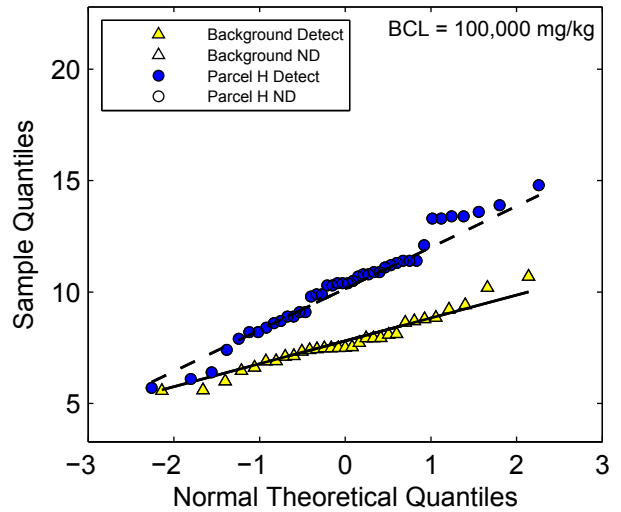
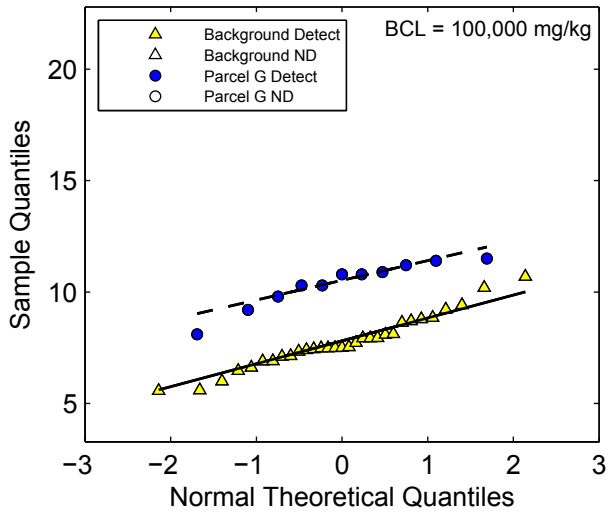
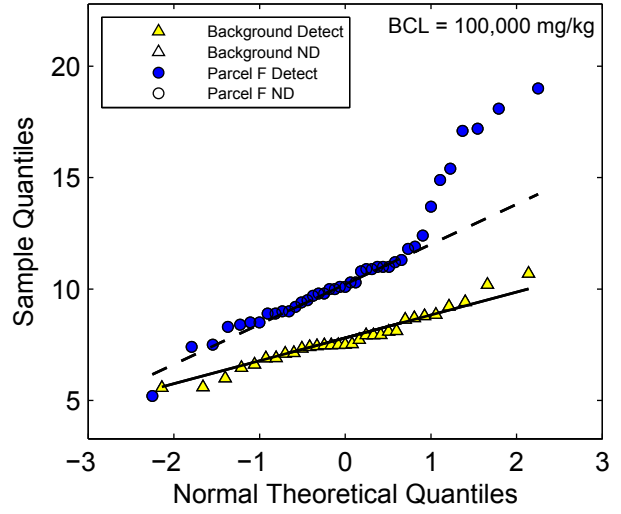
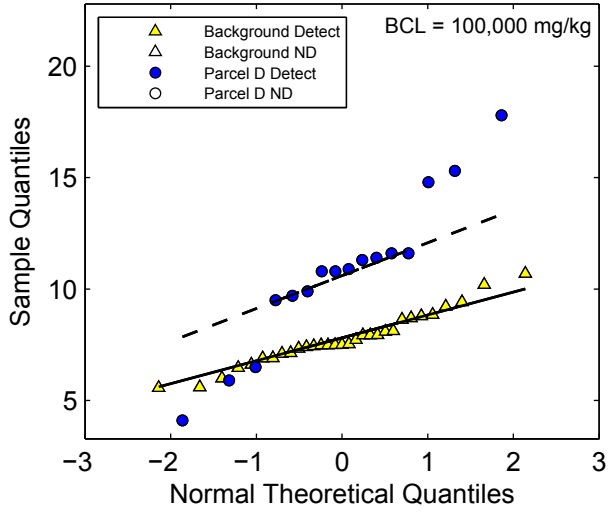
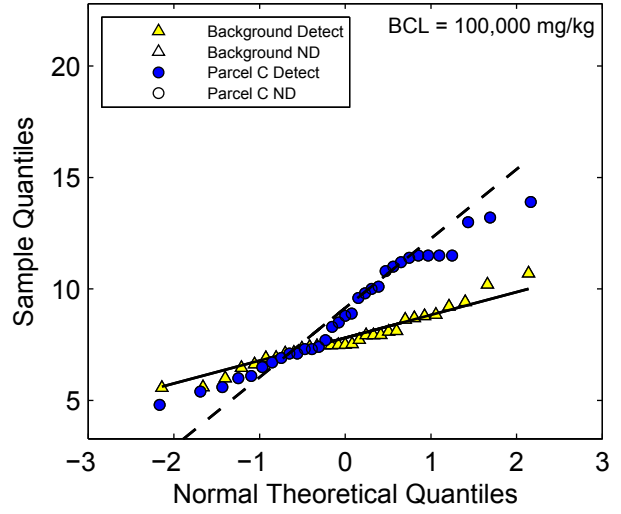
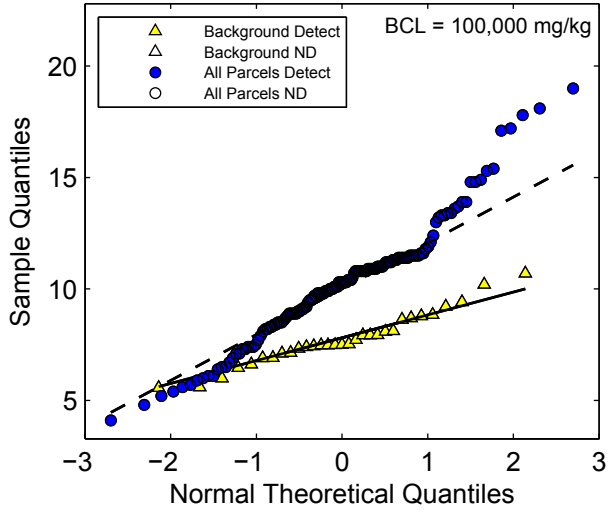
**Figure 2-7A. Normal Q-Q Plots
Cadmium**



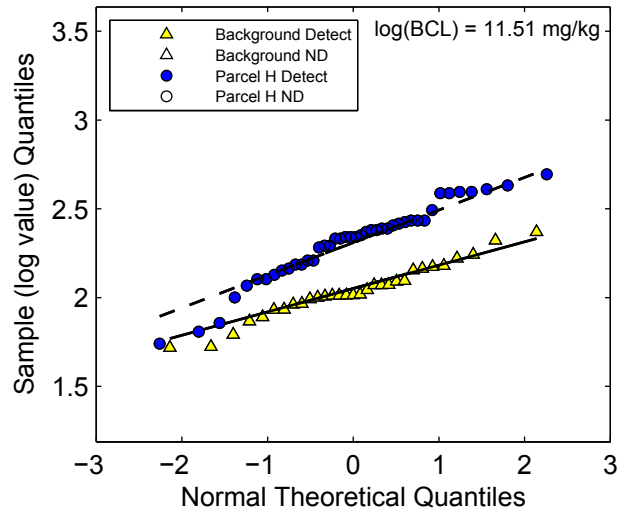
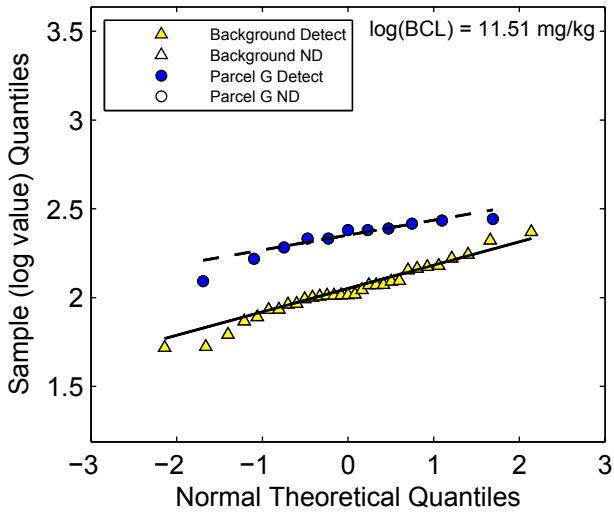
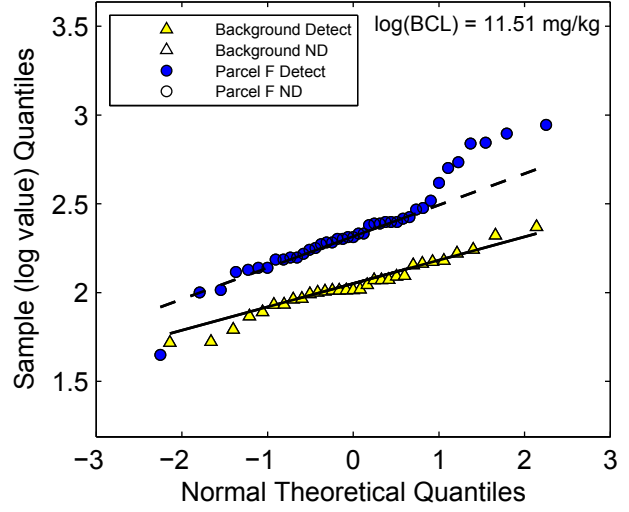
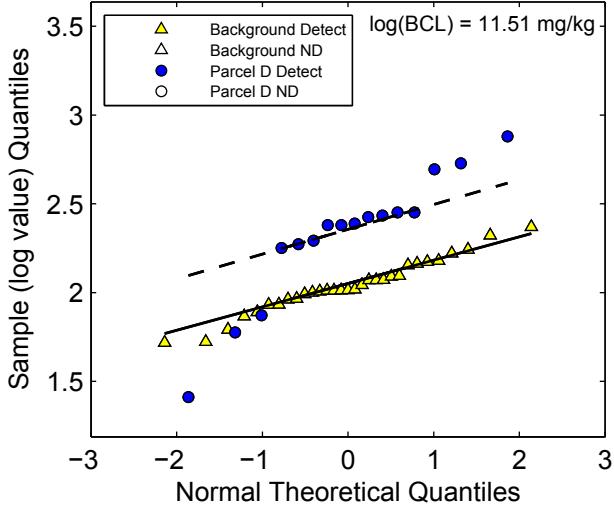
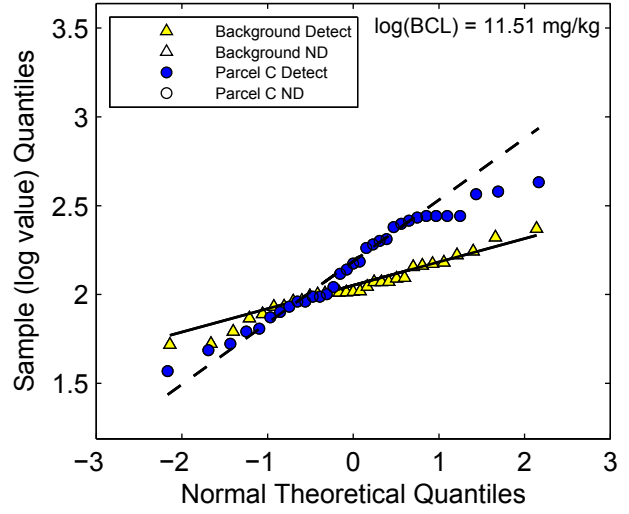
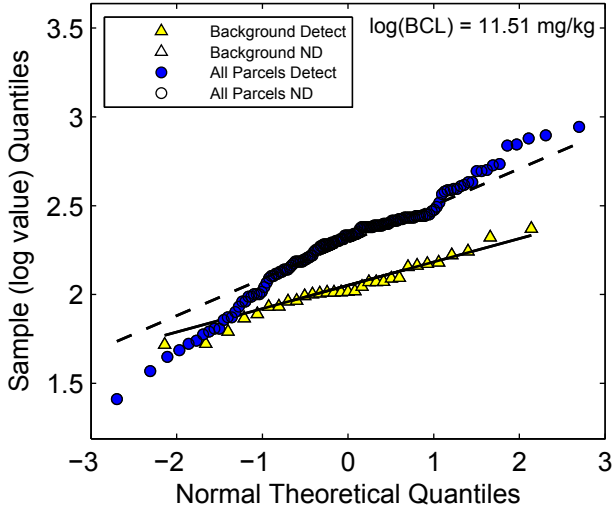
**Figure 2-7B. Lognormal Q-Q Plots
Cadmium**



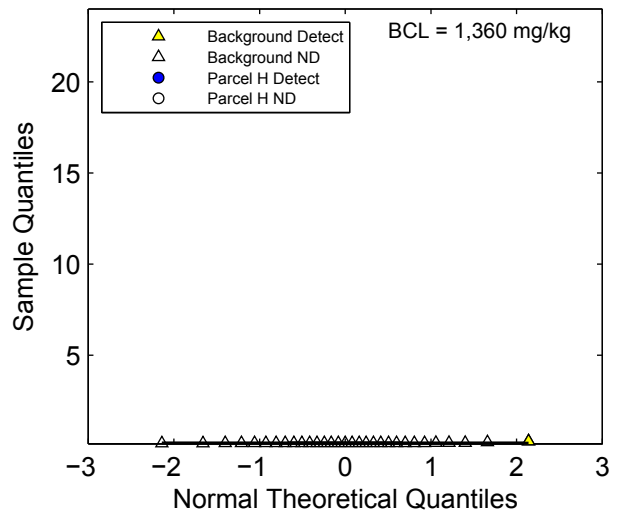
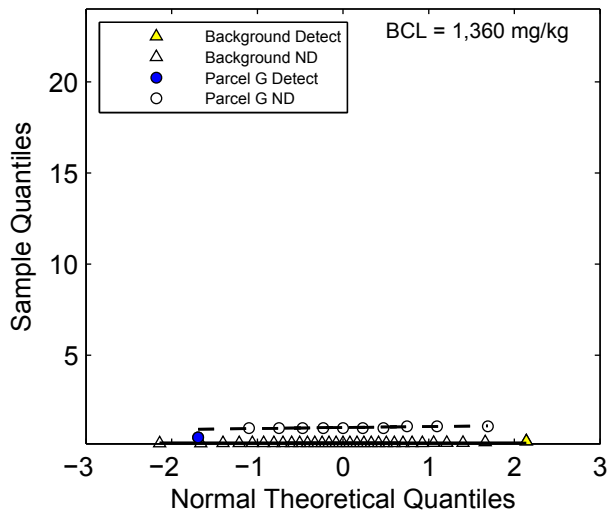
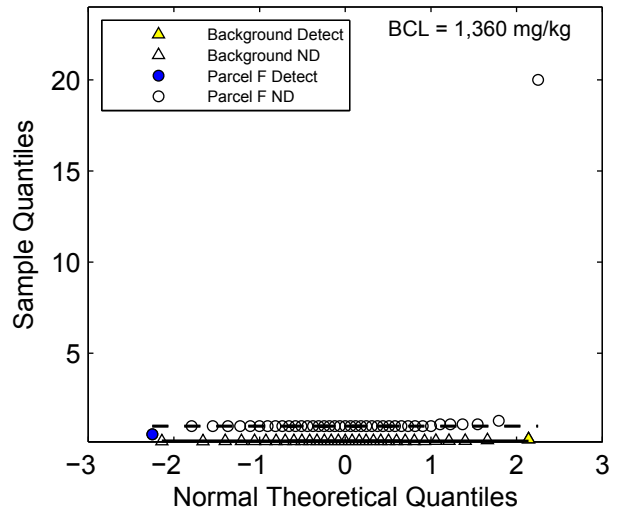
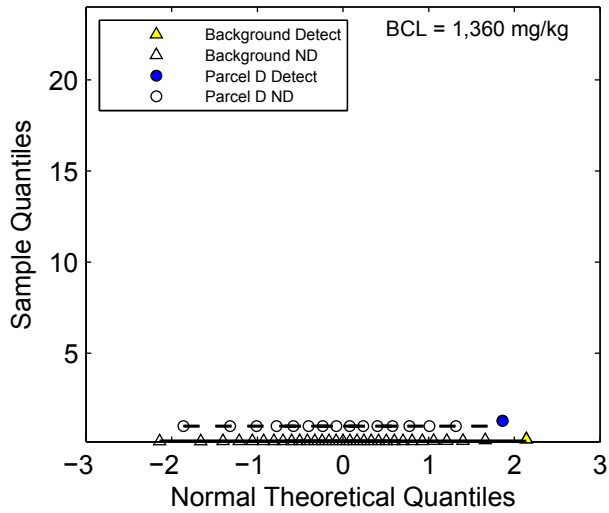
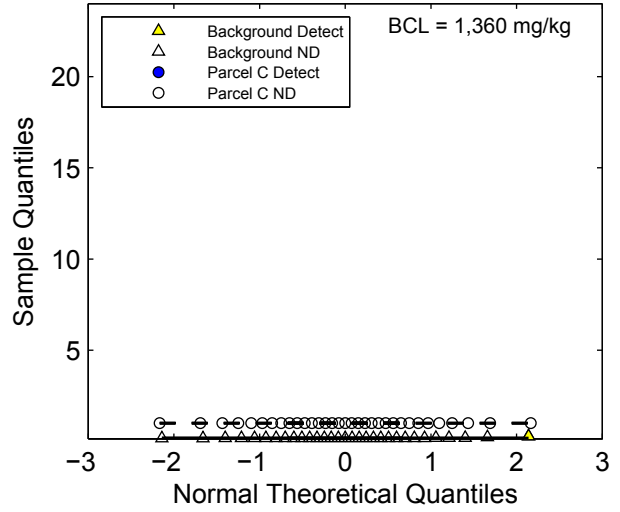
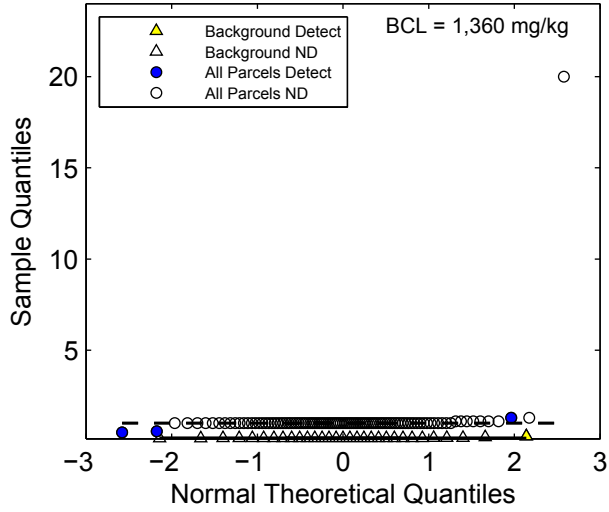
**Figure 2-8A. Normal Q-Q Plots
Chromium (Total)**



**Figure 2–8B. Lognormal Q–Q Plots
Chromium (Total)**



**Figure 2-9A. Normal Q-Q Plots
Chromium (VI)**



**Figure 2-9B. Lognormal Q-Q Plots
Chromium (VI)**

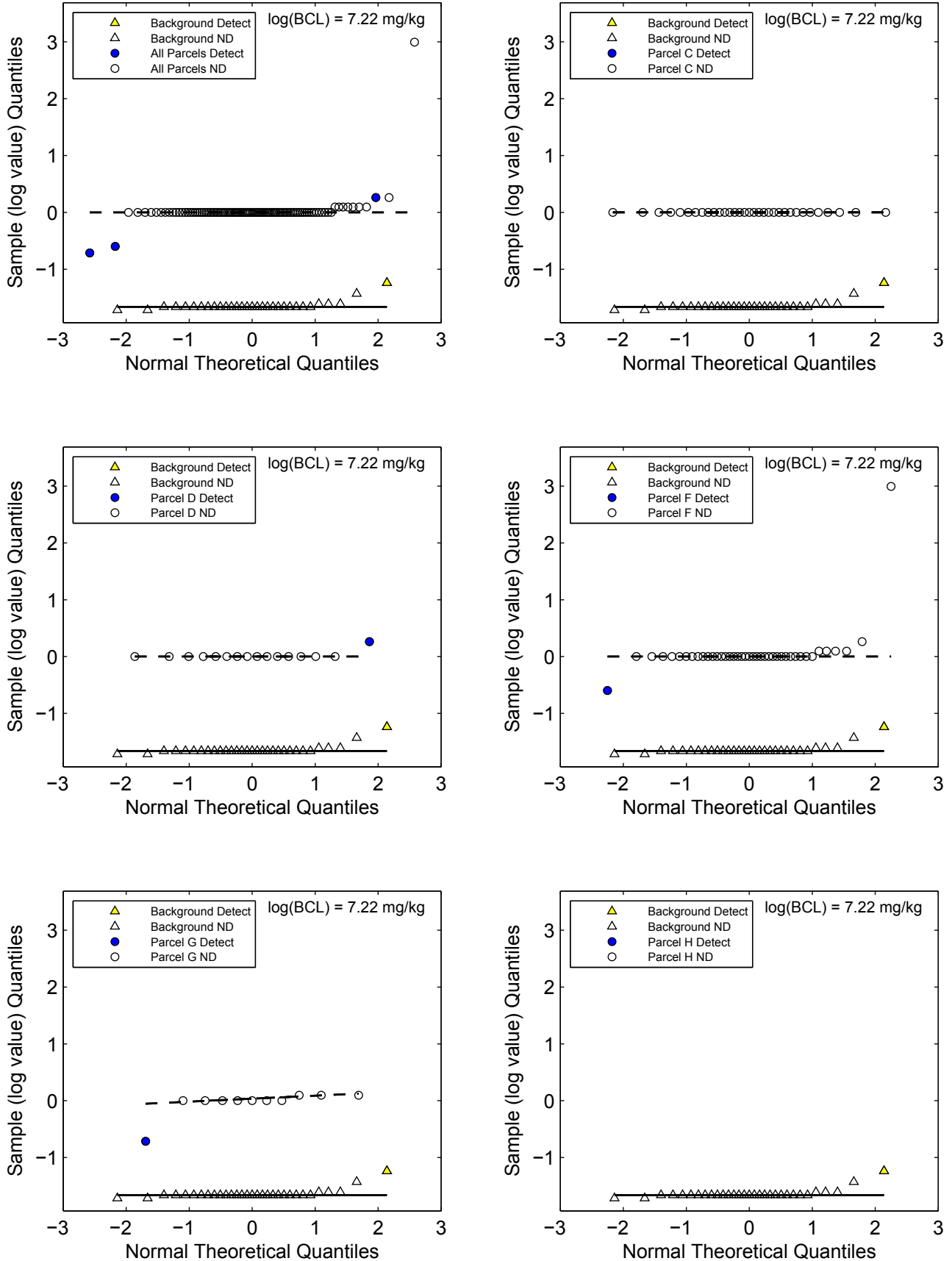


Figure 2-10A. Normal Q-Q Plots
Cobalt

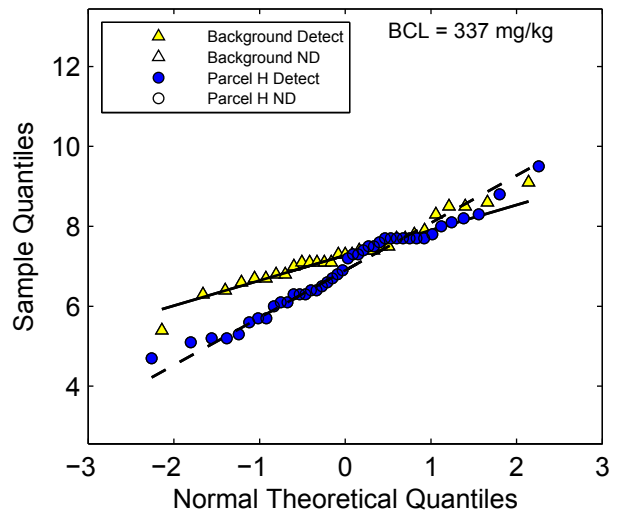
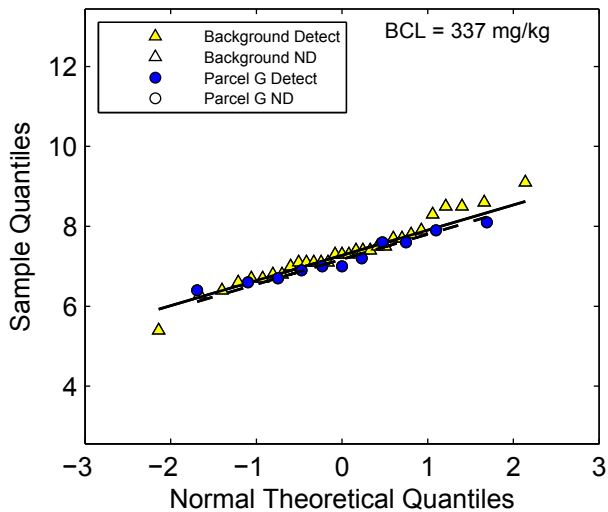
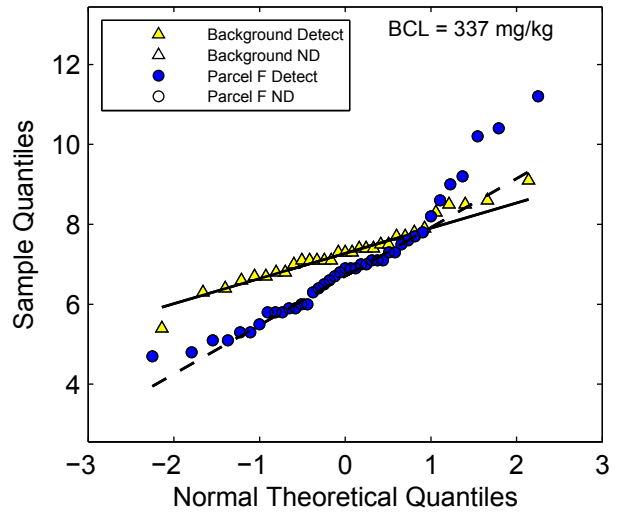
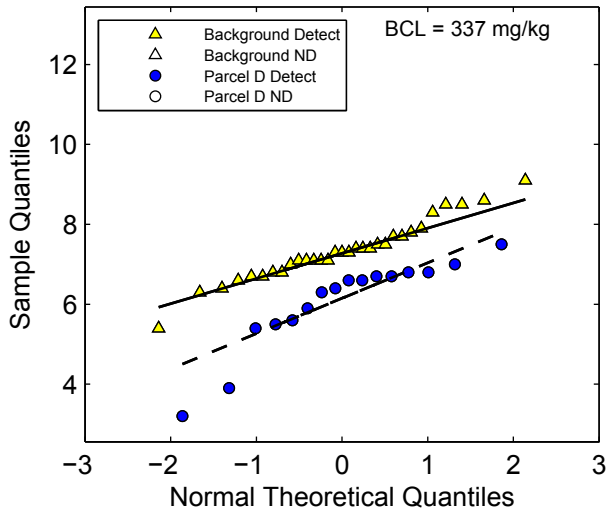
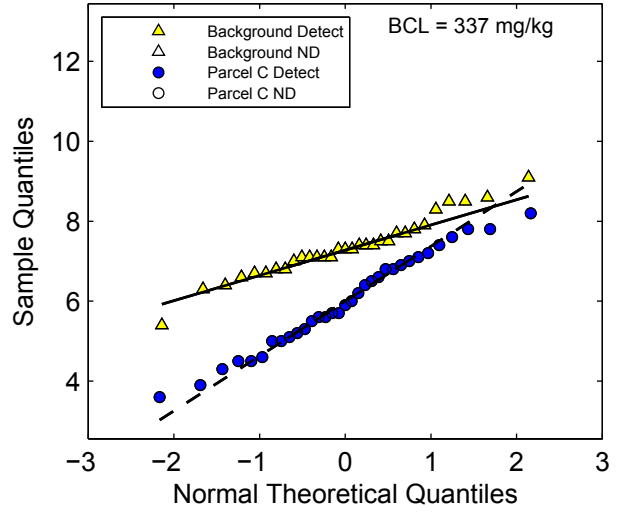
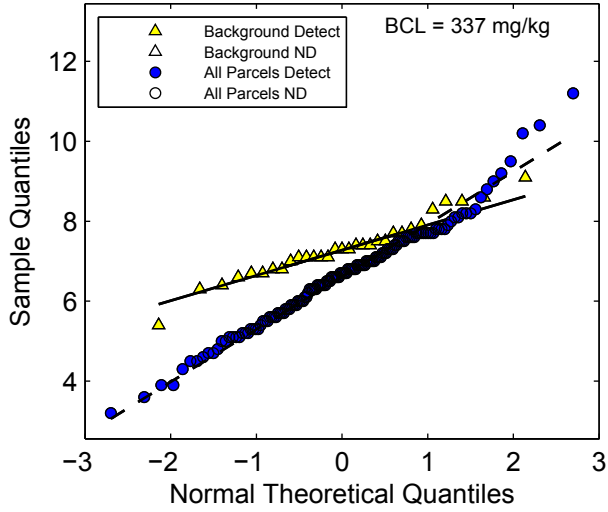


Figure 2-10B. Lognormal Q-Q Plots
Cobalt

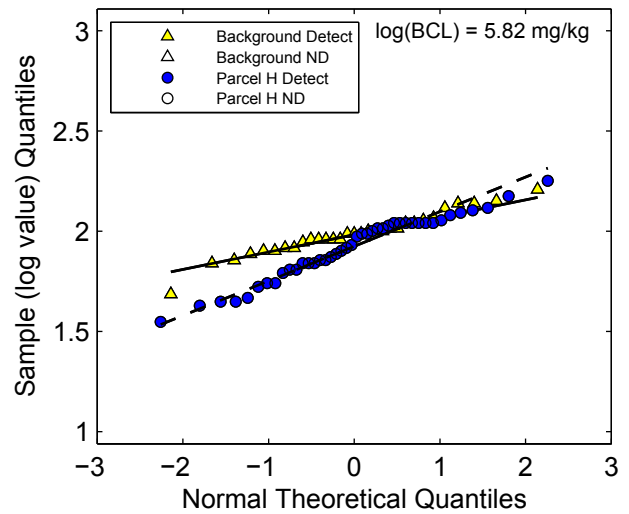
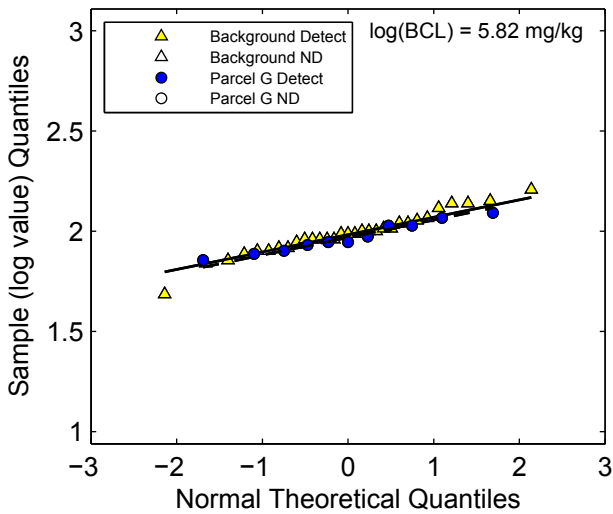
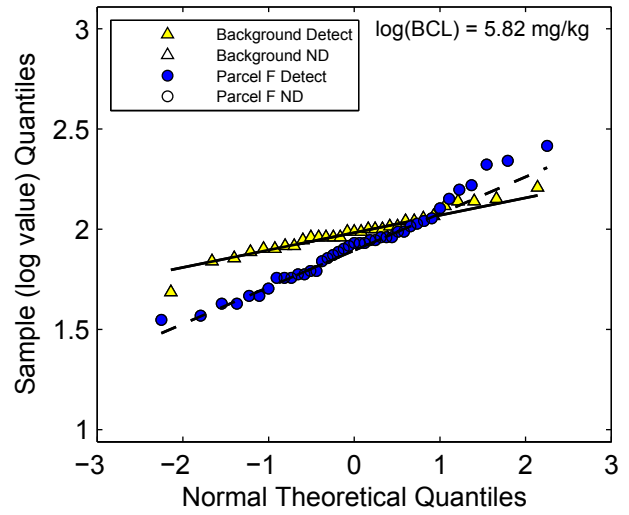
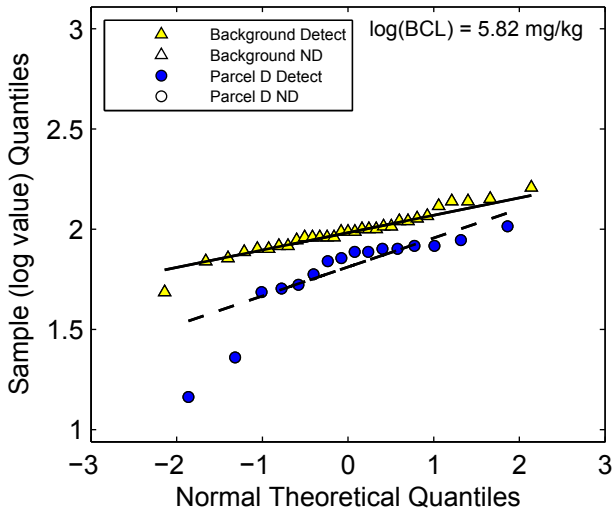
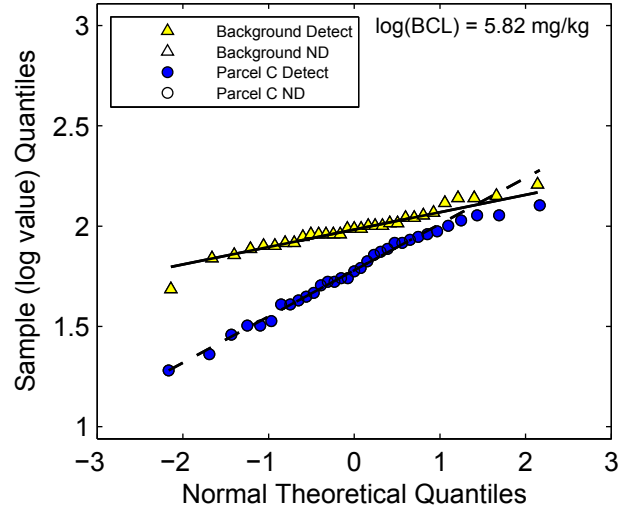
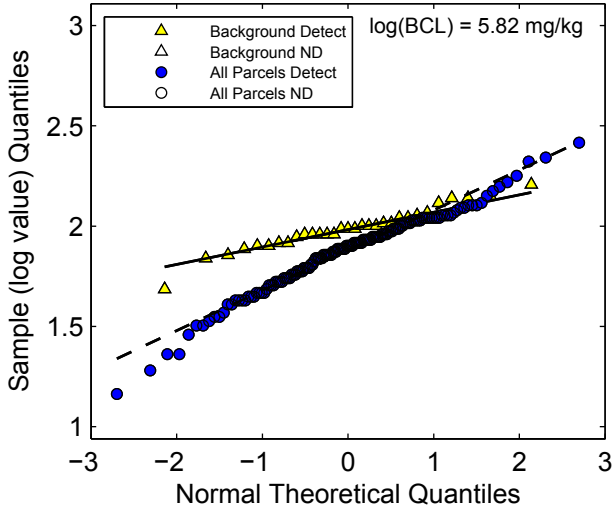
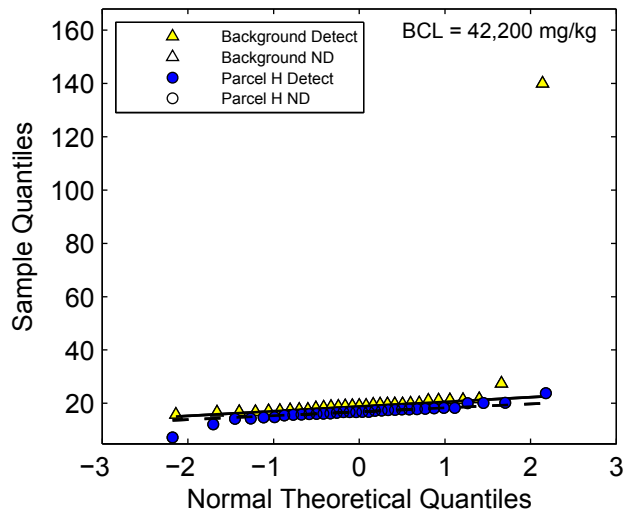
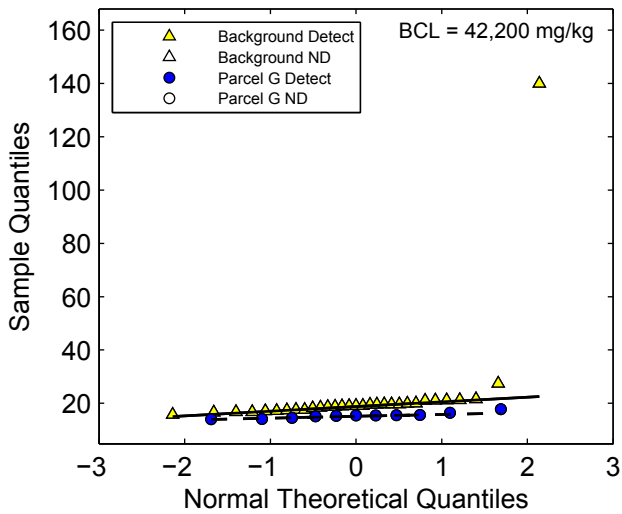
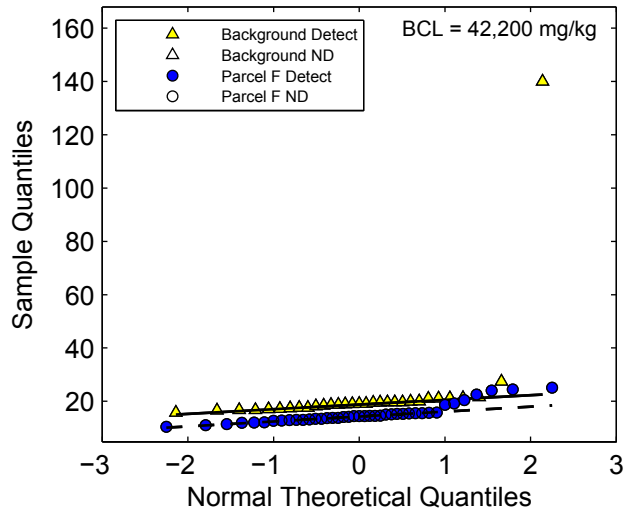
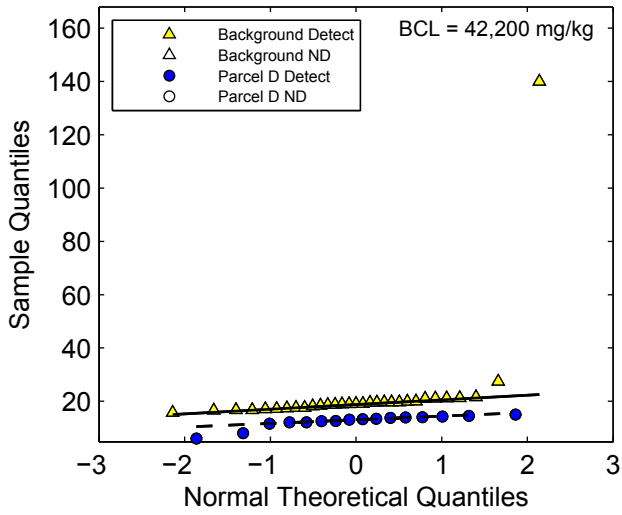
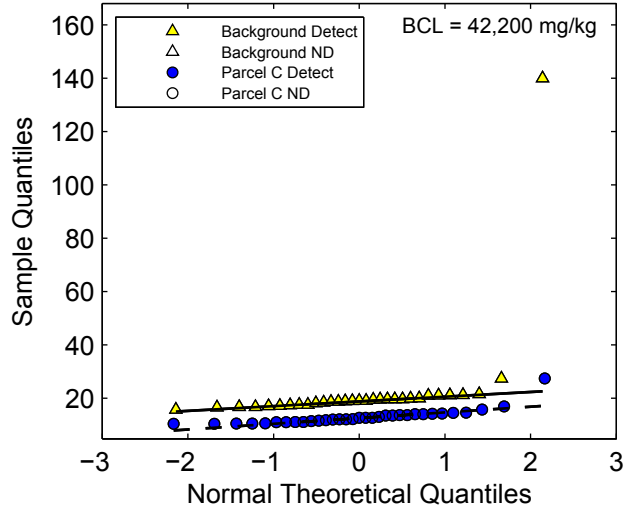
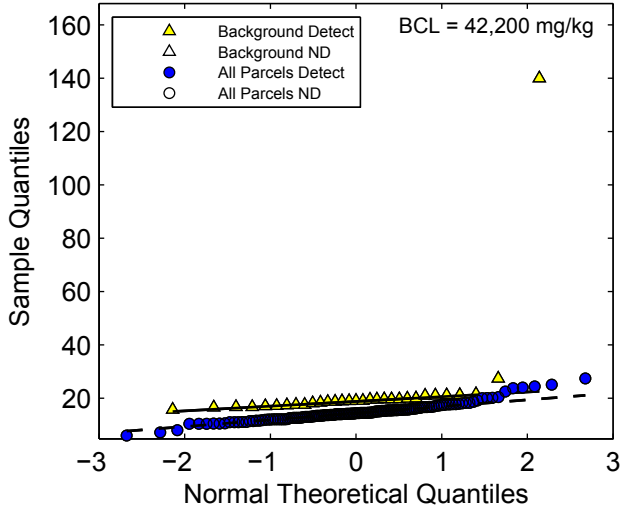


Figure 2-11A. Normal Q-Q Plots
Copper



**Figure 2-11B. Lognormal Q-Q Plots
Copper**

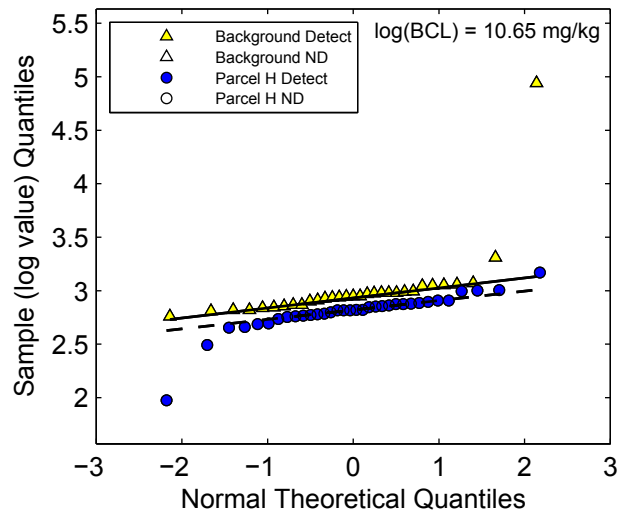
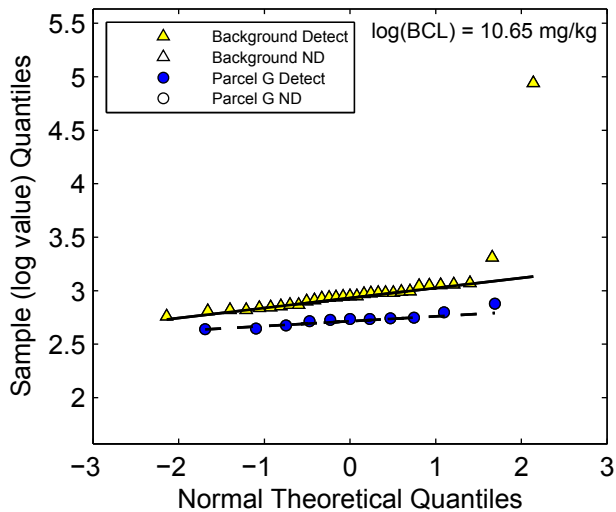
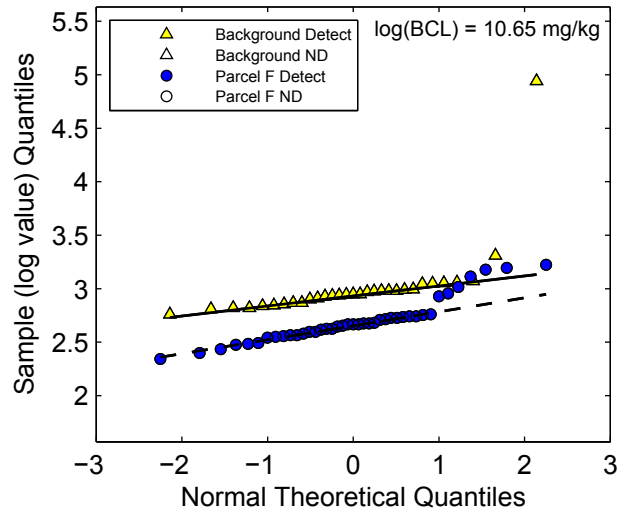
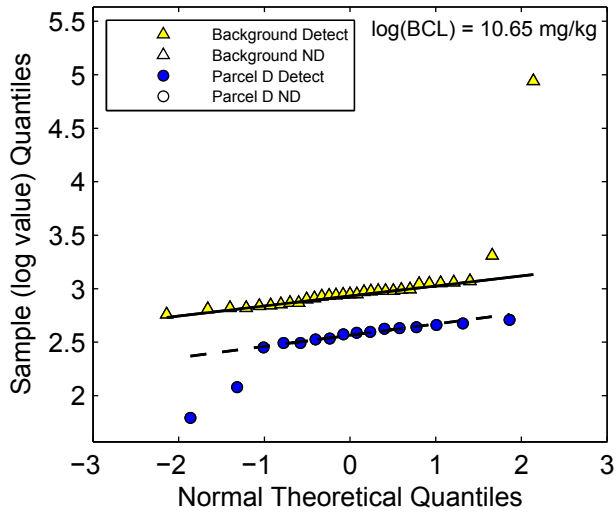
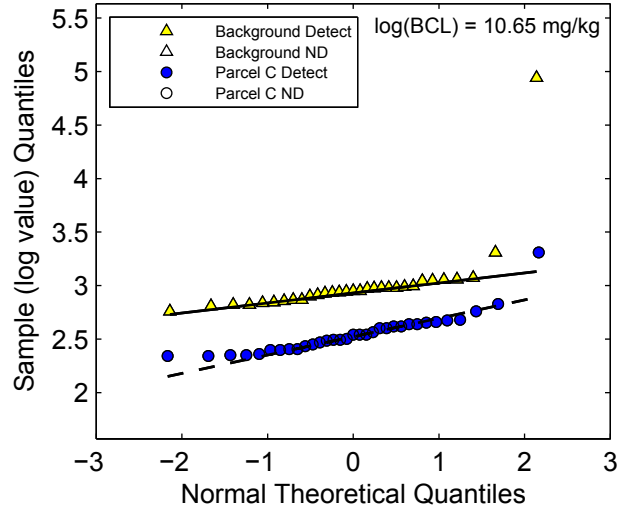
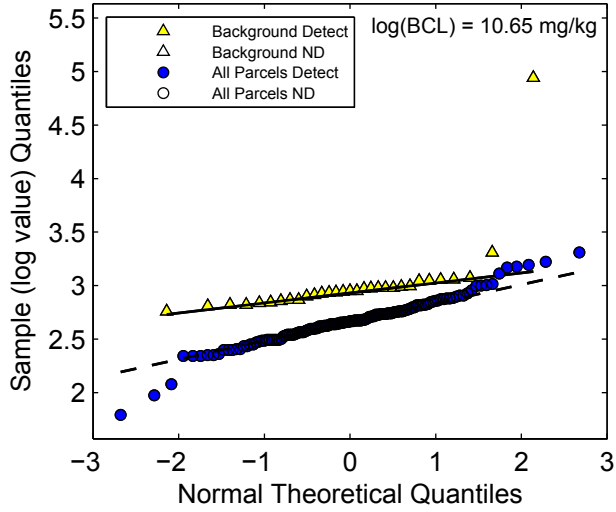


Figure 2-12A. Normal Q-Q Plots

Iron

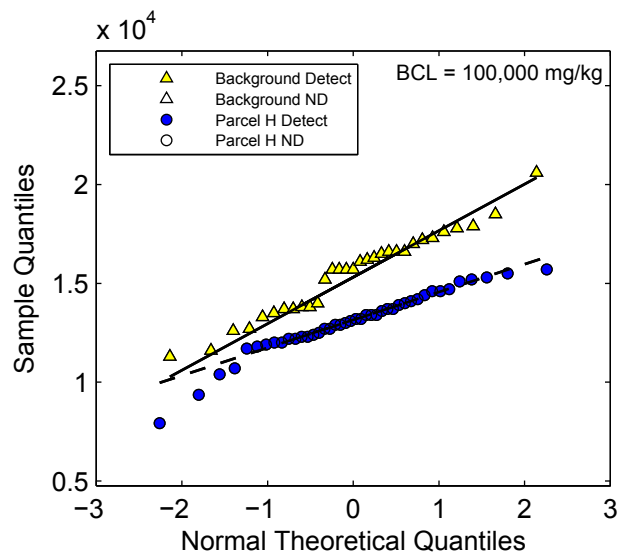
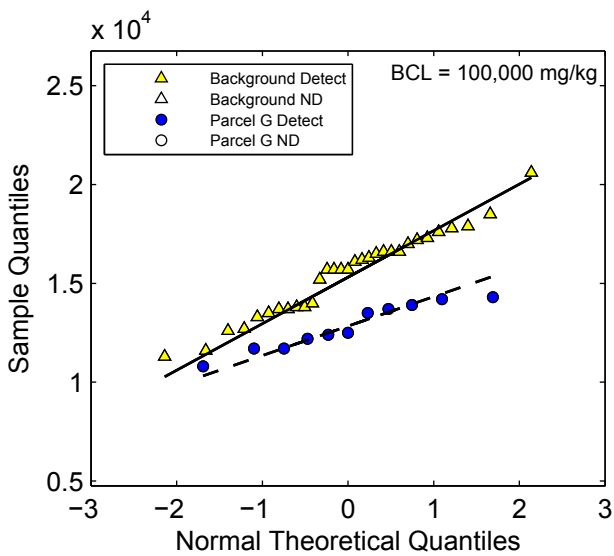
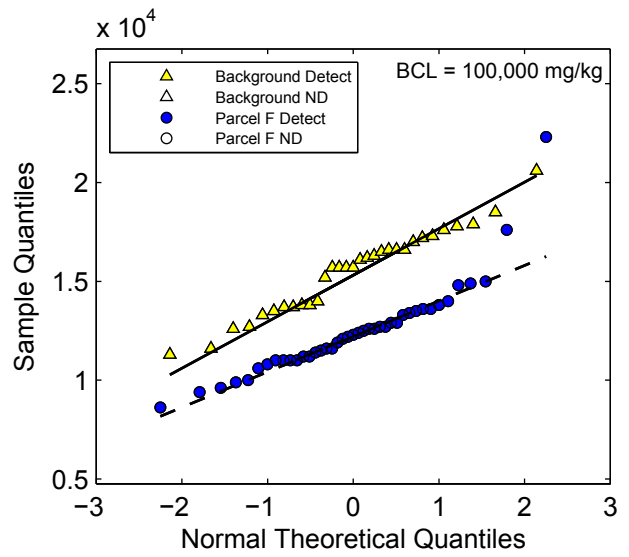
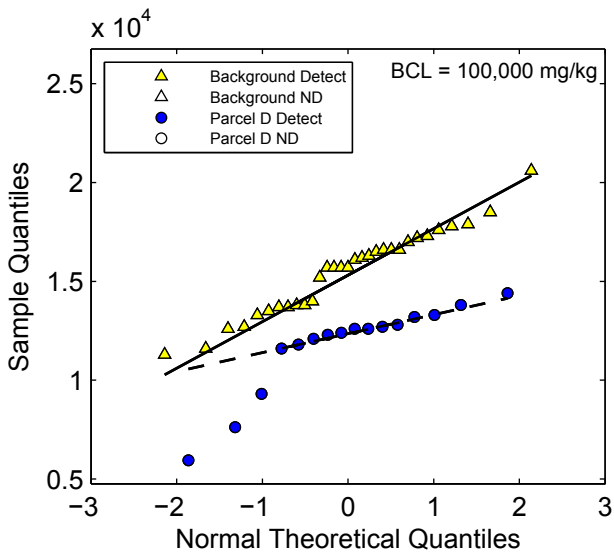
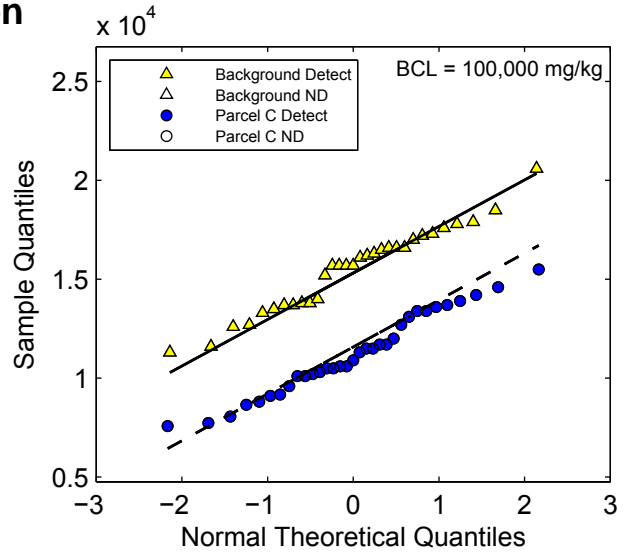
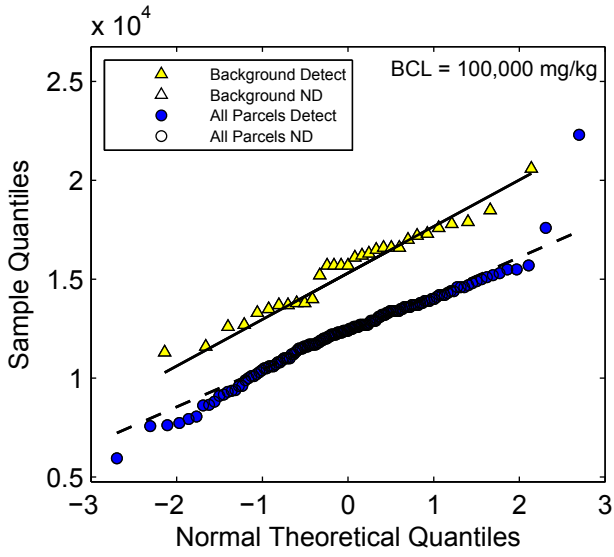


Figure 2-12B. Lognormal Q-Q Plots
Iron

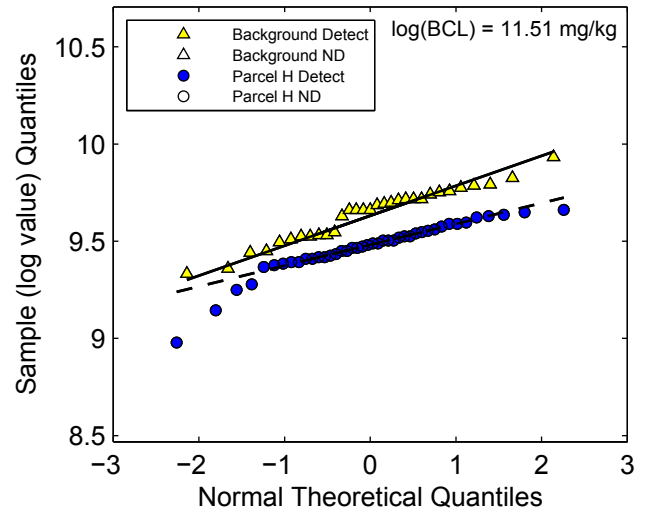
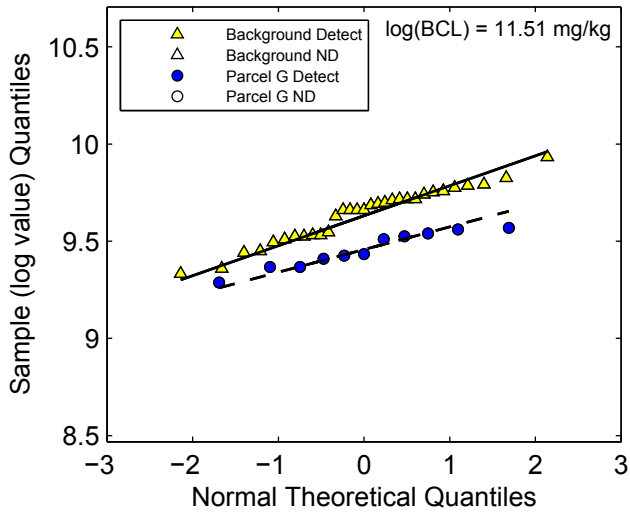
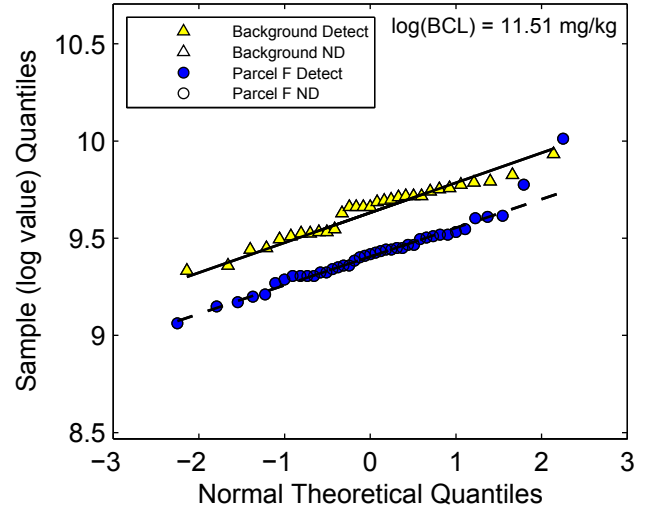
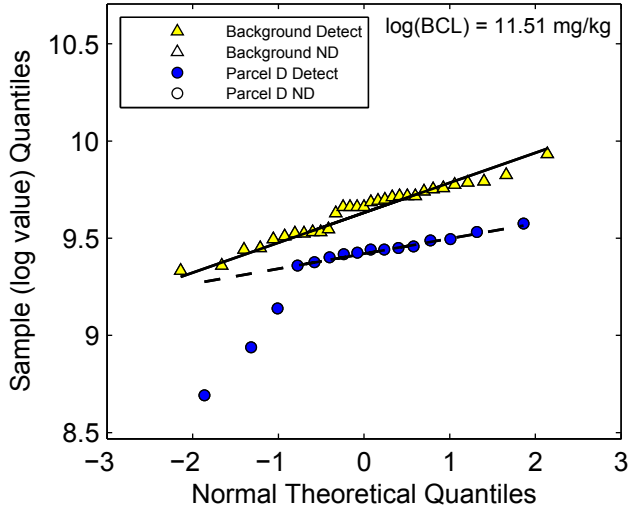
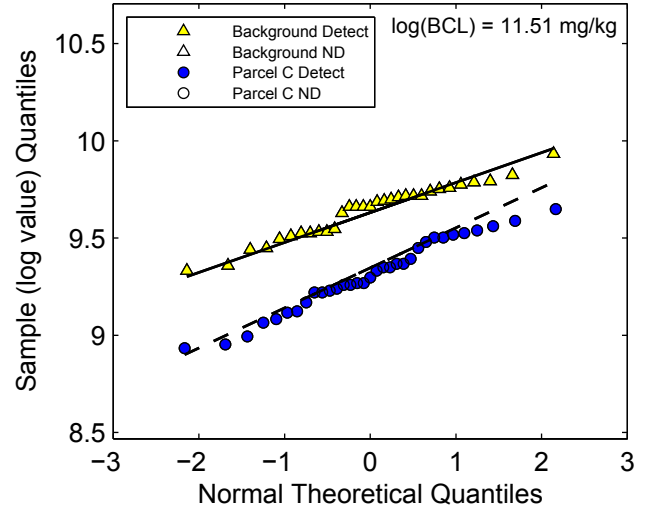
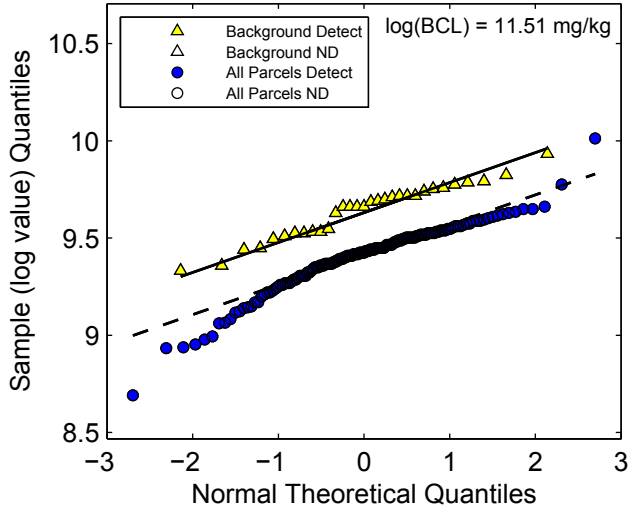


Figure 2-13A. Normal Q-Q Plots

Lead

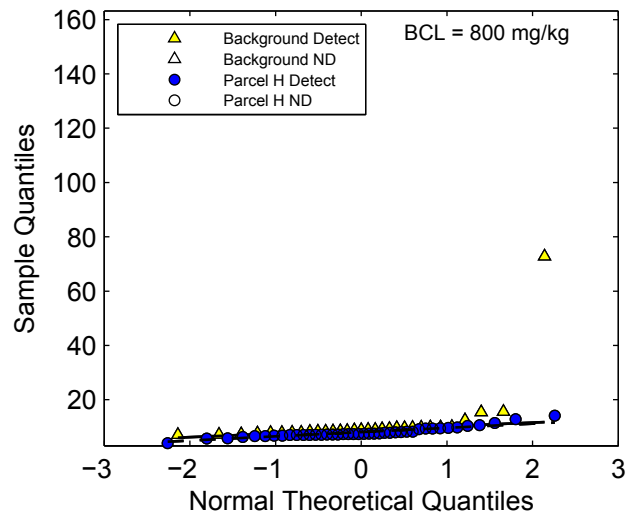
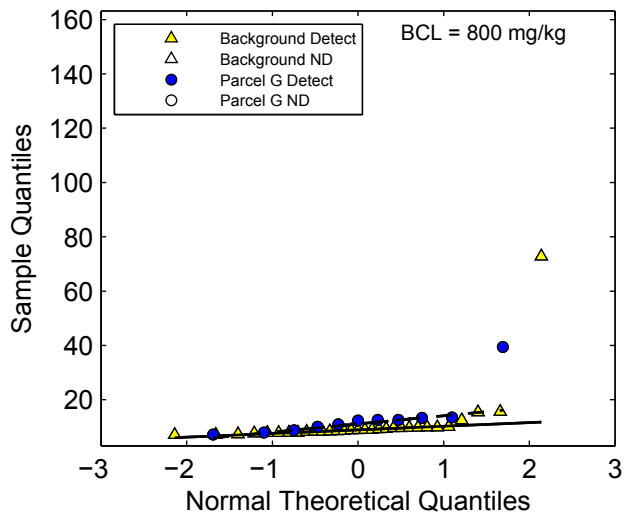
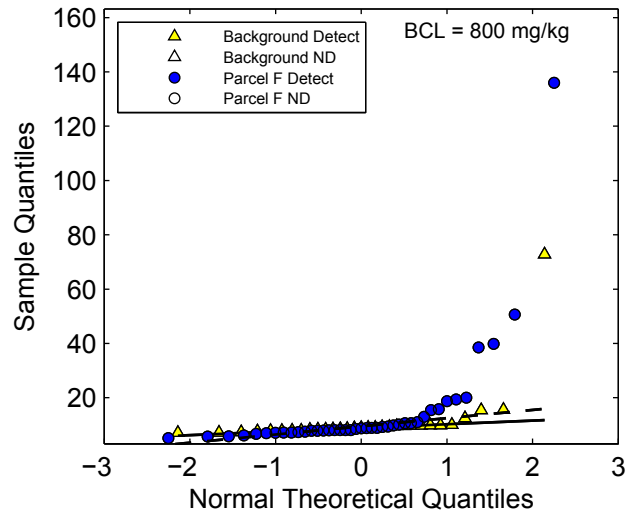
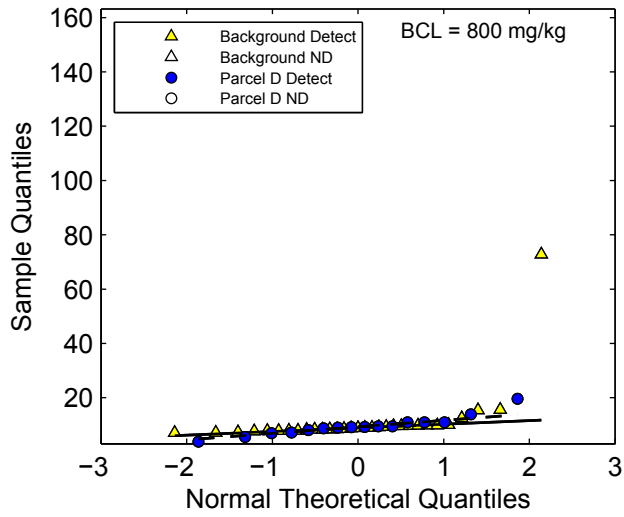
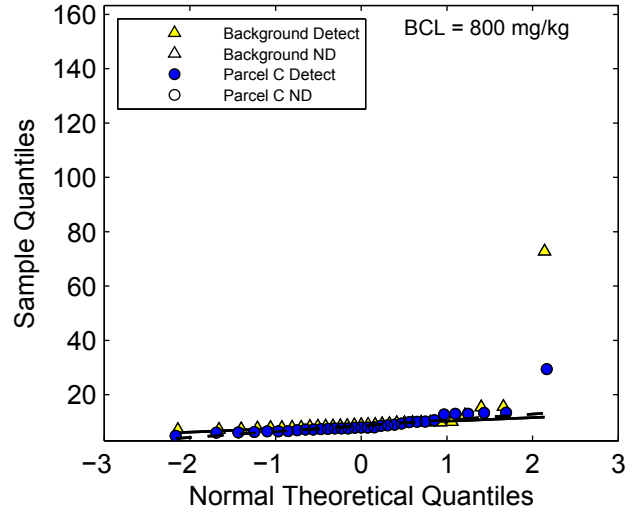
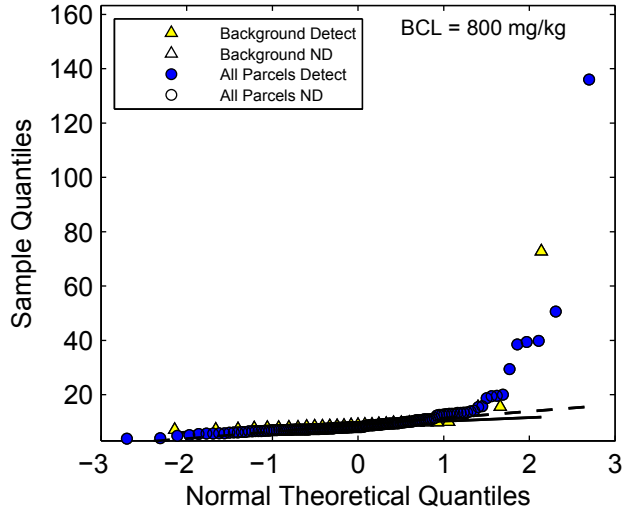


Figure 2-13B. Lognormal Q-Q Plots
Lead

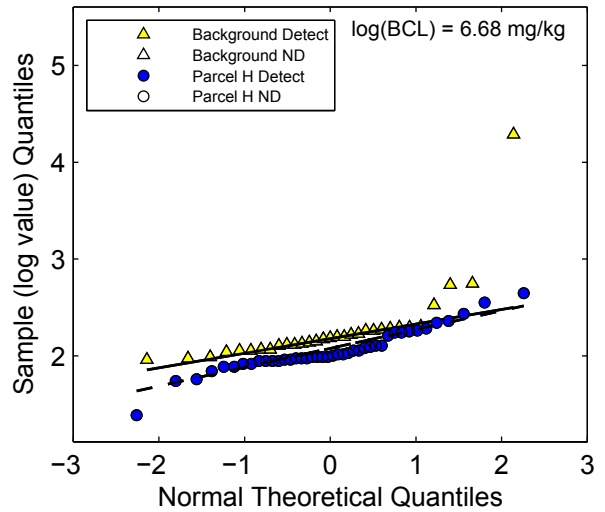
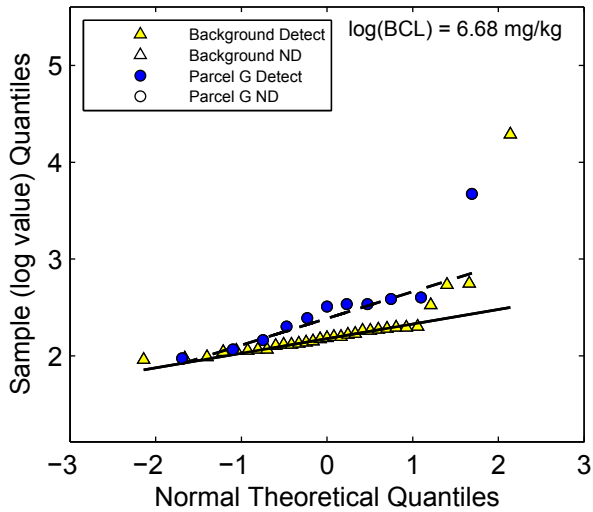
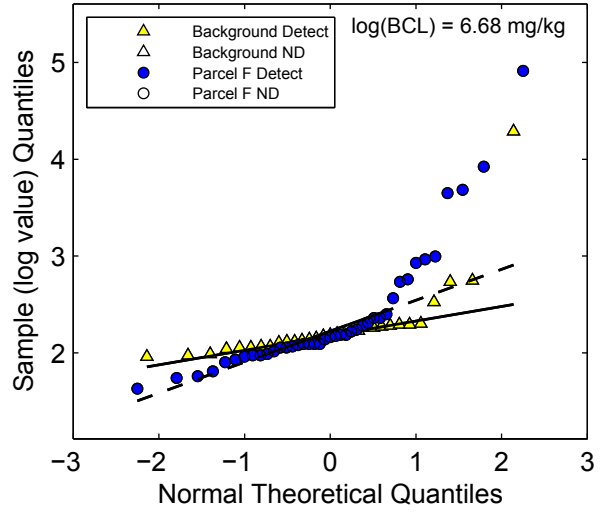
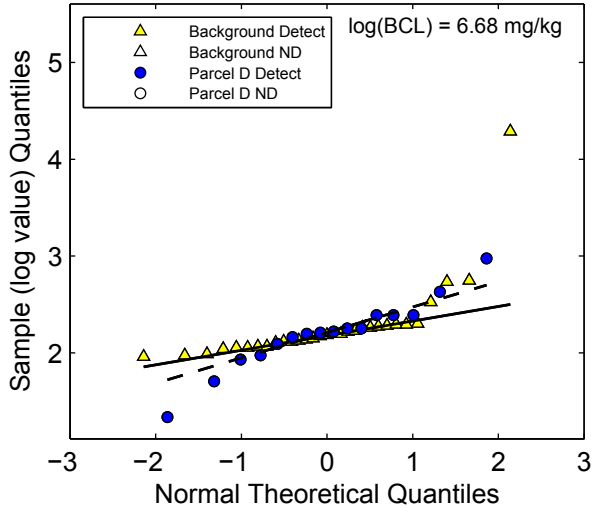
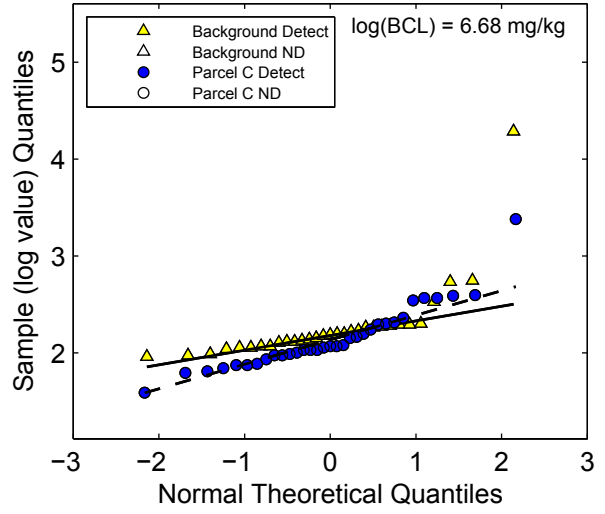
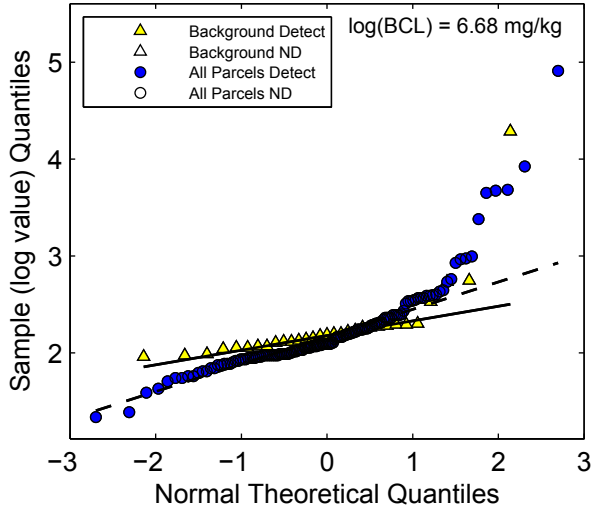
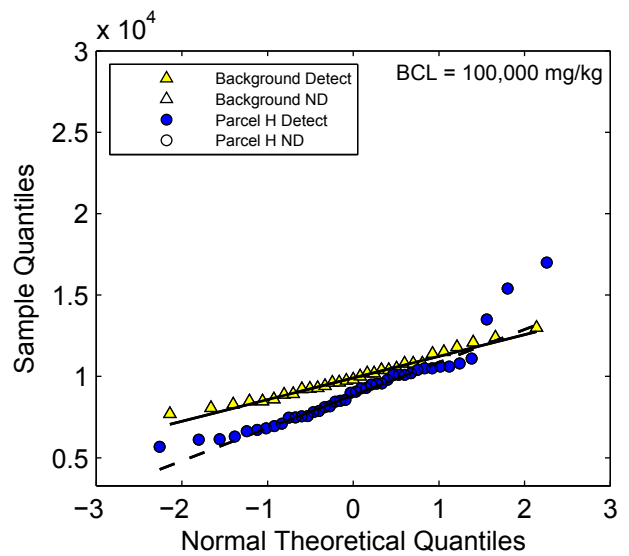
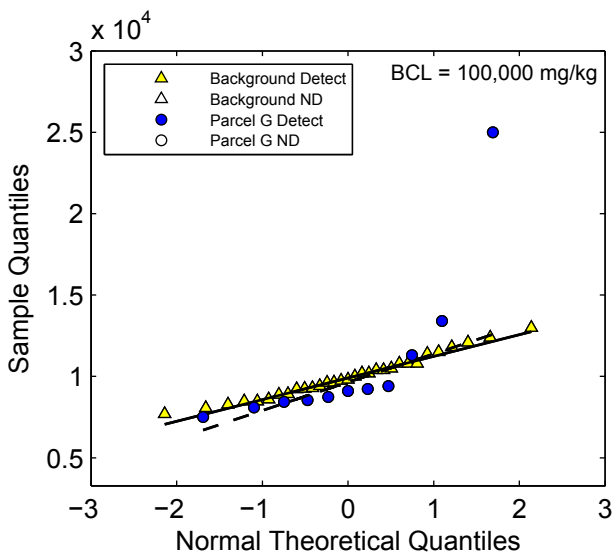
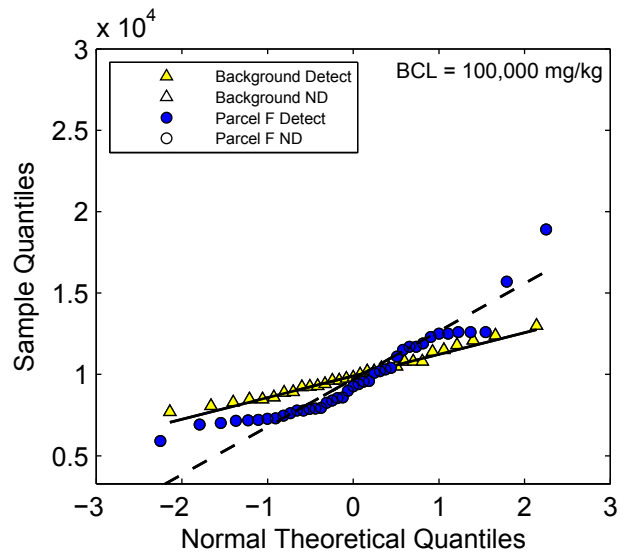
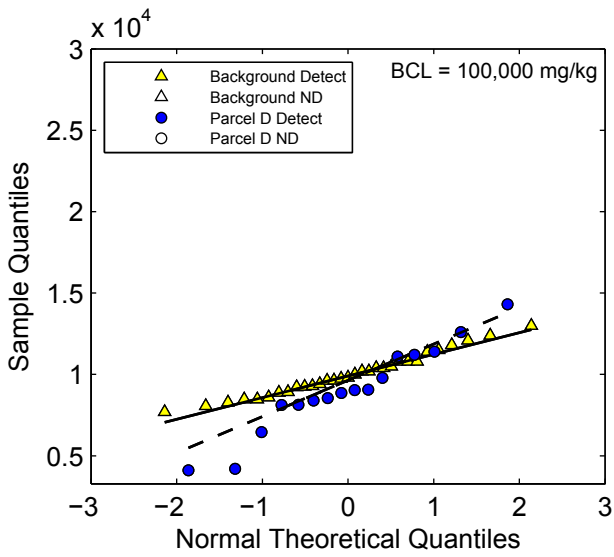
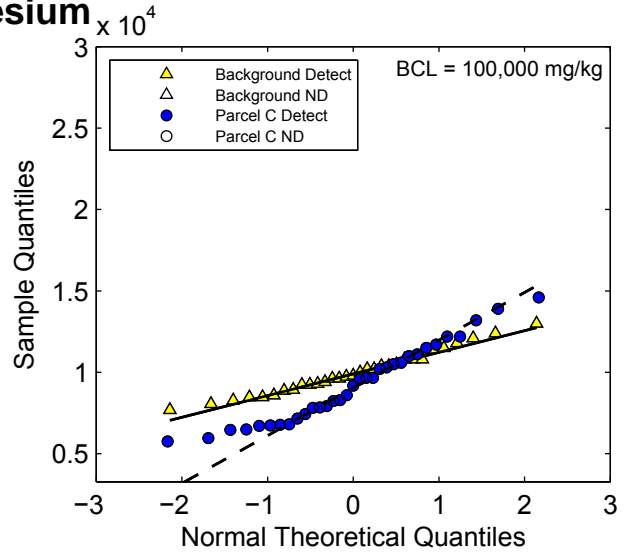
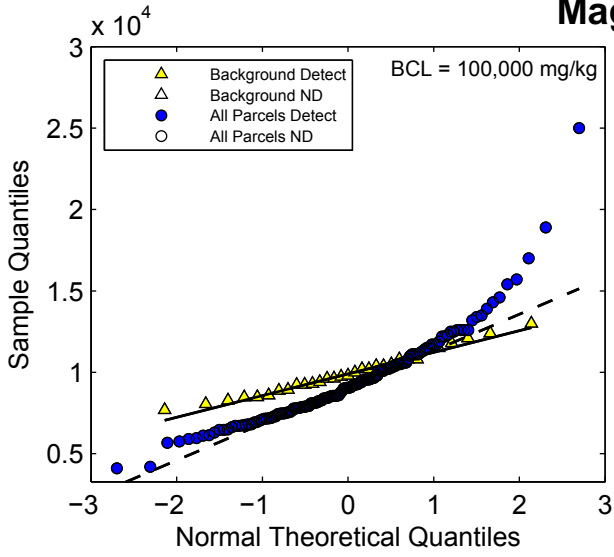
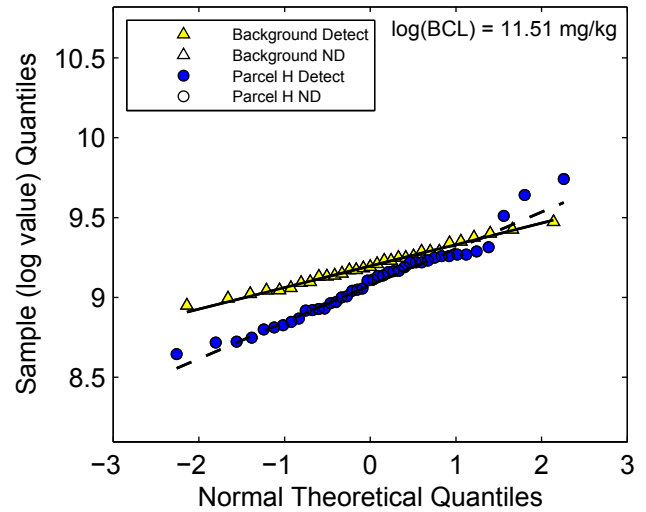
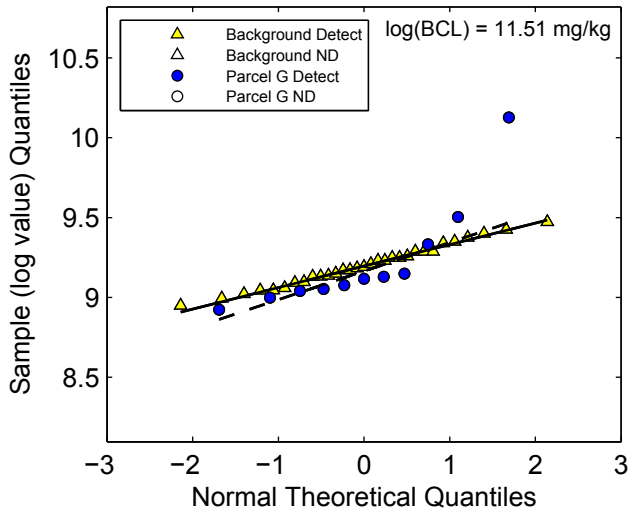
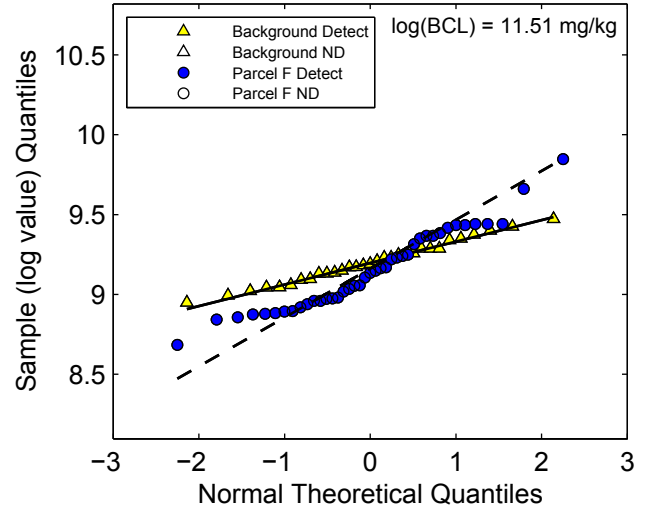
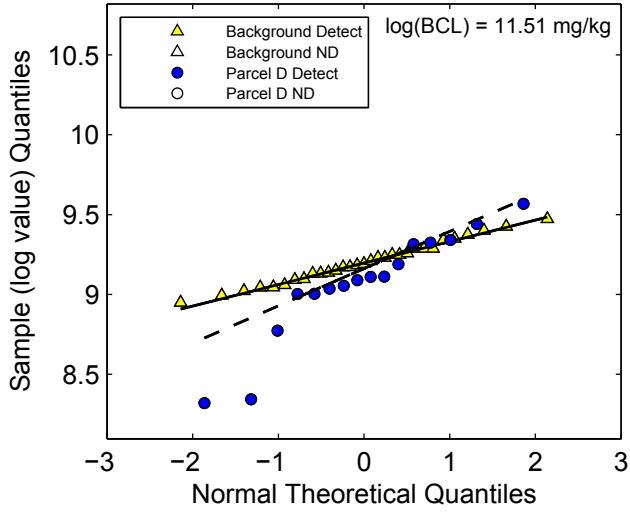
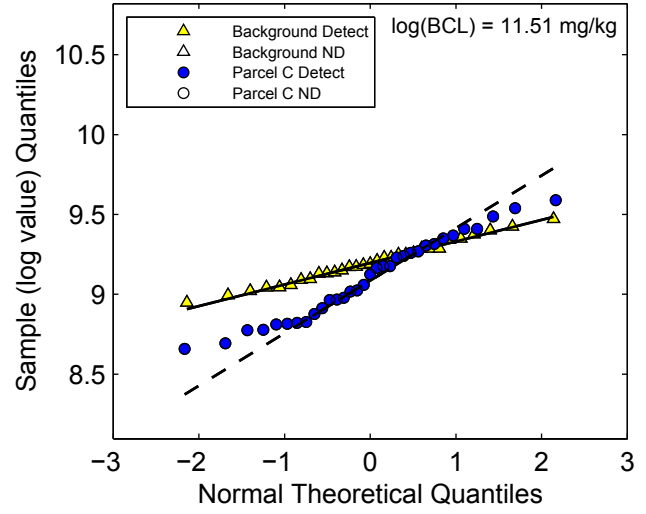
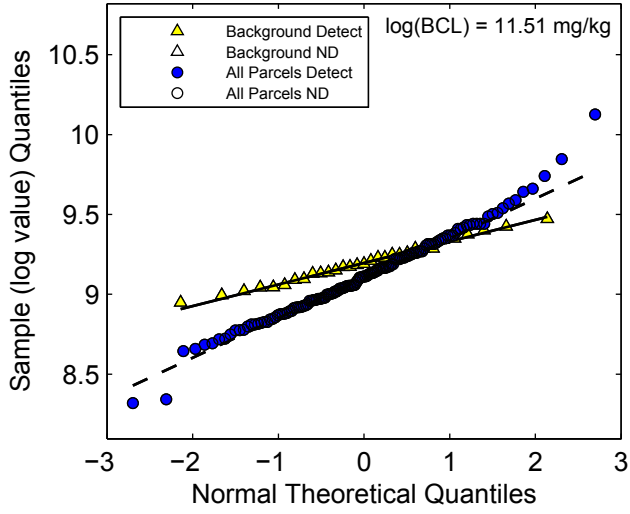


Figure 2-14A. Normal Q-Q Plots

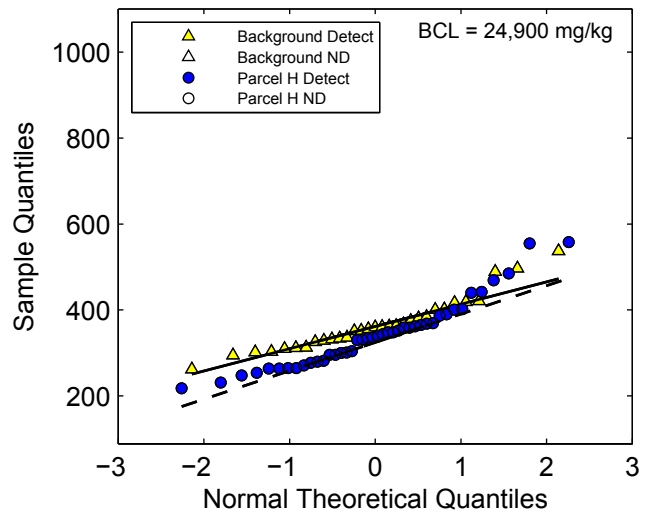
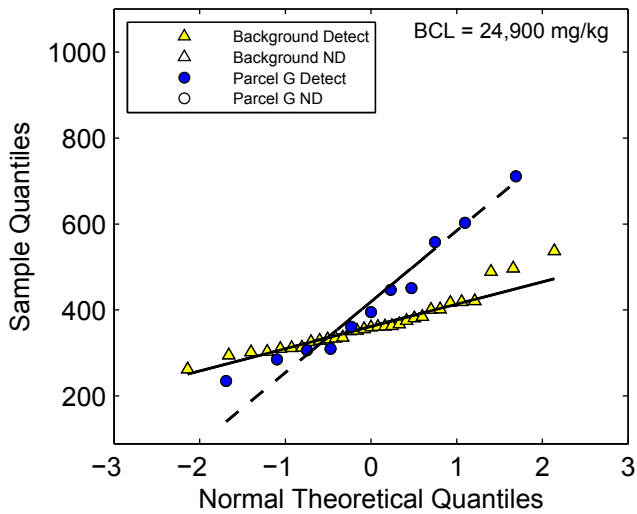
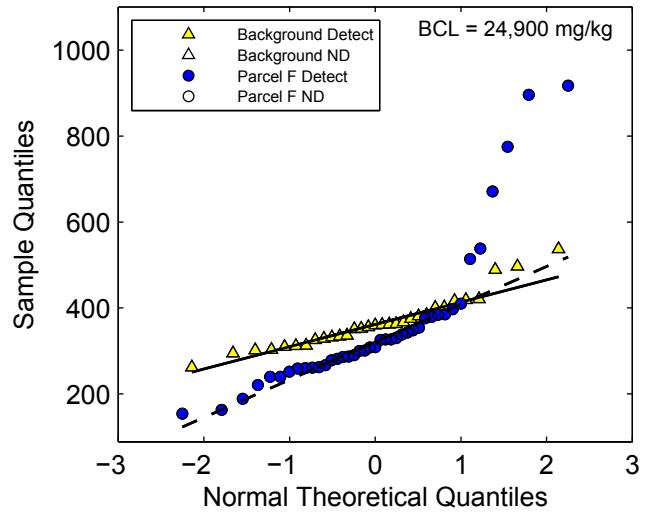
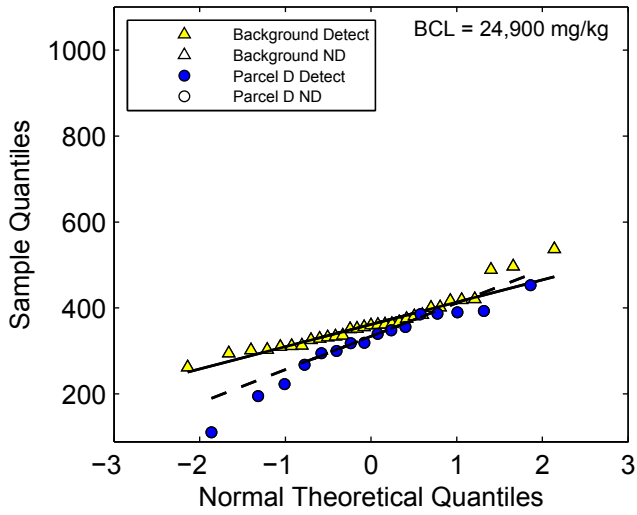
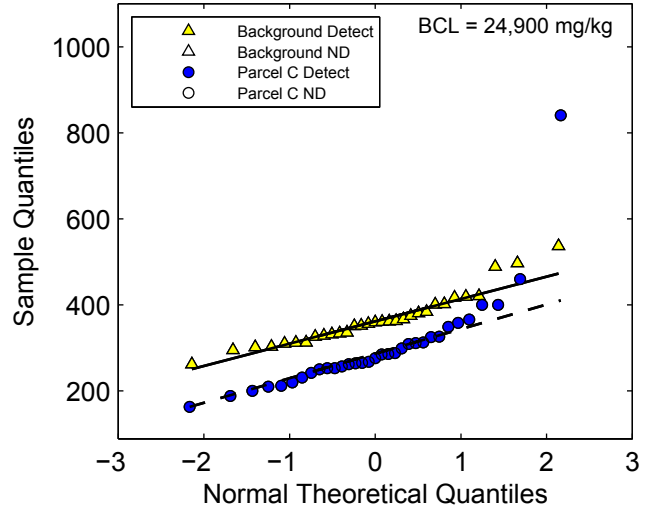
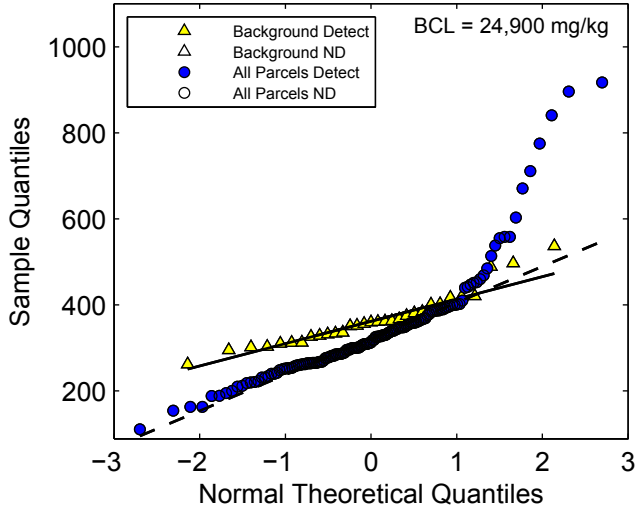
Magnesium



**Figure 2-14B. Lognormal Q-Q Plots
Magnesium**



**Figure 2-15A. Normal Q-Q Plots
Manganese**



**Figure 2-15B. Lognormal Q-Q Plots
Manganese**

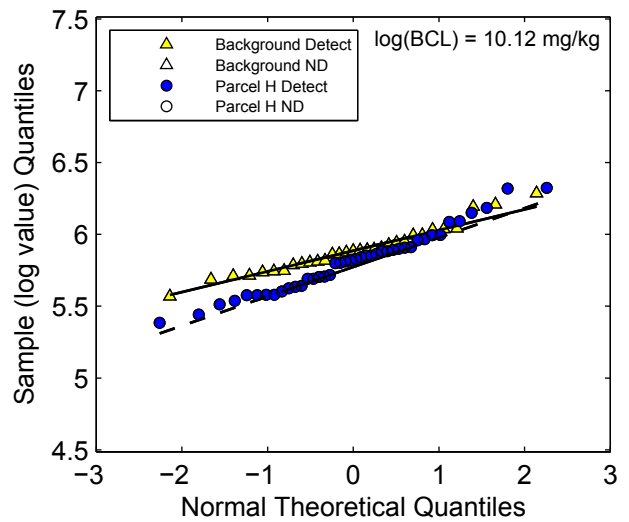
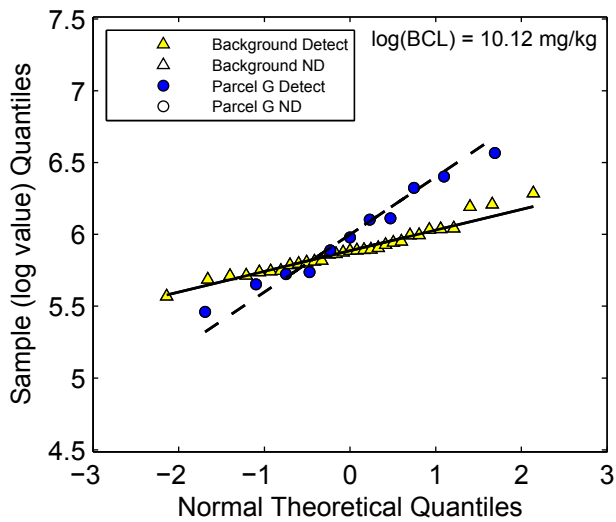
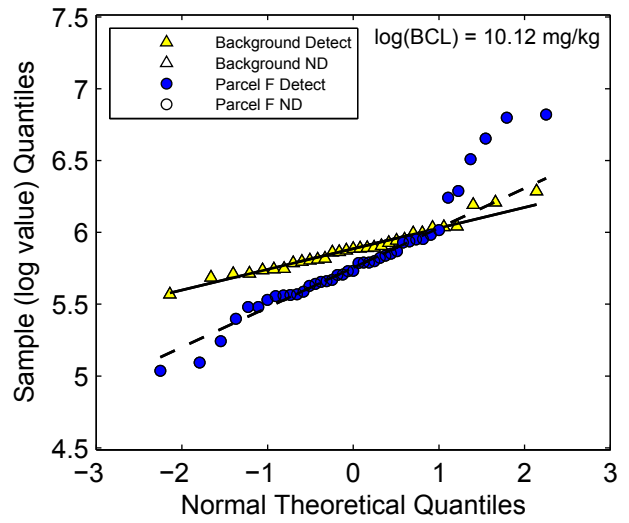
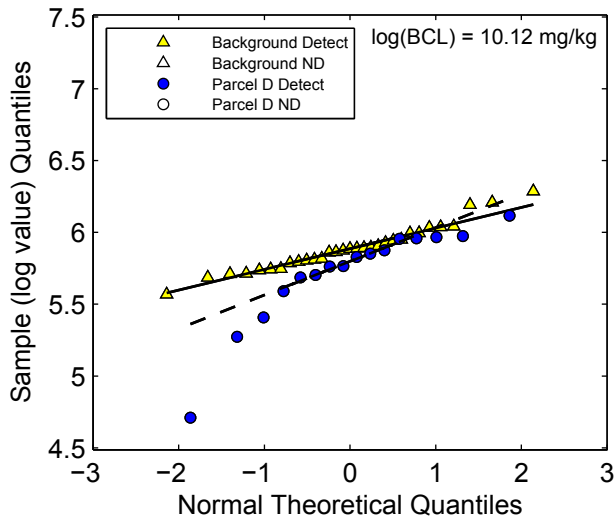
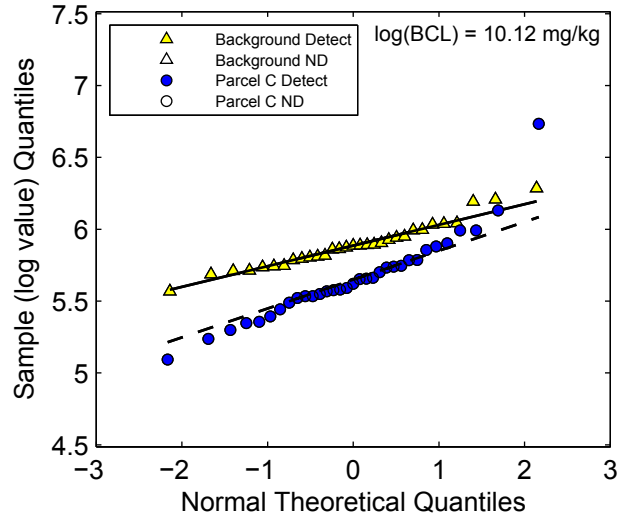
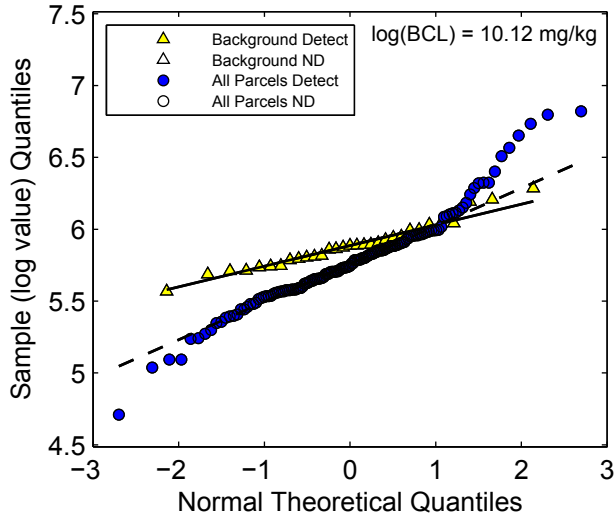
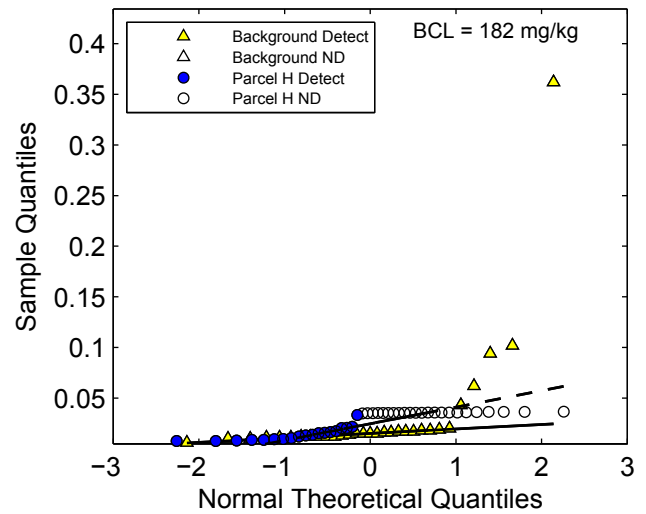
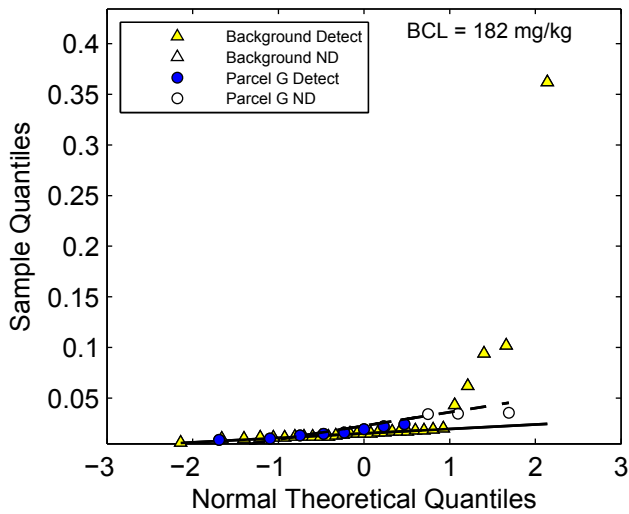
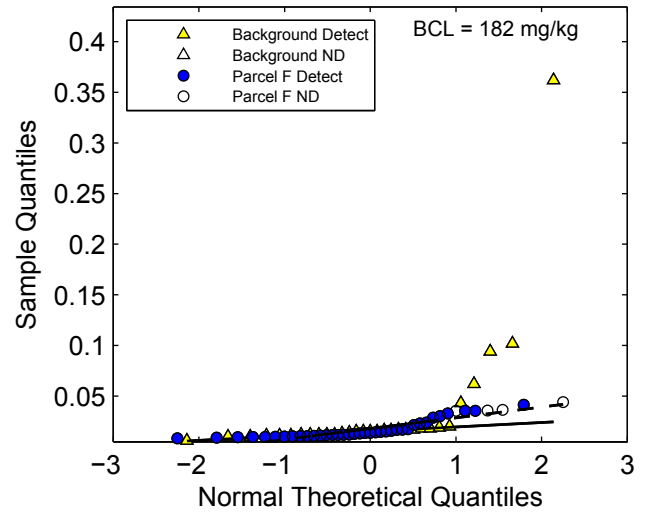
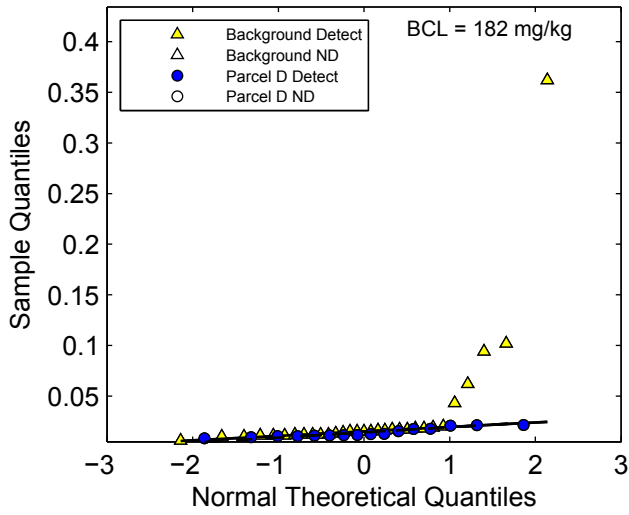
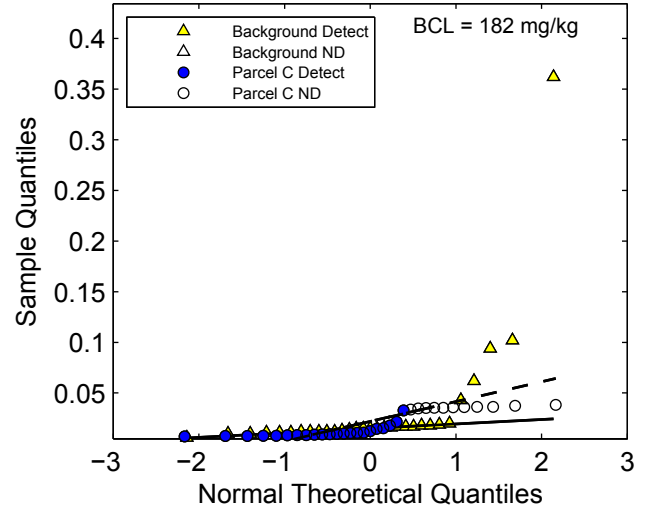
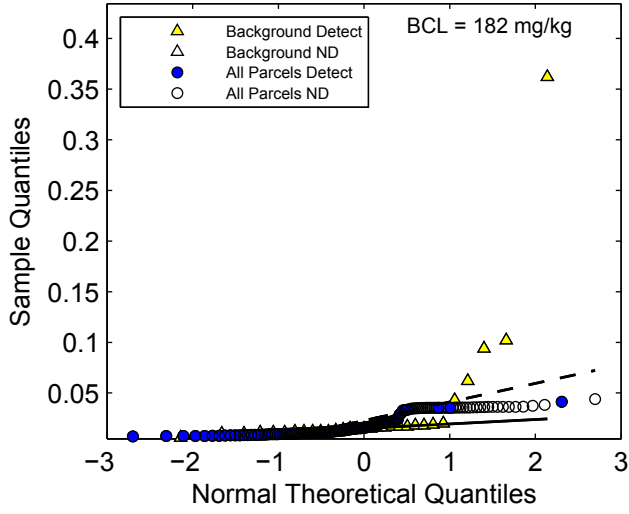
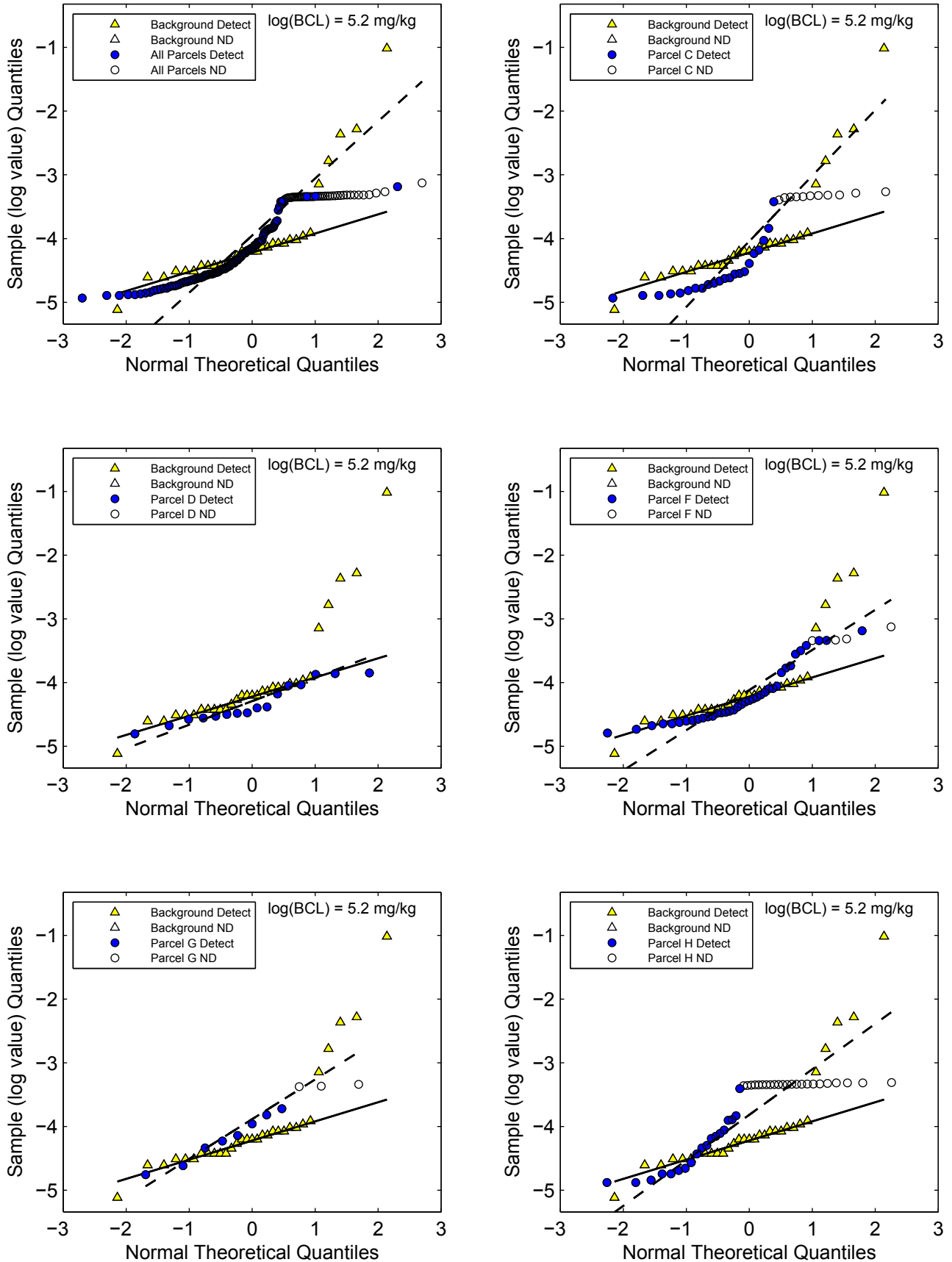


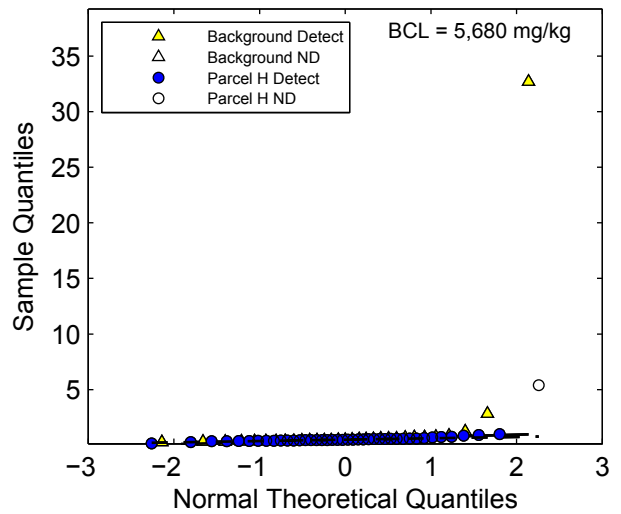
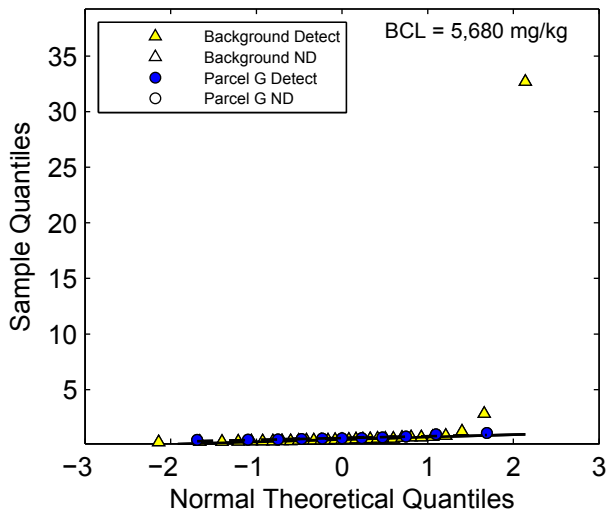
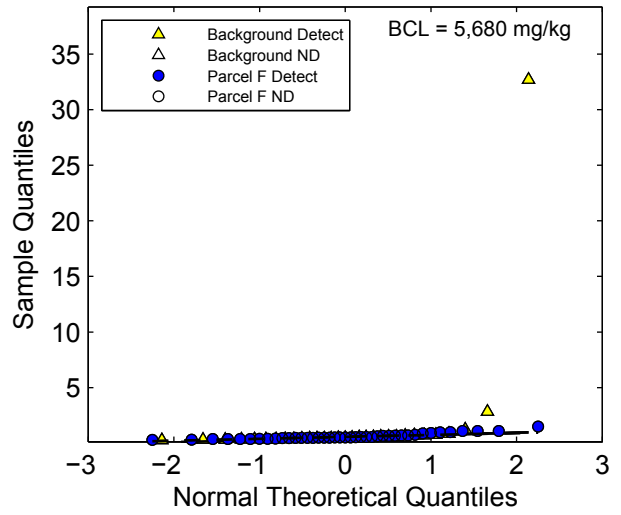
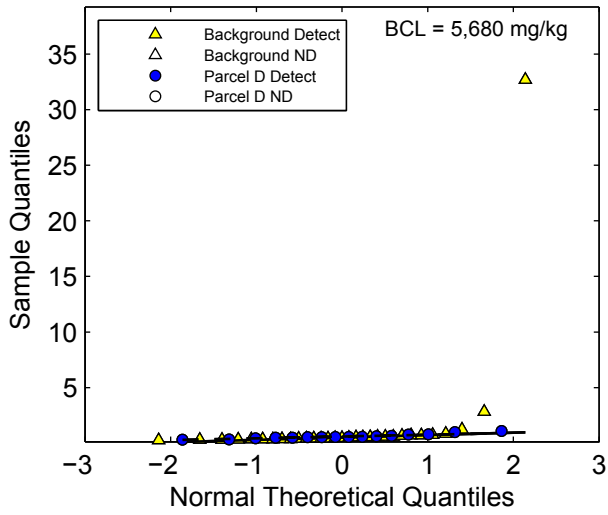
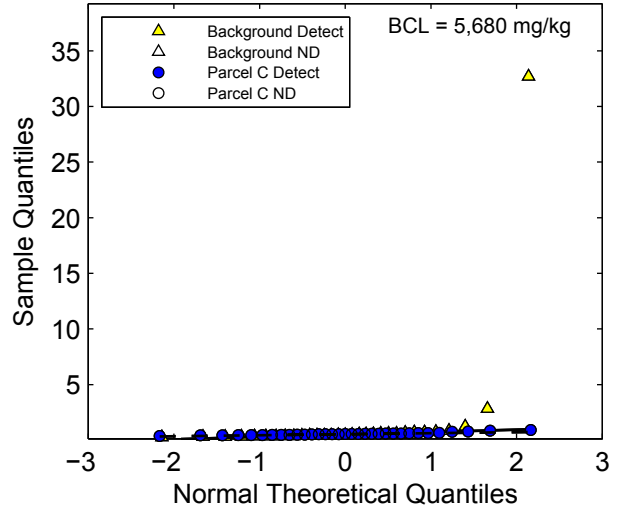
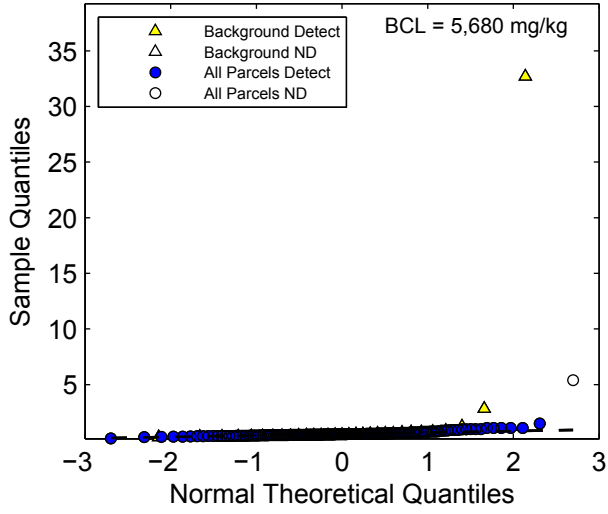
Figure 2-16A. Normal Q-Q Plots
Mercury



**Figure 2-16B. Lognormal Q-Q Plots
Mercury**



**Figure 2-17A. Normal Q-Q Plots
Molybdenum**



**Figure 2-17B. Lognormal Q-Q Plots
Molybdenum**

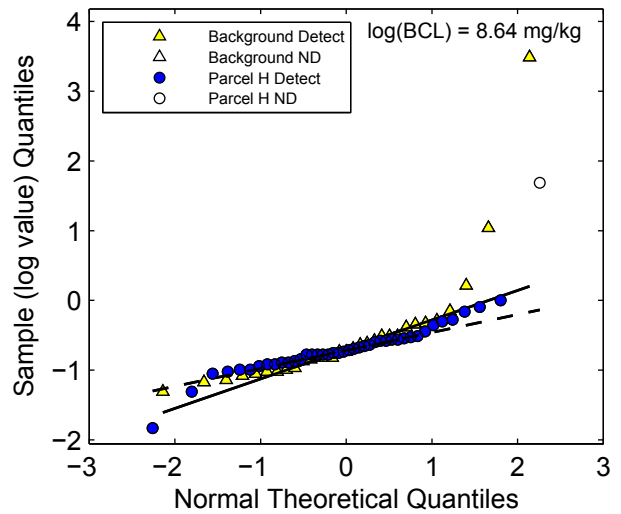
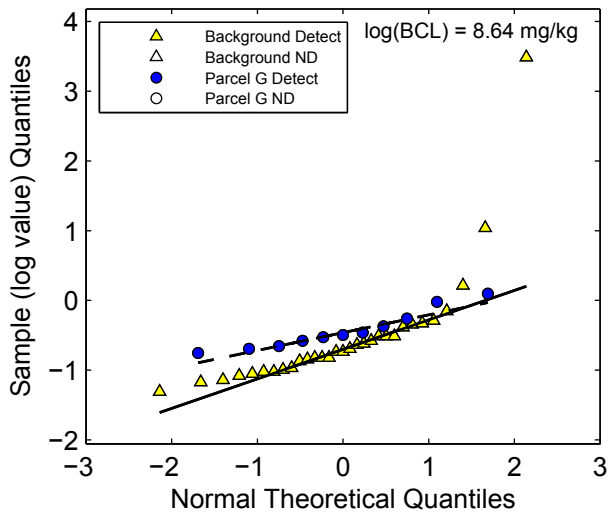
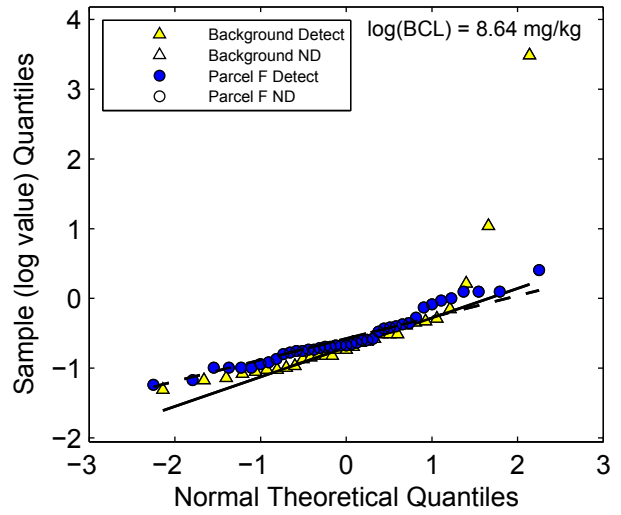
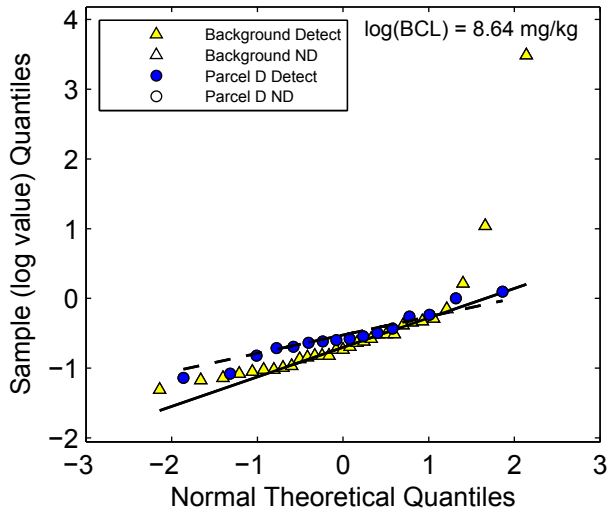
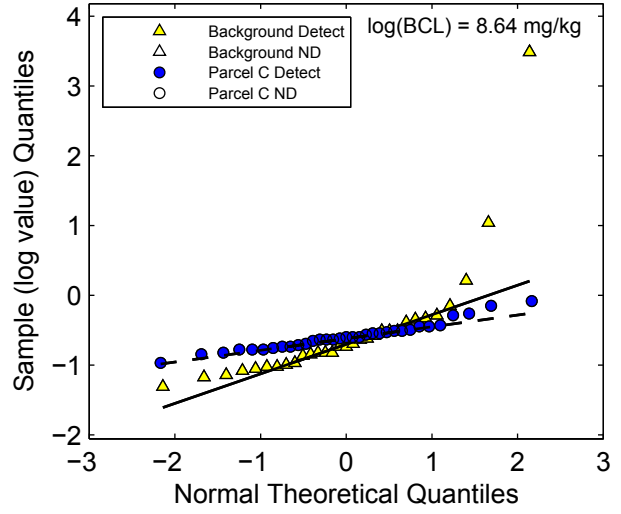
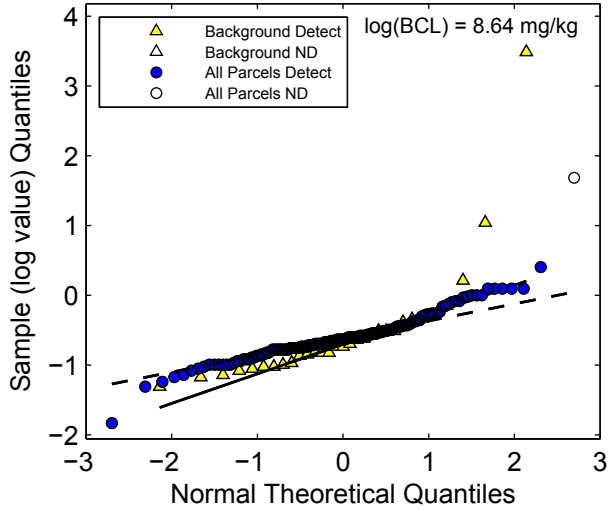


Figure 2-18A. Normal Q-Q Plots
Nickel

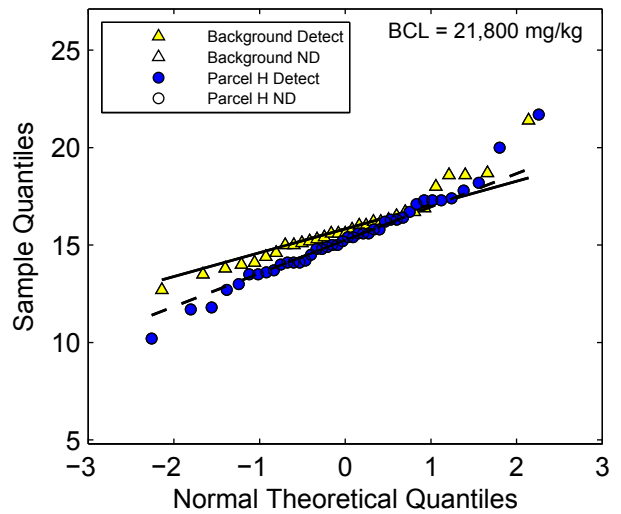
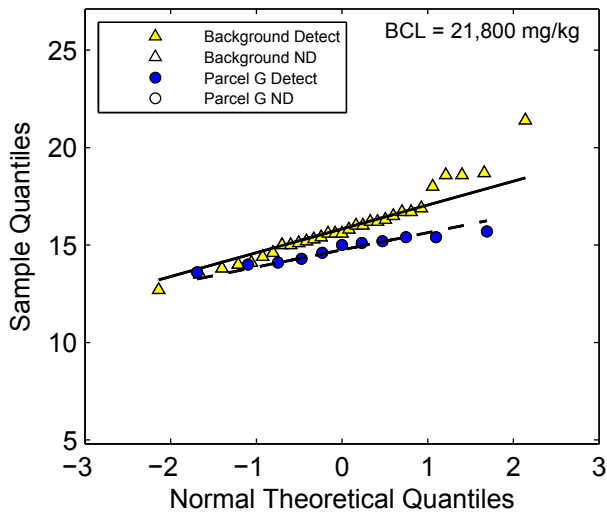
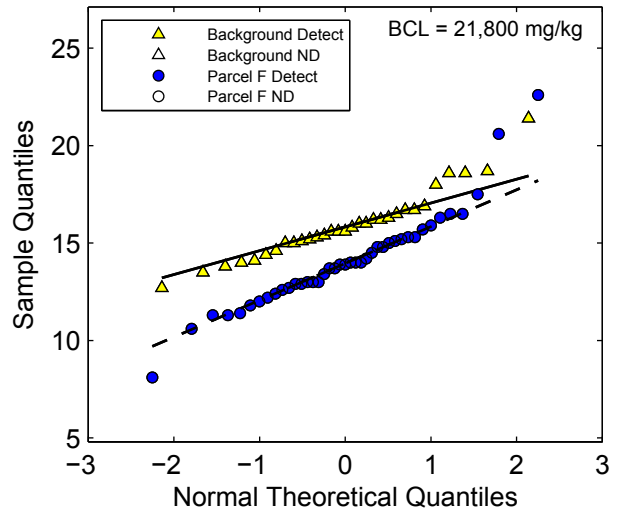
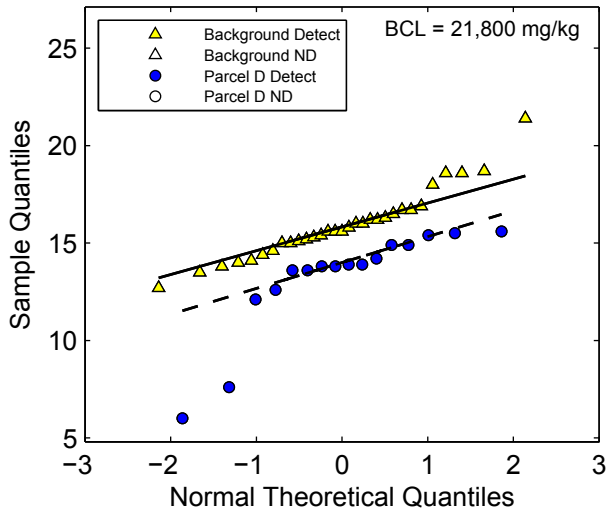
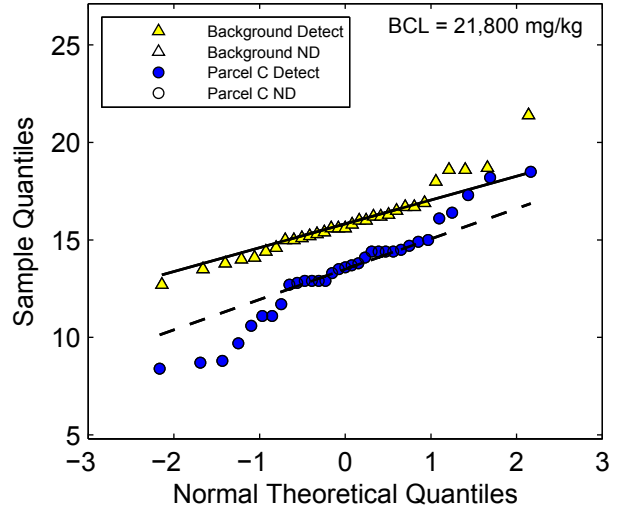
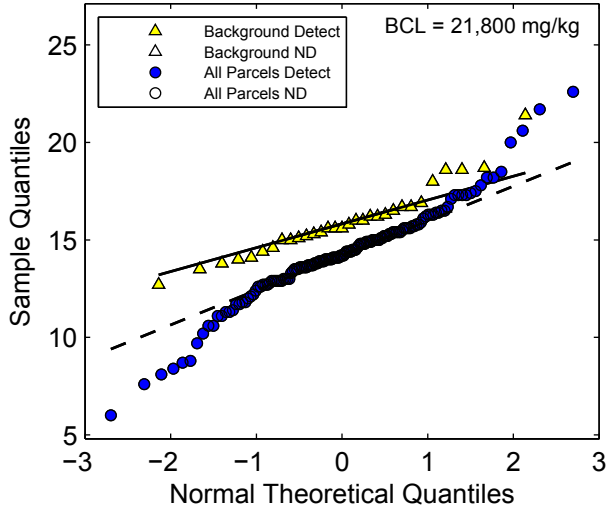
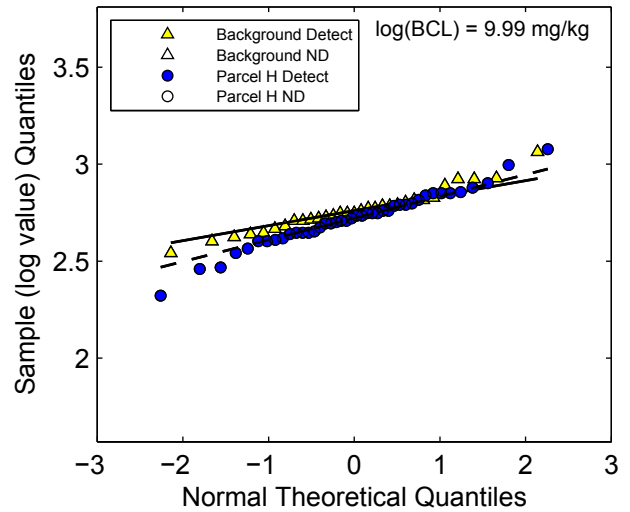
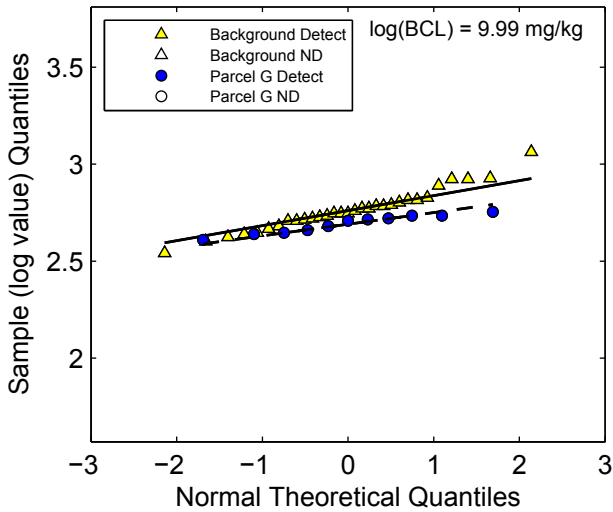
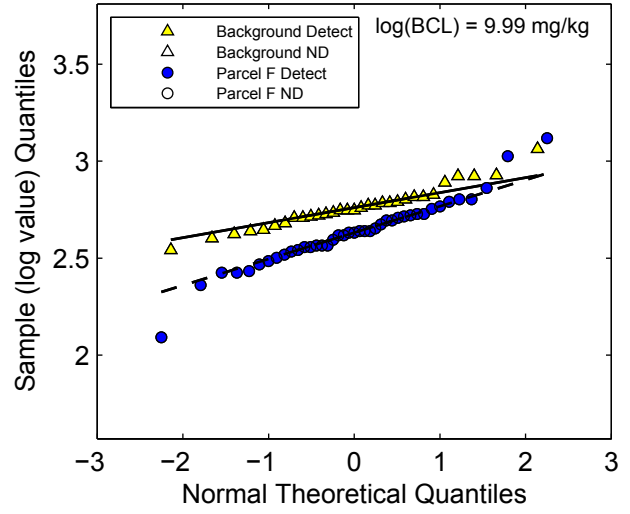
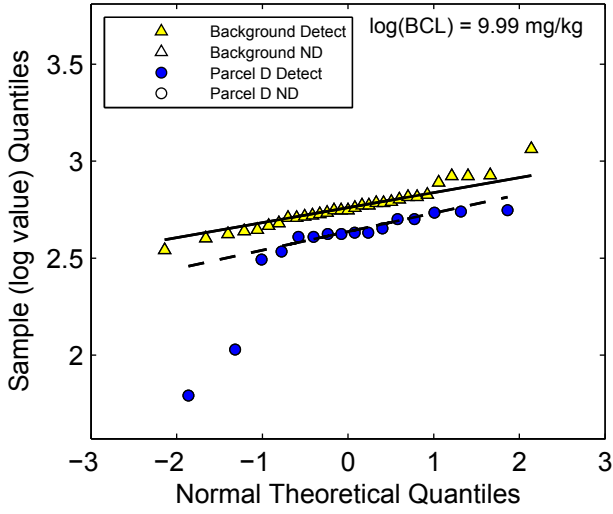
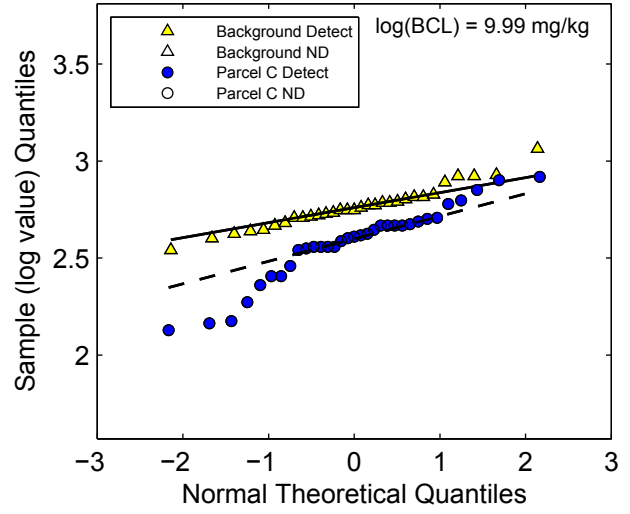
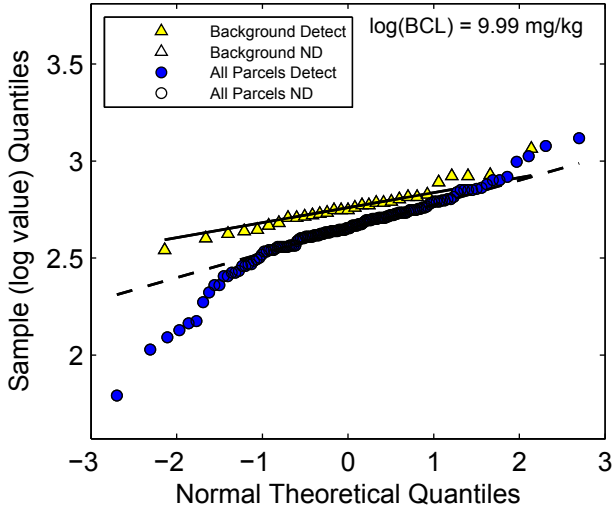
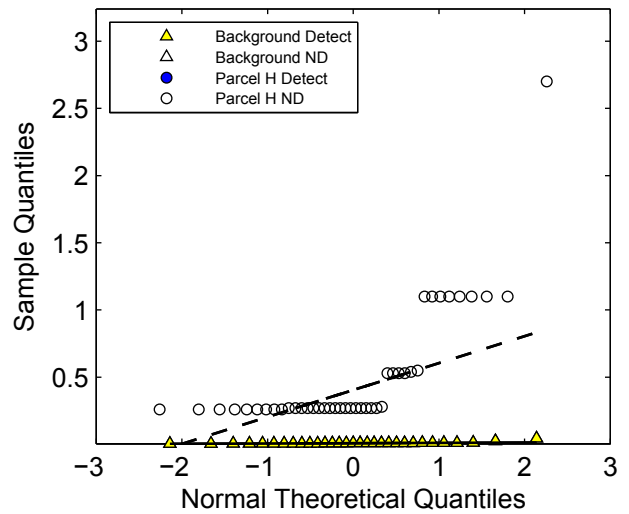
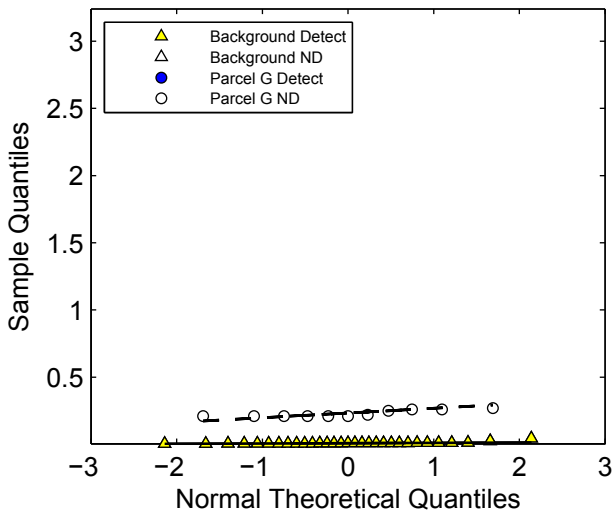
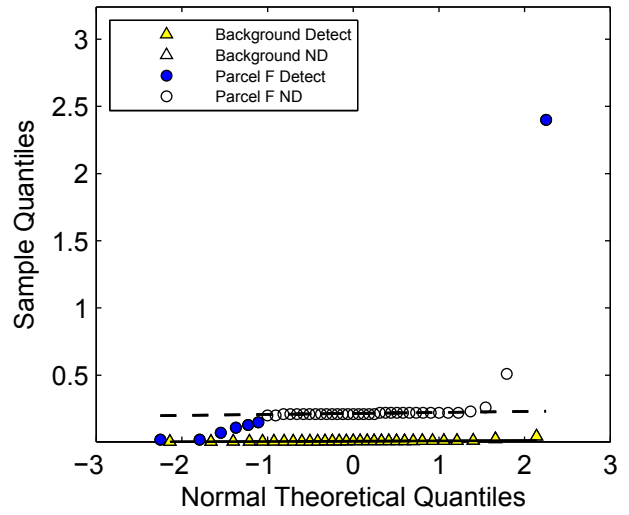
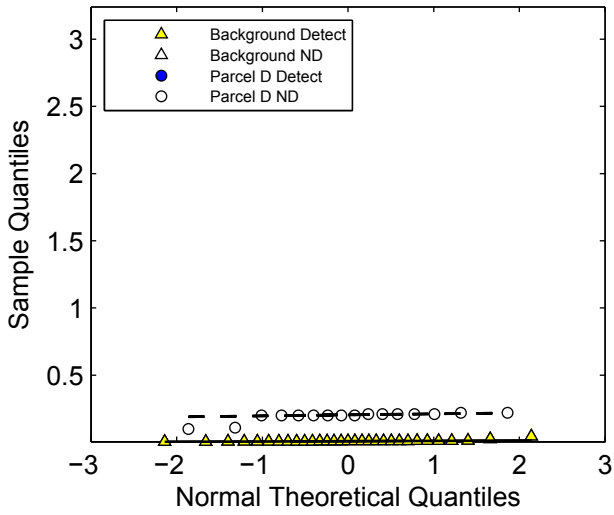
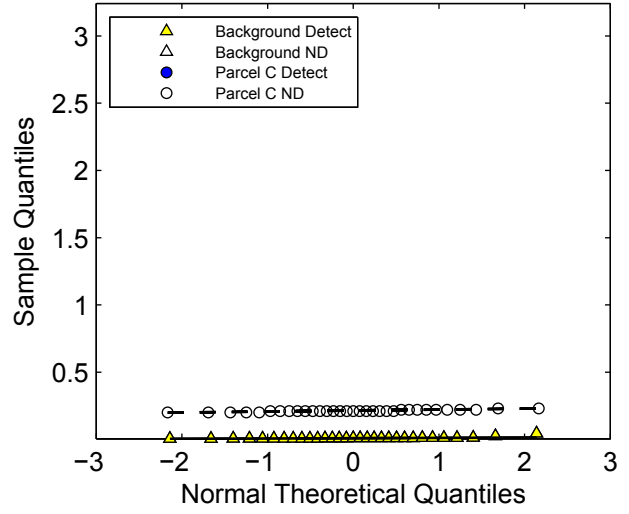
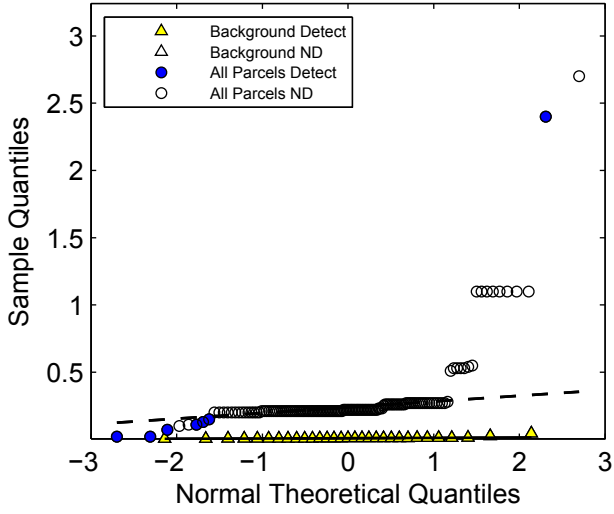


Figure 2-18B. Lognormal Q-Q Plots
Nickel



**Figure 2-19A. Normal Q-Q Plots
Platinum**



**Figure 2-19B. Lognormal Q-Q Plots
Platinum**

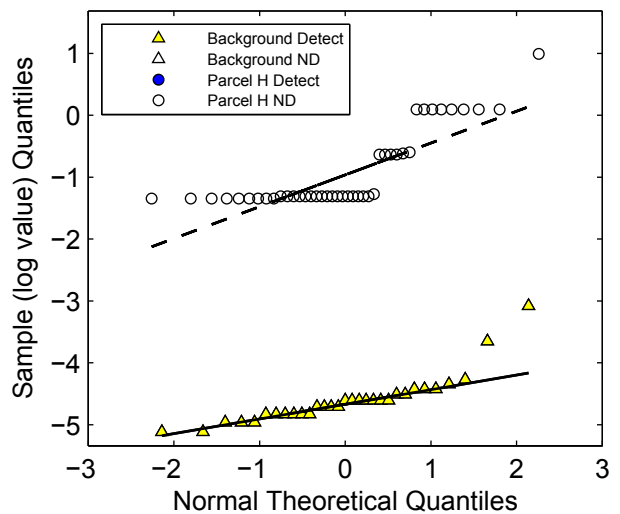
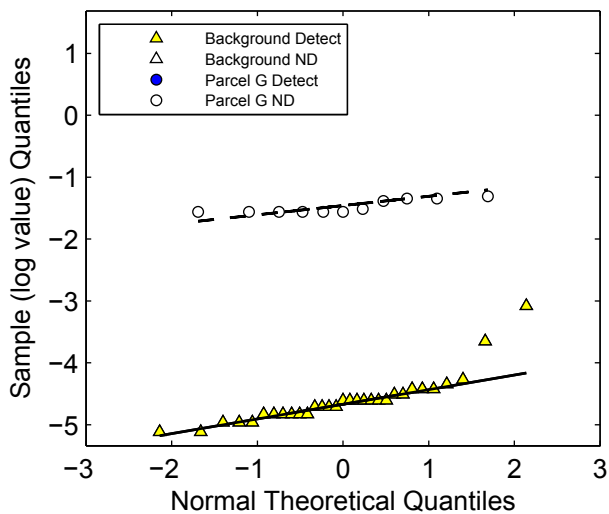
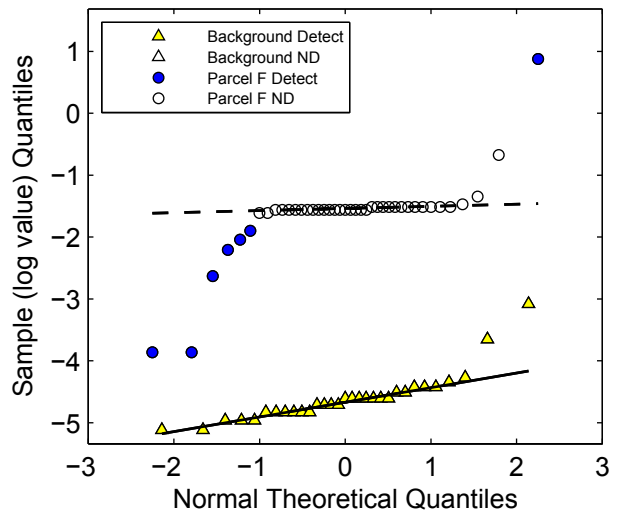
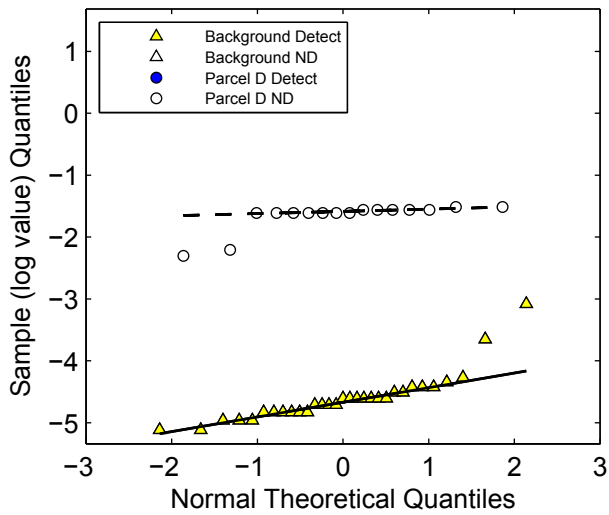
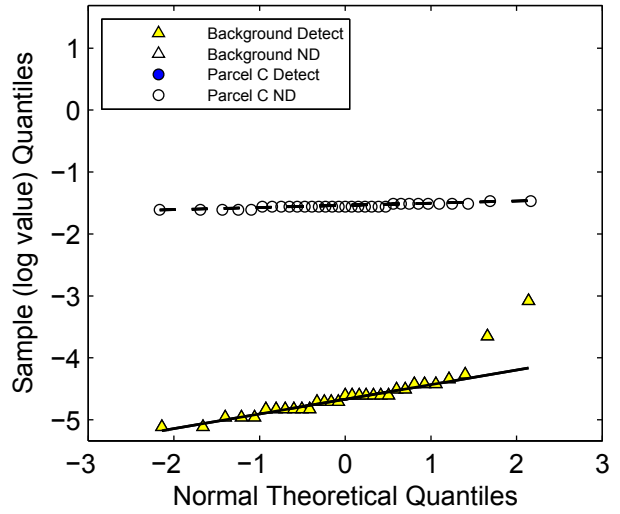
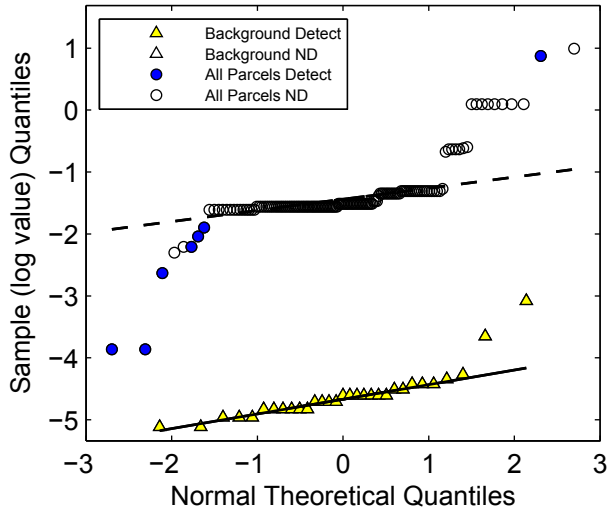


Figure 2-20A. Normal Q-Q Plots
Potassium

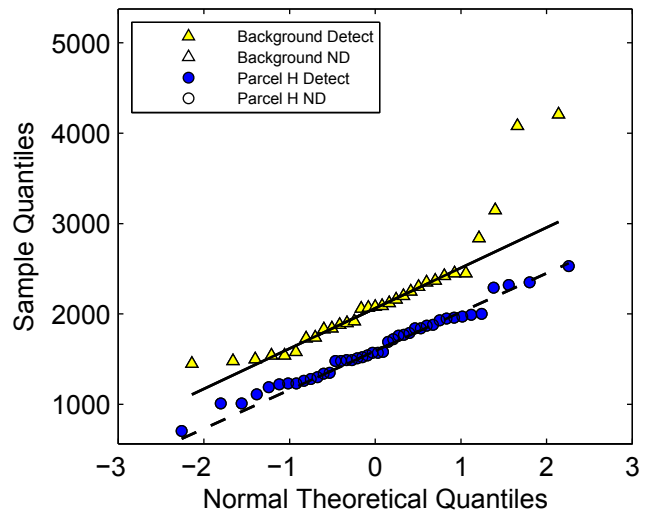
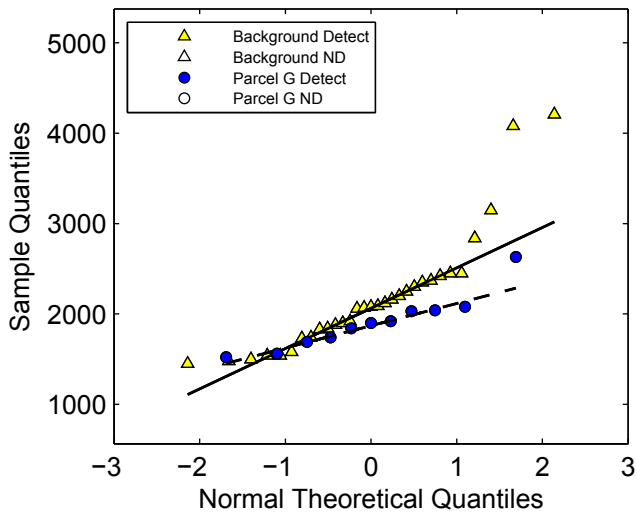
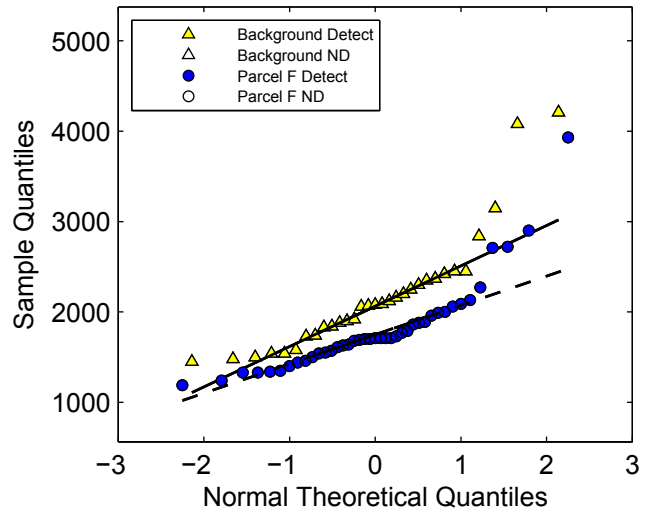
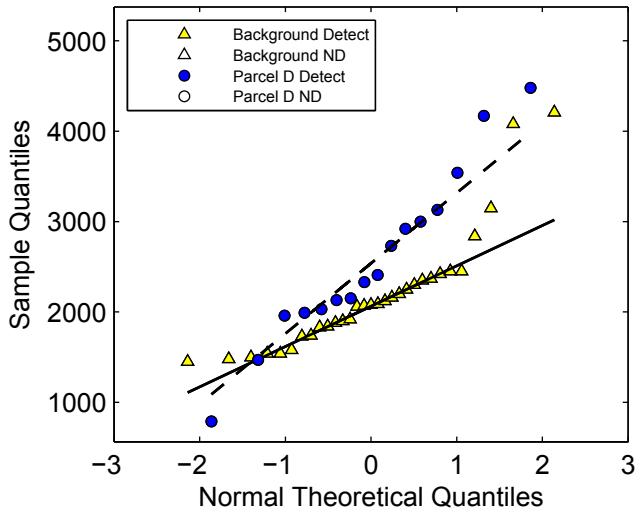
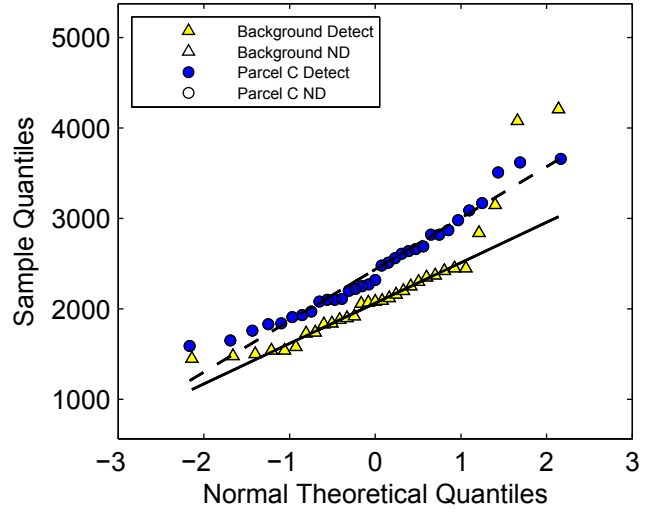
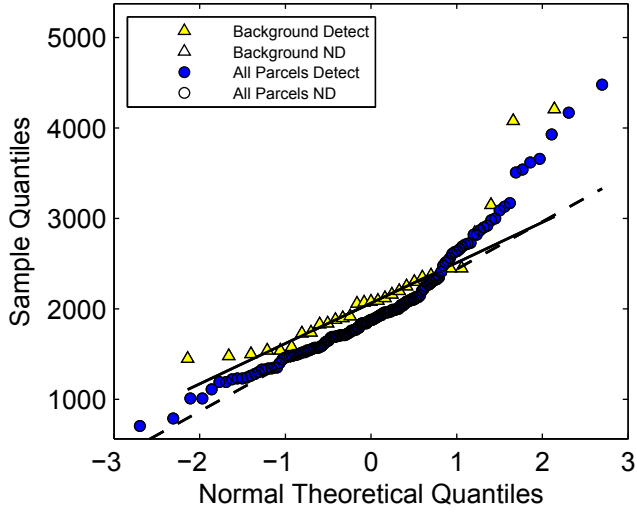
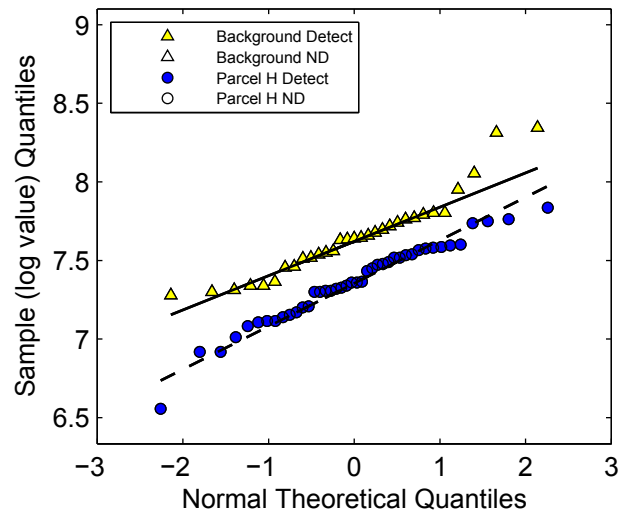
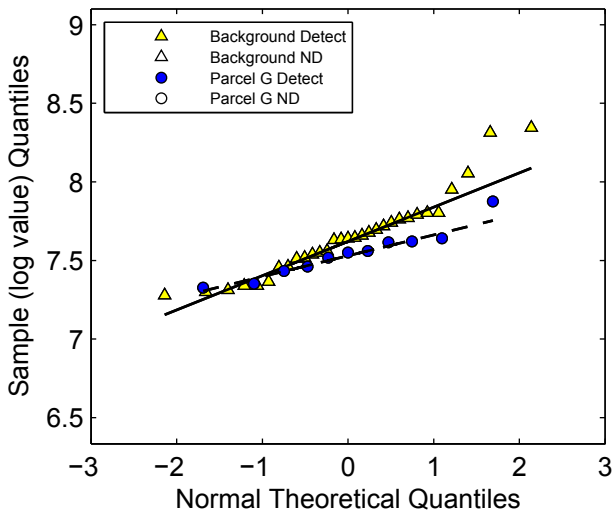
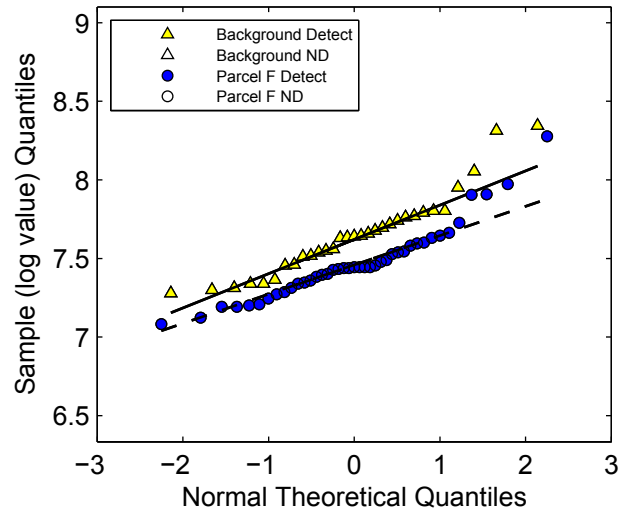
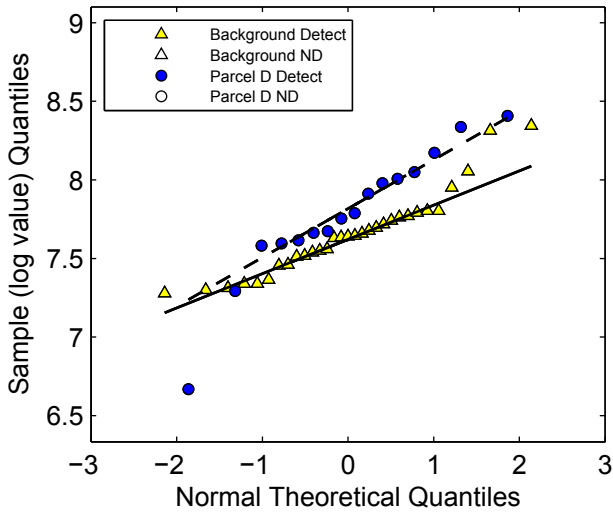
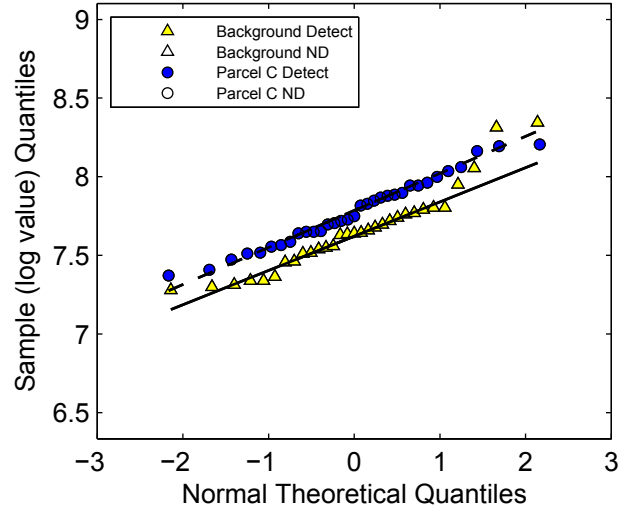
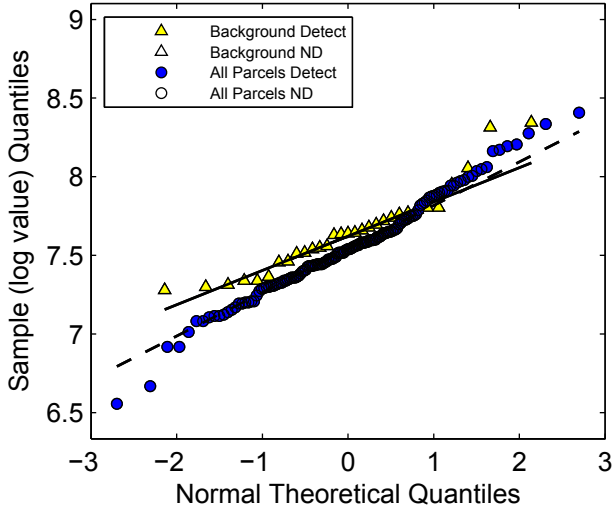
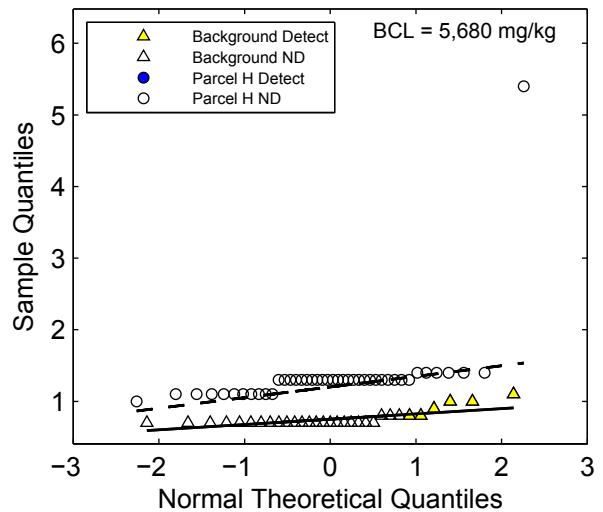
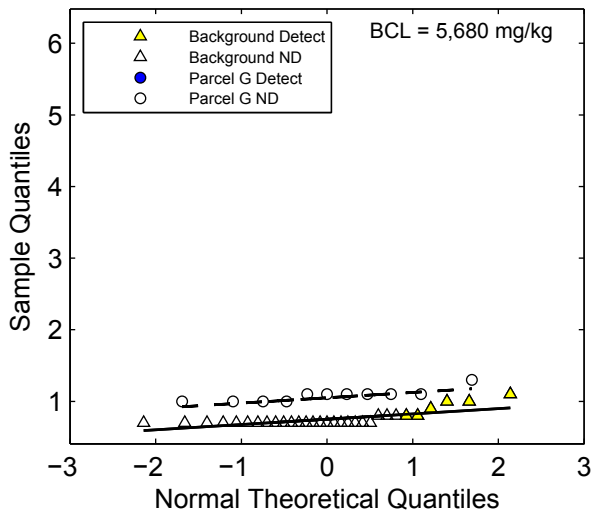
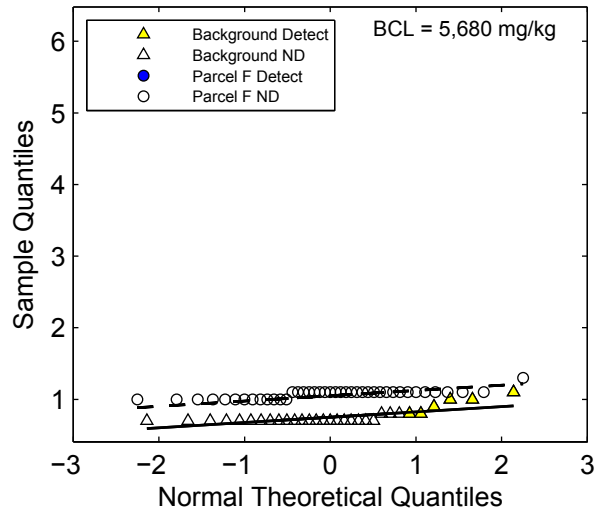
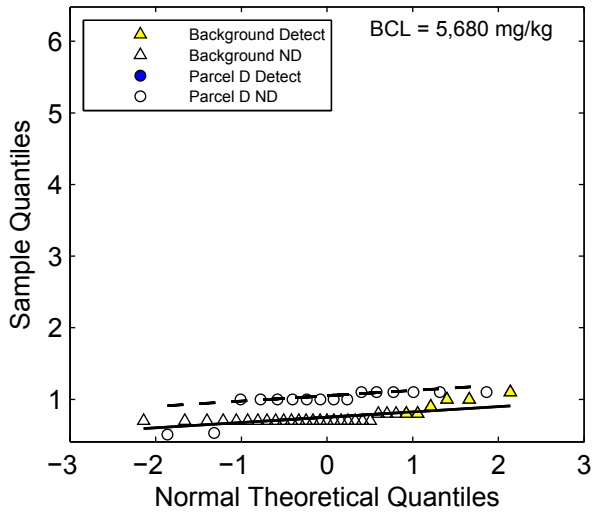
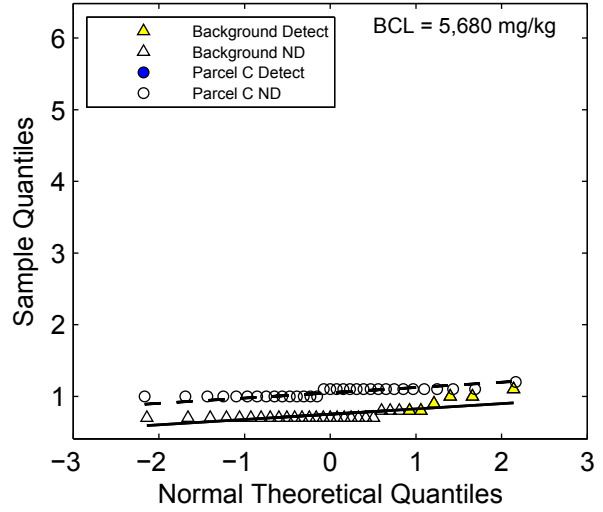
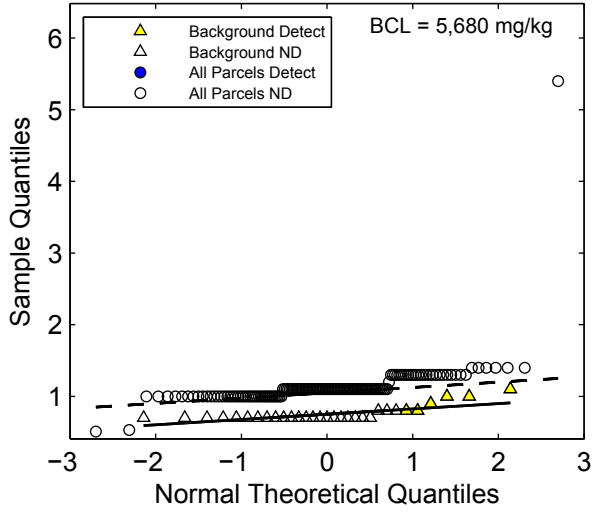


Figure 2-20B. Lognormal Q-Q Plots
Potassium



**Figure 2-21A. Normal Q-Q Plots
Selenium**



**Figure 2-21B. Lognormal Q-Q Plots
Selenium**

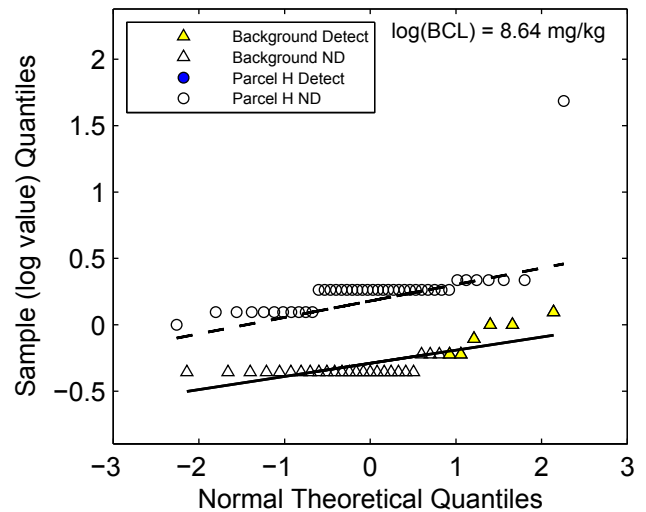
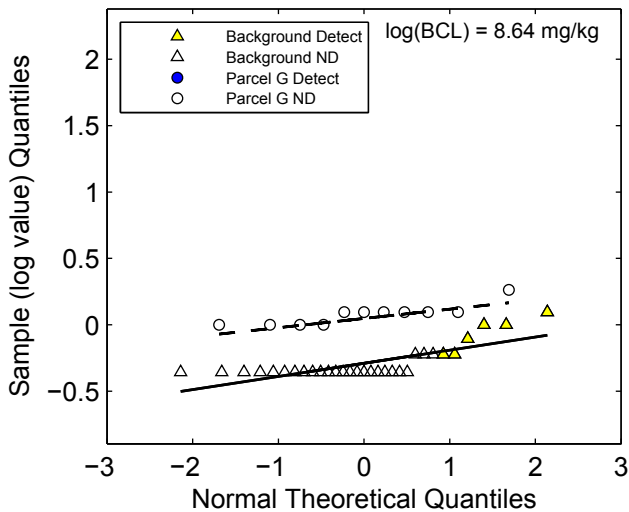
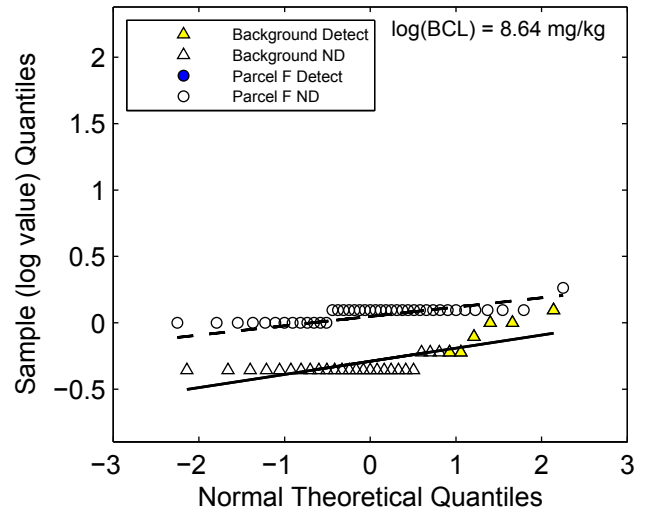
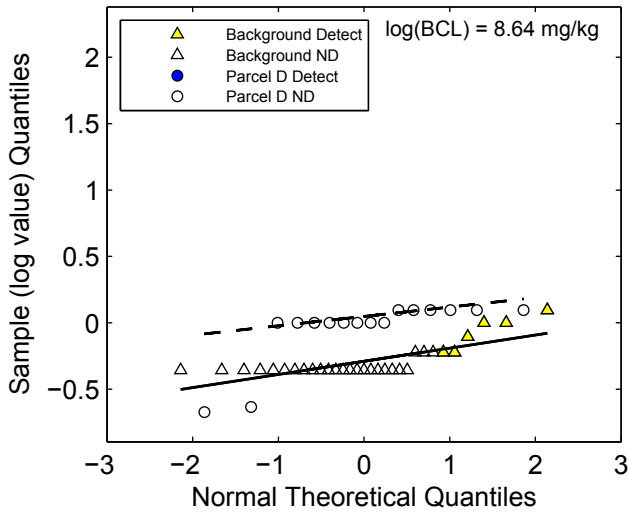
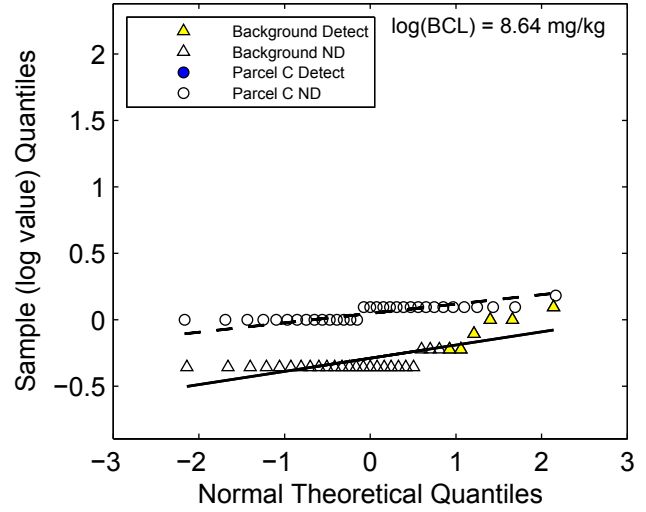
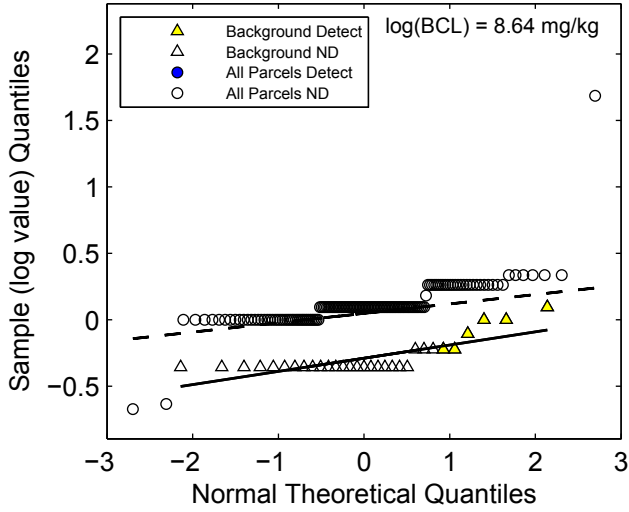
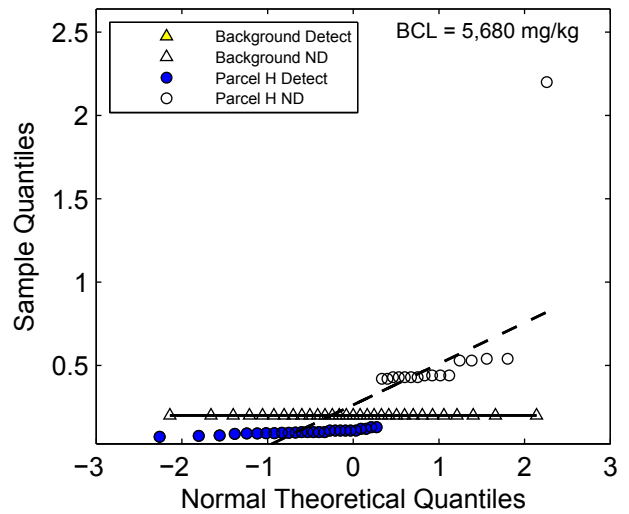
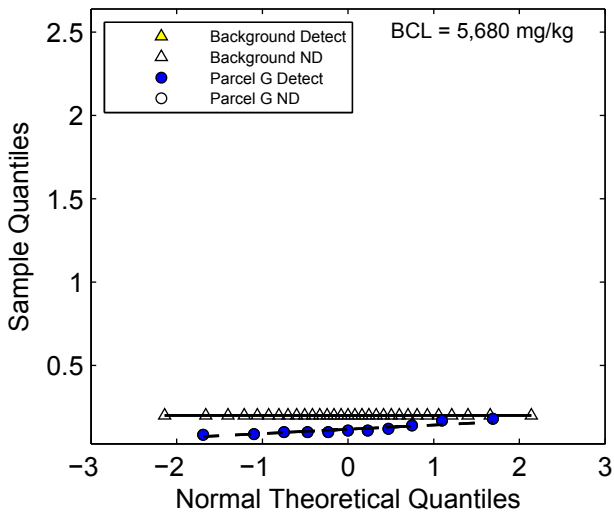
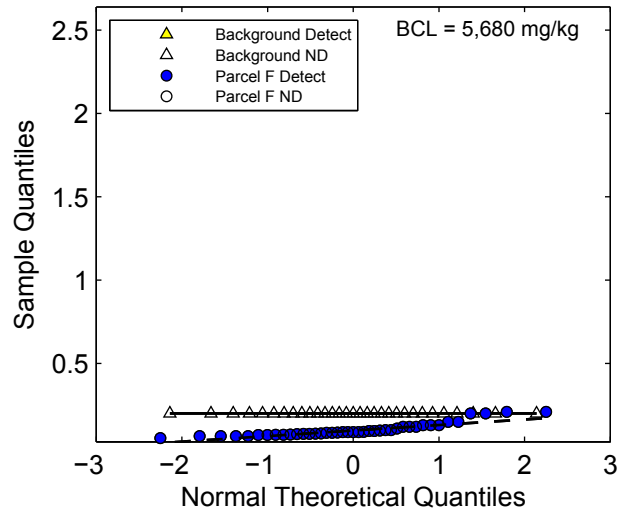
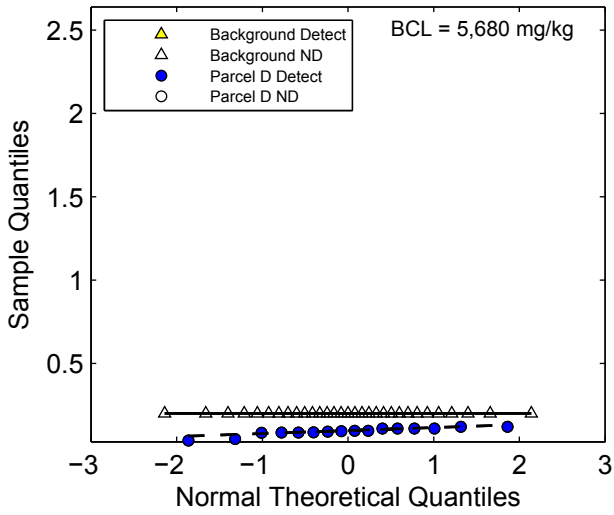
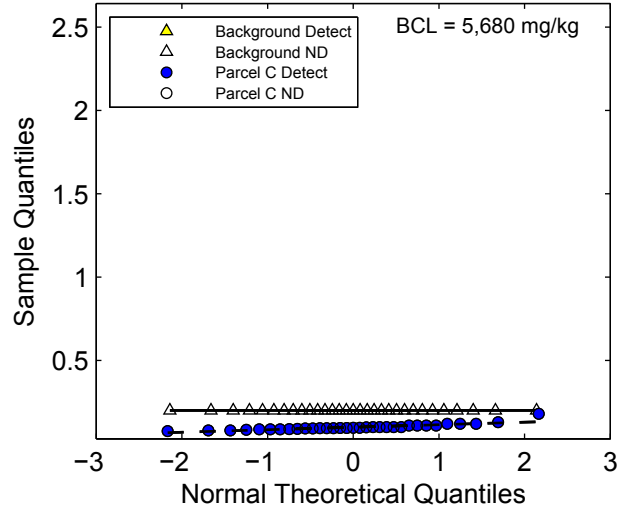
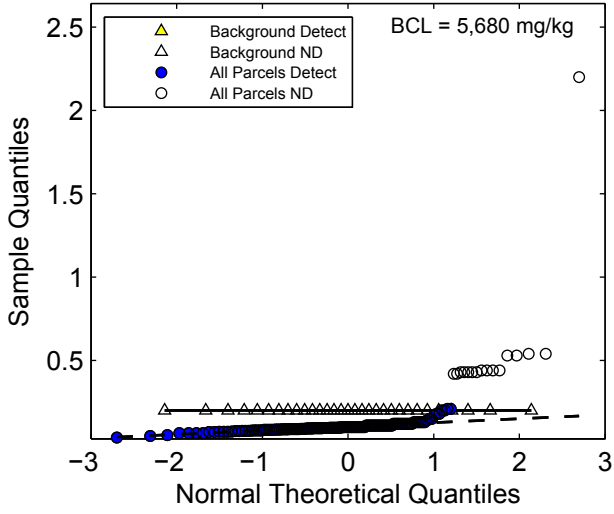


Figure 2-22A. Normal Q-Q Plots
Silver



**Figure 2-22B. Lognormal Q-Q Plots
Silver**

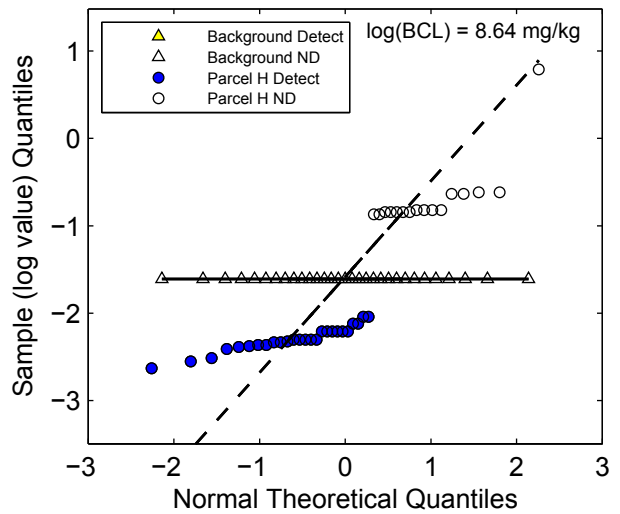
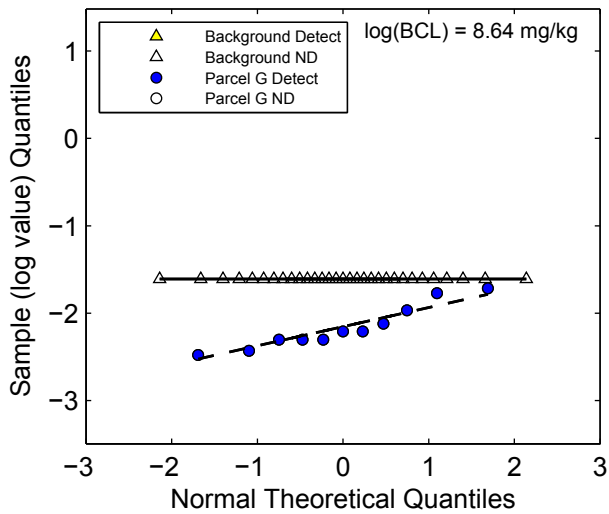
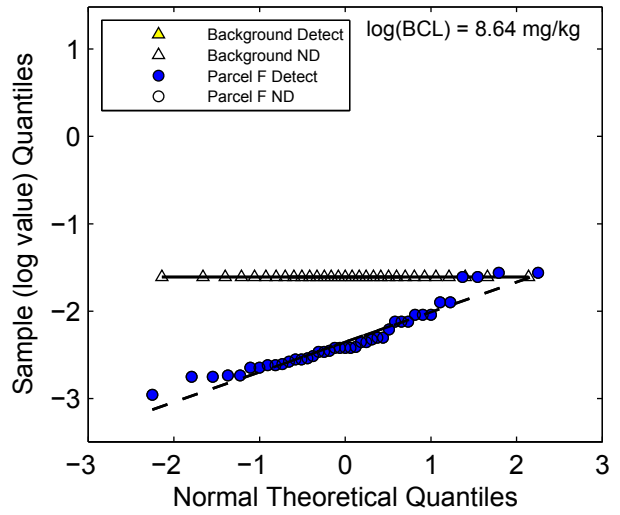
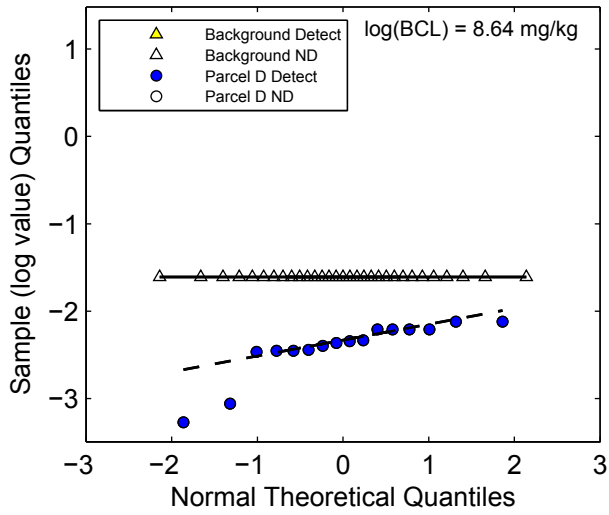
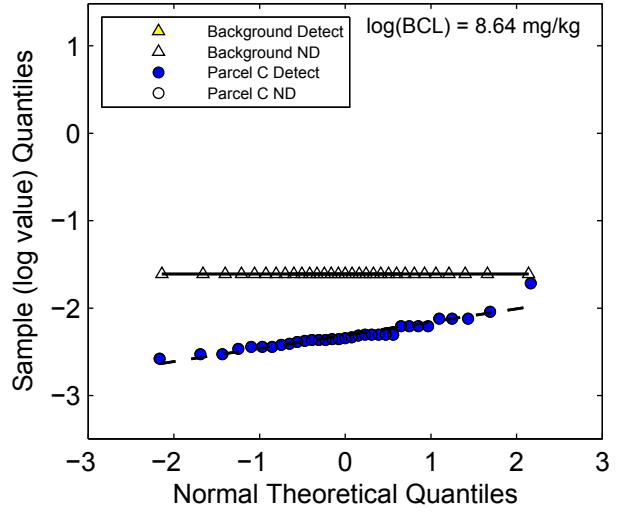
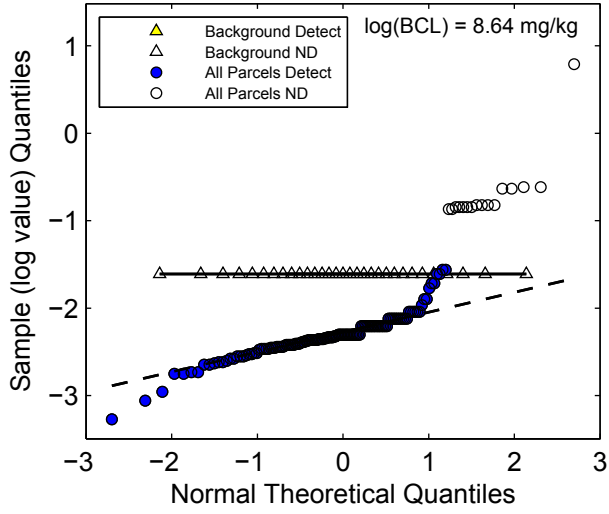


Figure 2-23A. Normal Q-Q Plots
Sodium

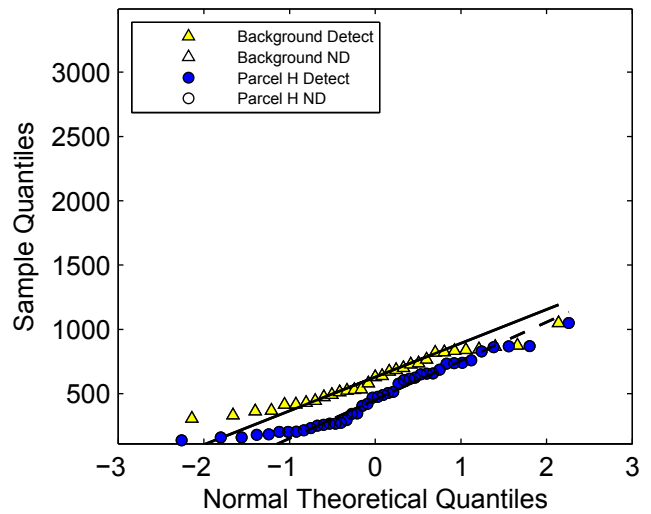
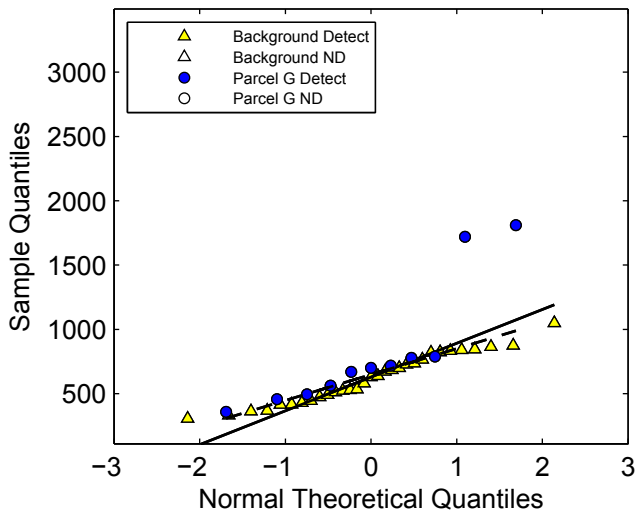
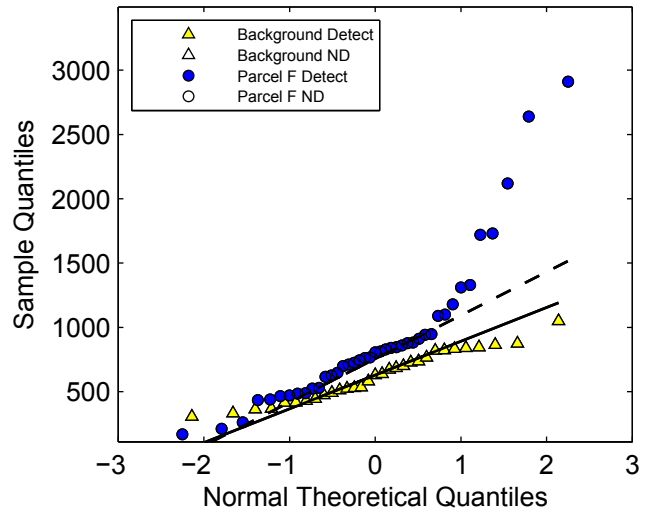
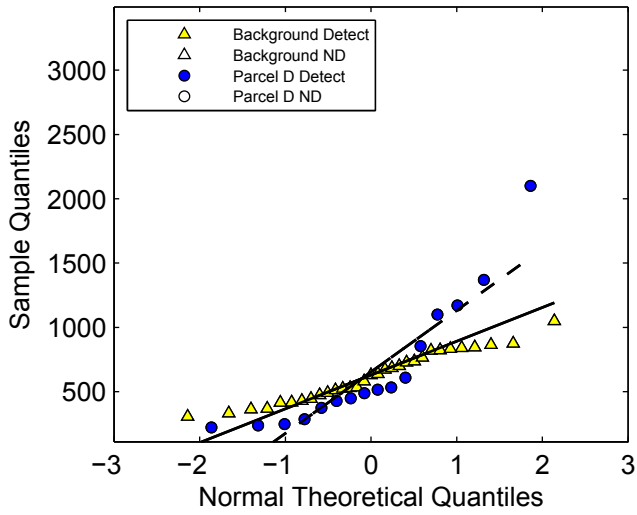
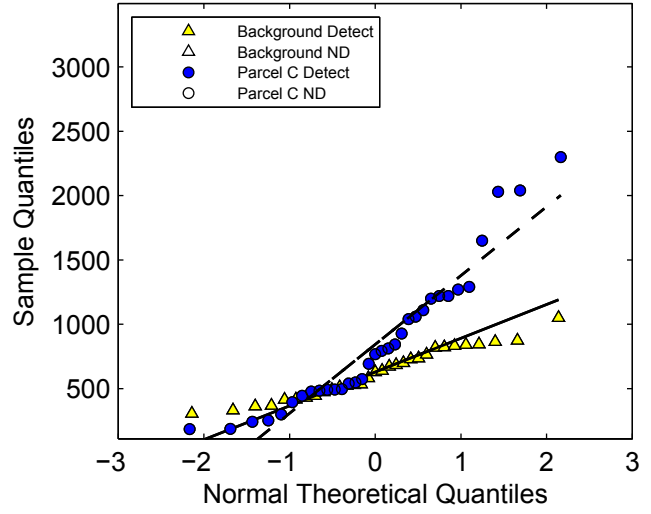
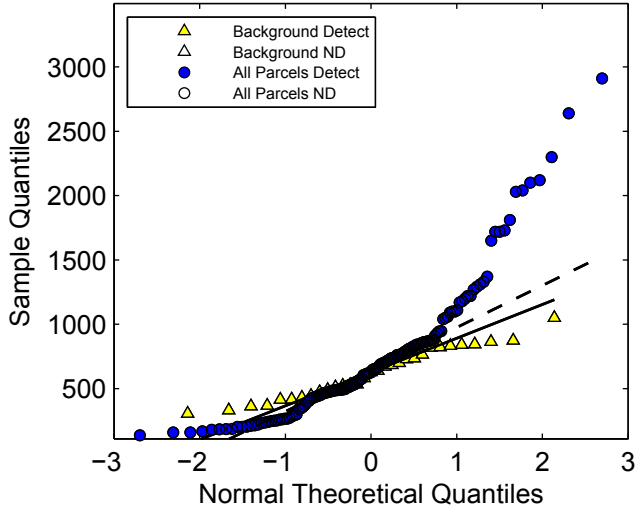
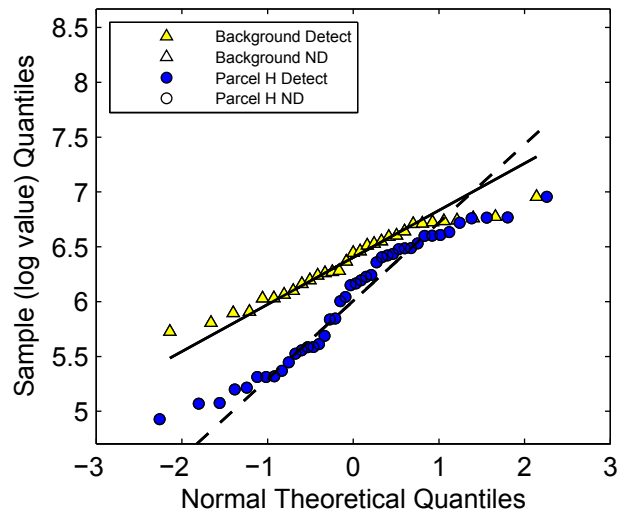
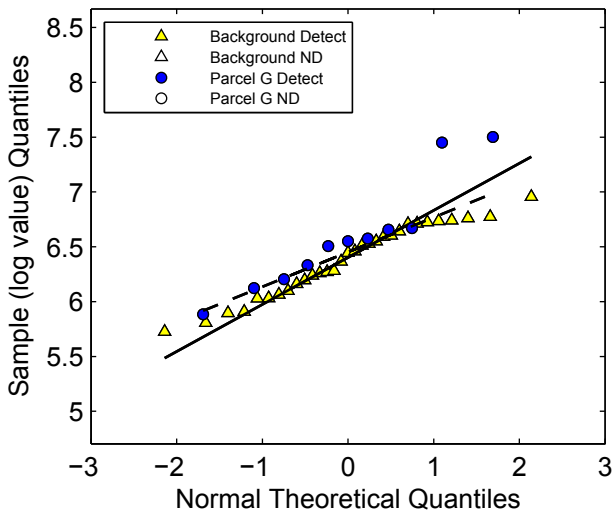
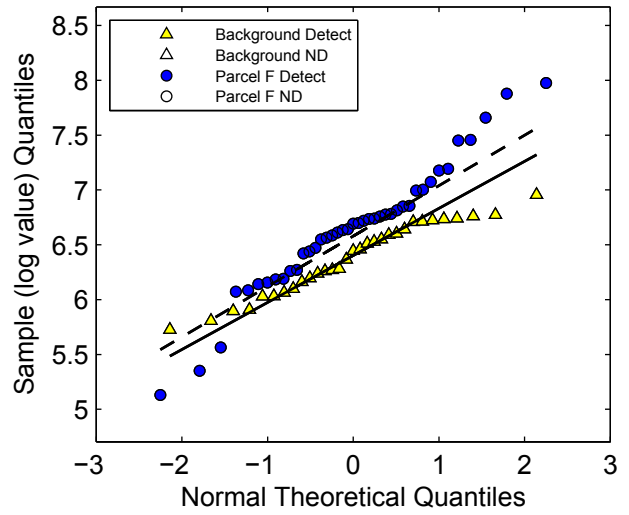
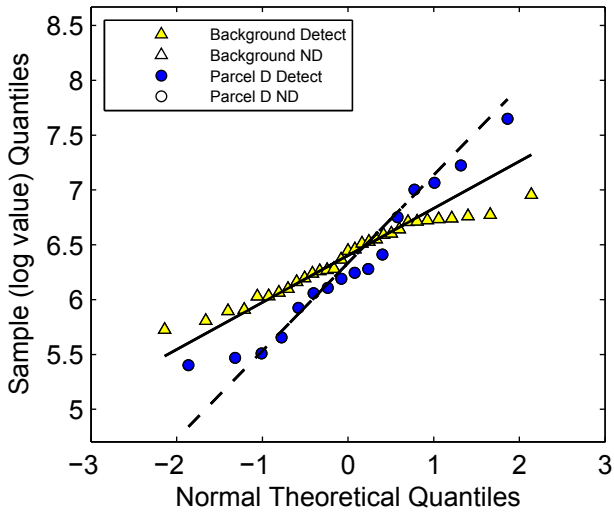
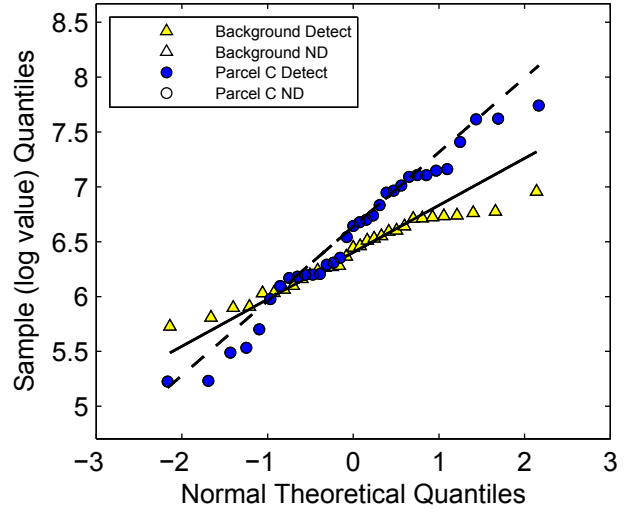
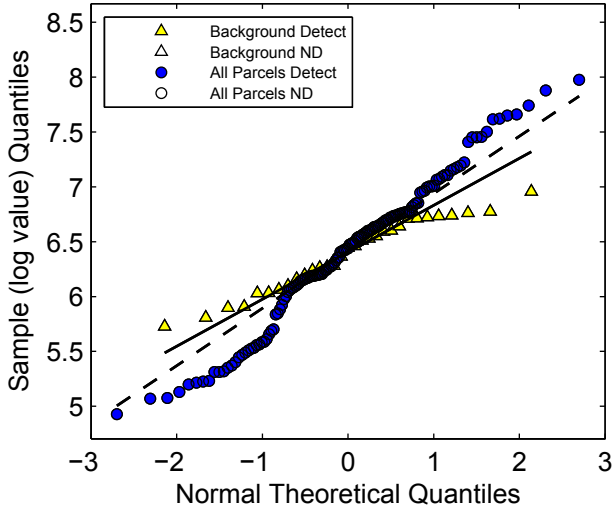


Figure 2-23B. Lognormal Q-Q Plots
Sodium



**Figure 2-24A. Normal Q-Q Plots
Strontium**

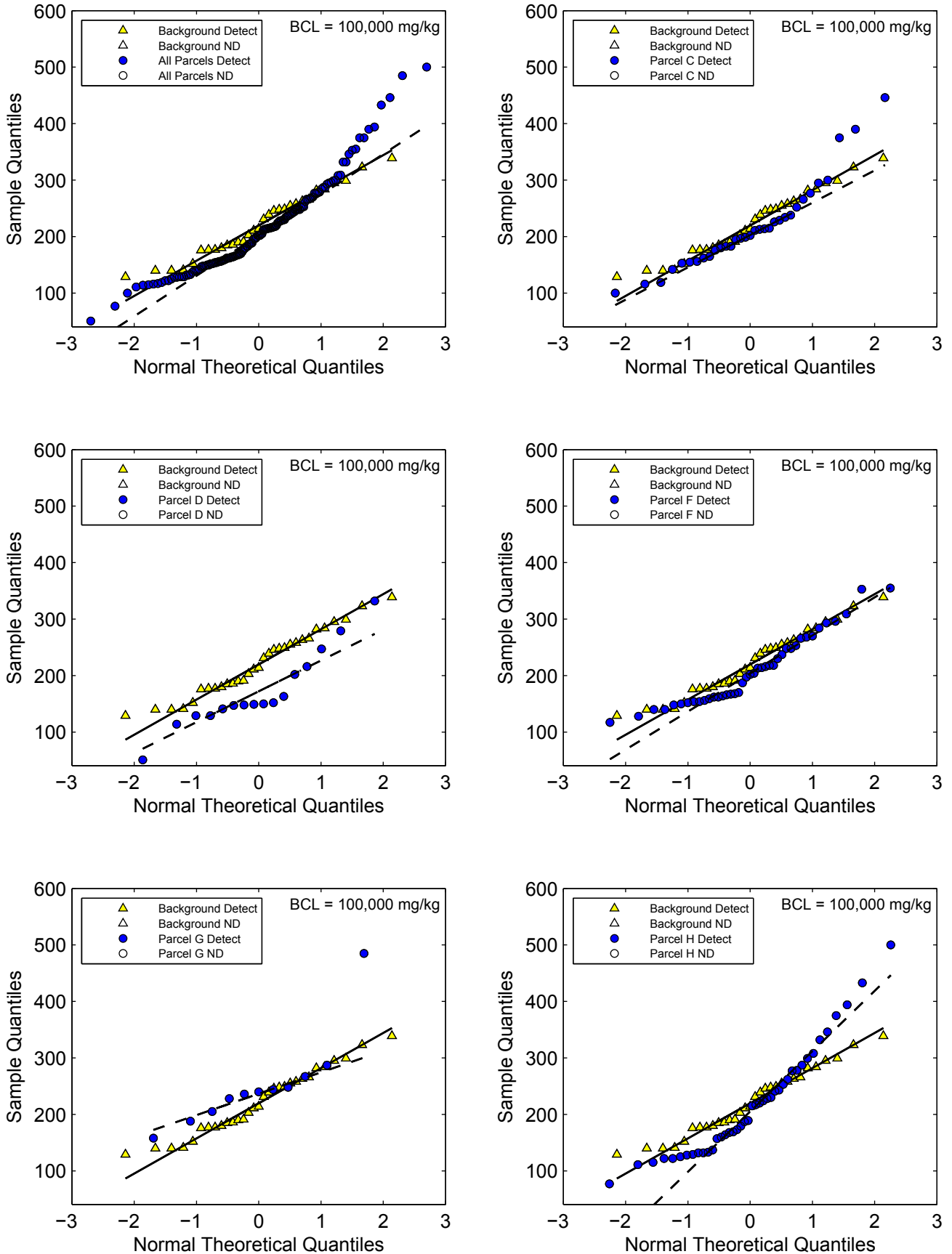


Figure 2-24B. Lognormal Q-Q Plots
Strontium

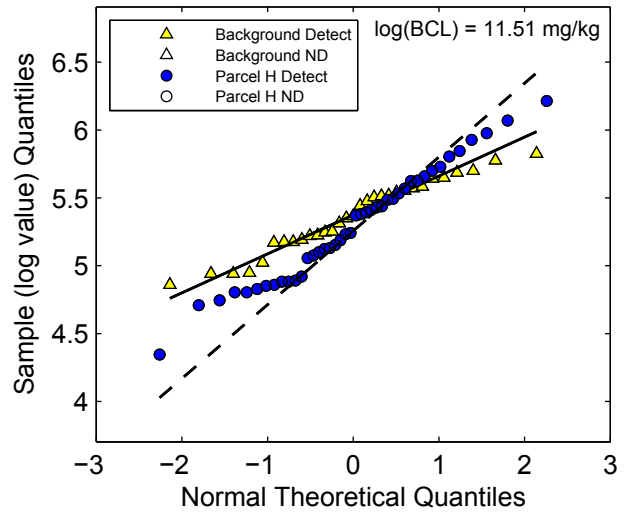
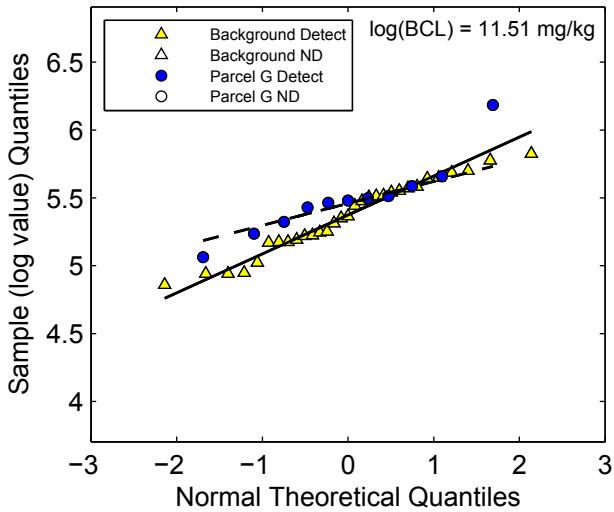
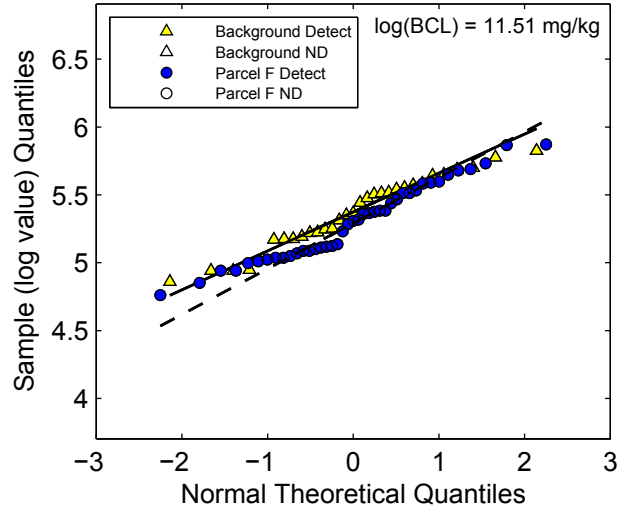
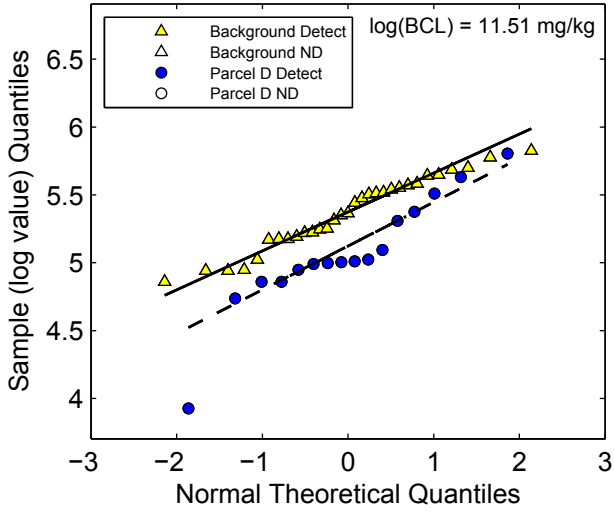
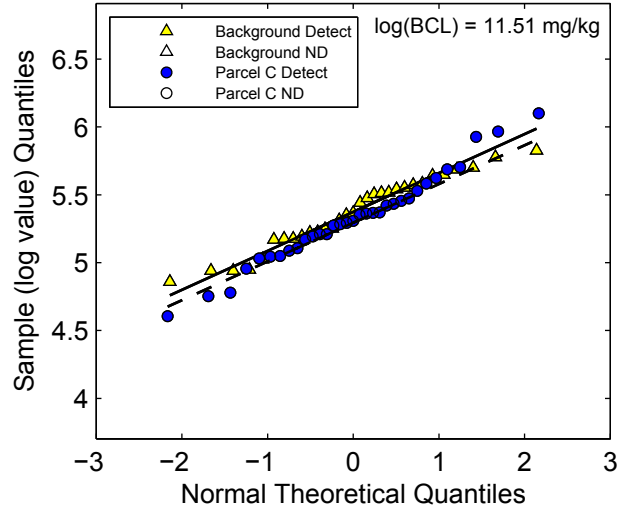
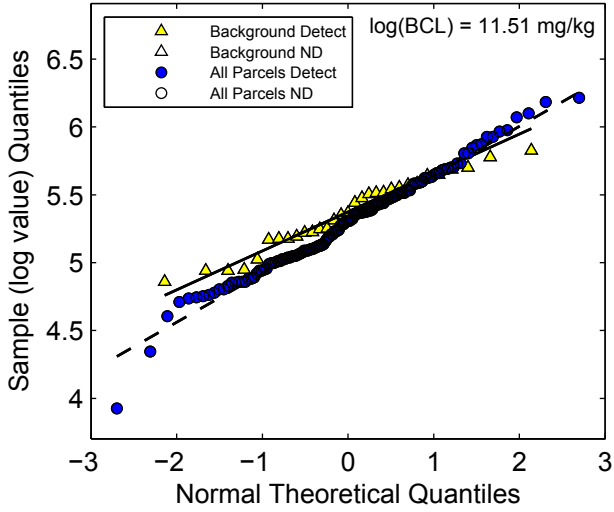
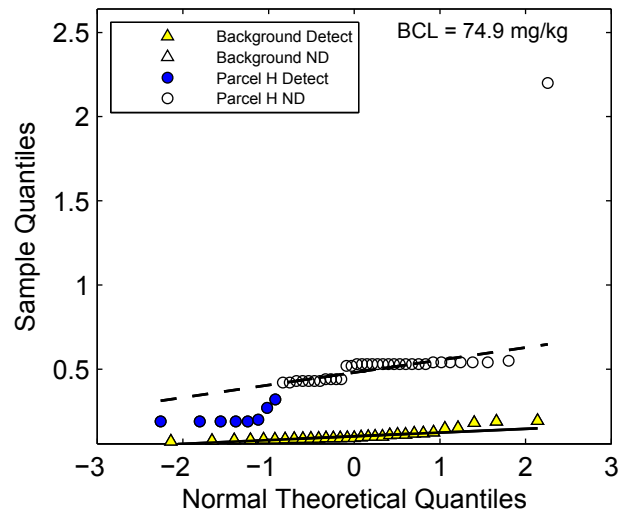
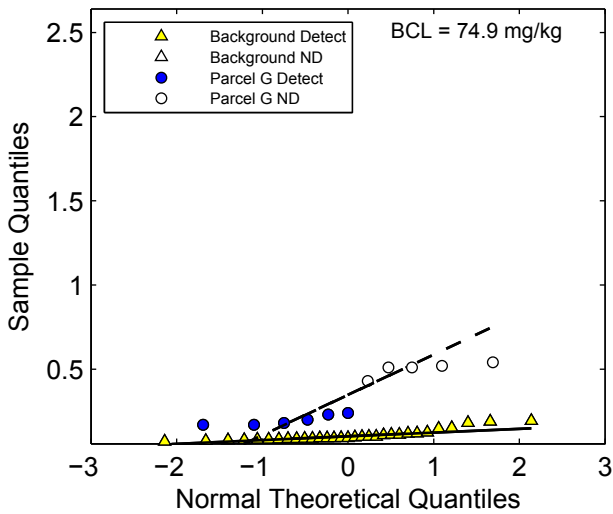
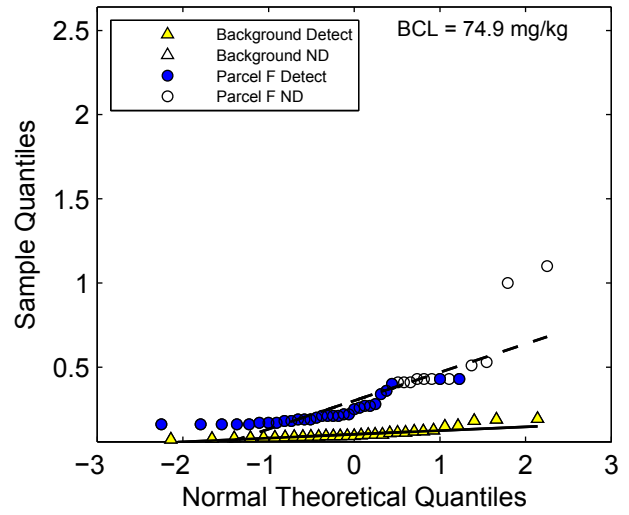
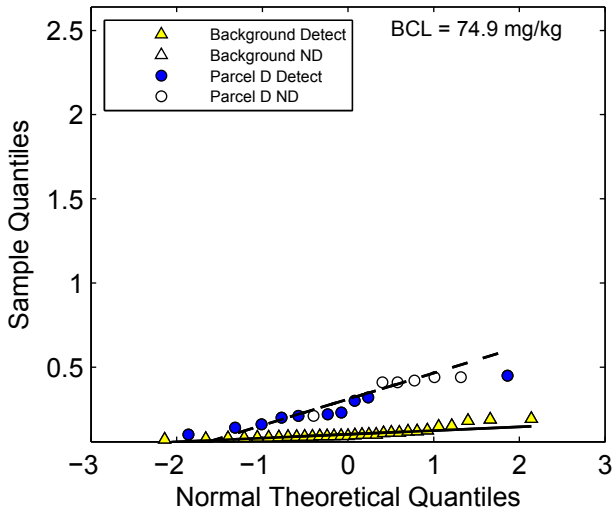
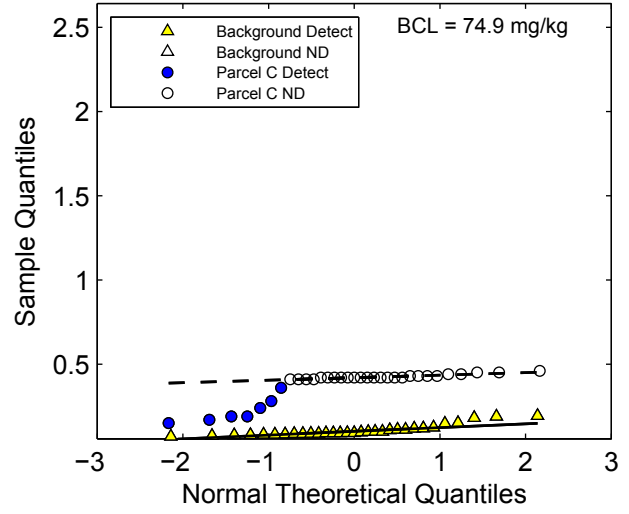
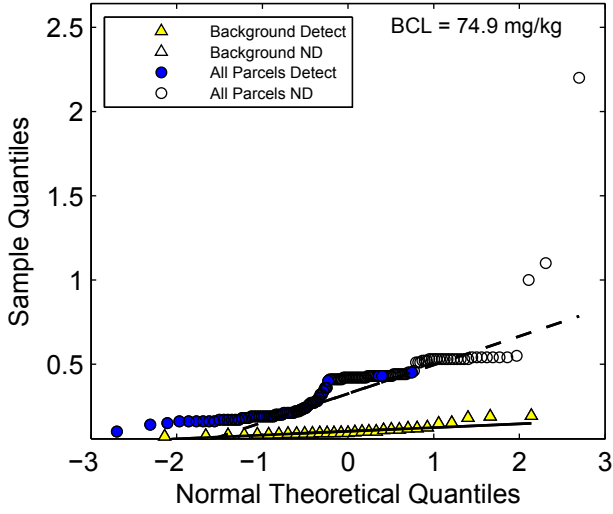


Figure 2-25A. Normal Q-Q Plots
Thallium



**Figure 2-25B. Lognormal Q-Q Plots
Thallium**

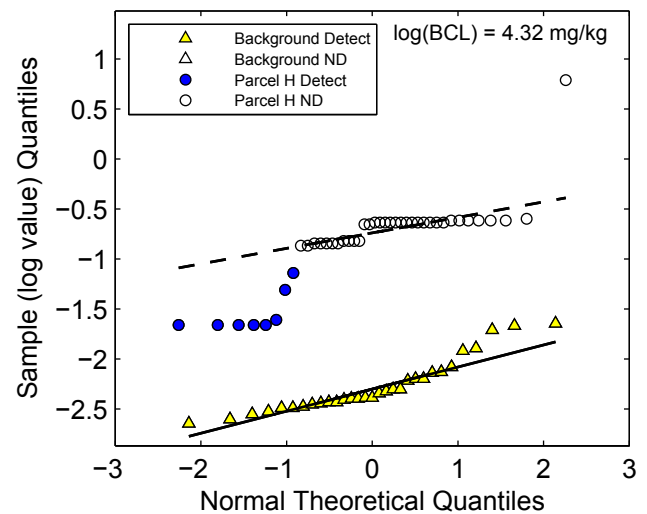
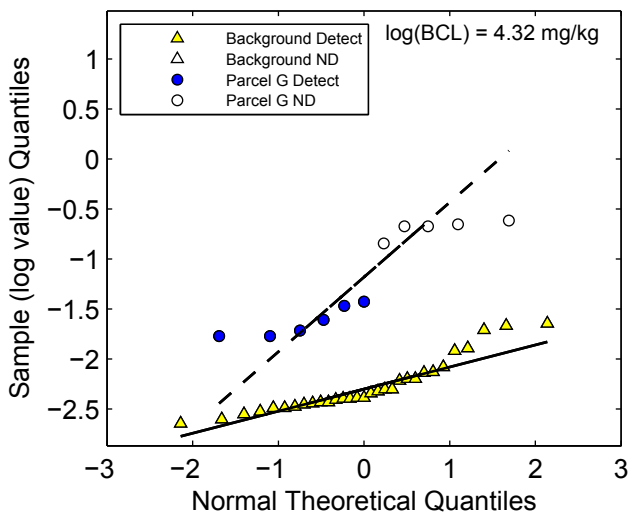
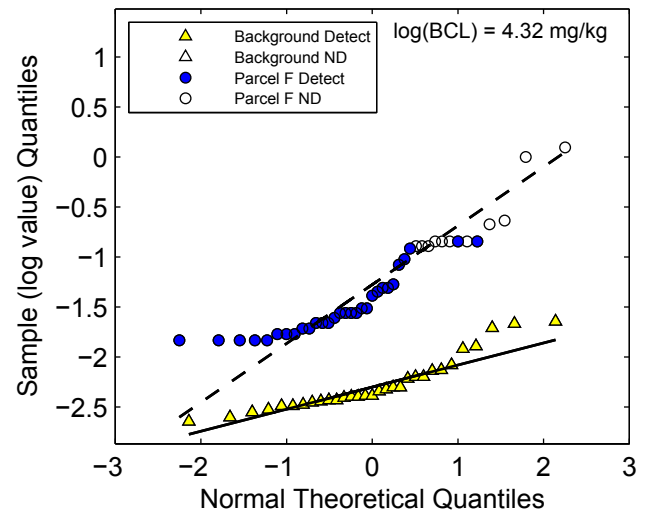
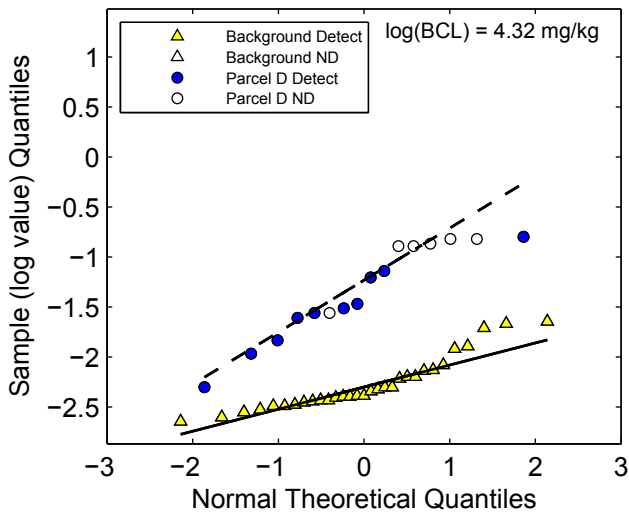
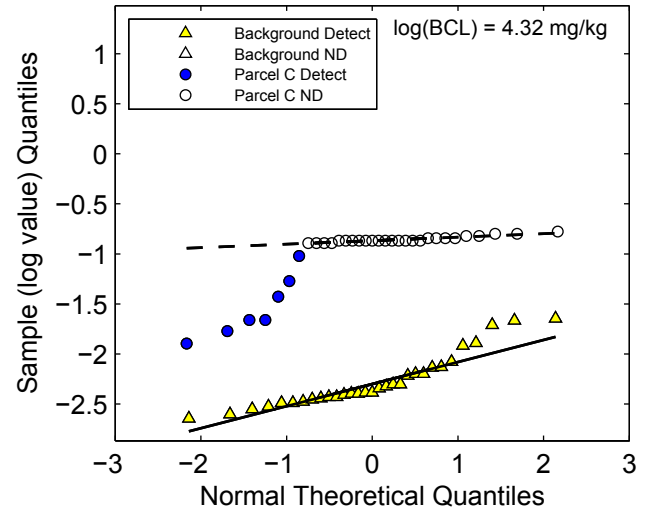
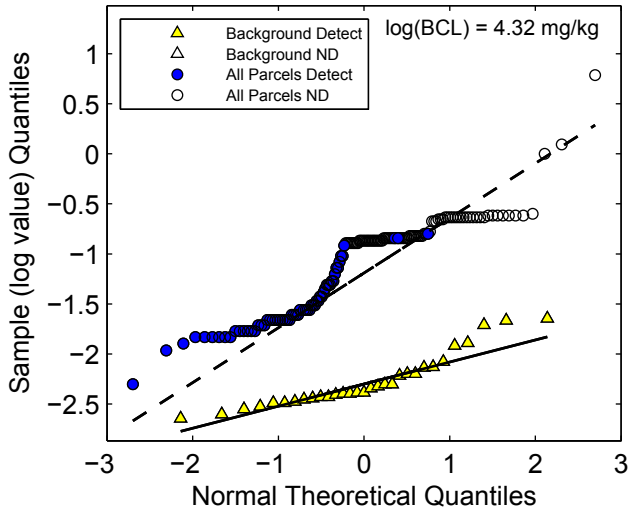


Figure 2-26A. Normal Q-Q Plots
Tin

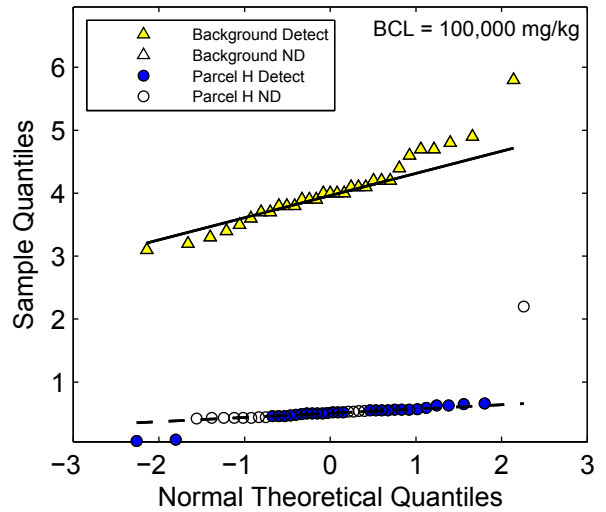
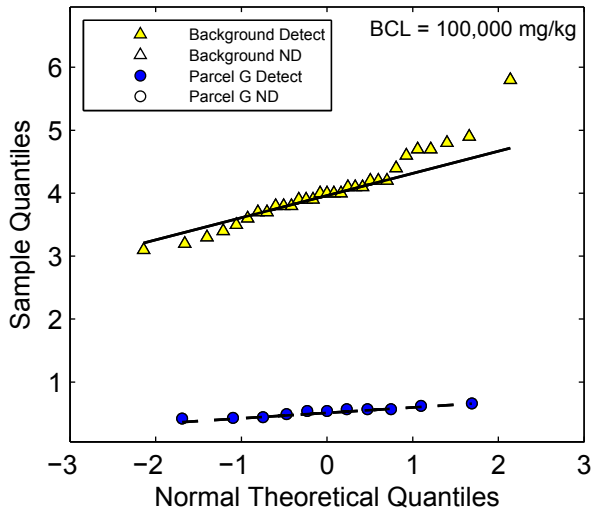
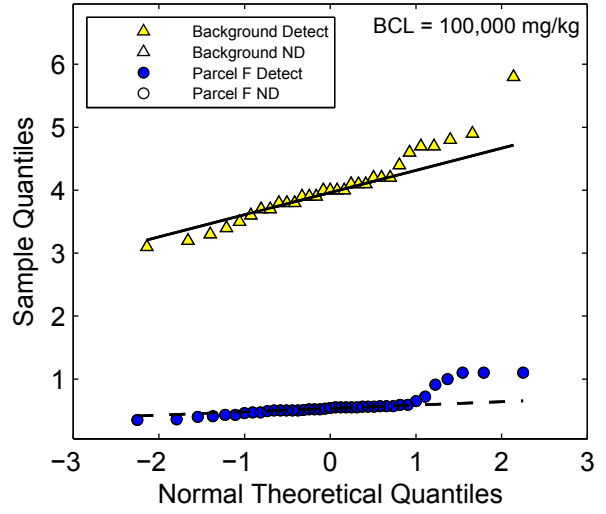
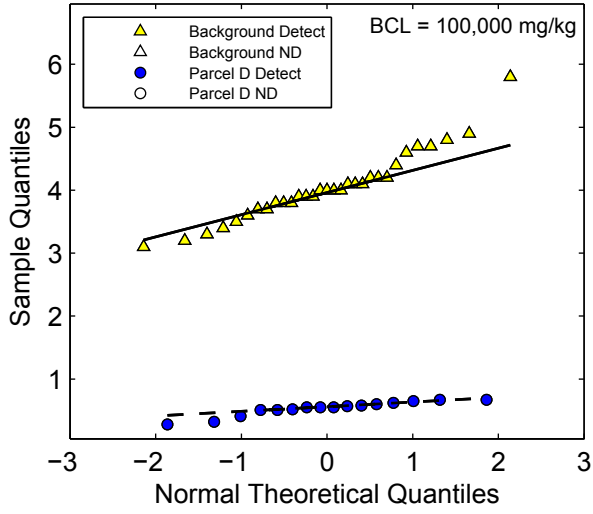
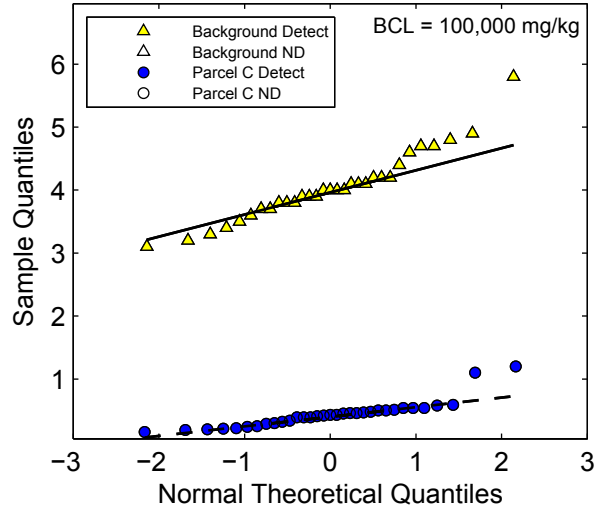
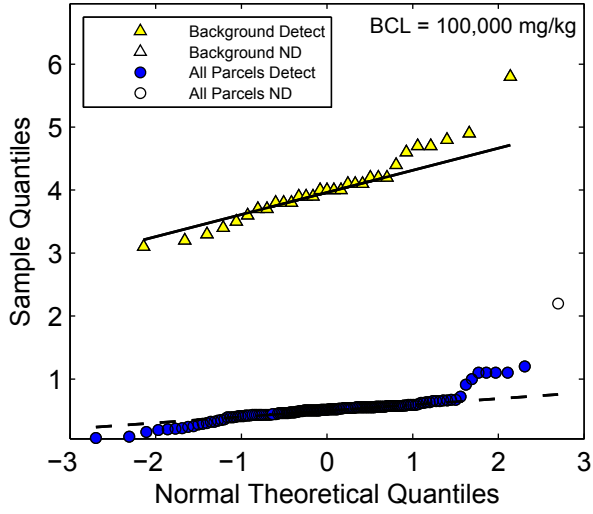
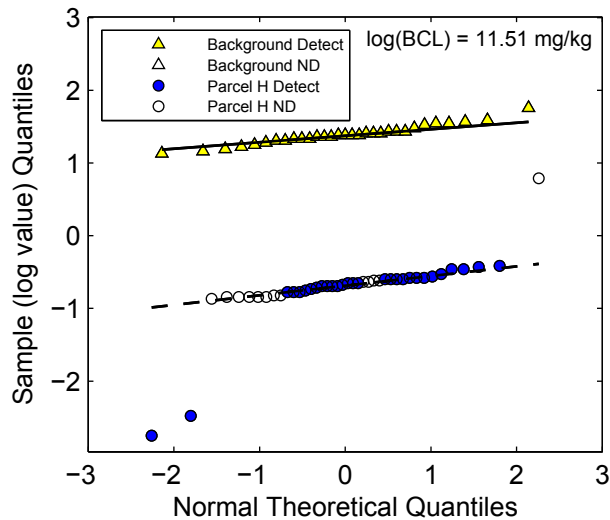
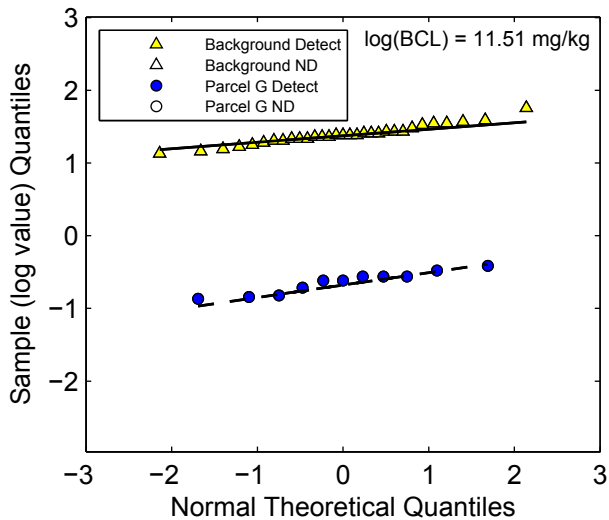
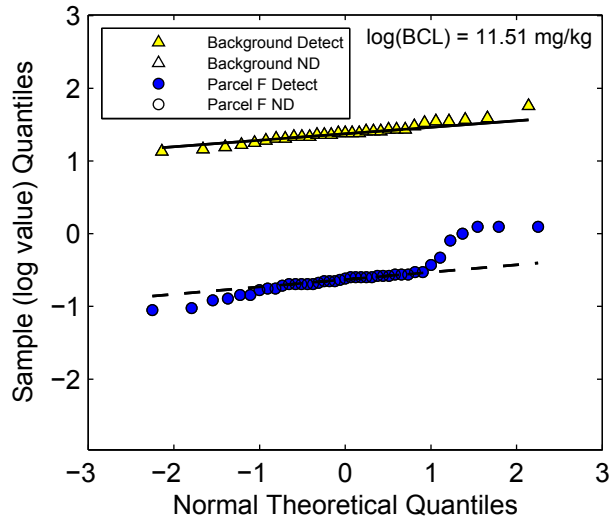
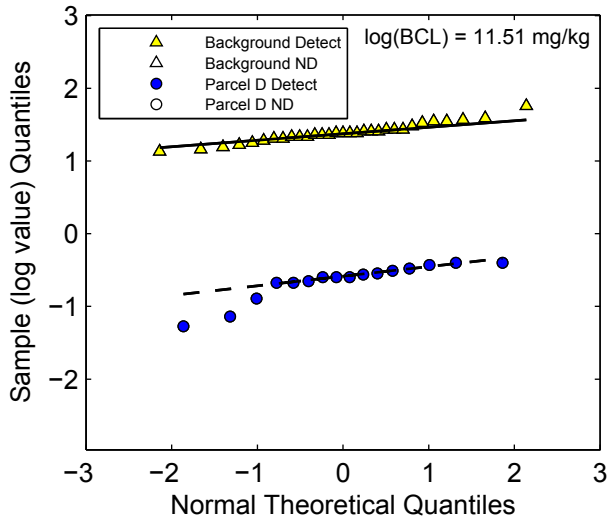
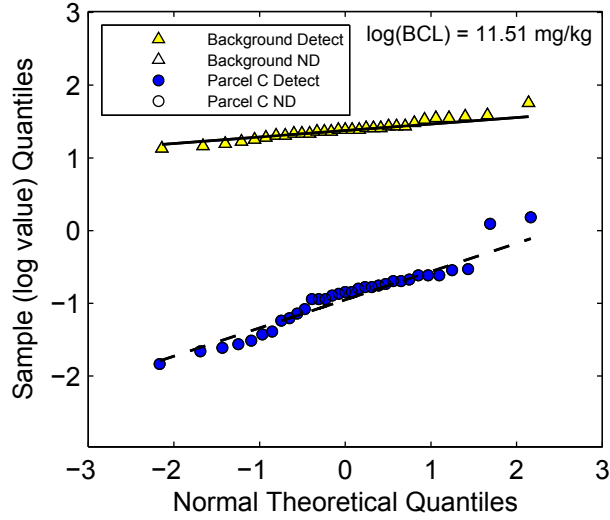
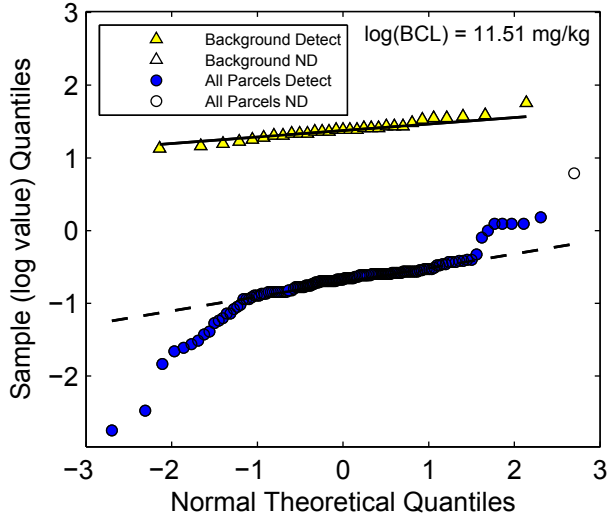


Figure 2-26B. Lognormal Q-Q Plots

Tin



**Figure 2-27A. Normal Q-Q Plots
Titanium**

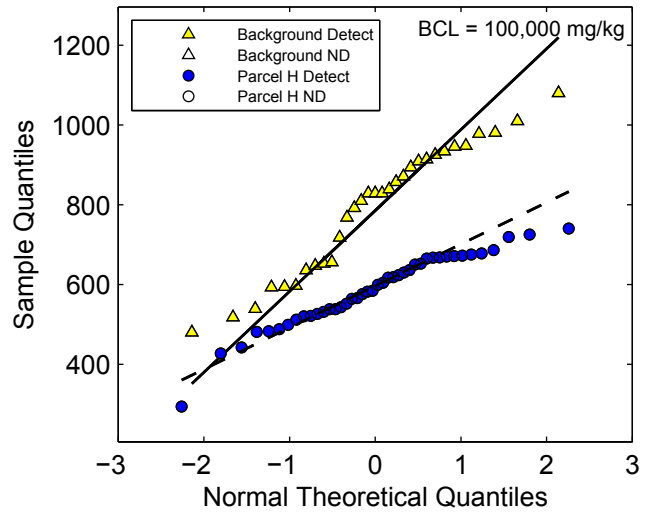
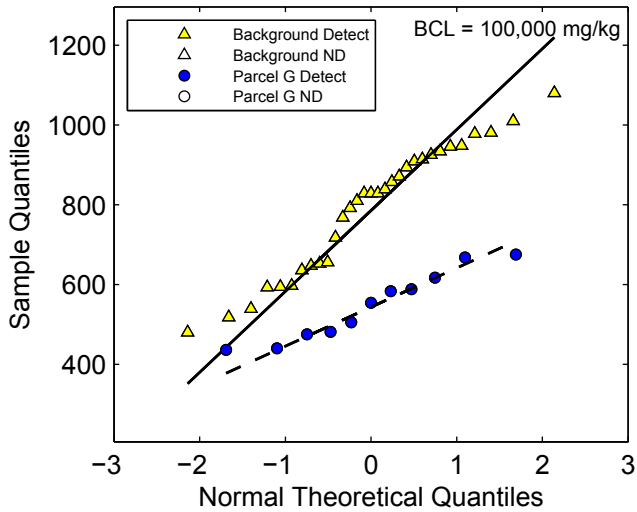
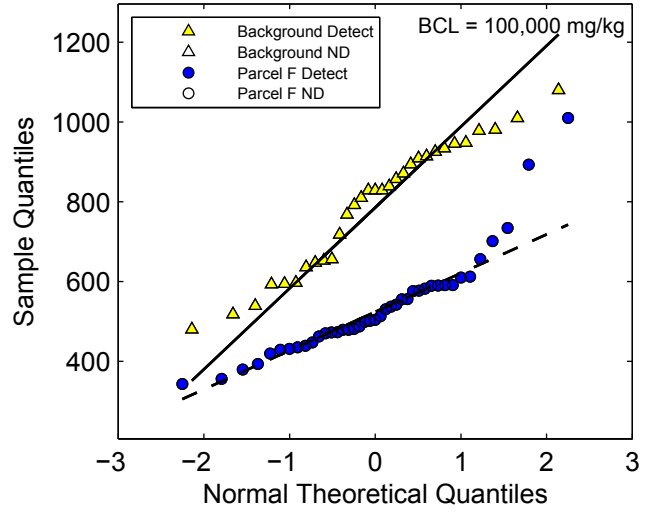
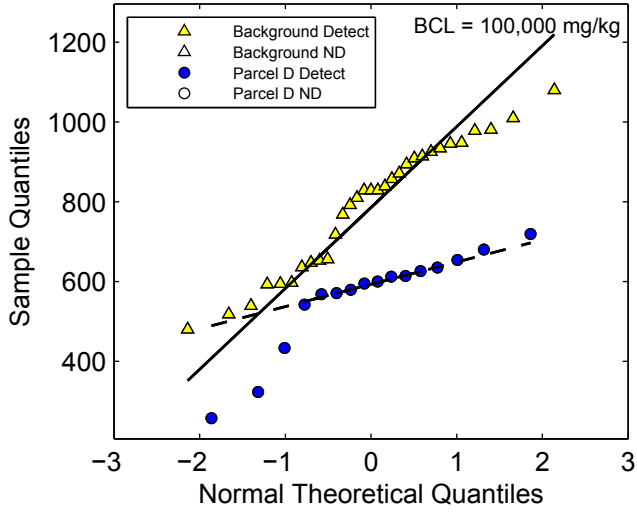
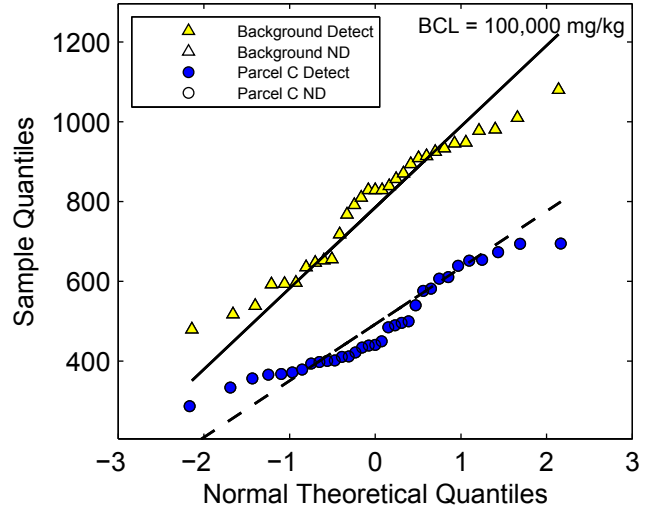
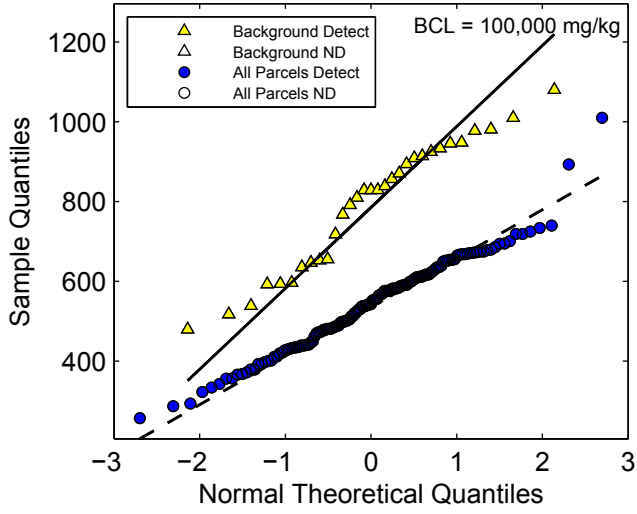


Figure 2-27B. Lognormal Q-Q Plots
Titanium

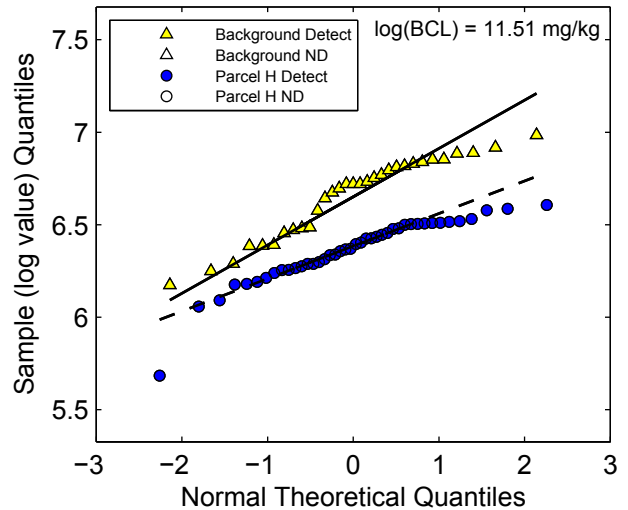
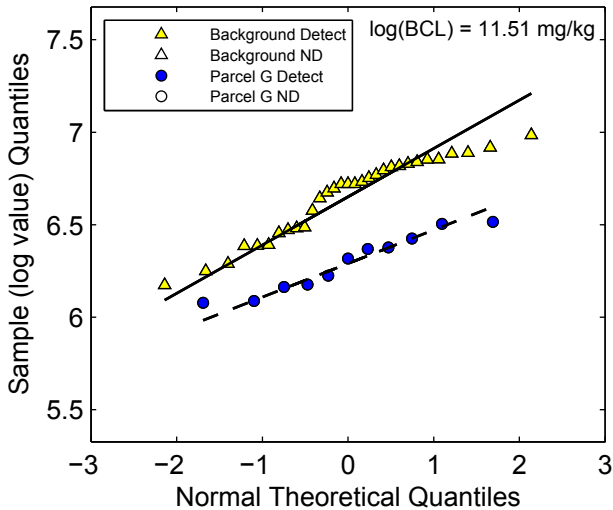
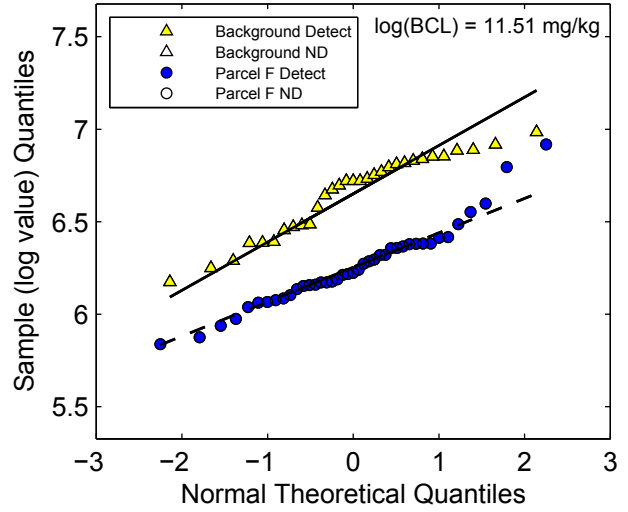
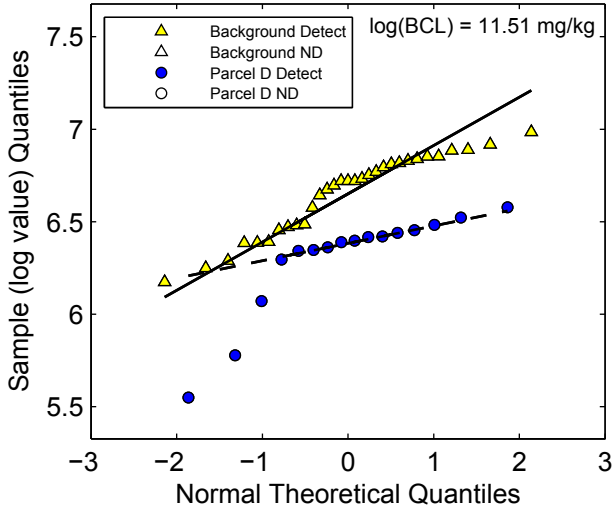
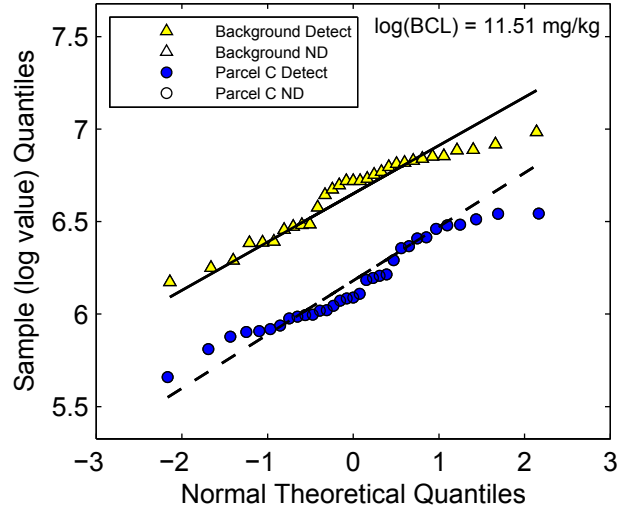
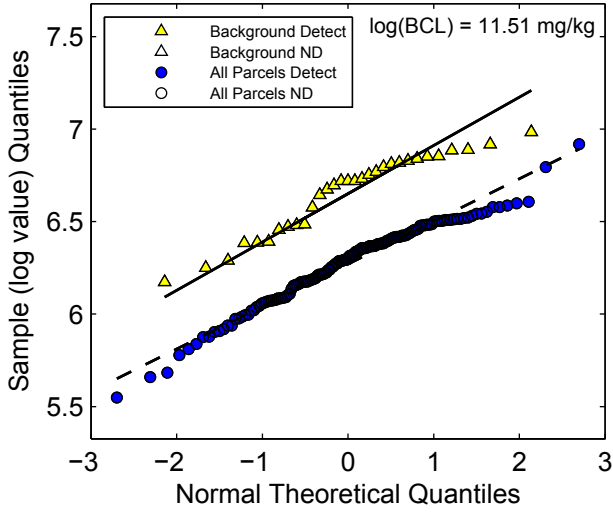
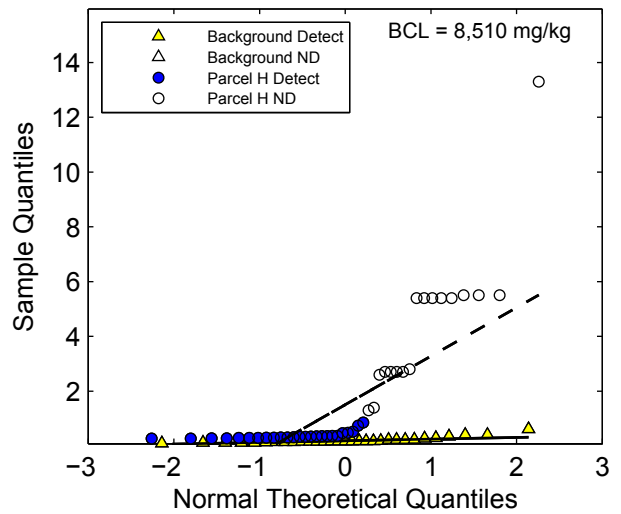
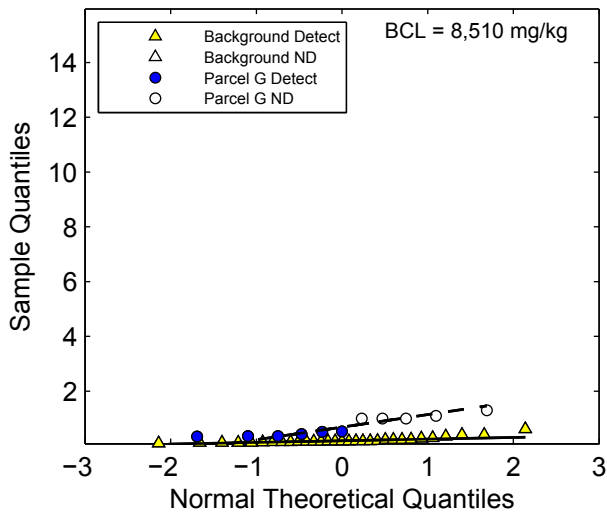
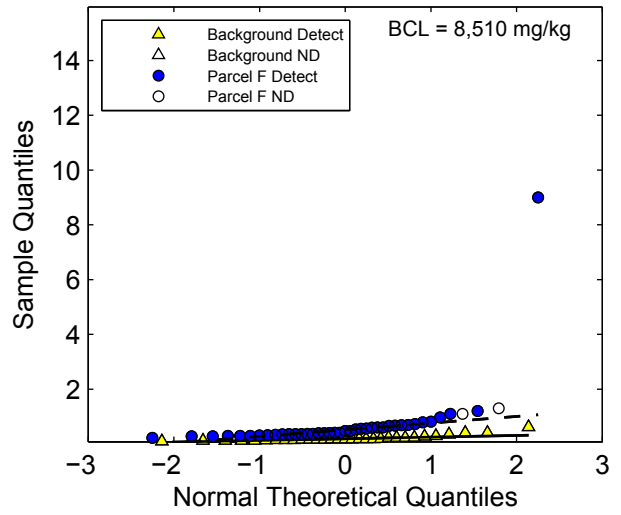
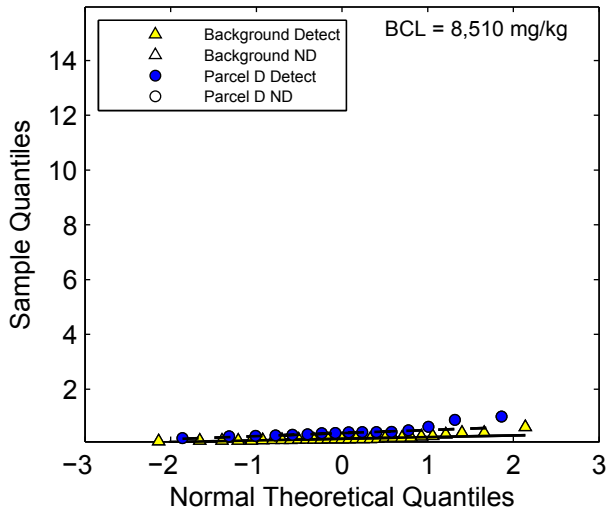
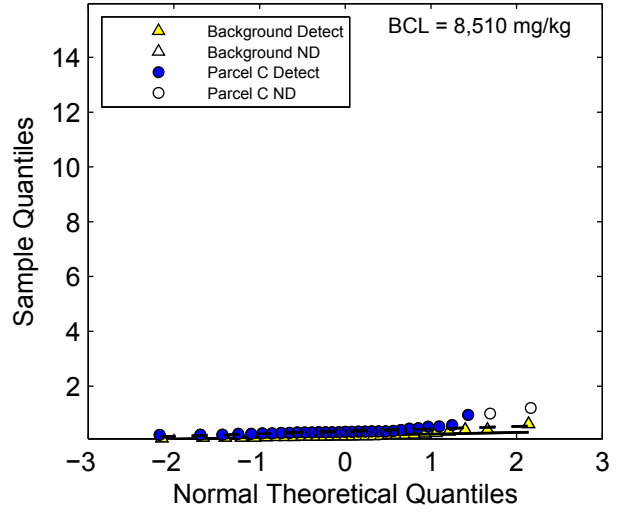
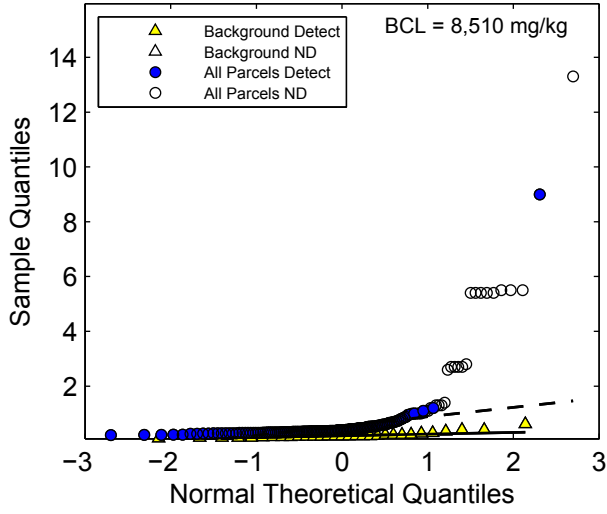


Figure 2-28A. Normal Q-Q Plots
Tungsten



**Figure 2–28B. Lognormal Q–Q Plots
Tungsten**

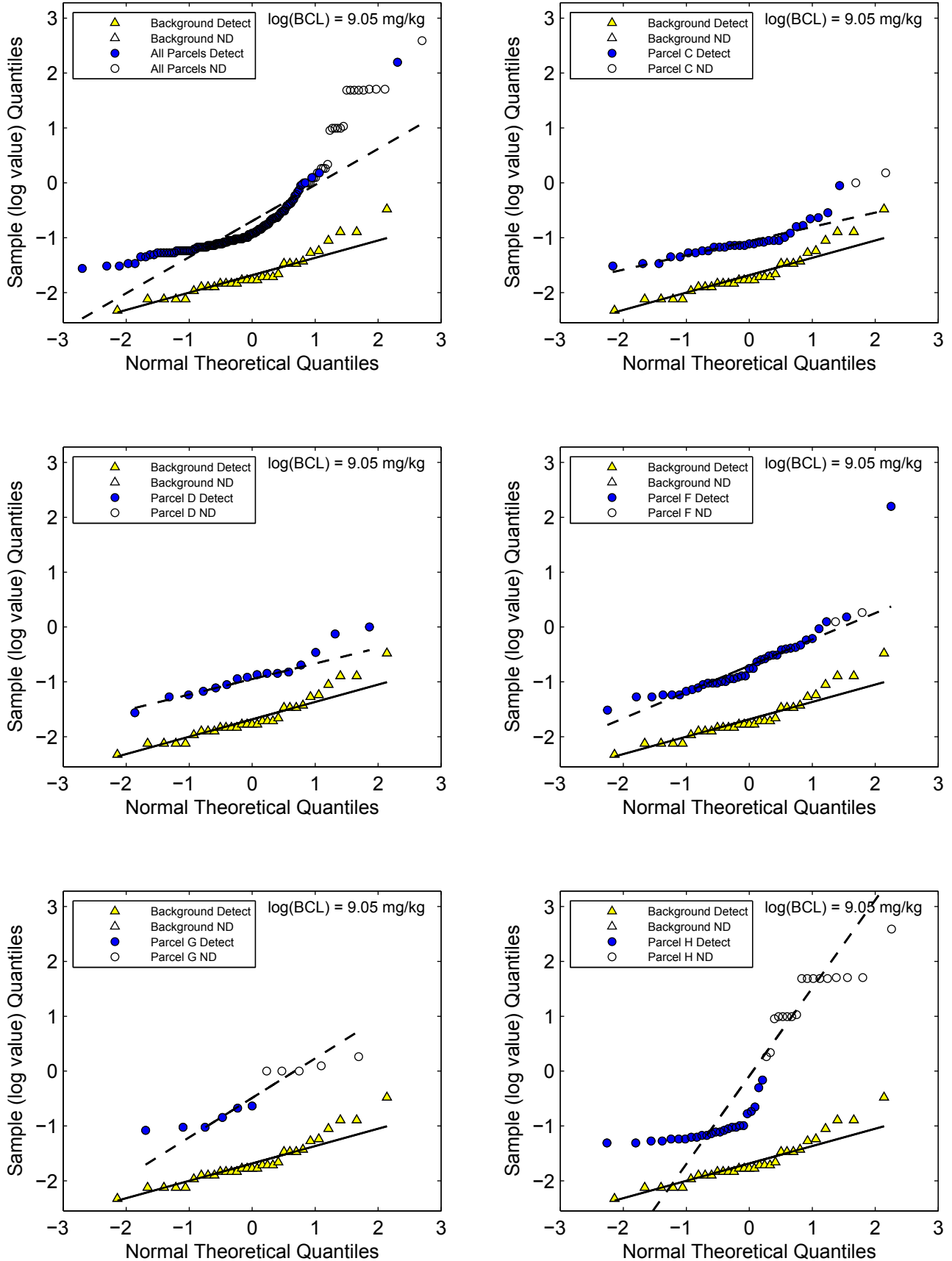
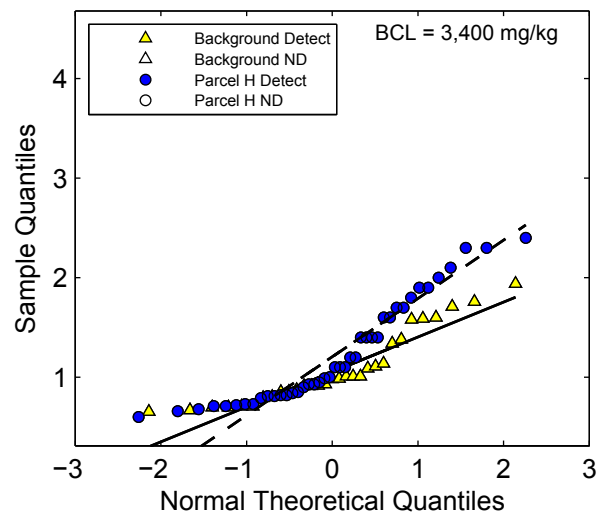
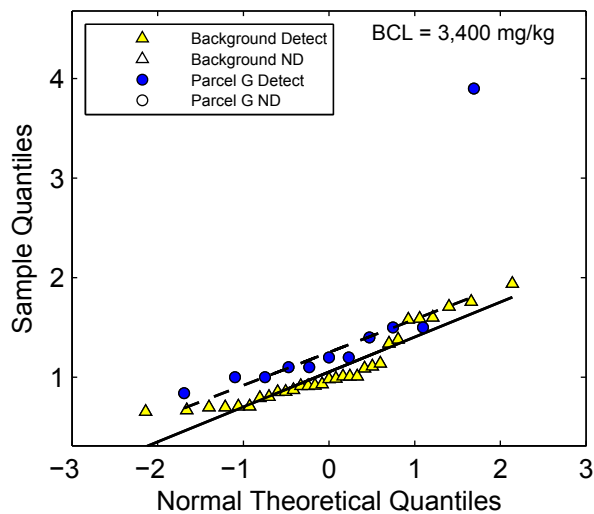
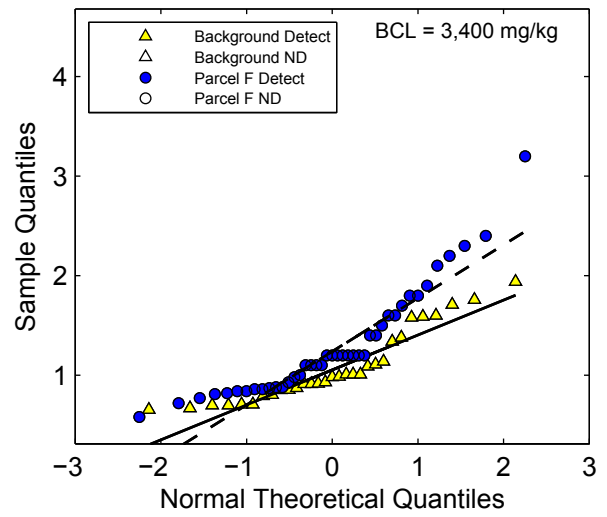
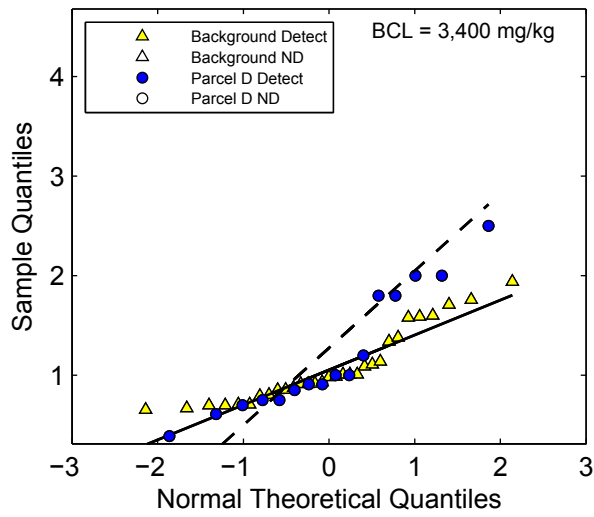
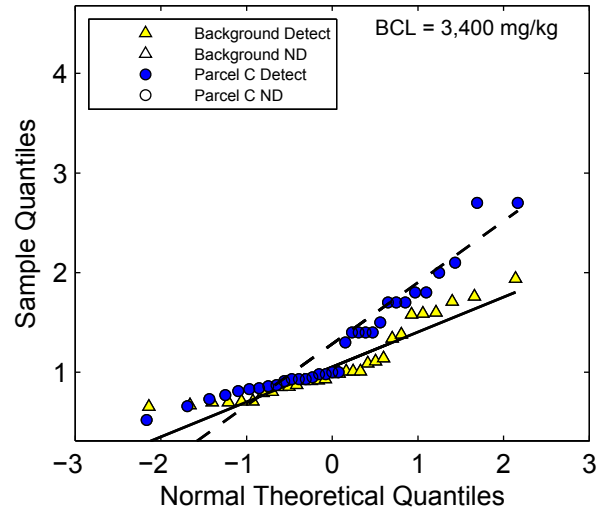
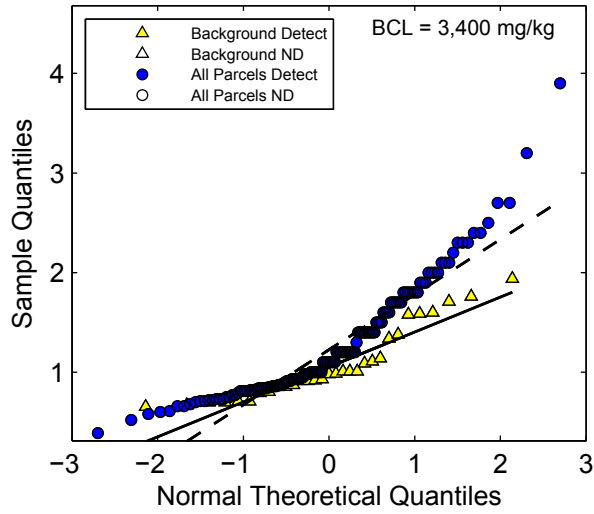


Figure 2-29A. Normal Q-Q Plots
Uranium



**Figure 2-29B. Lognormal Q-Q Plots
Uranium**

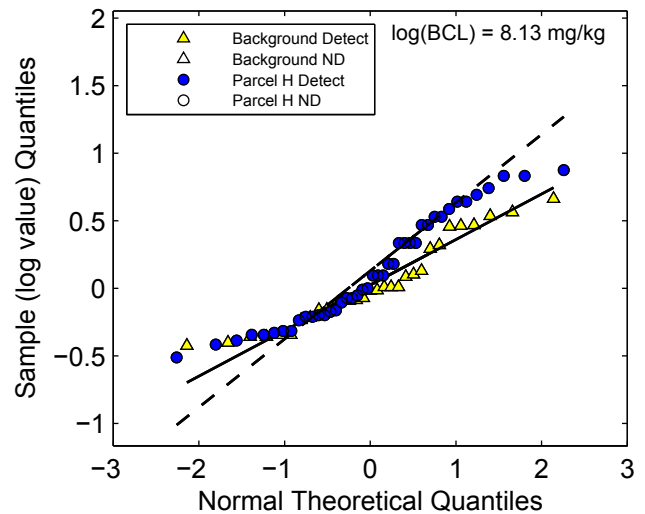
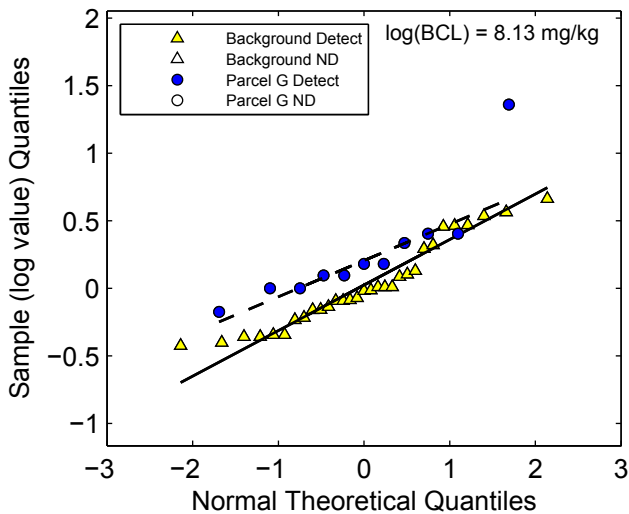
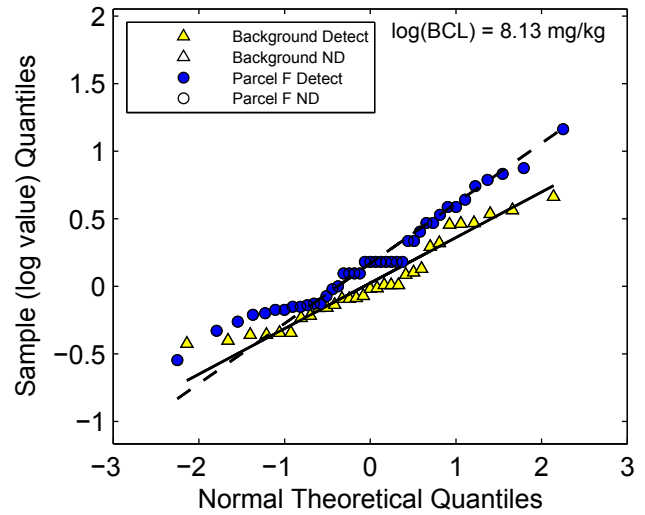
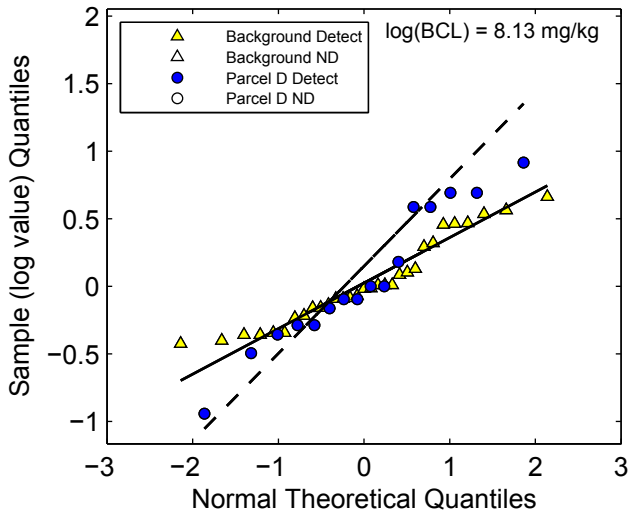
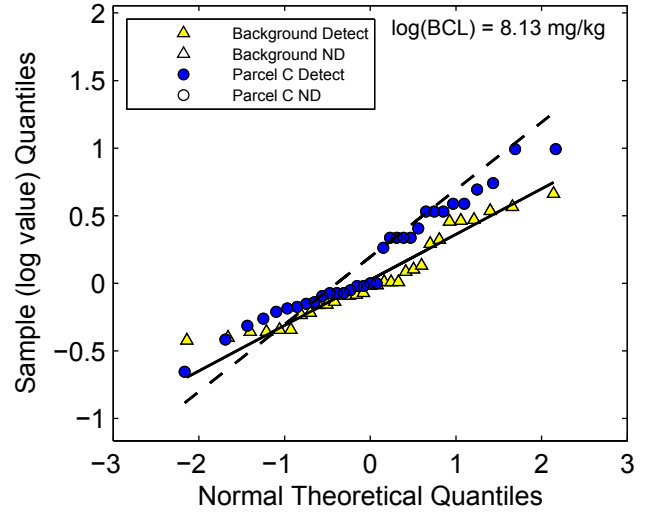
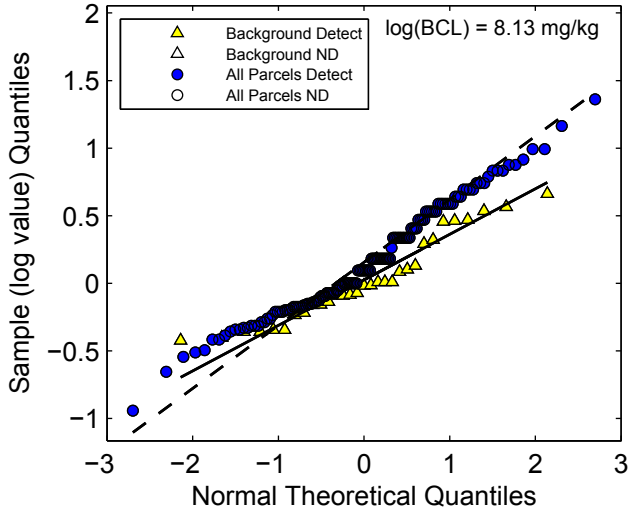


Figure 2-30A. Normal Q-Q Plots
Vanadium

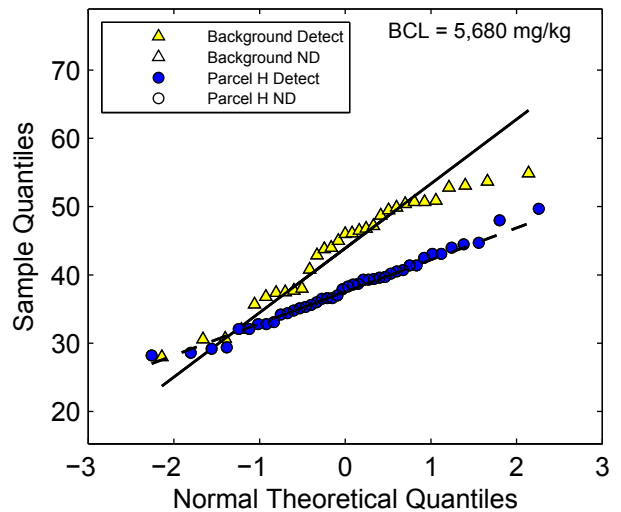
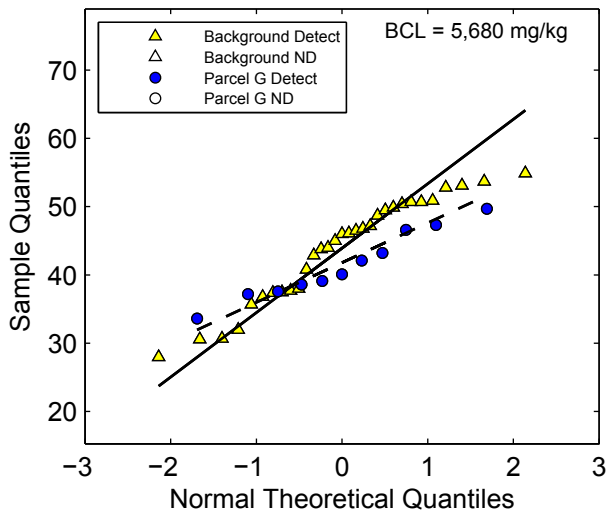
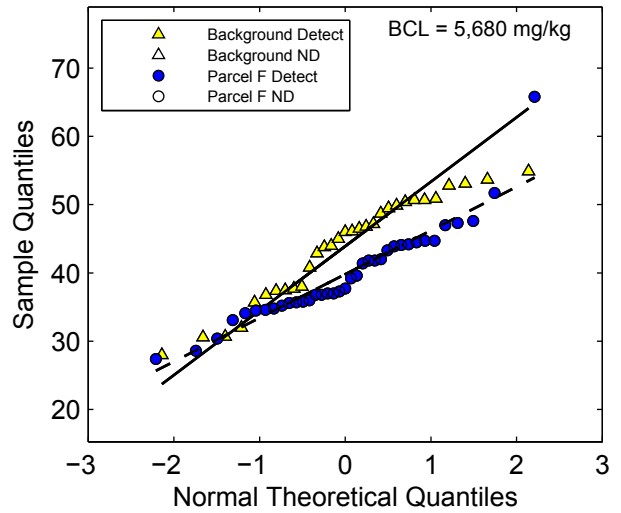
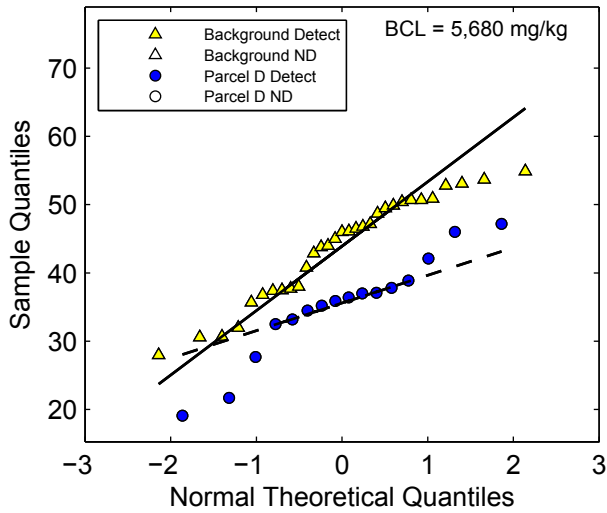
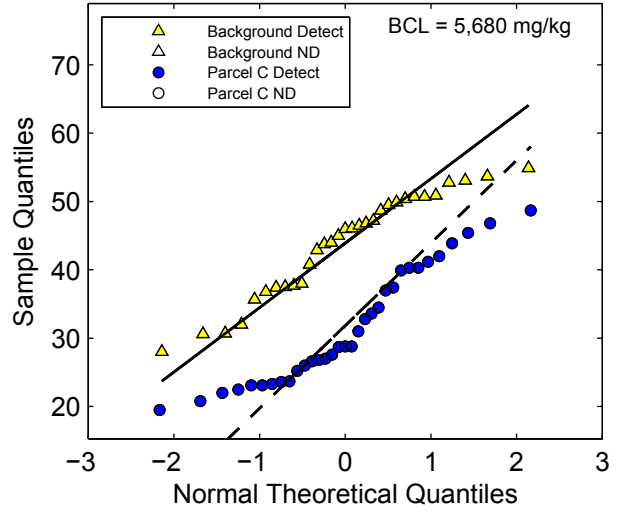
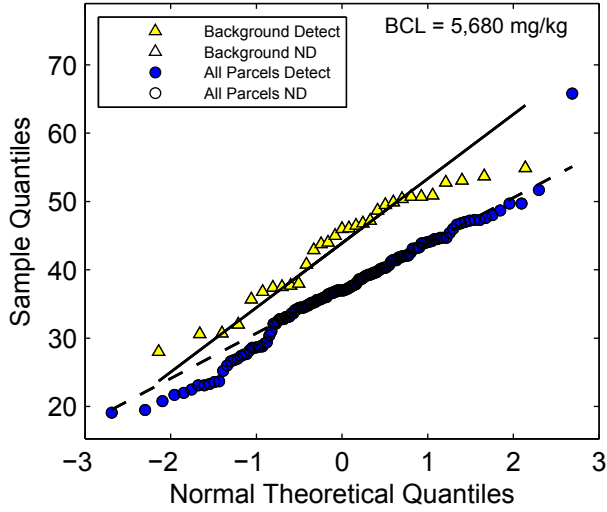


Figure 2-30B. Lognormal Q-Q Plots
Vanadium

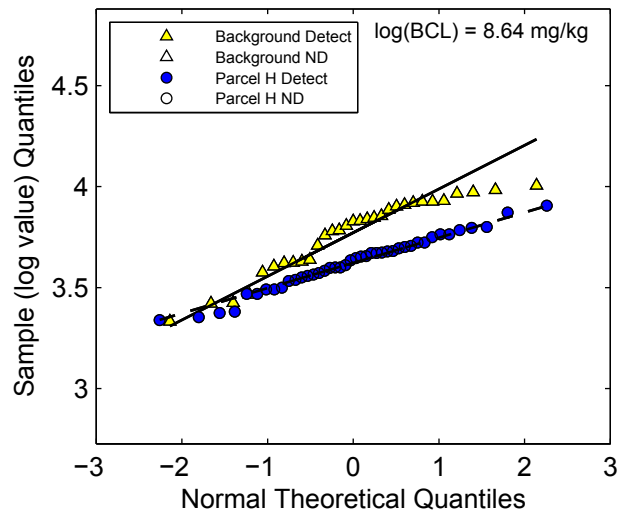
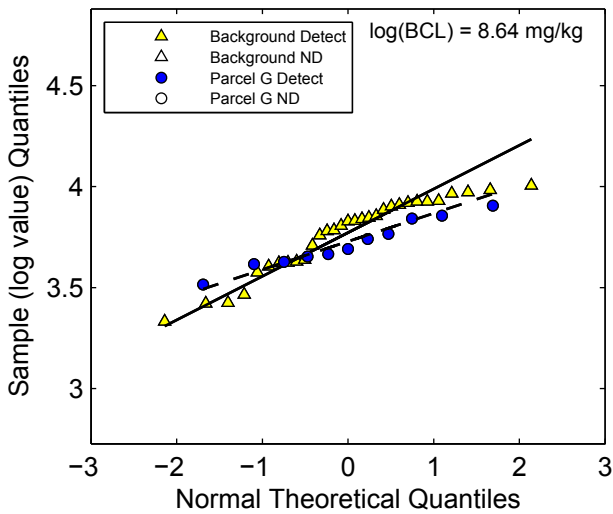
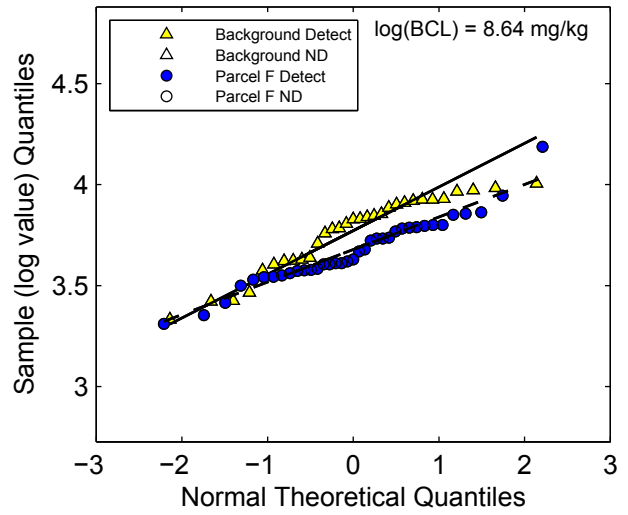
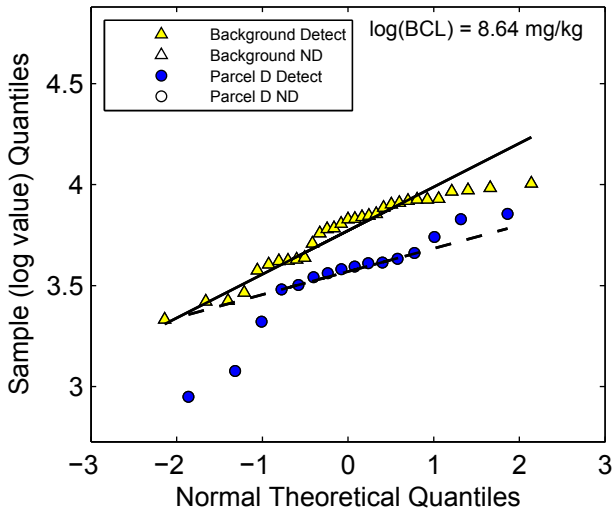
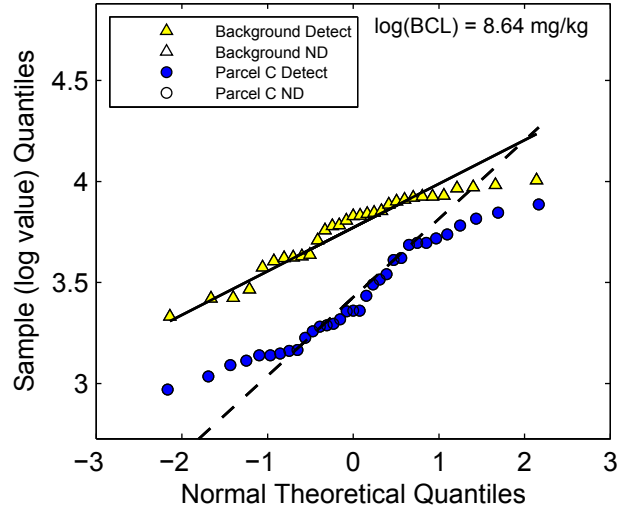
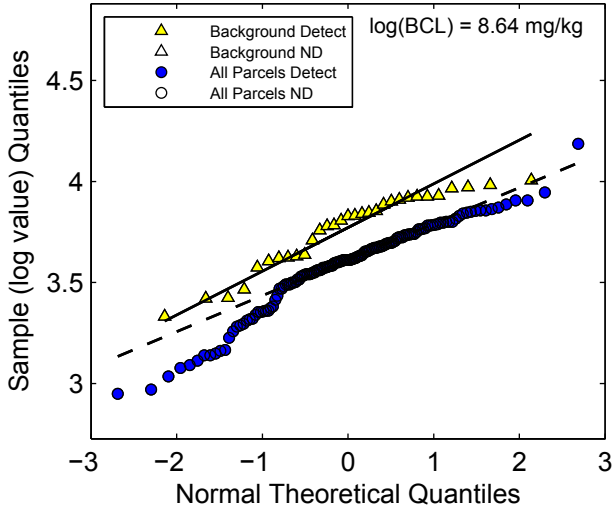


Figure 2-31A. Normal Q-Q Plots

Zinc

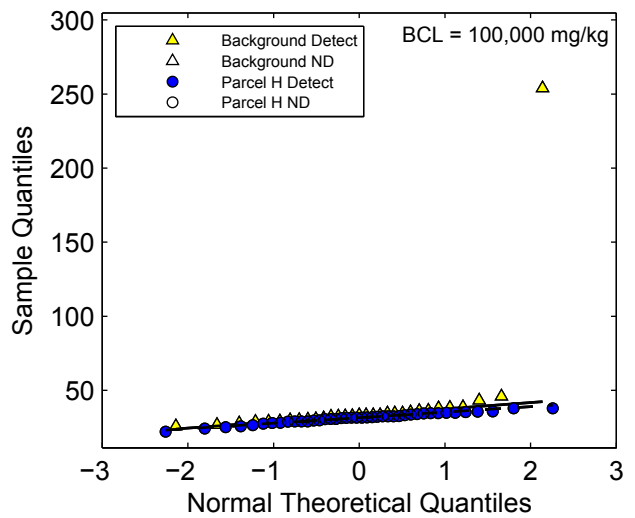
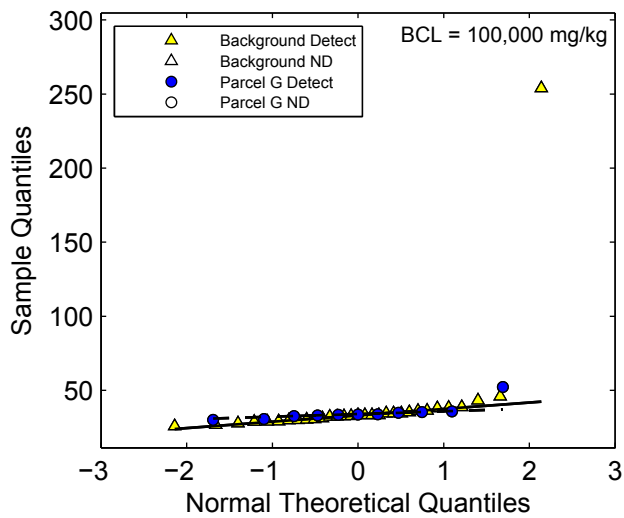
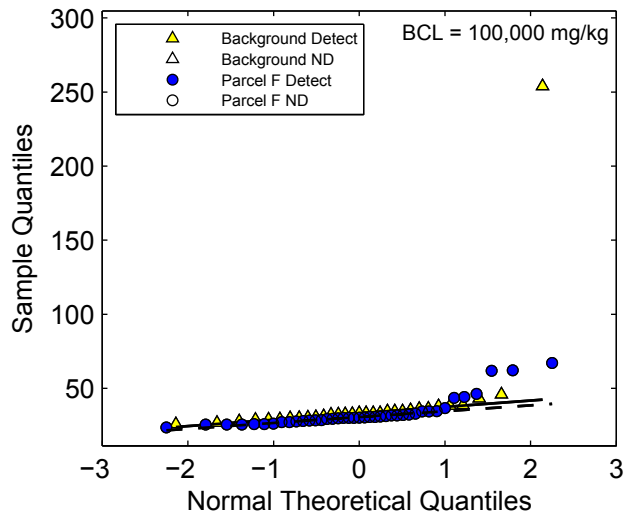
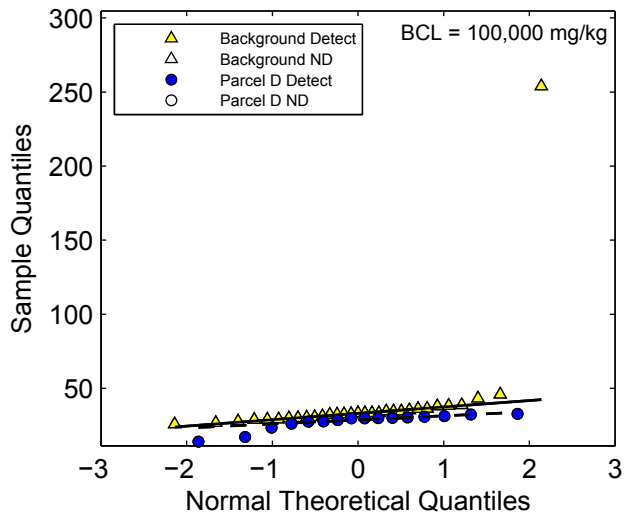
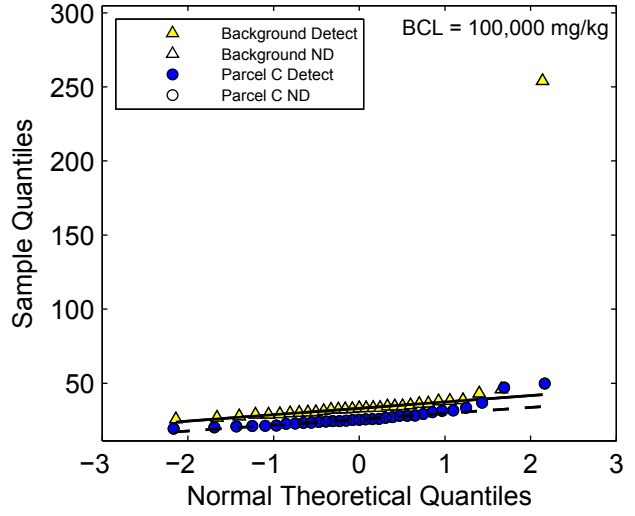
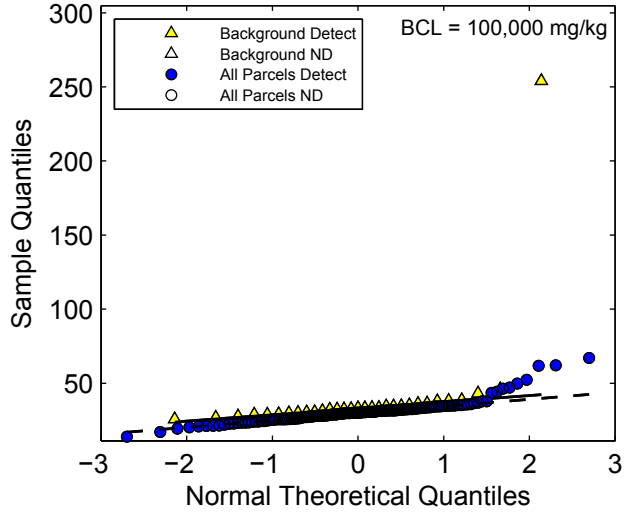
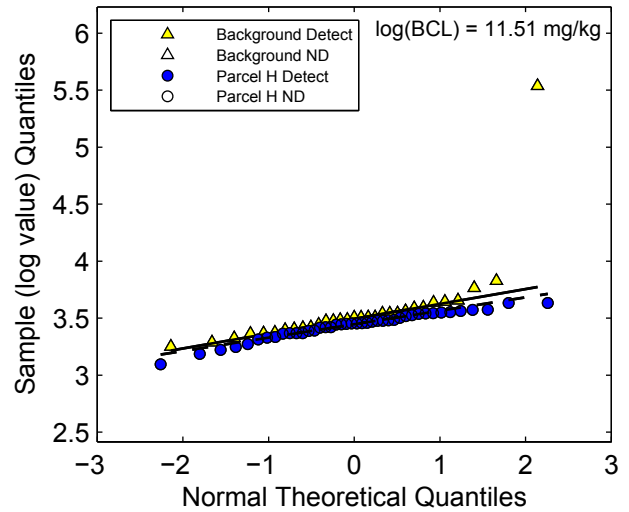
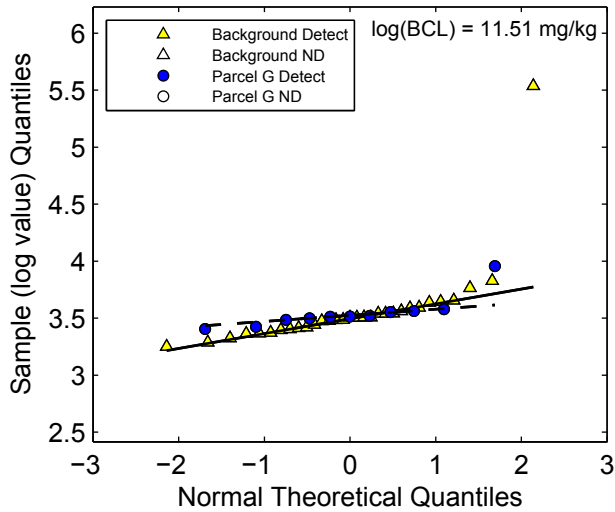
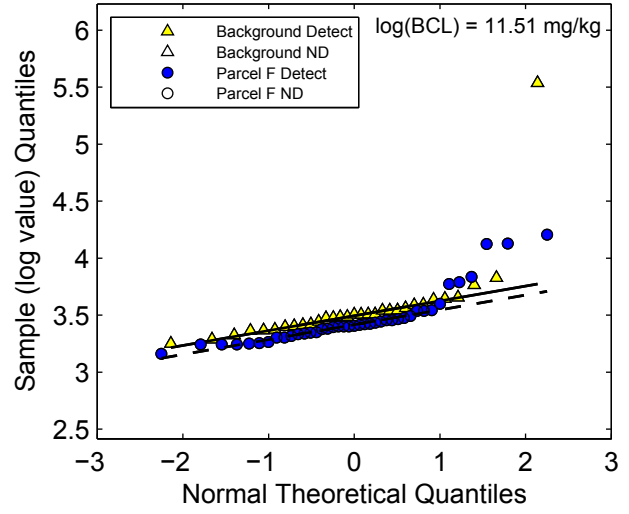
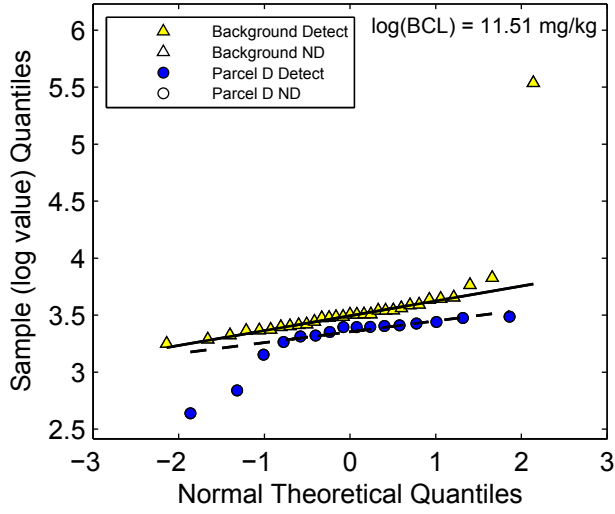
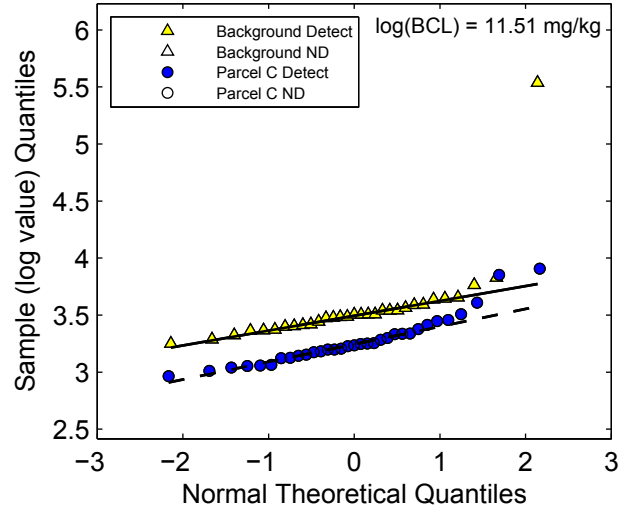
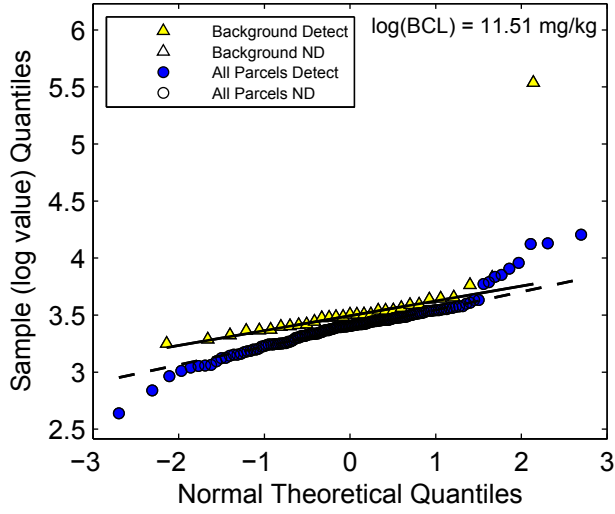
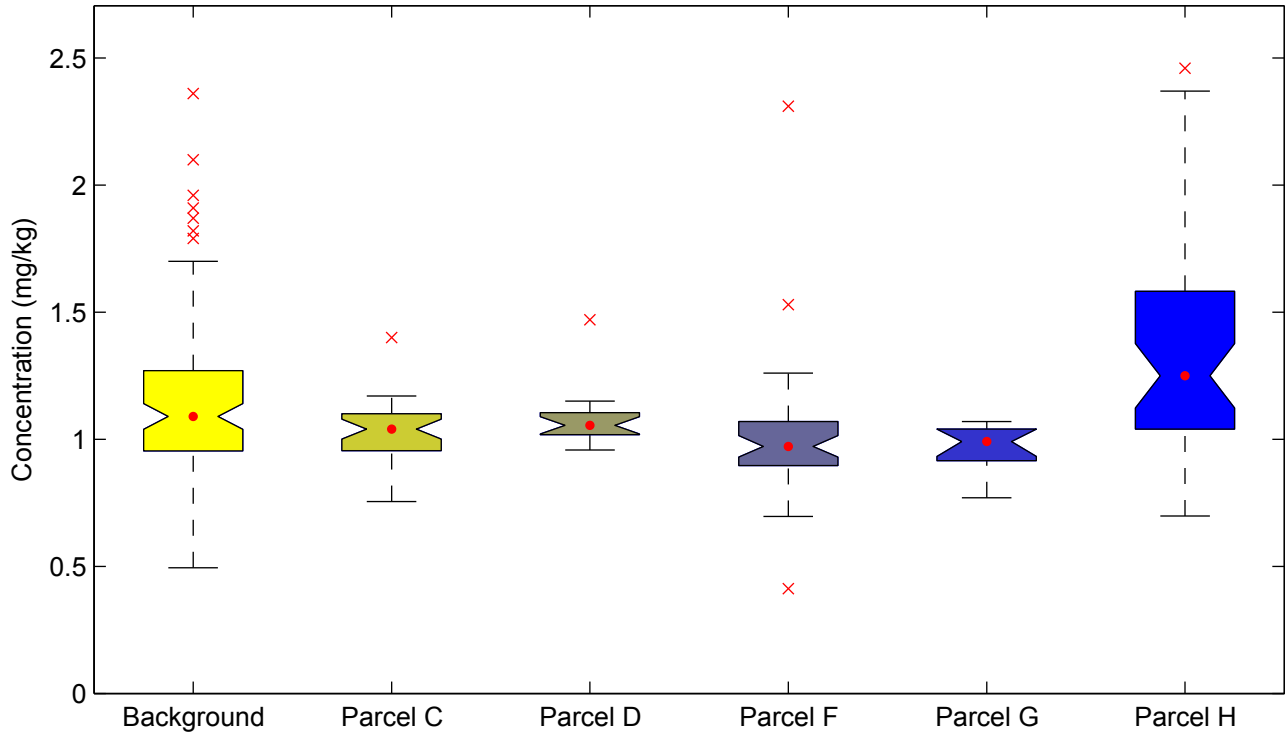


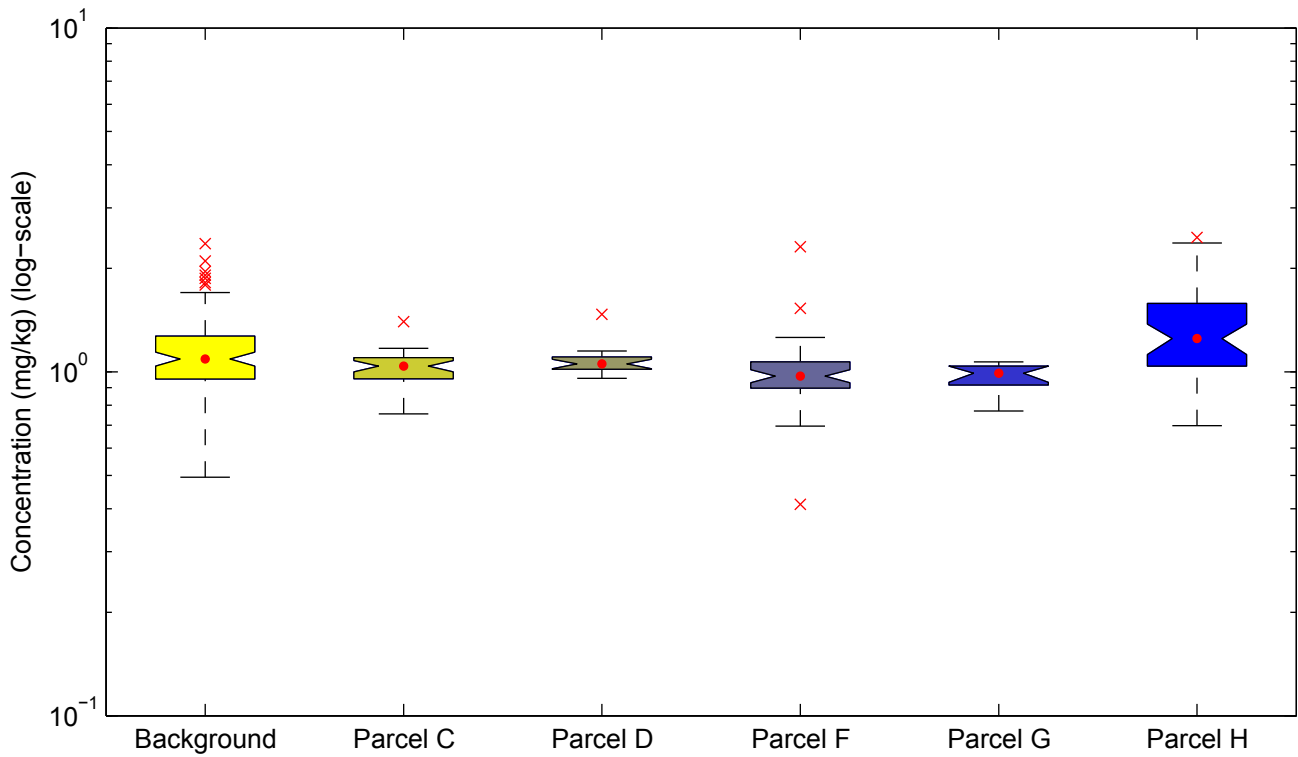
Figure 2-31B. Lognormal Q-Q Plots
Zinc



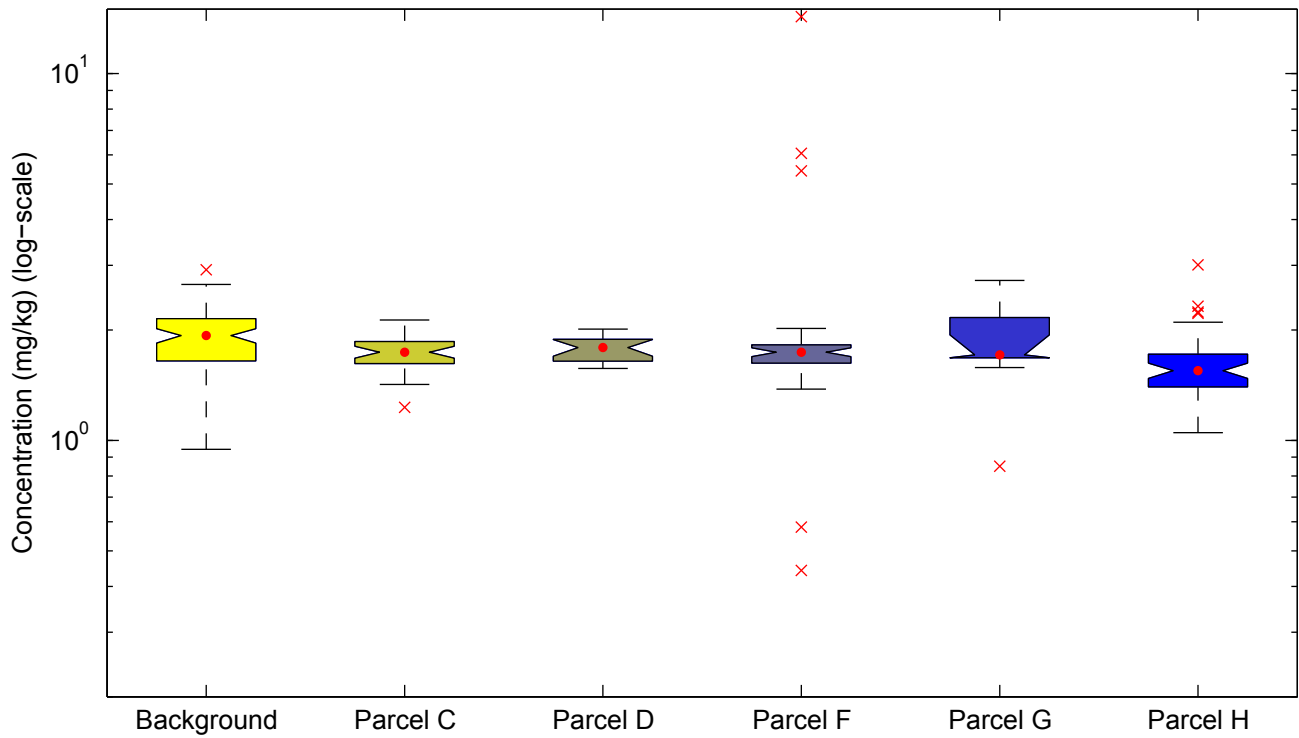
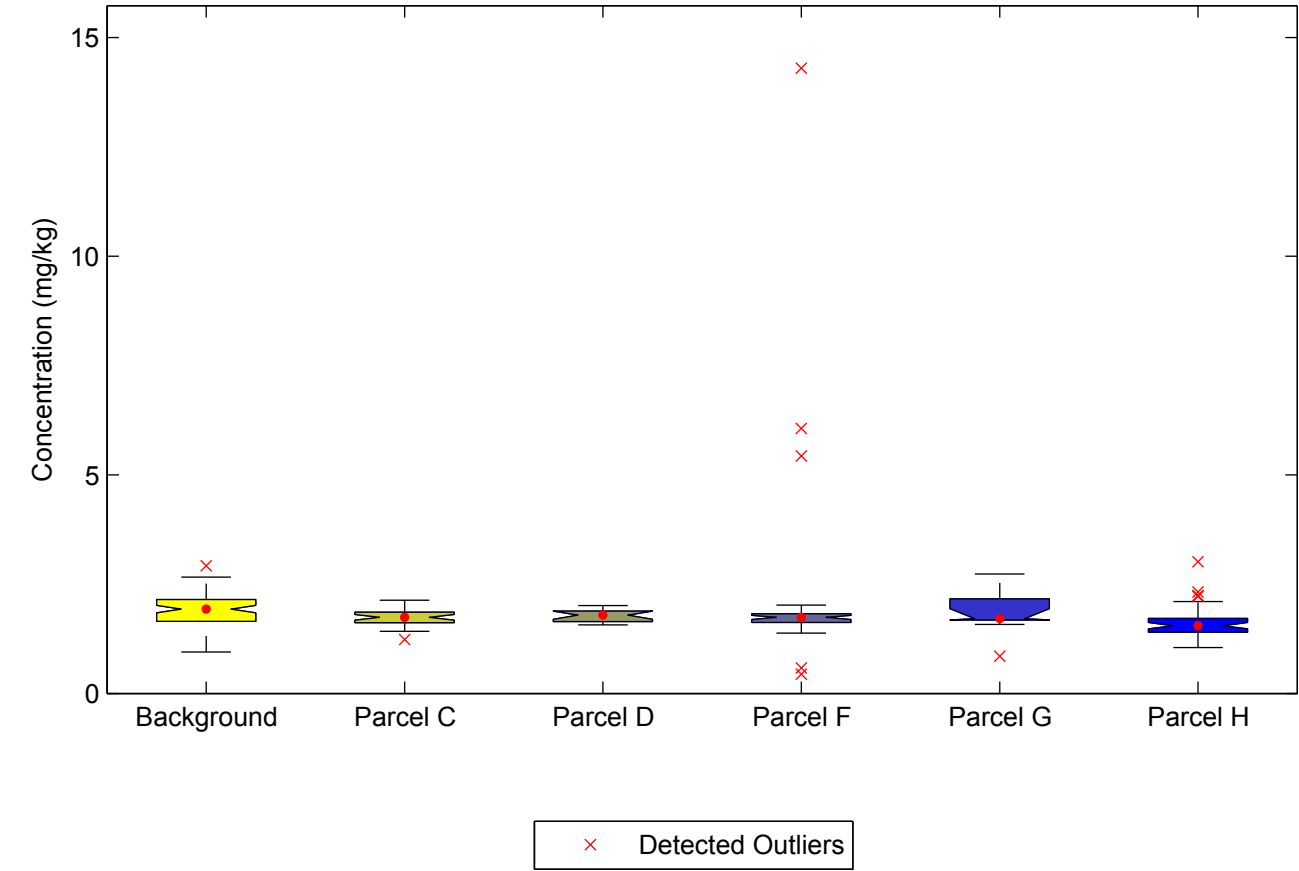
**Figure 3-1. Background vs. Site Boxplots
Ra-226**



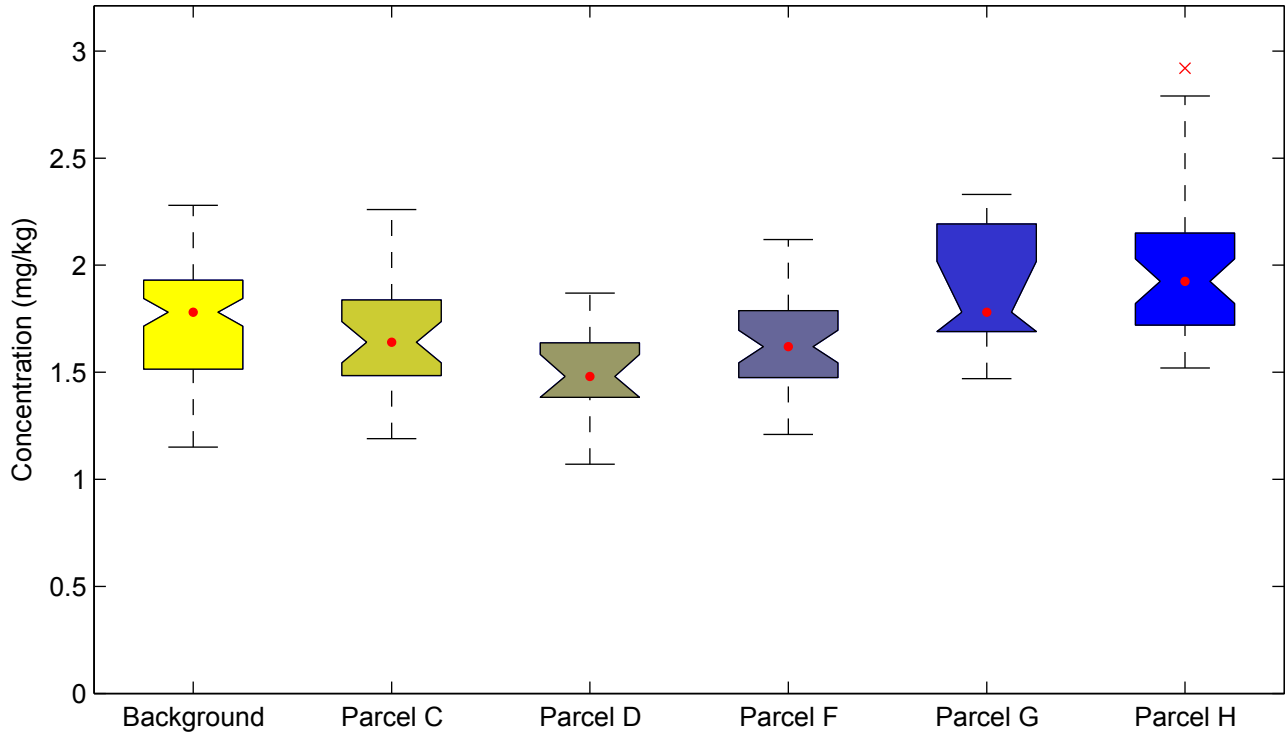
x Detected Outliers



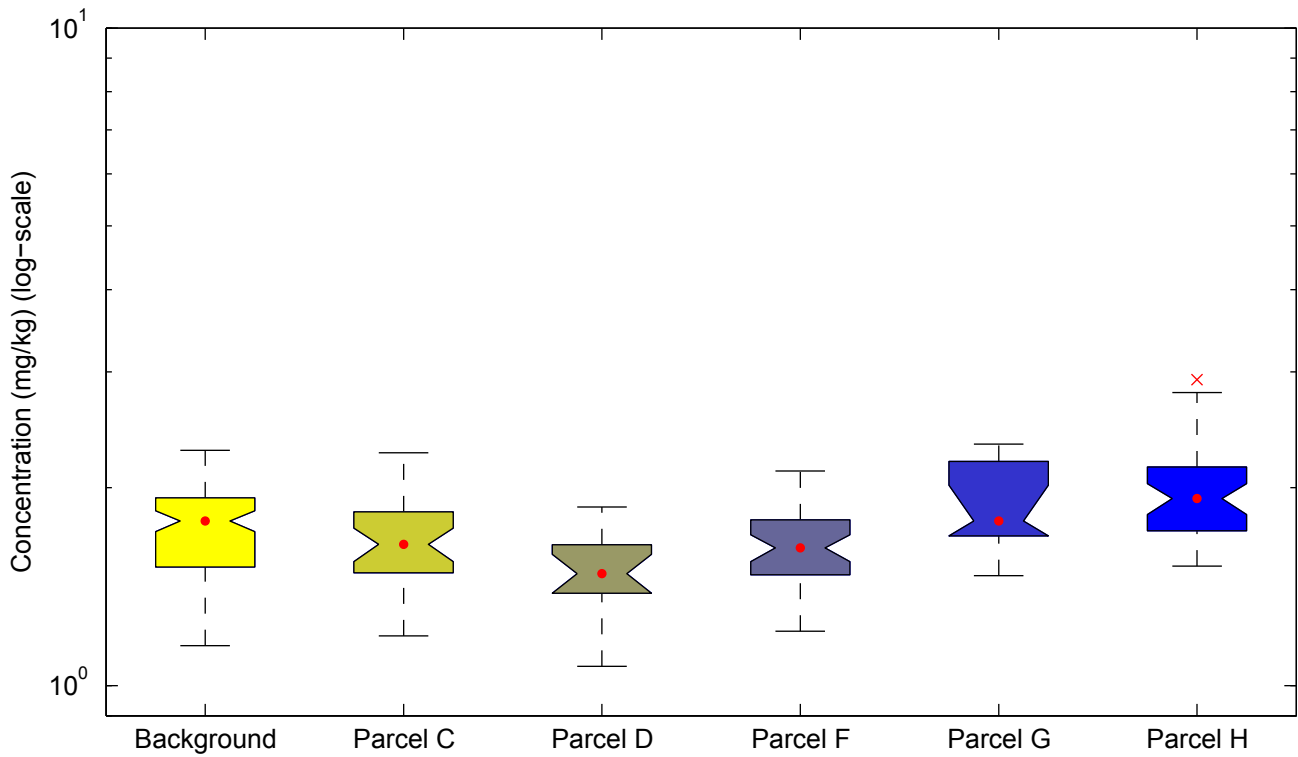
**Figure 3-2. Background vs. Site Boxplots
Ra-228**



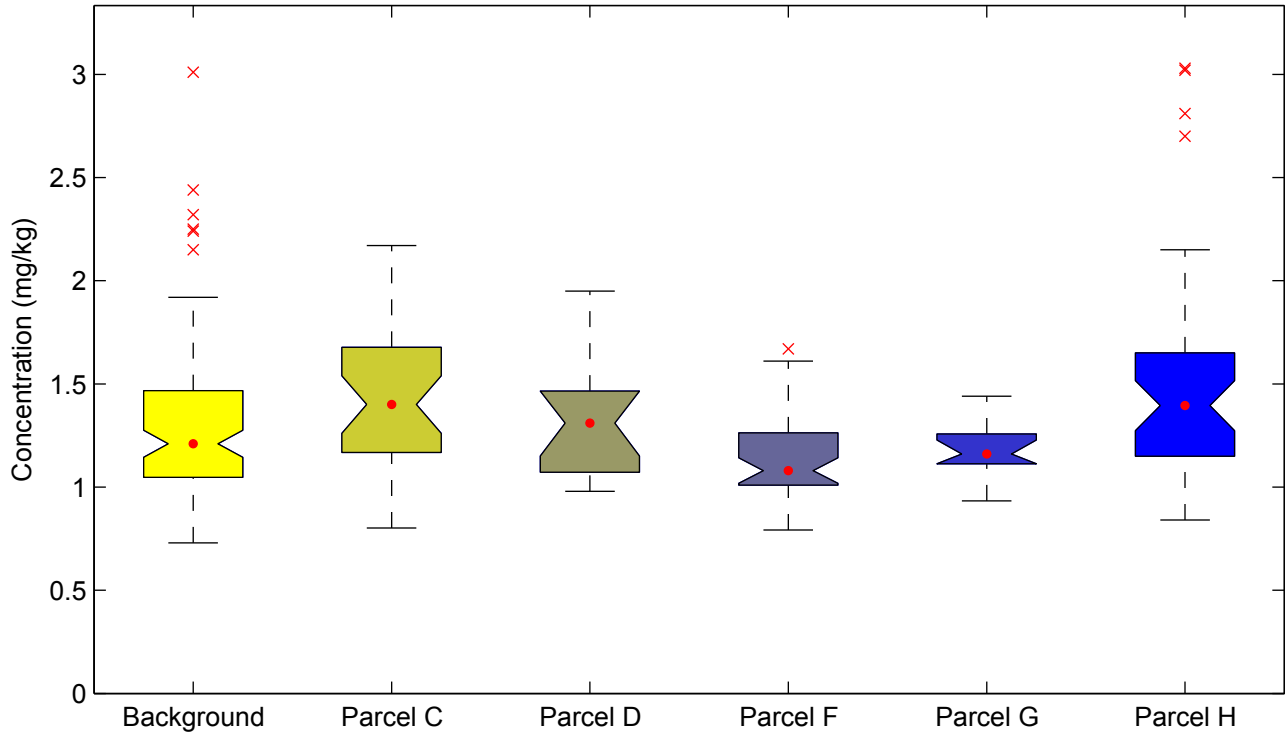
**Figure 3-3. Background vs. Site Boxplots
Th-228**



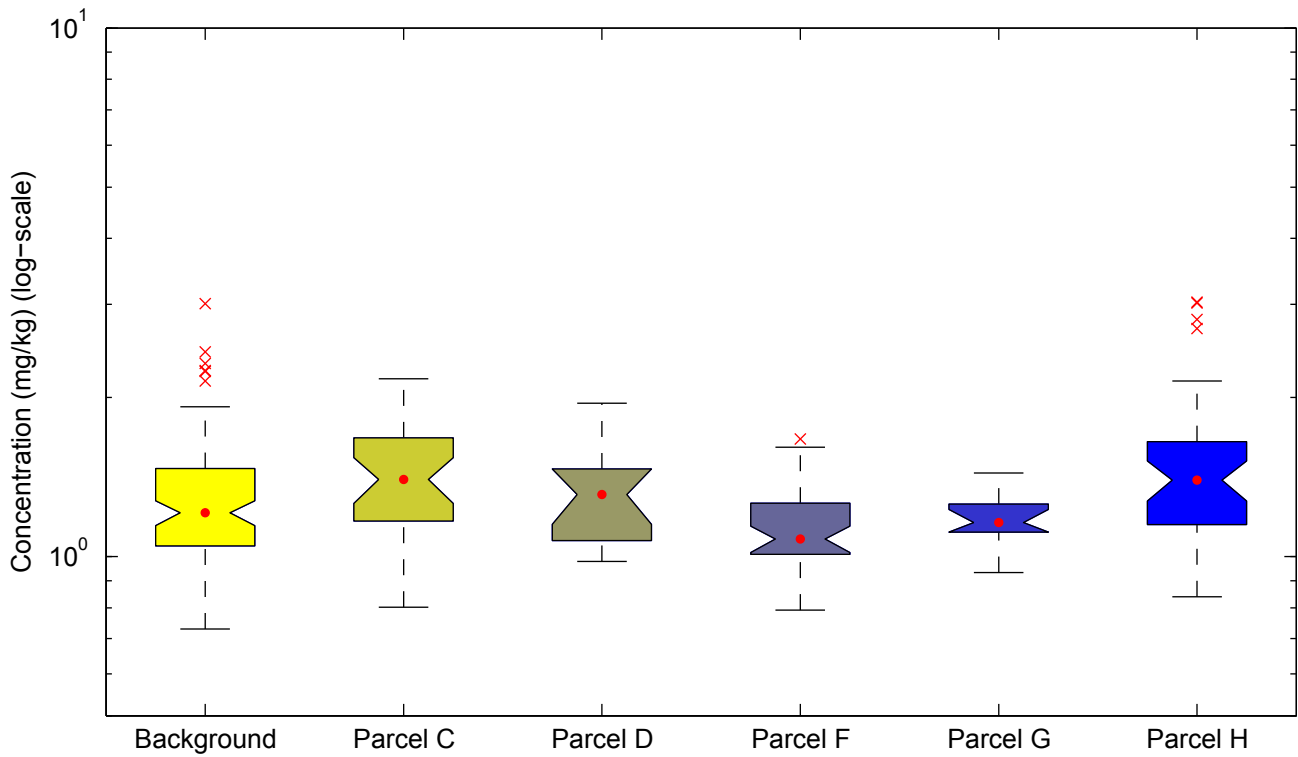
× Detected Outliers



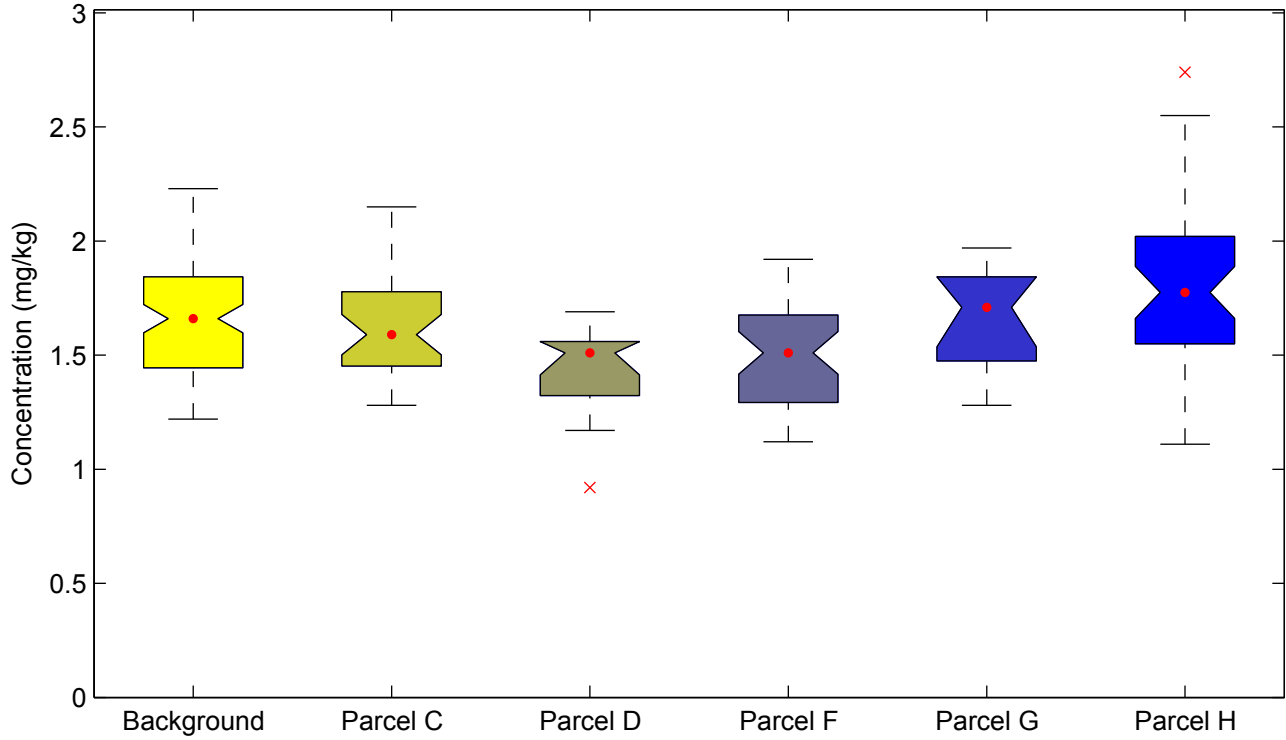
**Figure 3-4. Background vs. Site Boxplots
Th-230**



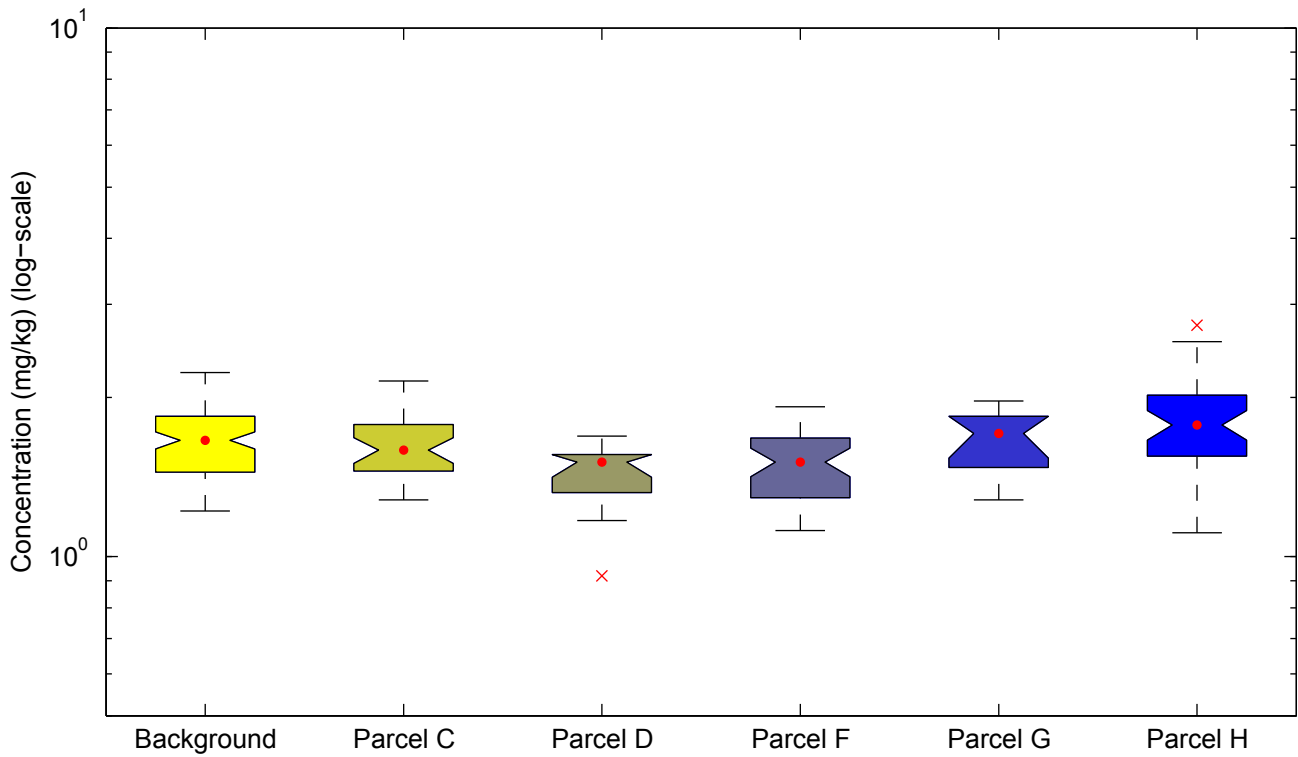
x Detected Outliers



**Figure 3-5. Background vs. Site Boxplots
Th-232**



x Detected Outliers



**Figure 3-6. Background vs. Site Boxplots
U-234**

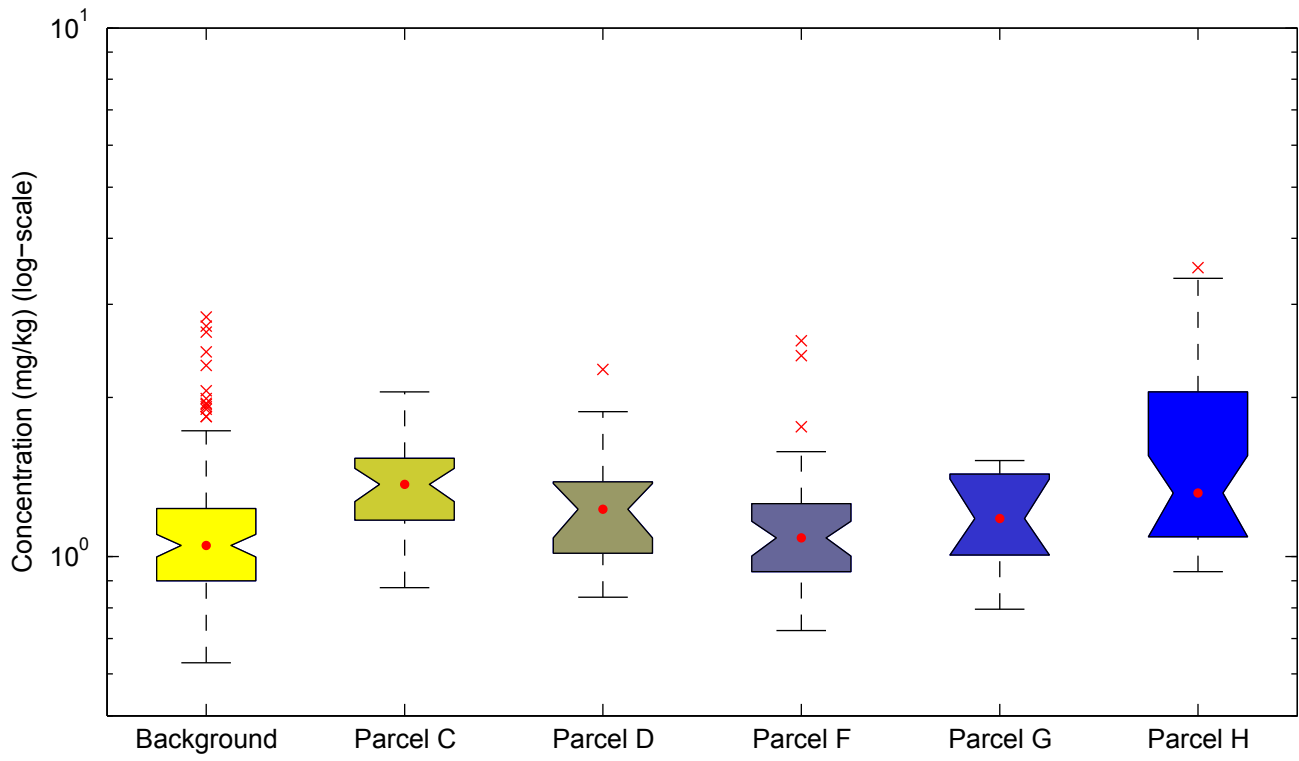
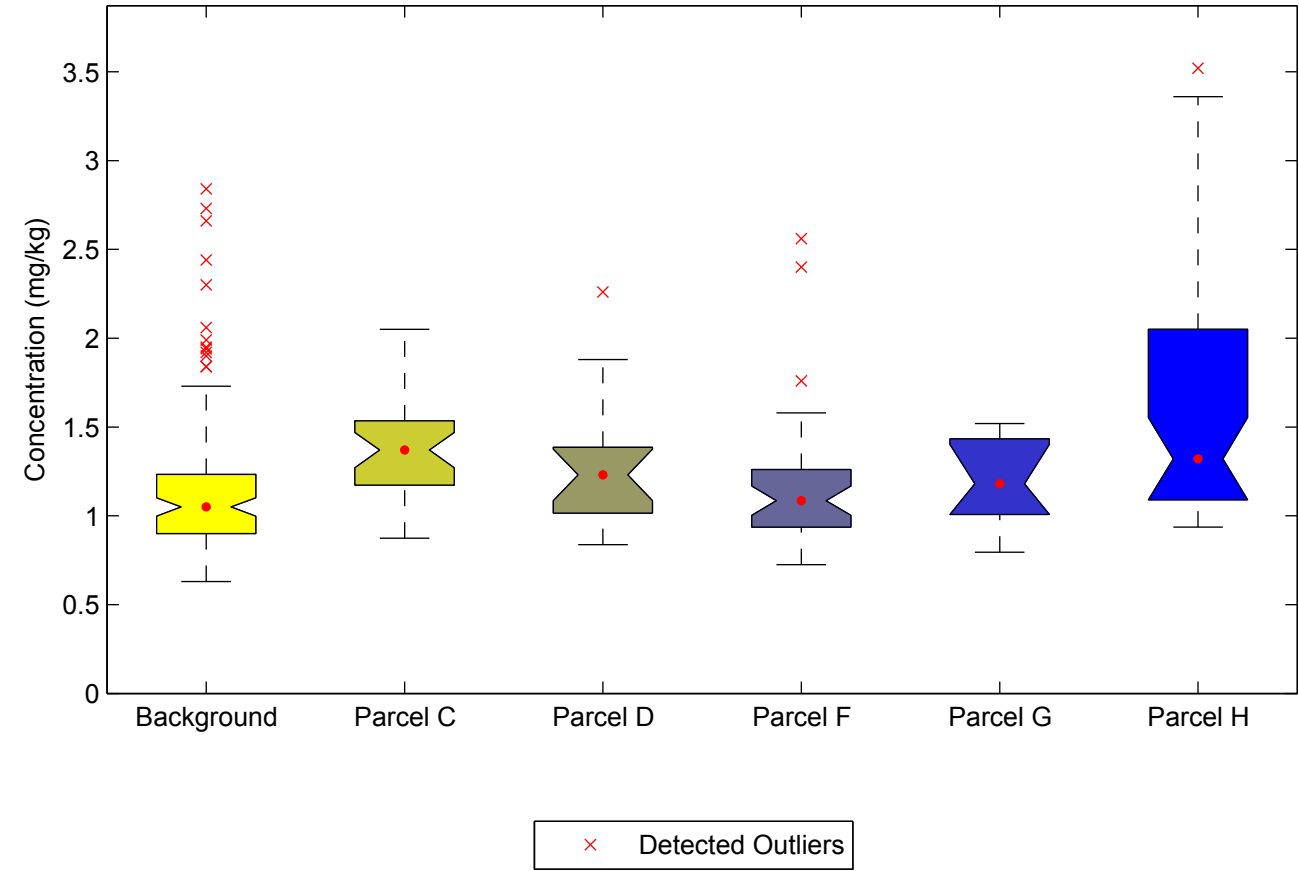
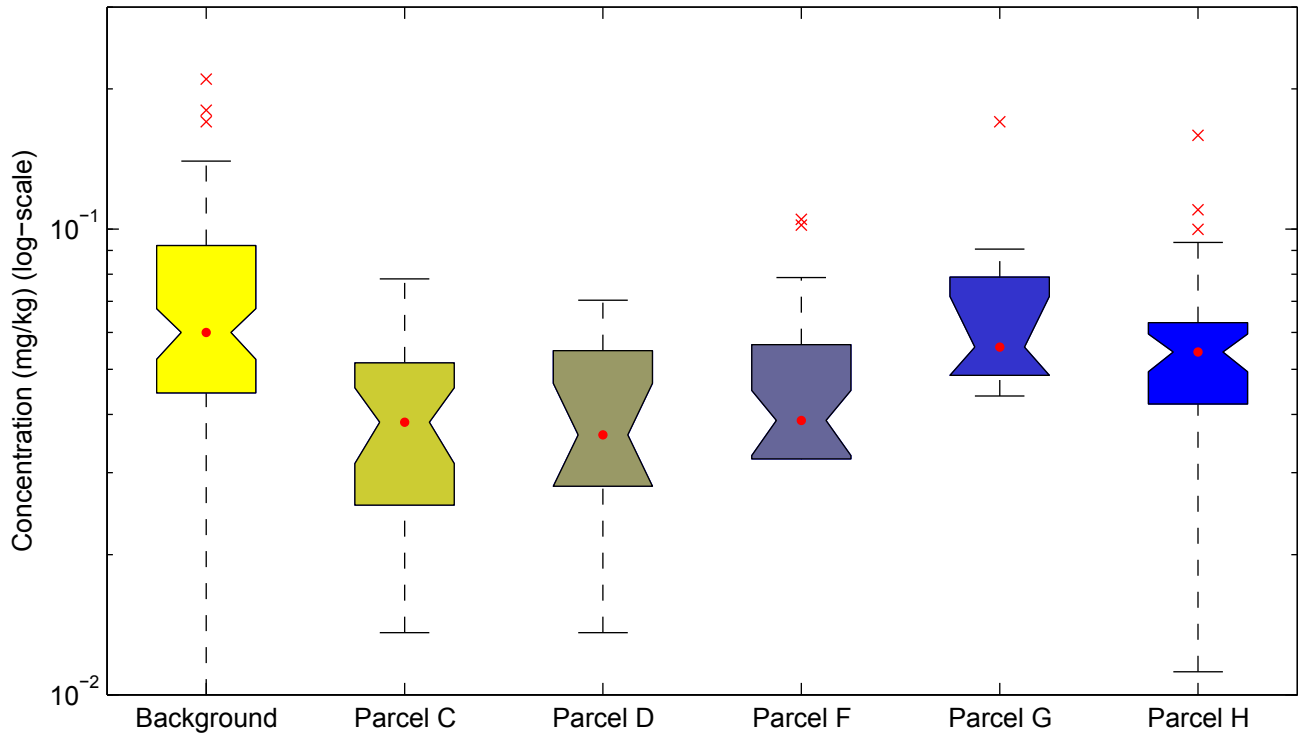
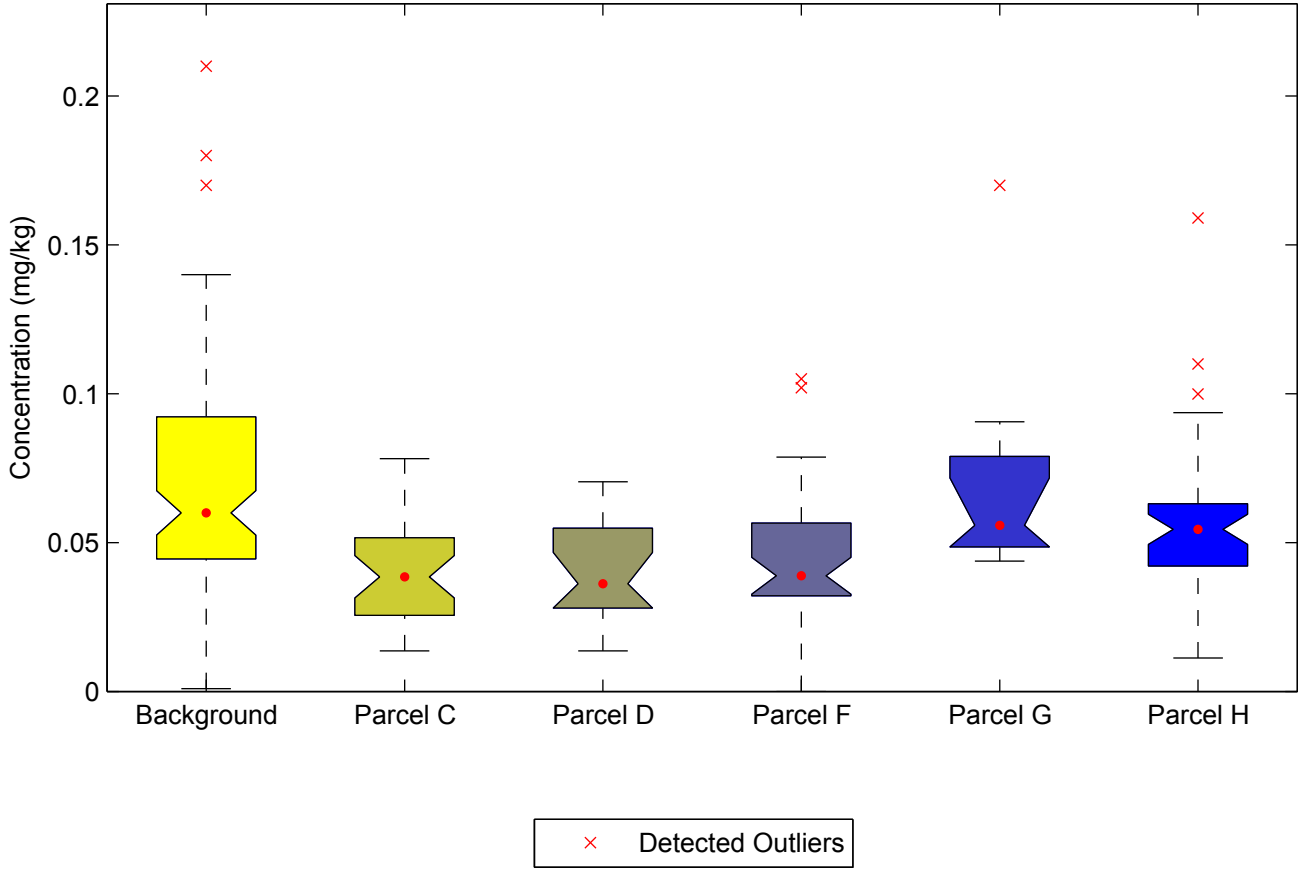
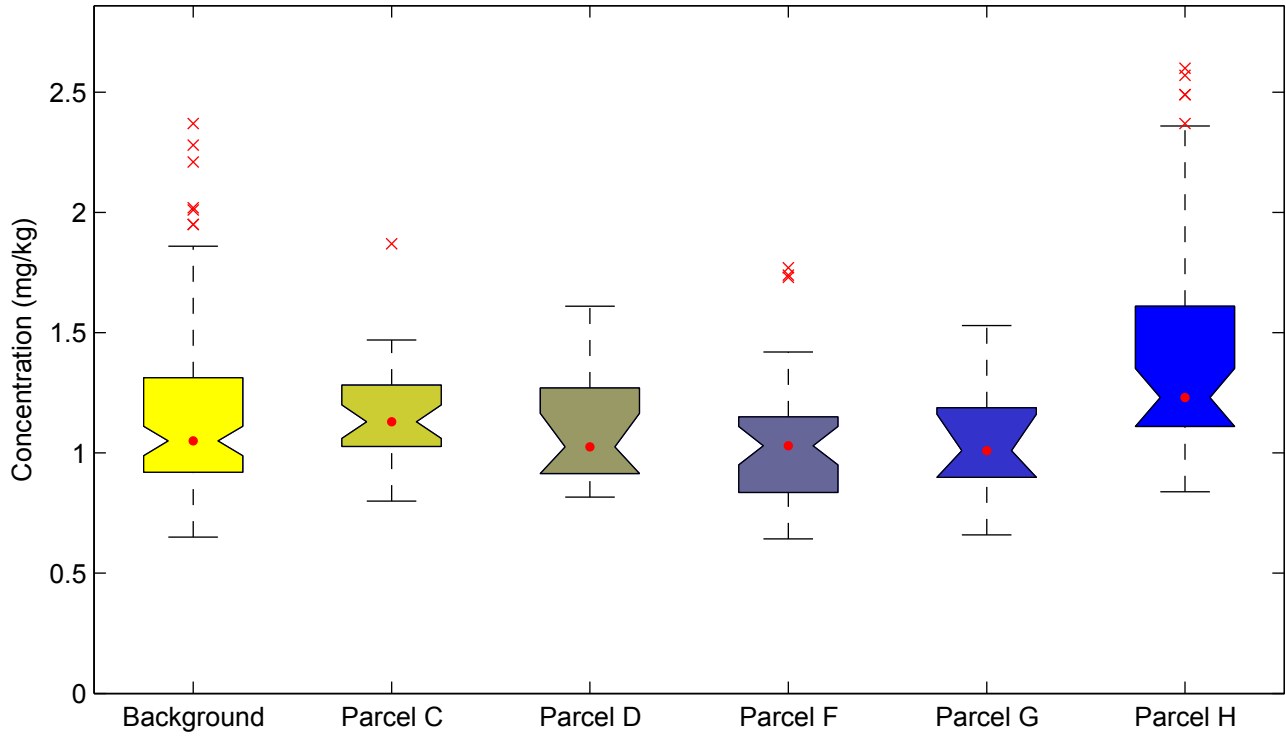


Figure 3-7. Background vs. Site Boxplots
U-235



**Figure 3–8. Background vs. Site Boxplots
U-238**



× Detected Outliers

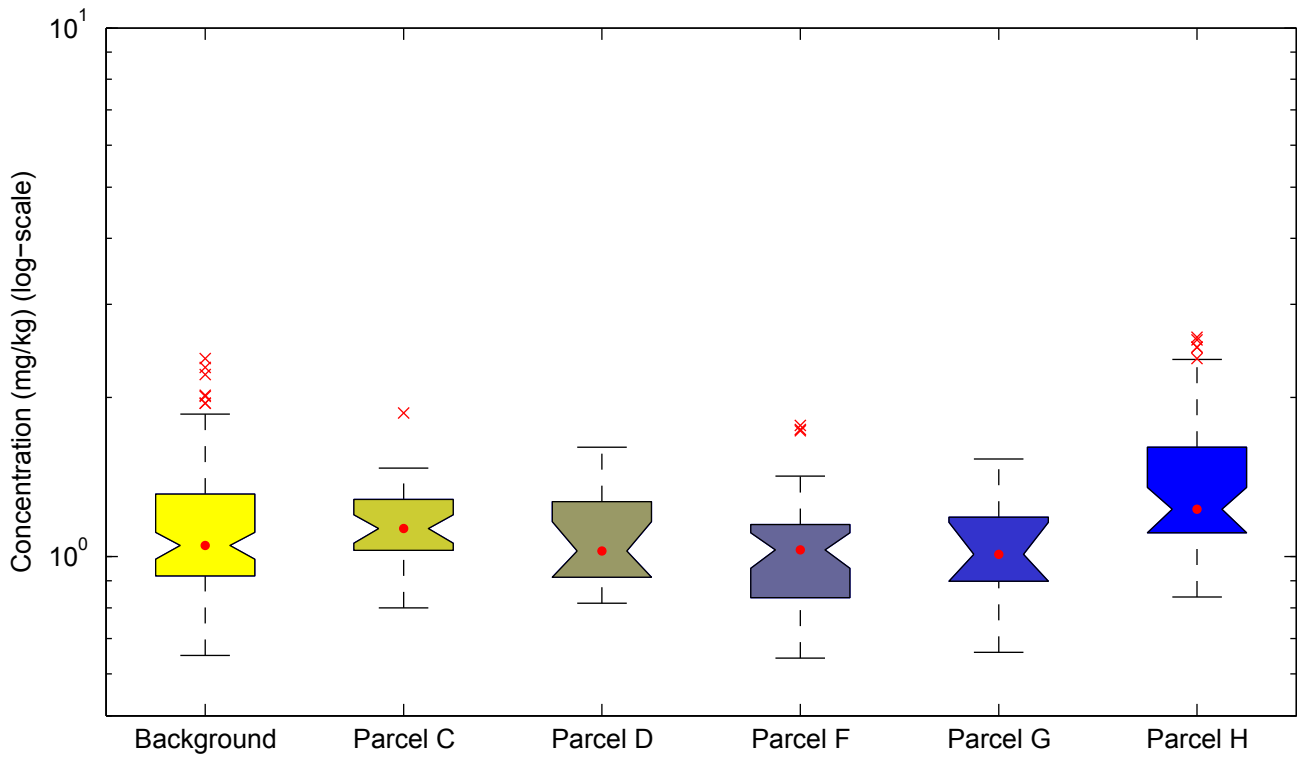


Figure 4-1A. Normal Q-Q Plots
Ra-226

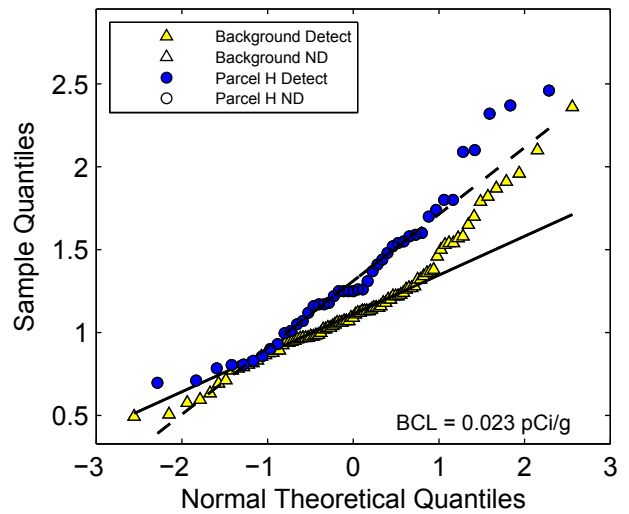
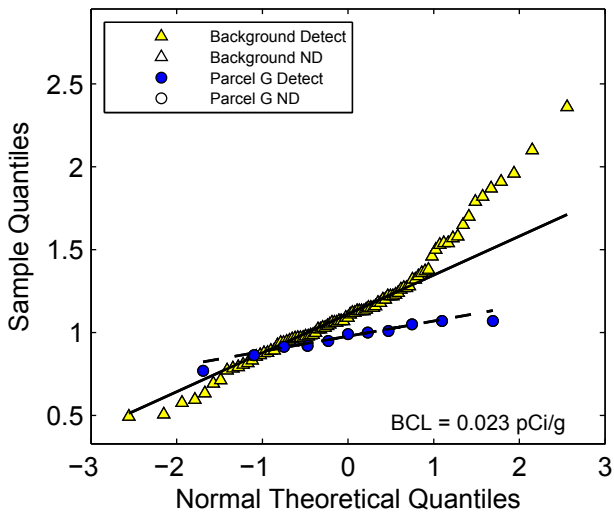
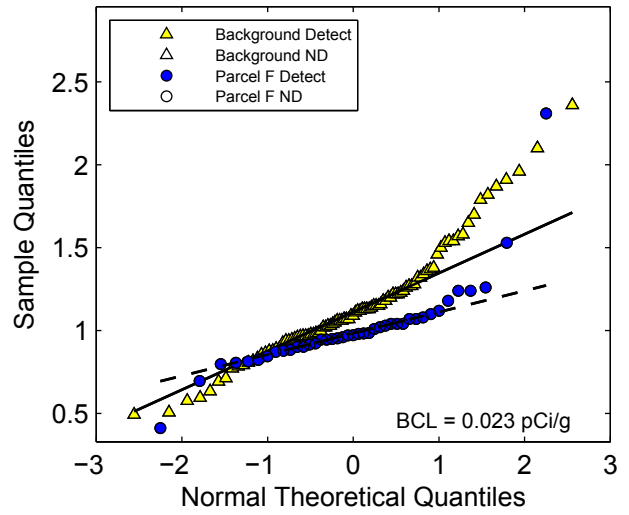
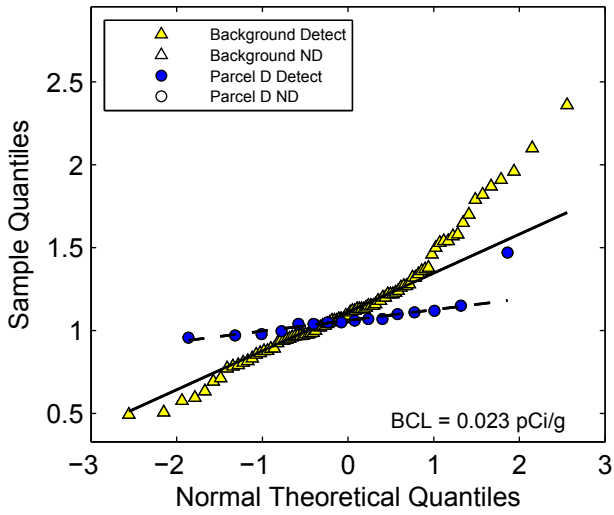
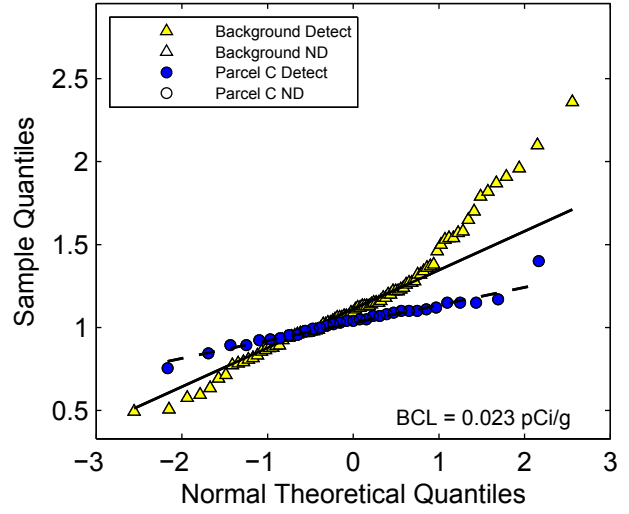
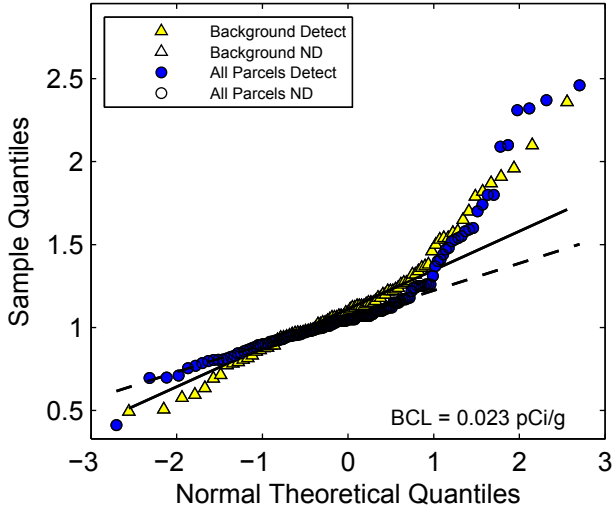


Figure 4-1B. Lognormal Q-Q Plots
Ra-226

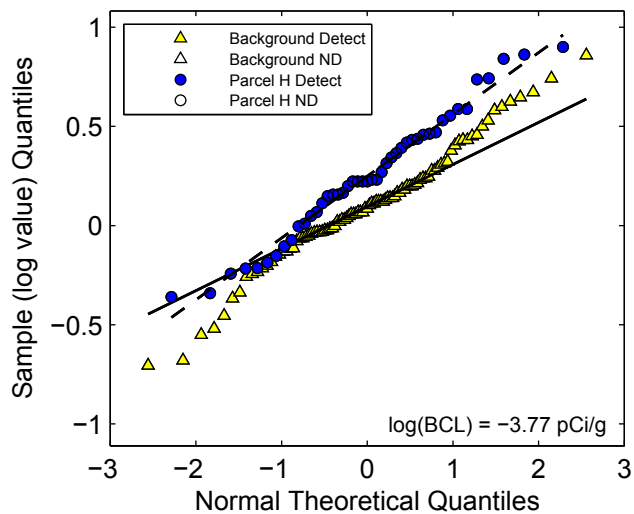
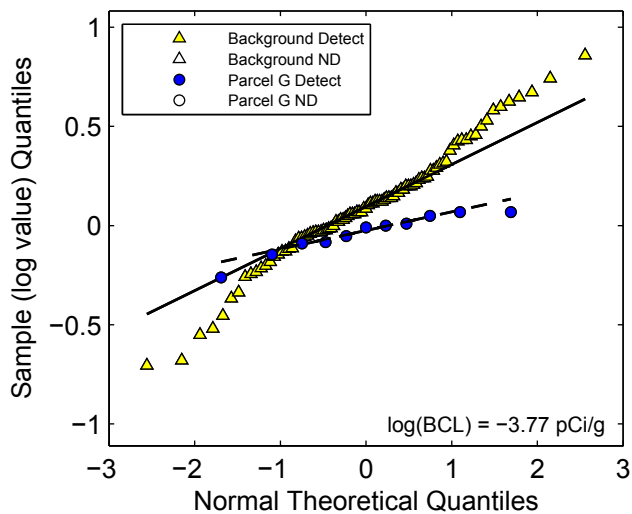
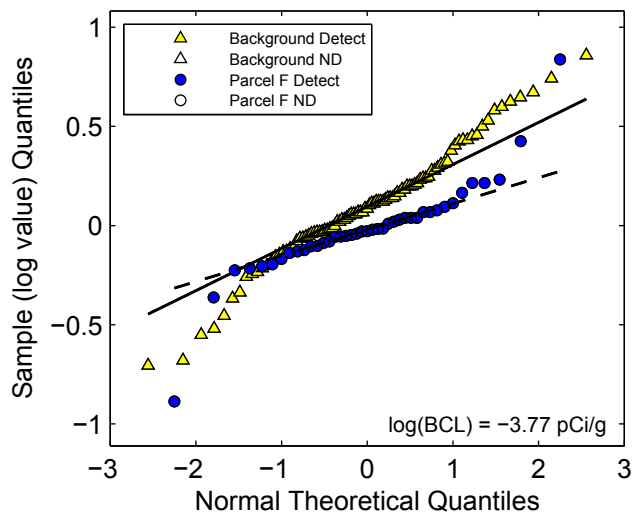
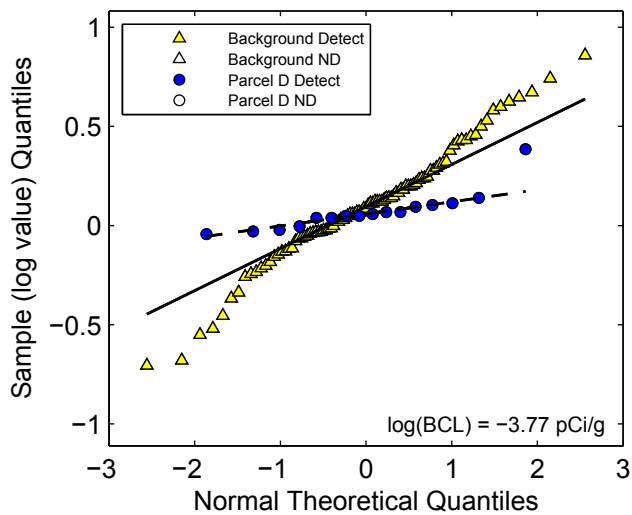
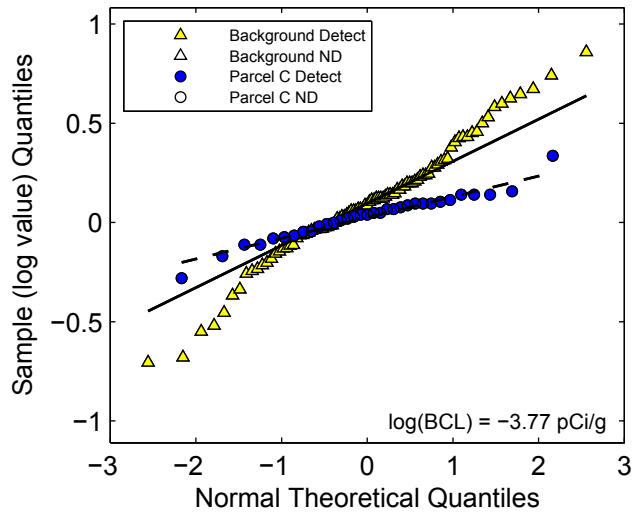
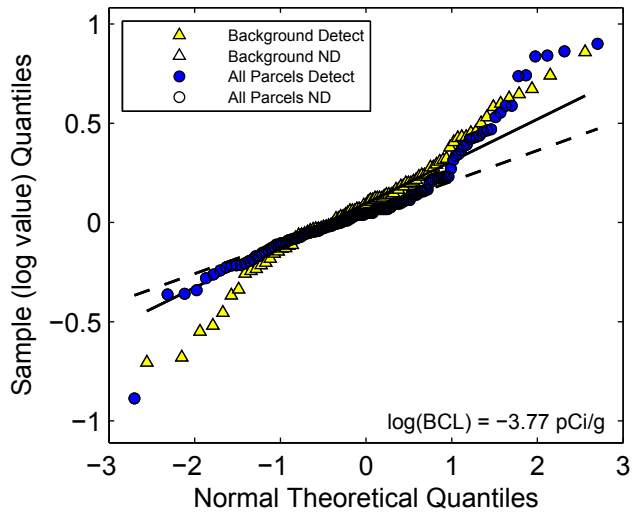


Figure 4-2A. Normal Q-Q Plots
Ra-228

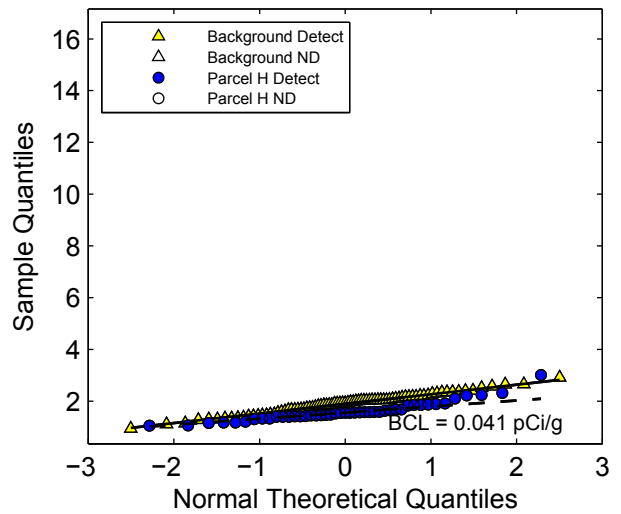
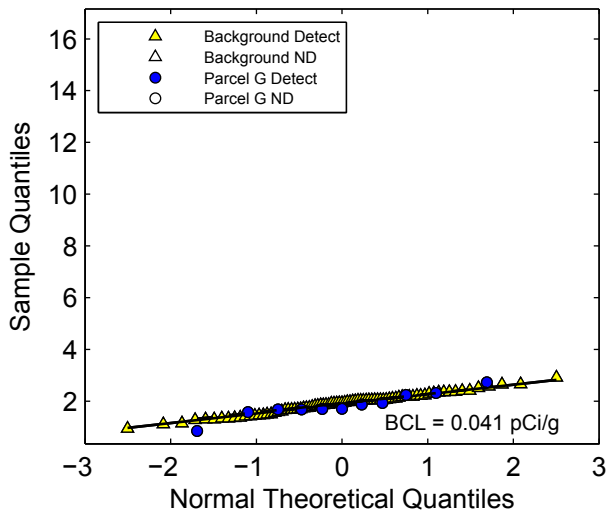
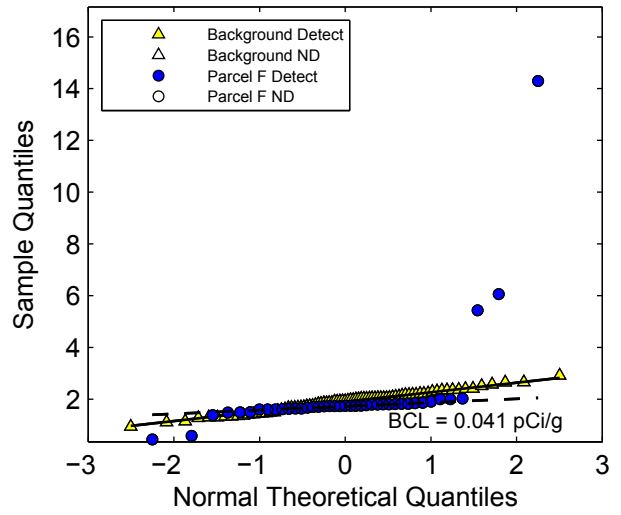
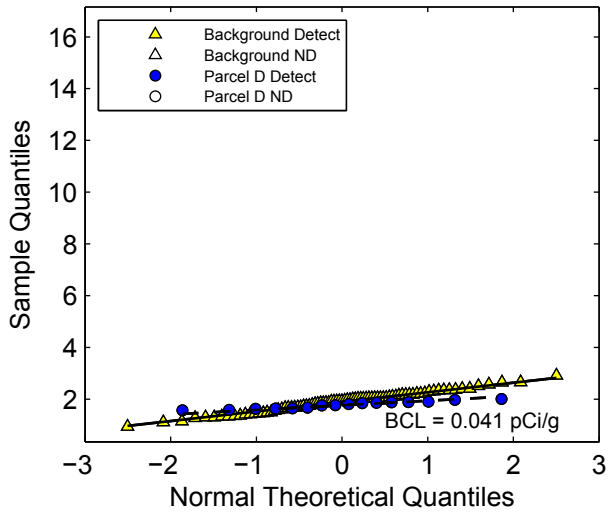
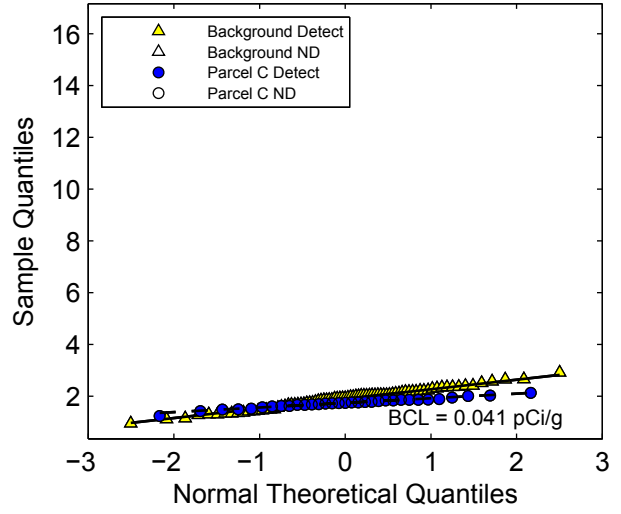
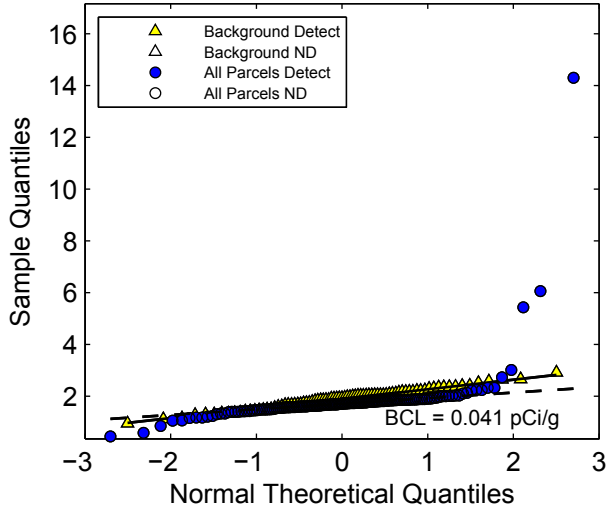


Figure 4-2B. Lognormal Q-Q Plots
Ra-228

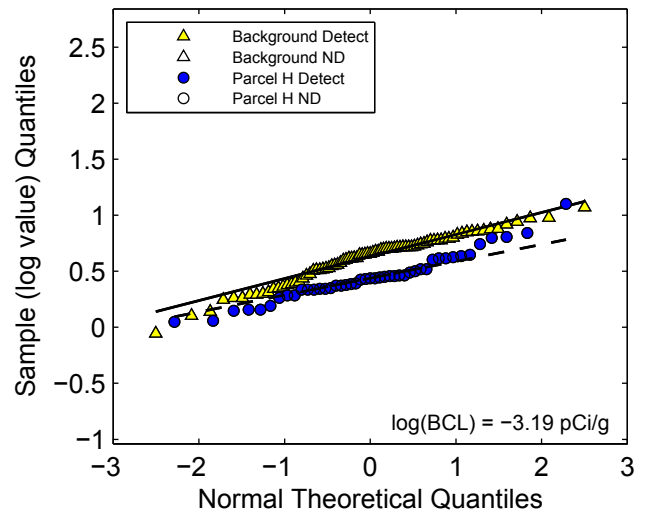
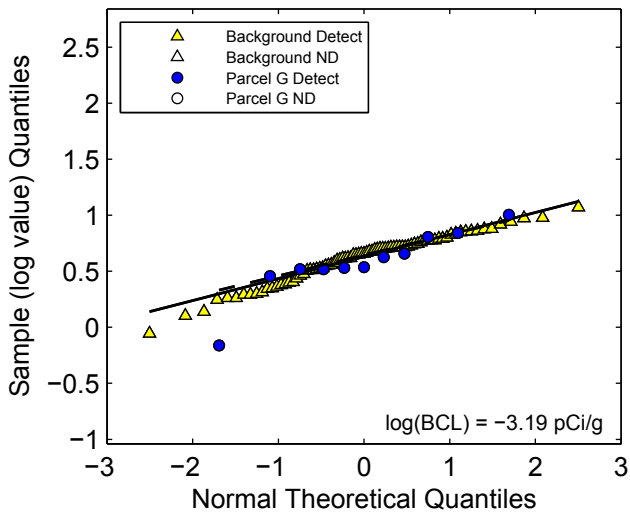
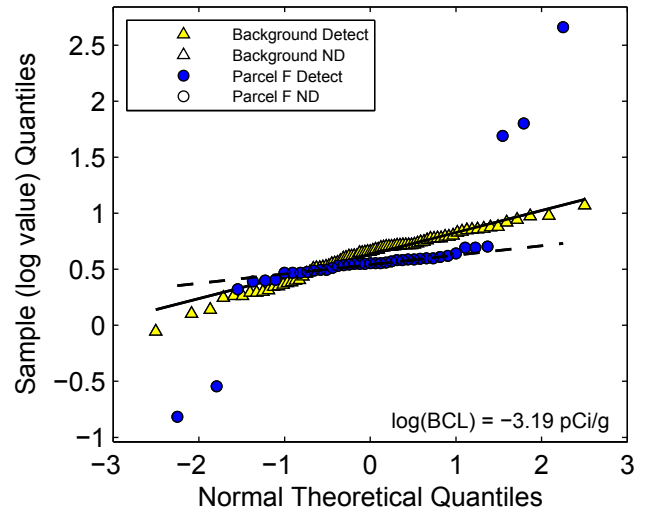
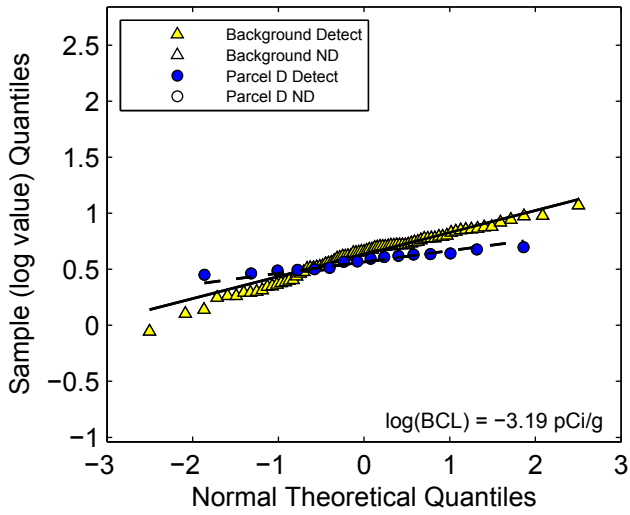
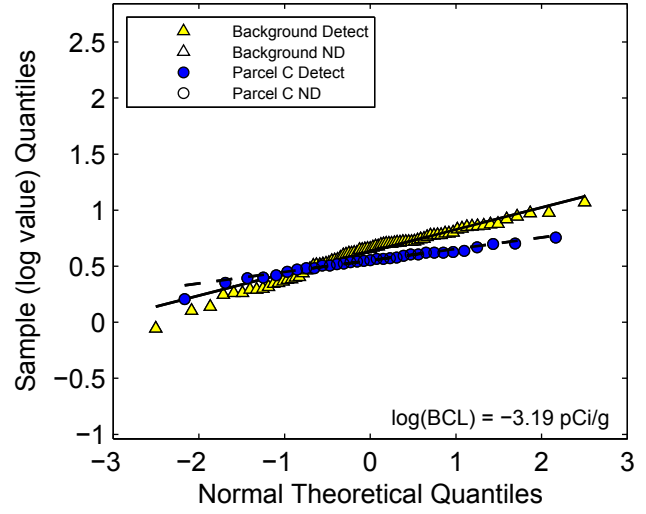
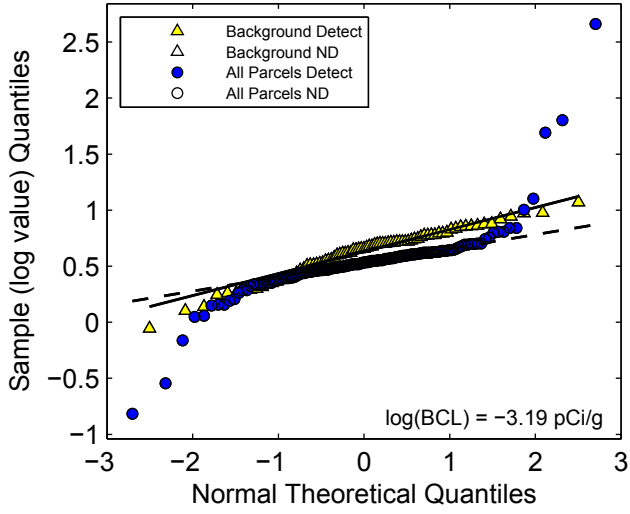


Figure 4-3A. Normal Q-Q Plots
Th-228

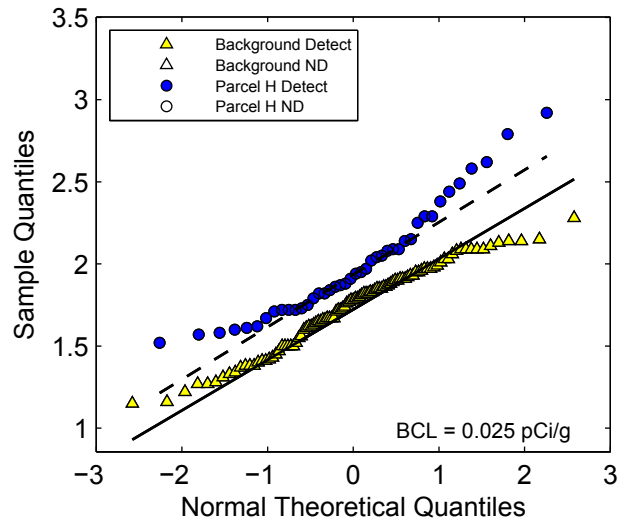
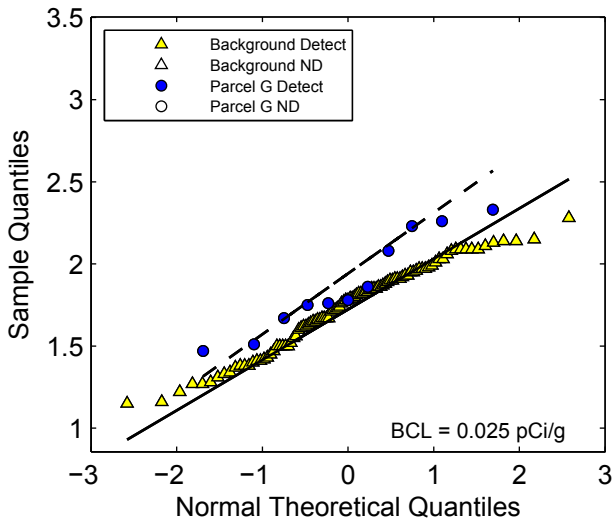
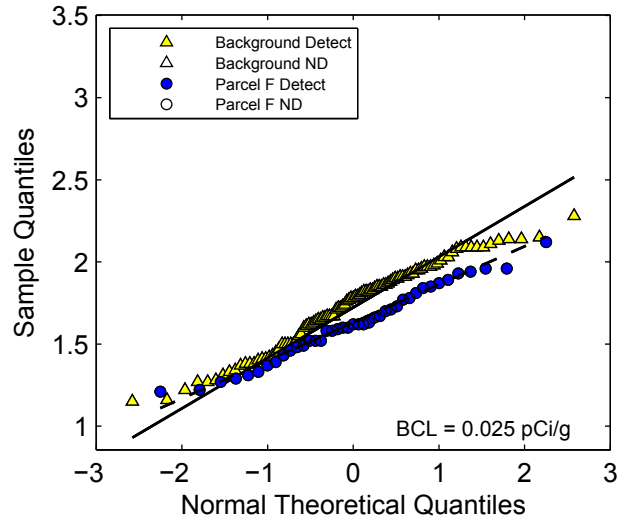
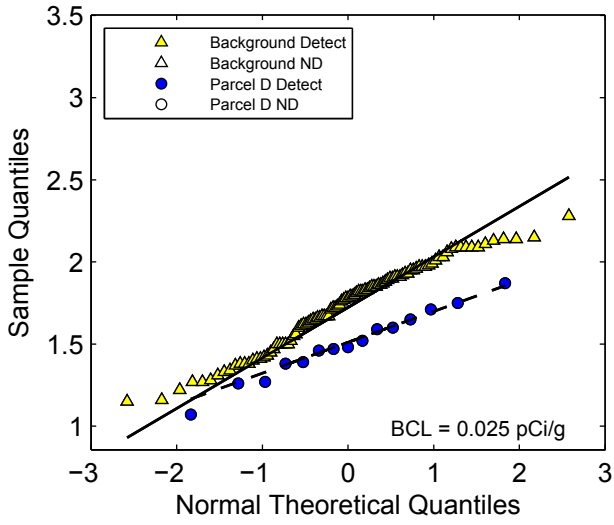
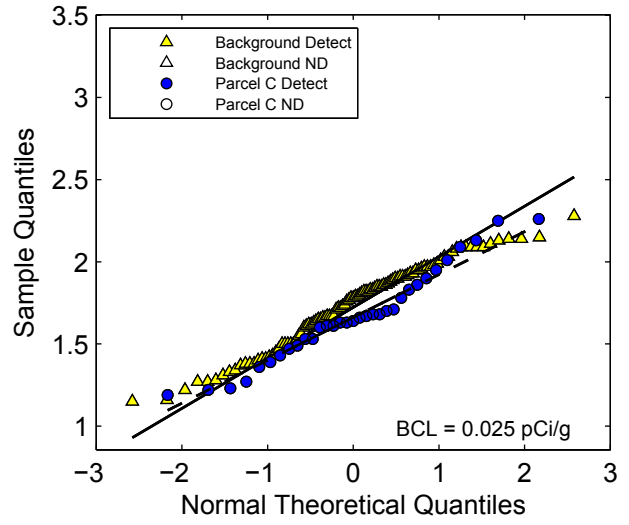
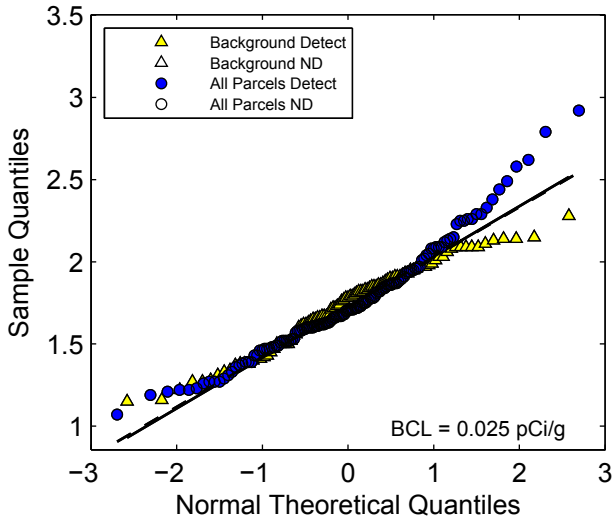


Figure 4-3B. Lognormal Q-Q Plots
Th-228

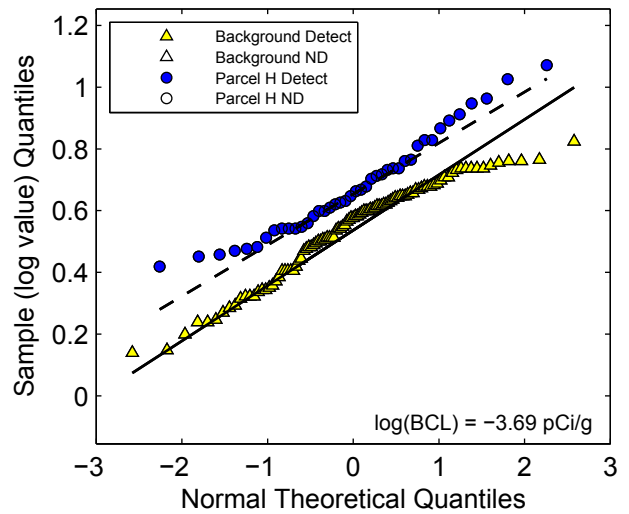
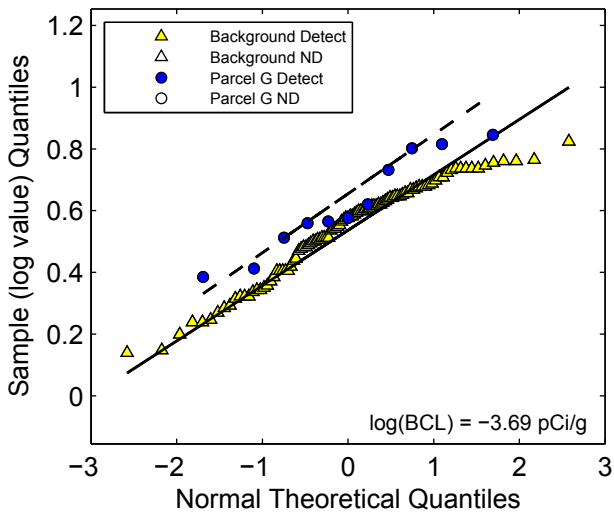
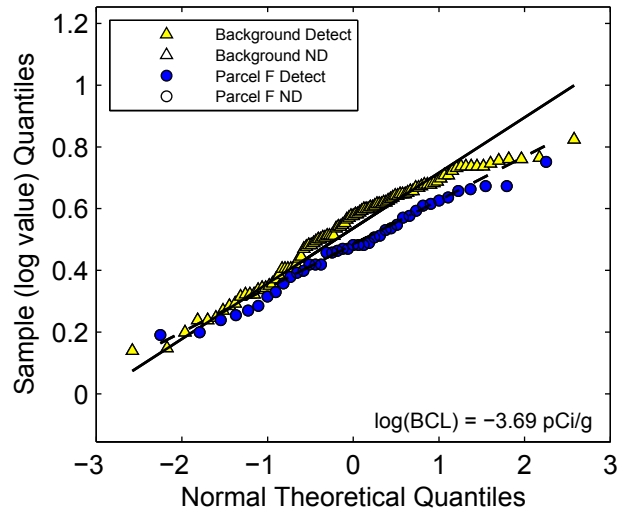
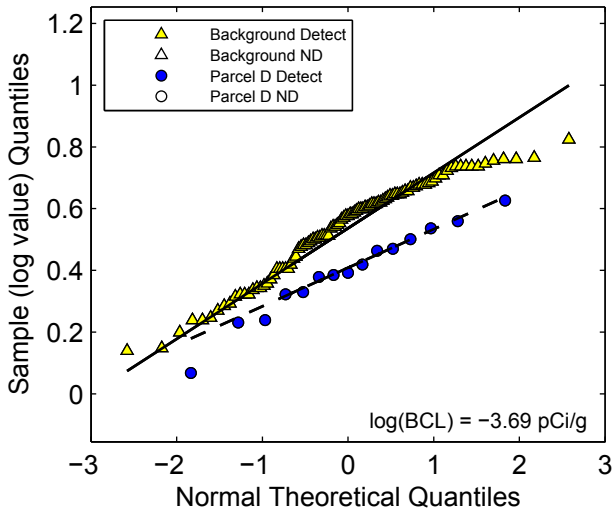
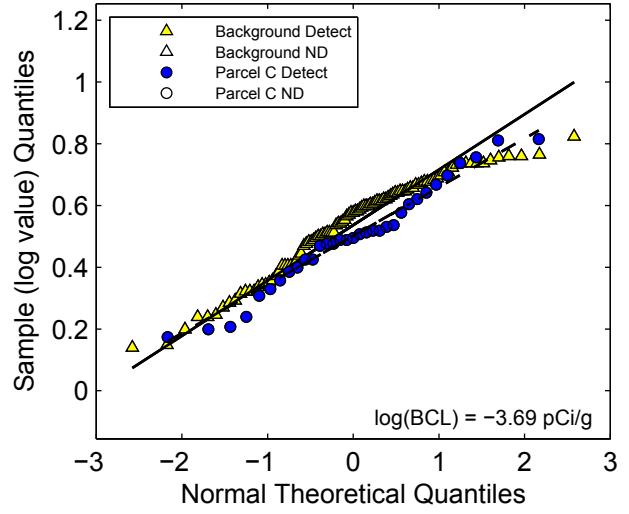
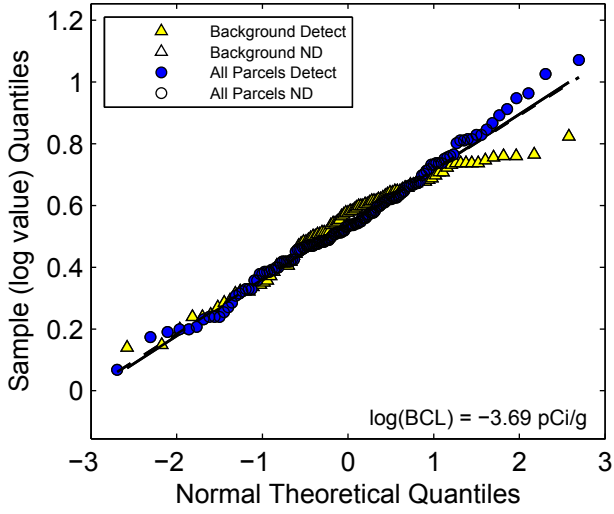


Figure 4-4A. Normal Q-Q Plots
Th-230

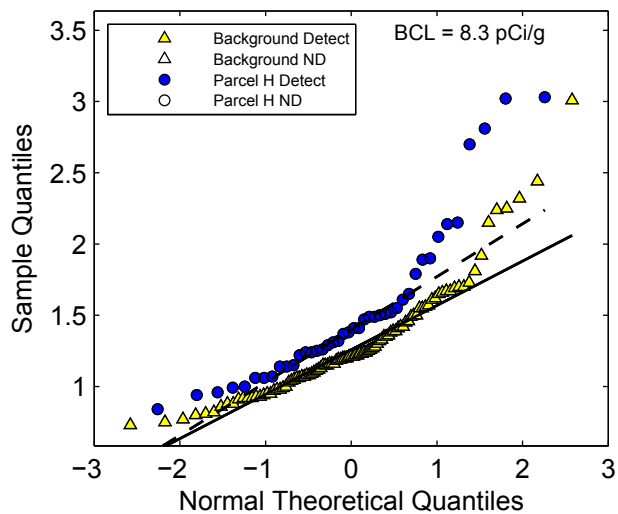
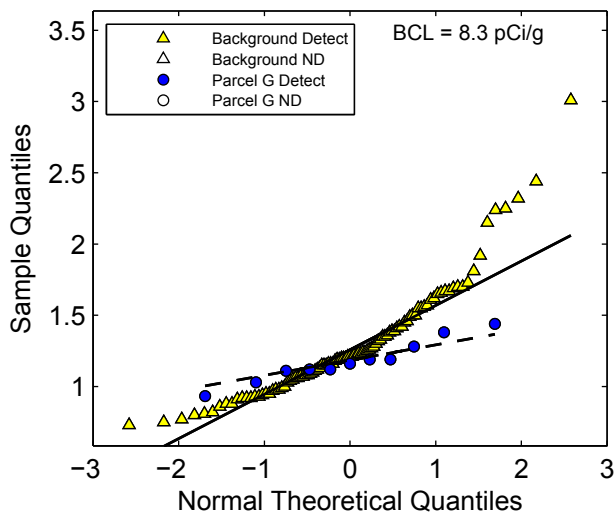
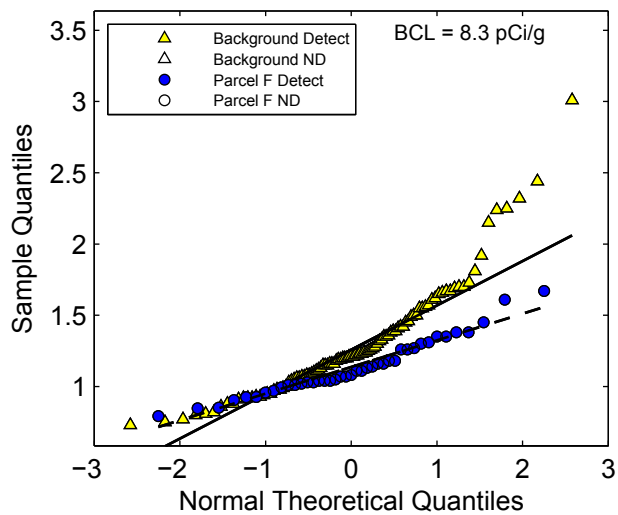
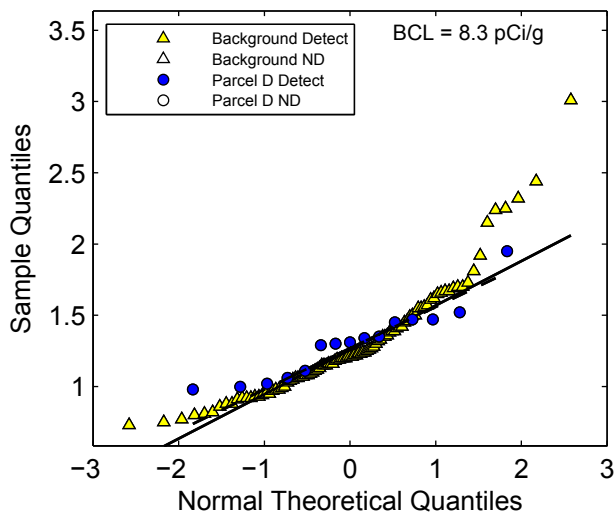
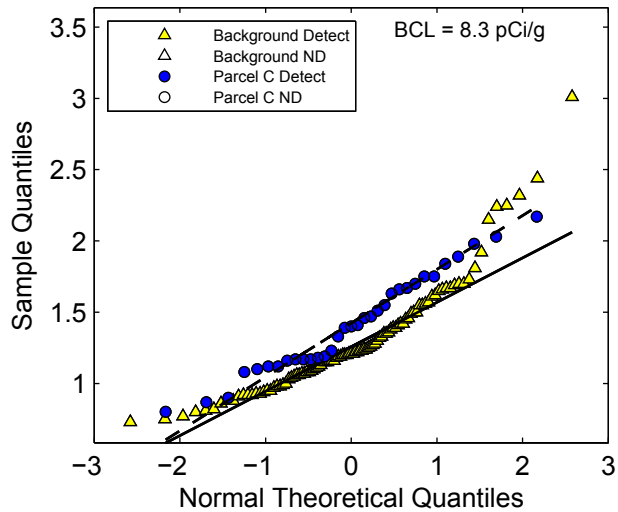
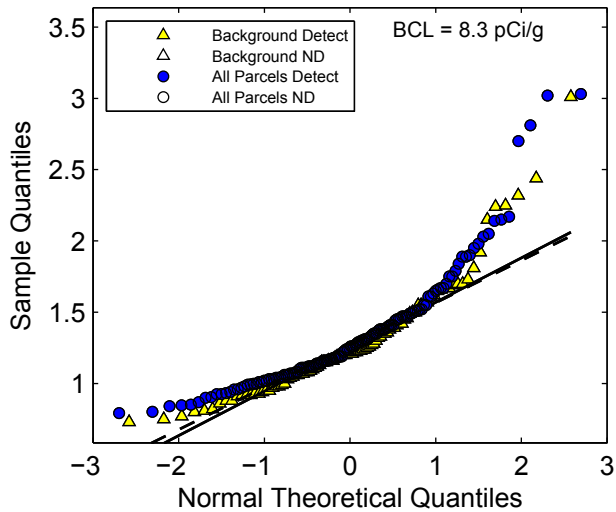


Figure 4-4B. Lognormal Q-Q Plots
Th-230

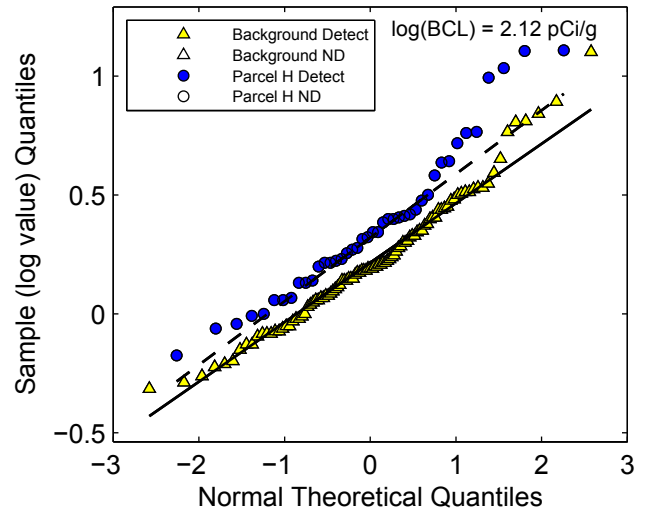
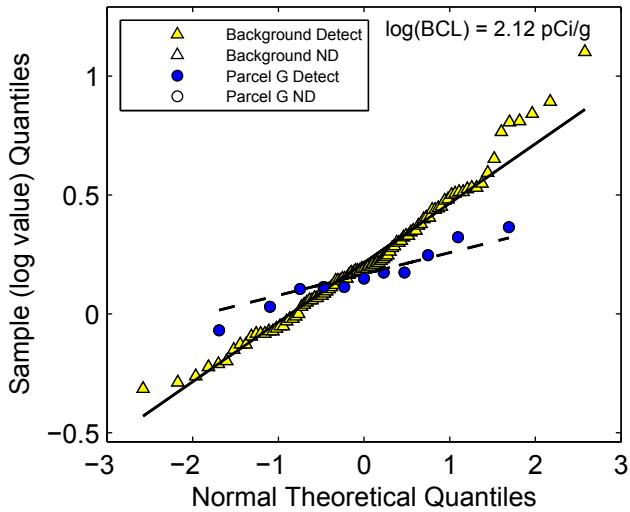
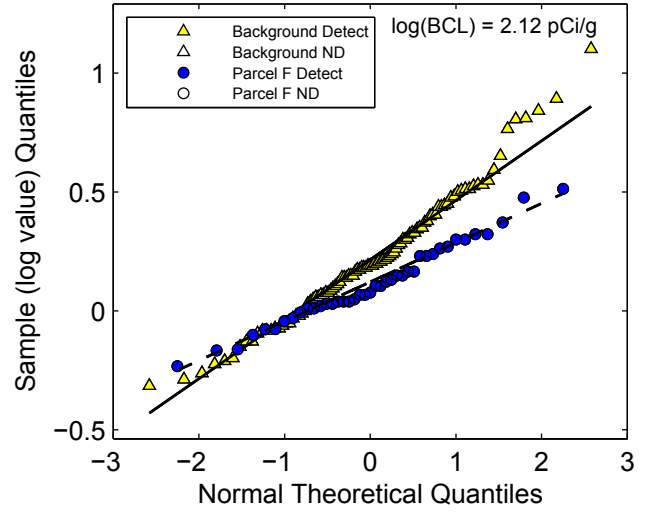
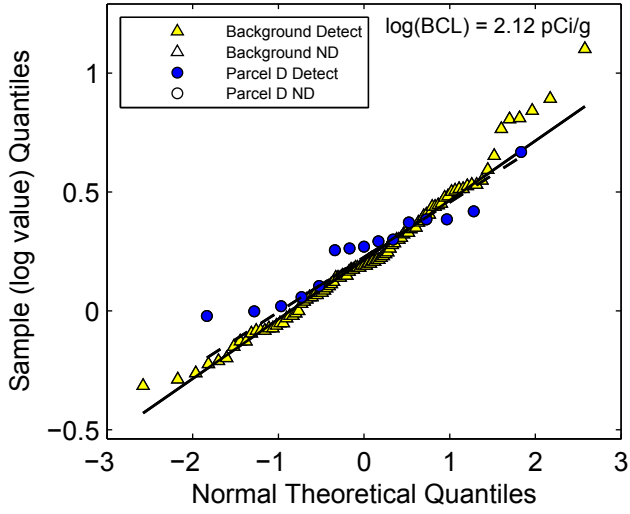
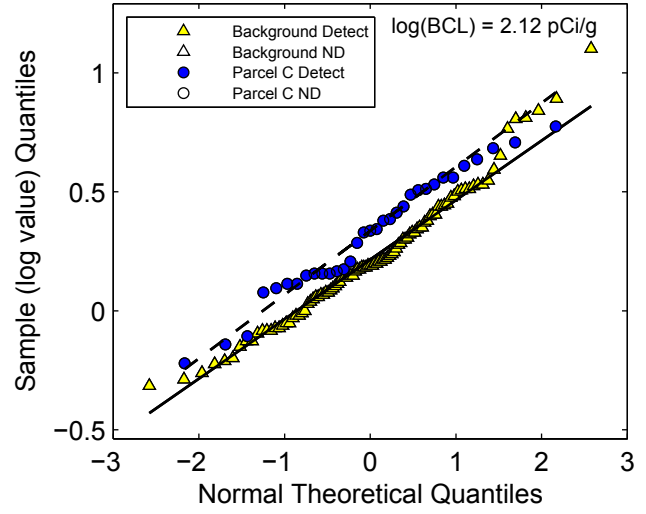
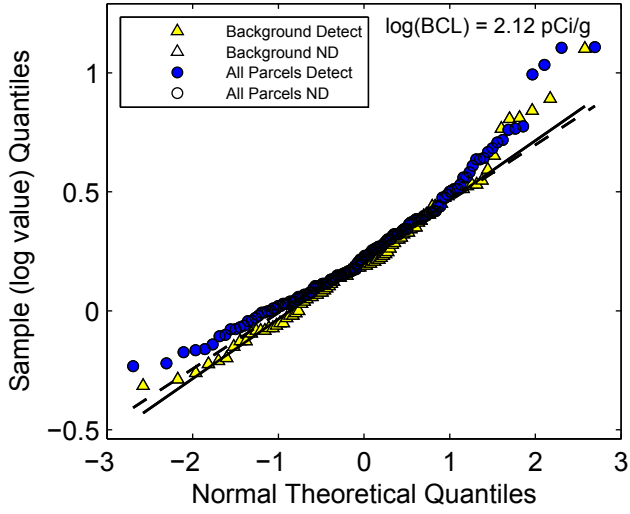


Figure 4-5A. Normal Q-Q Plots
Th-232

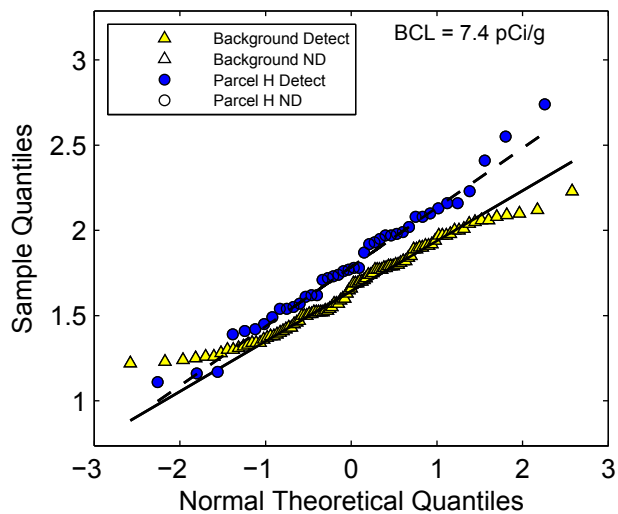
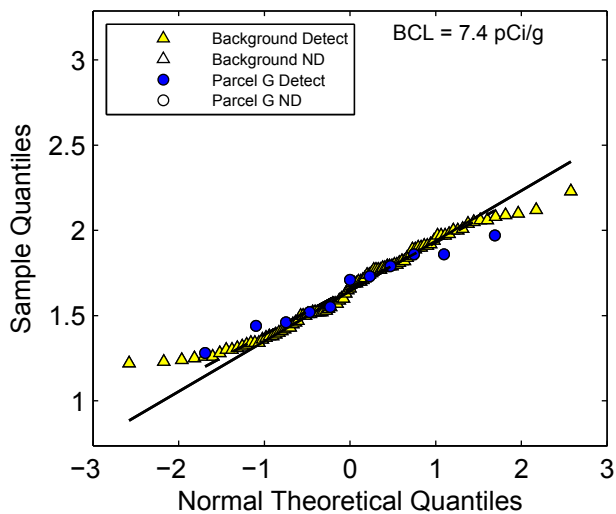
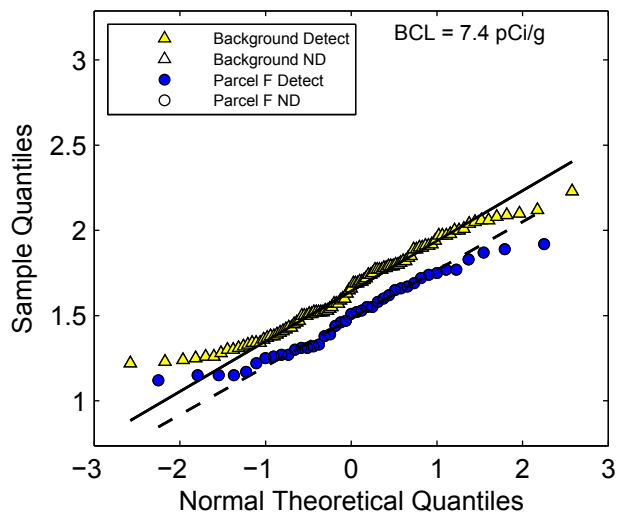
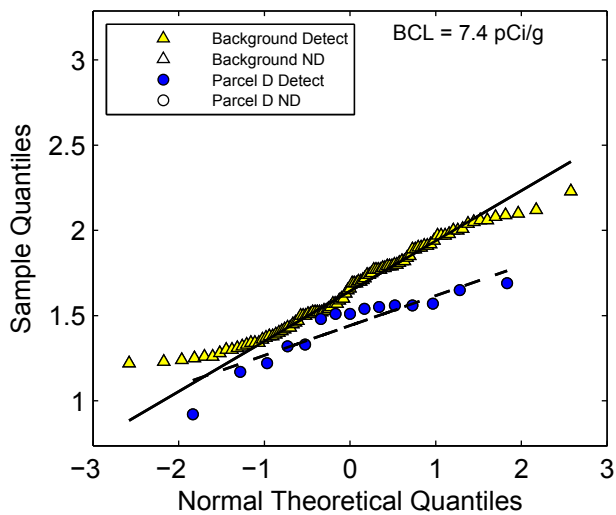
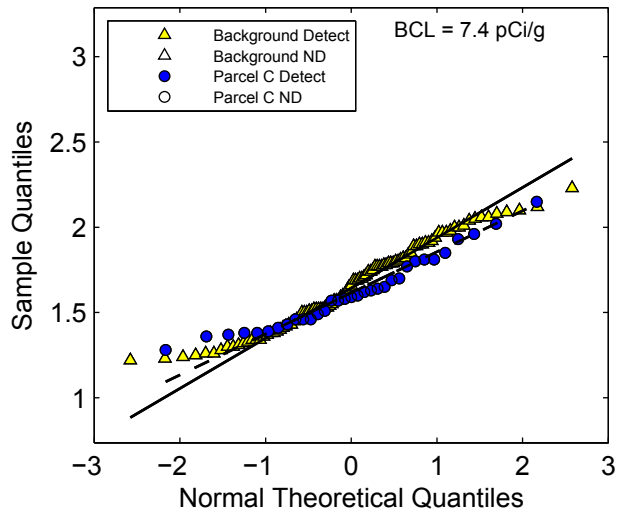
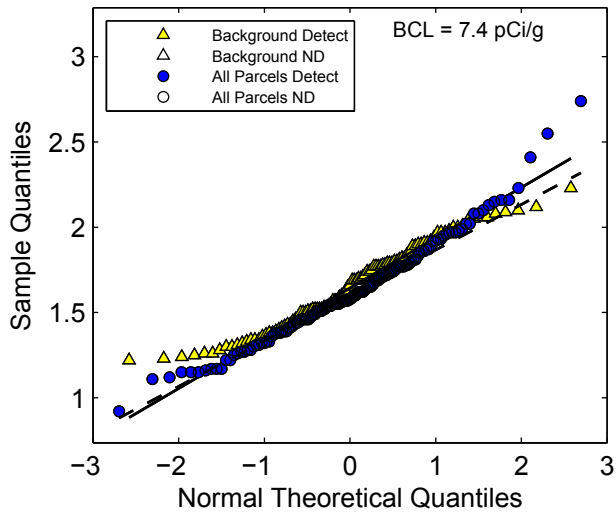


Figure 4-5B. Lognormal Q-Q Plots
Th-232

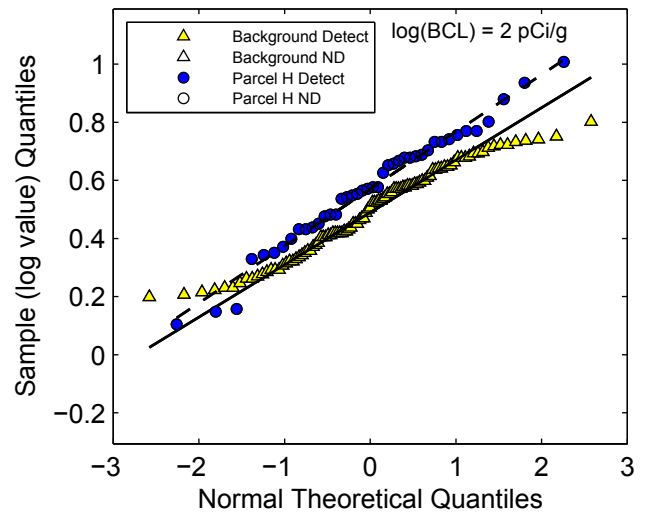
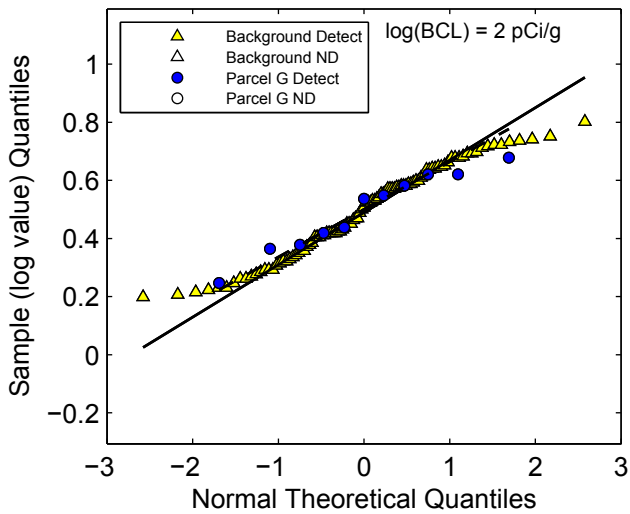
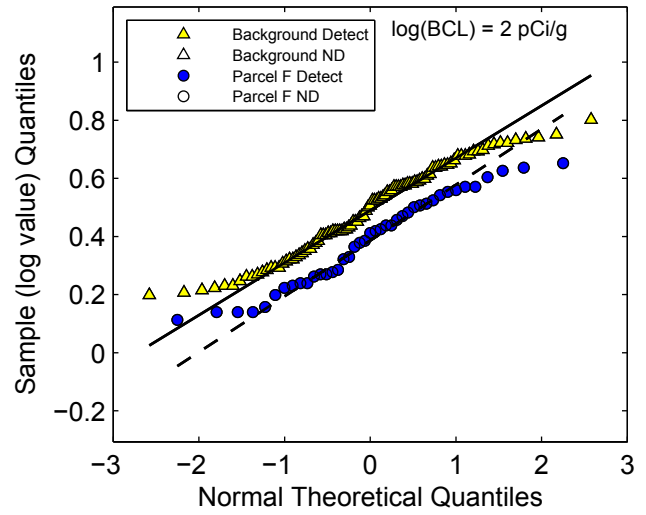
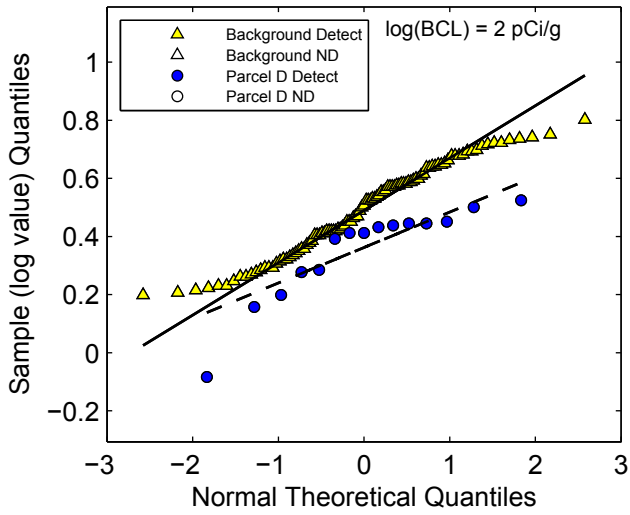
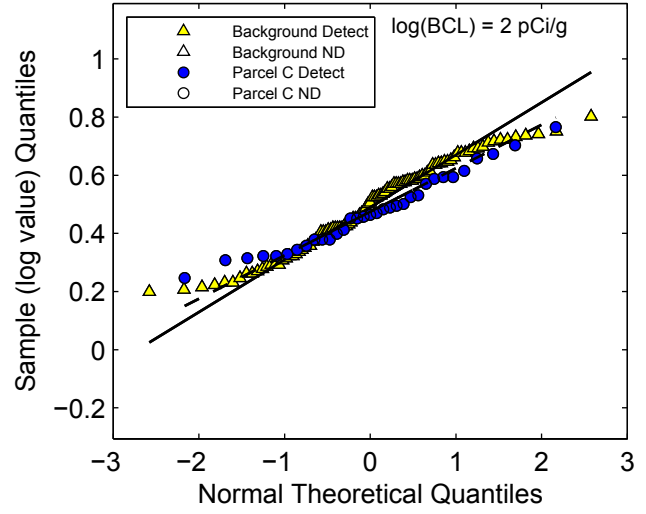
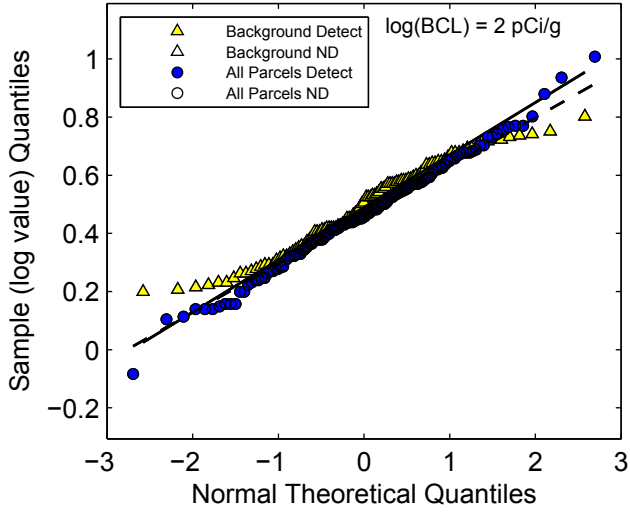


Figure 4-6A. Normal Q-Q Plots
U-234

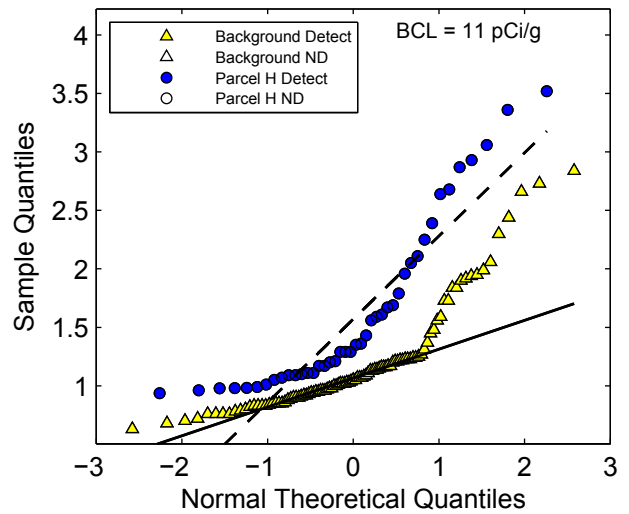
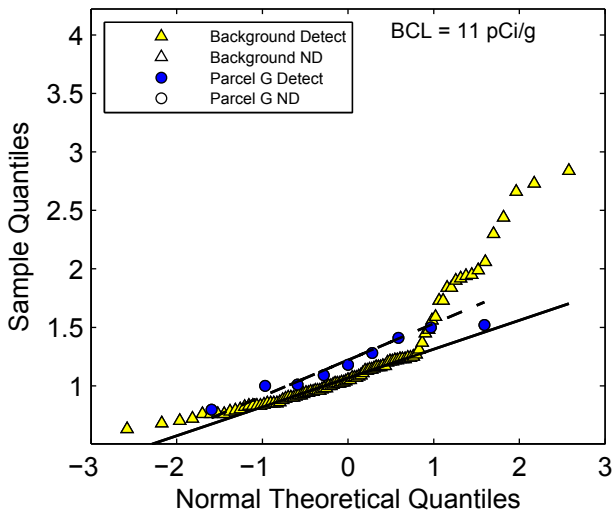
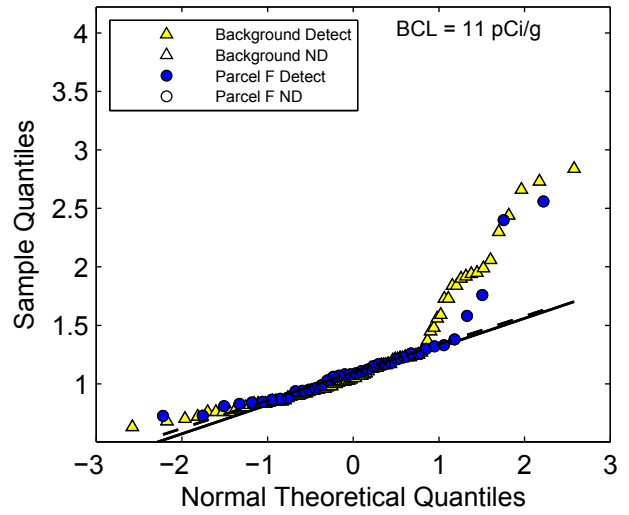
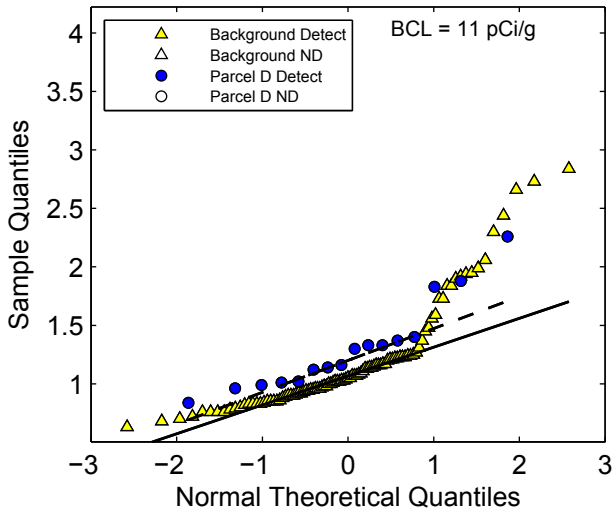
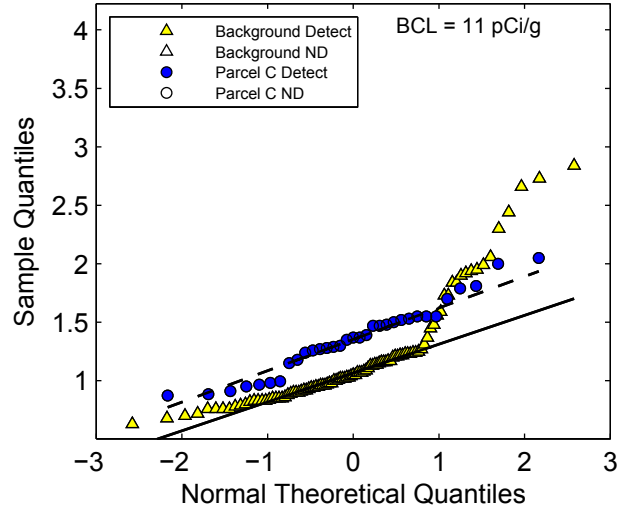
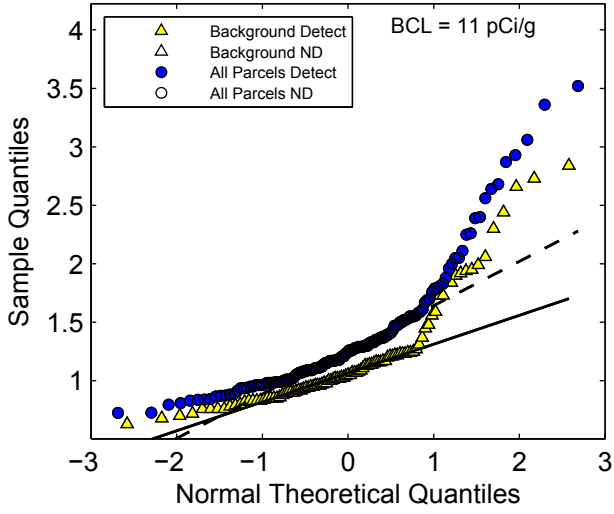


Figure 4-6B. Lognormal Q-Q Plots
U-234

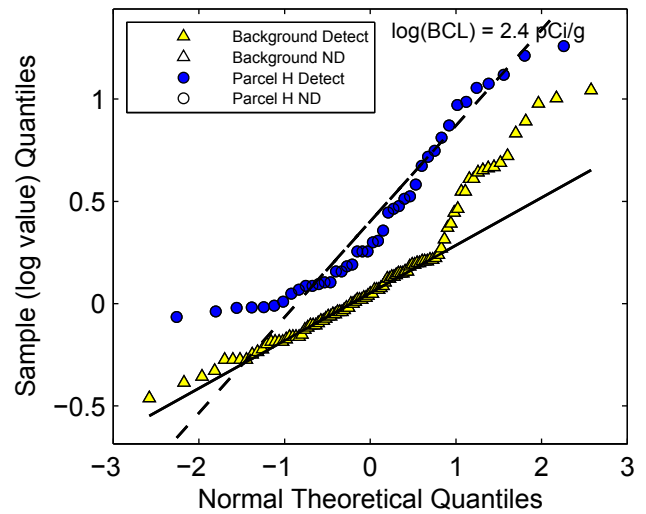
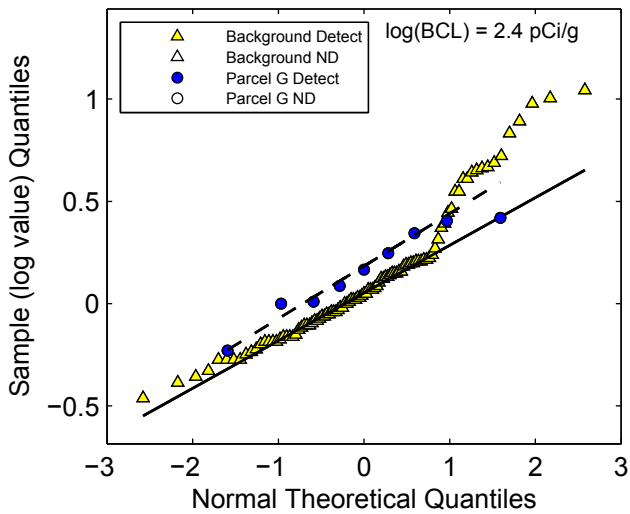
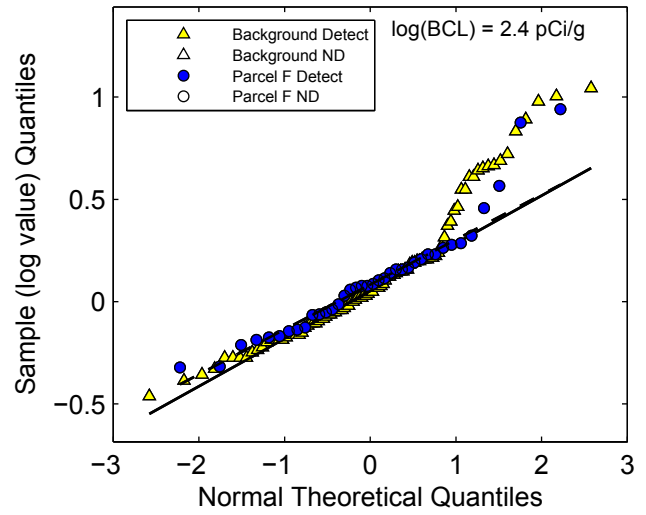
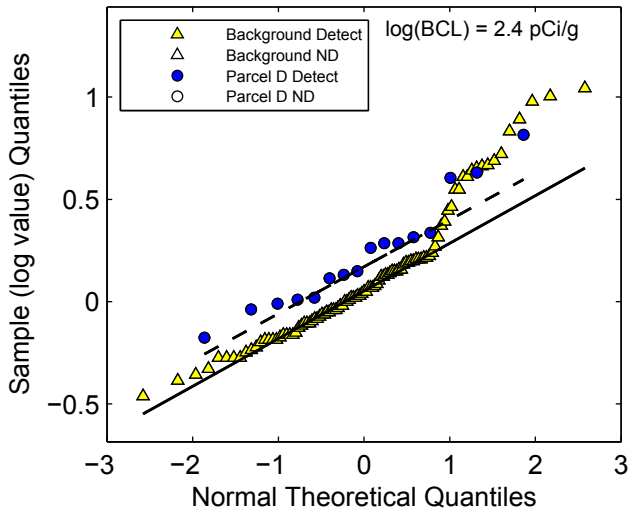
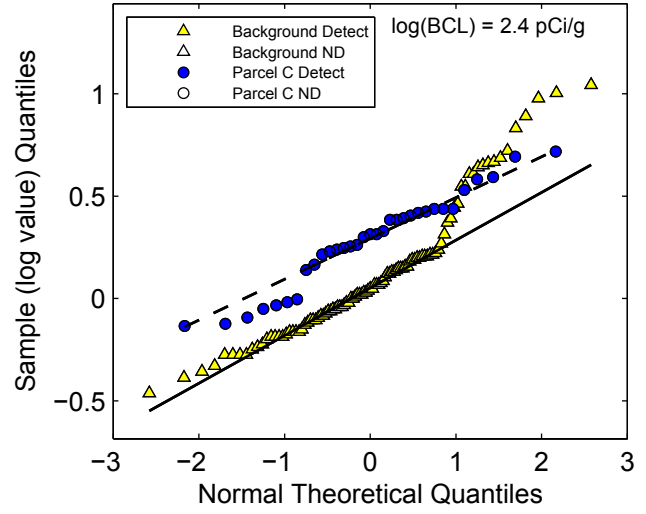
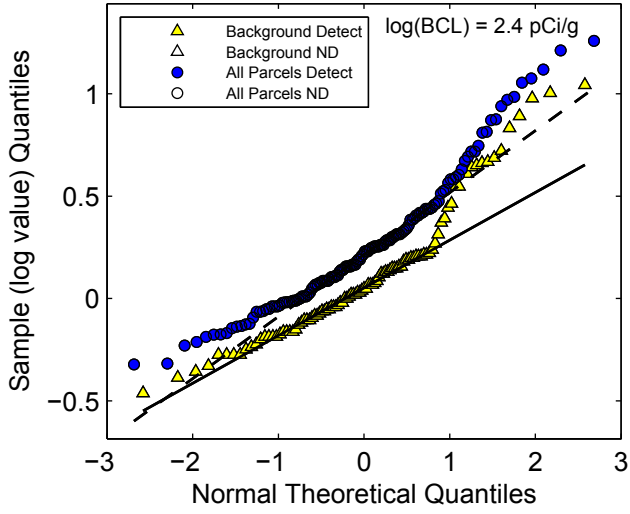


Figure 4-7A. Normal Q-Q Plots
U-235

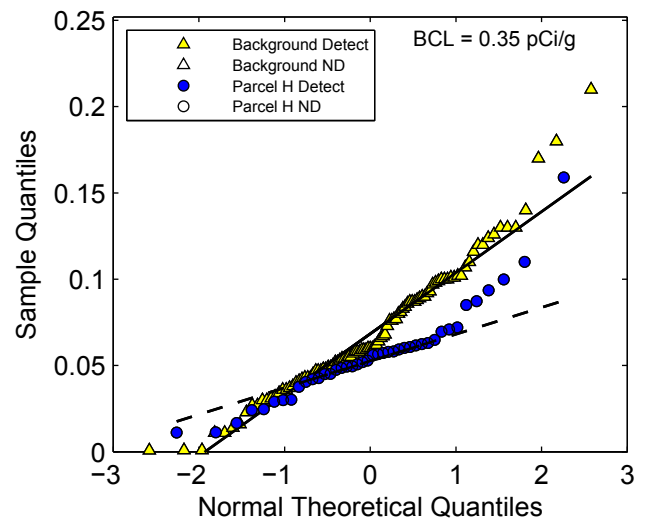
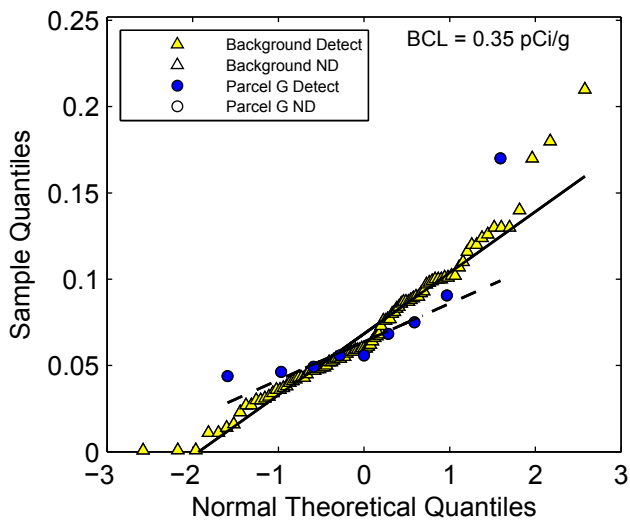
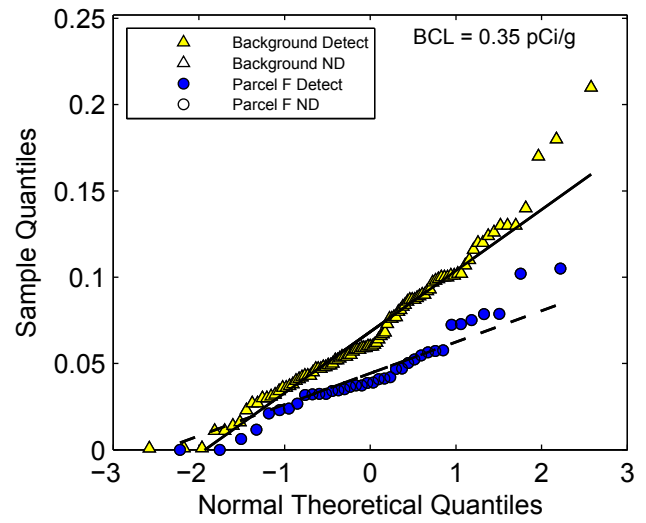
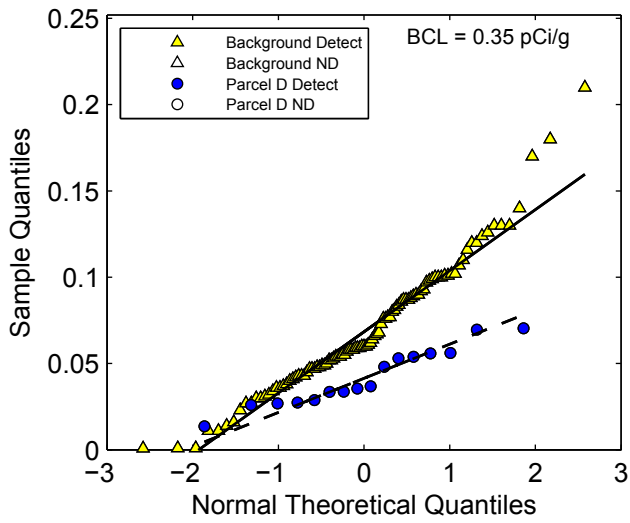
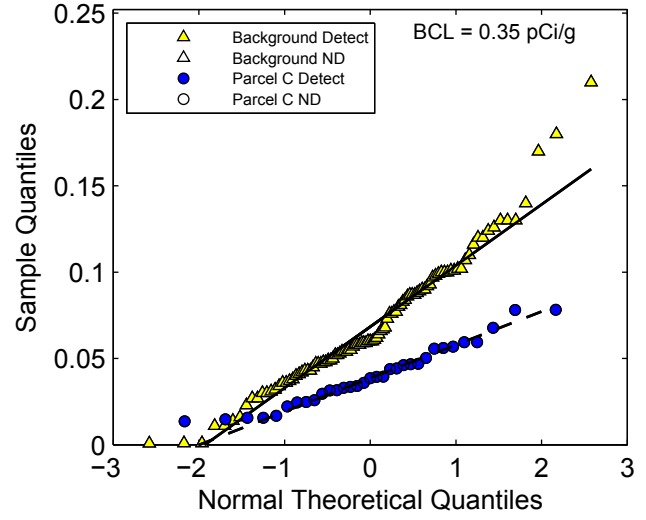
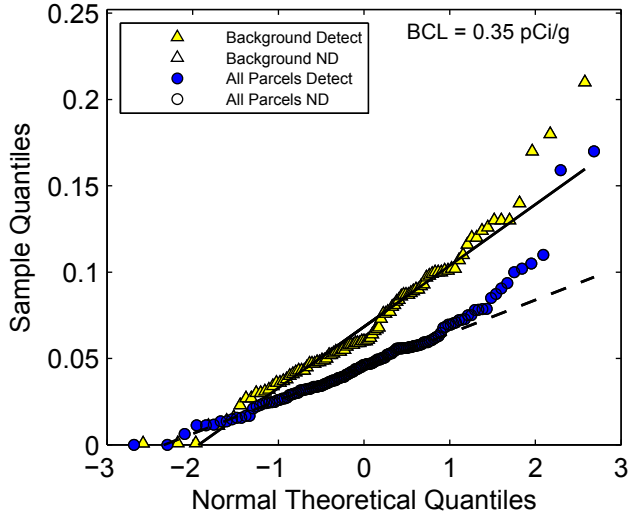


Figure 4-7B. Lognormal Q-Q Plots
U-235

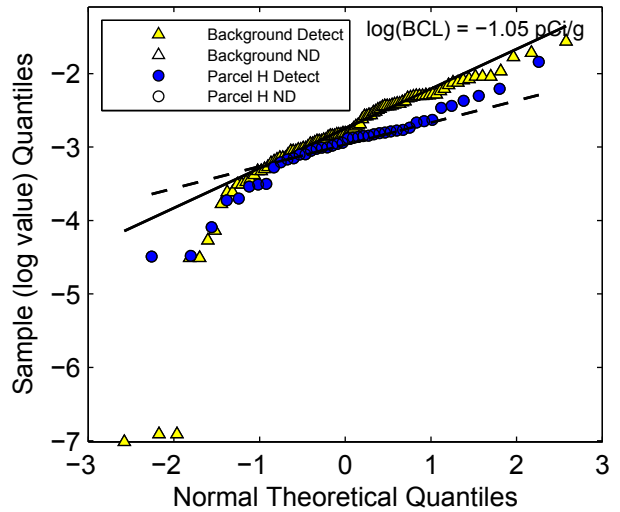
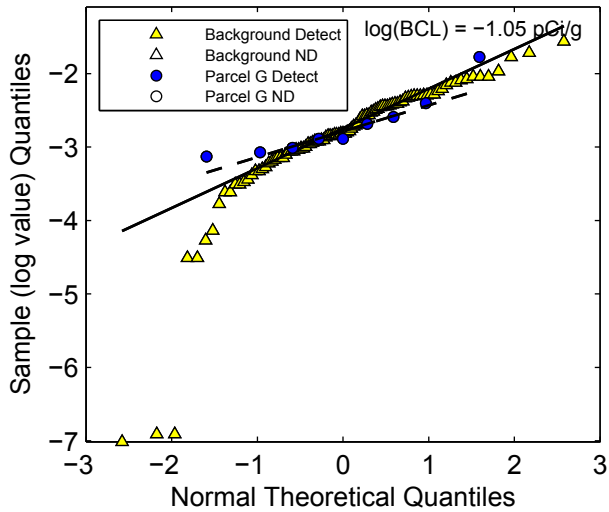
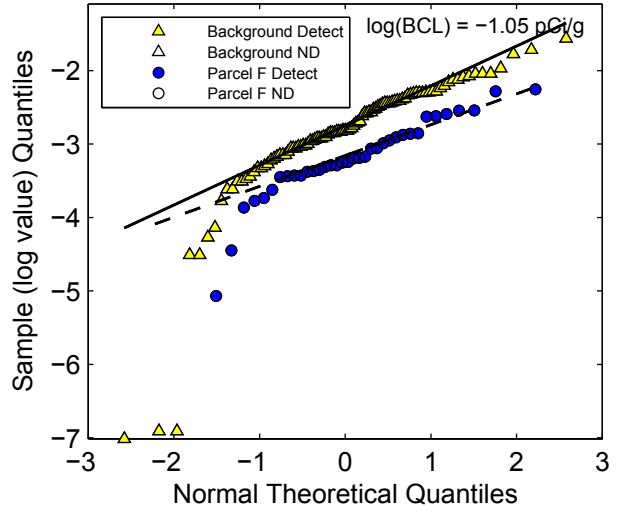
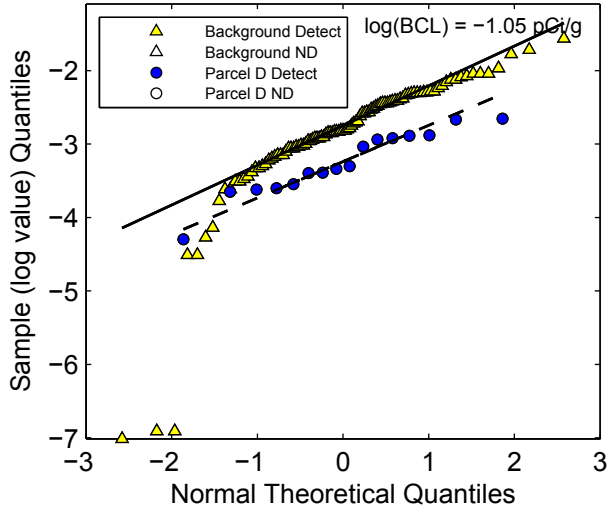
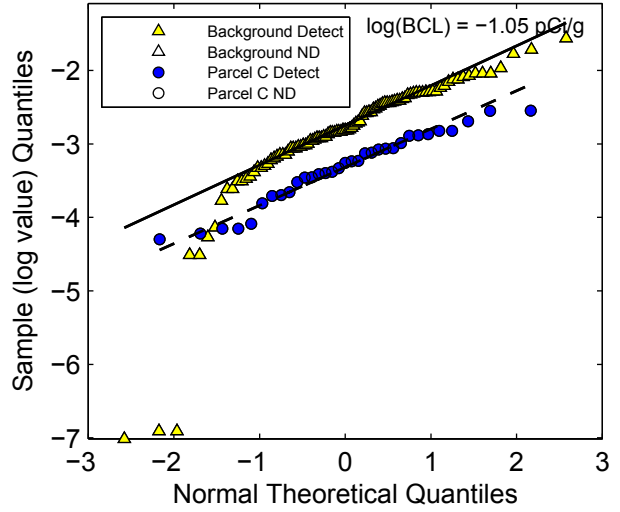
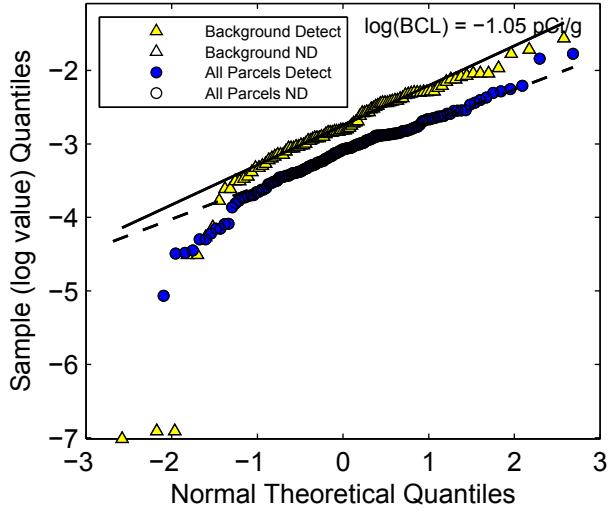


Figure 4-8A. Normal Q-Q Plots
U-238

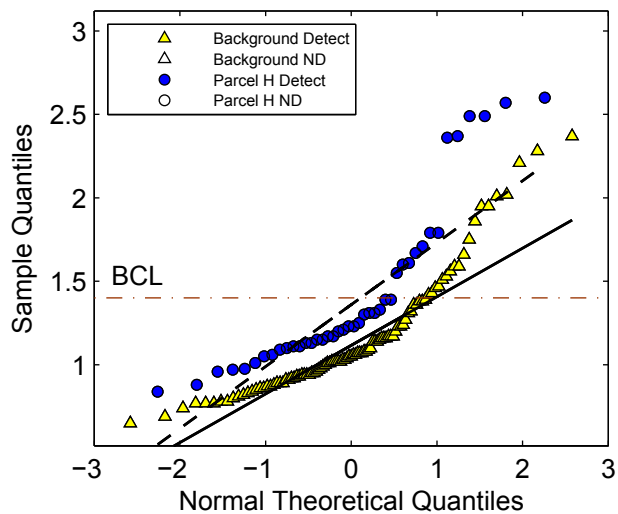
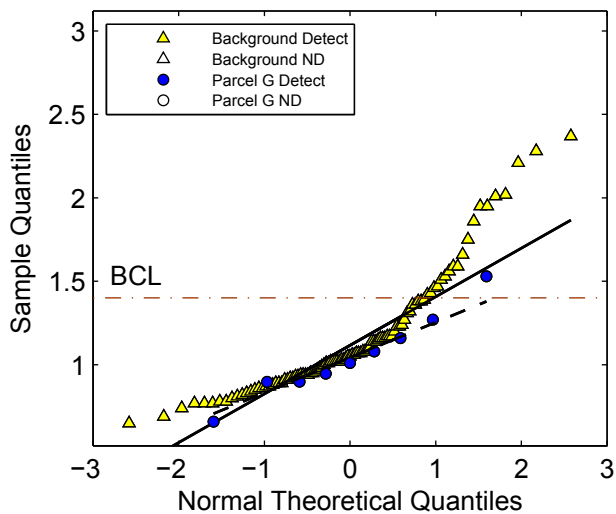
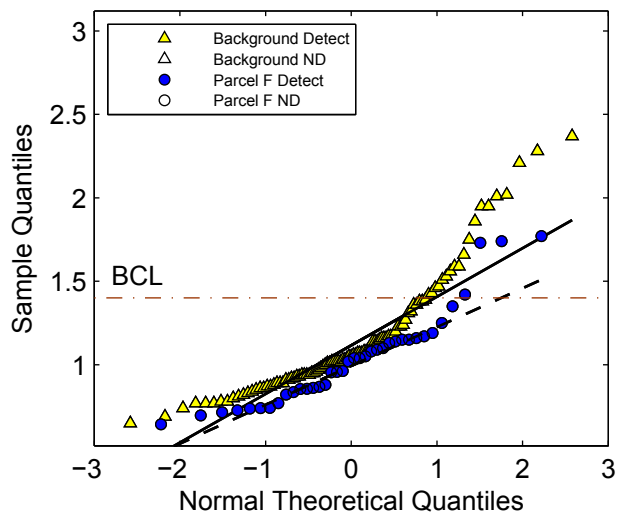
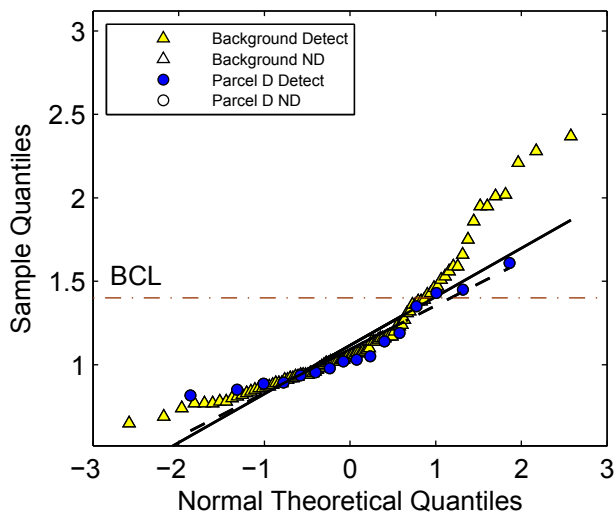
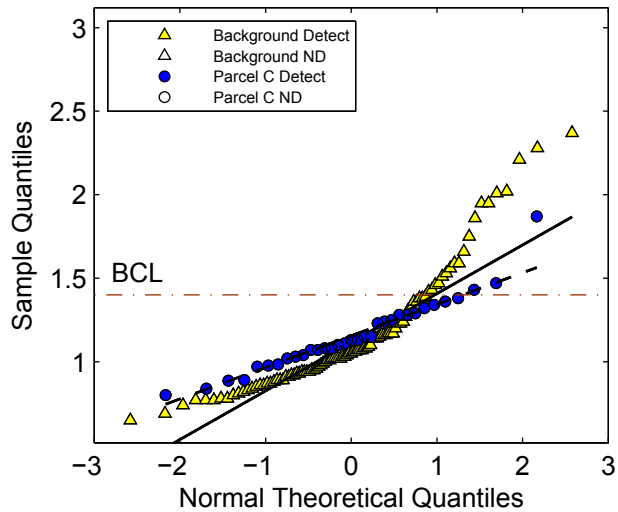
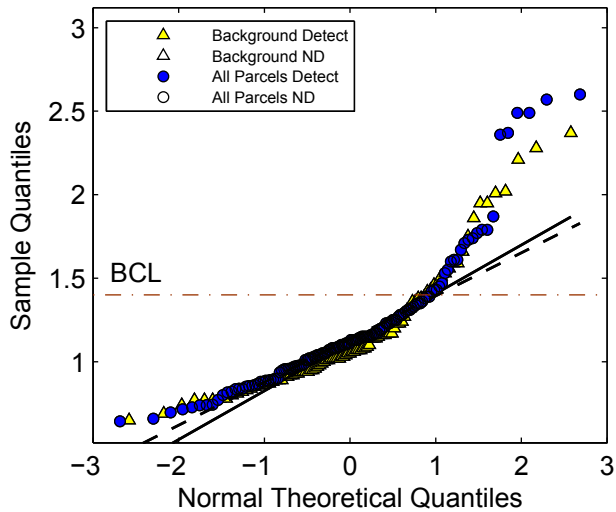
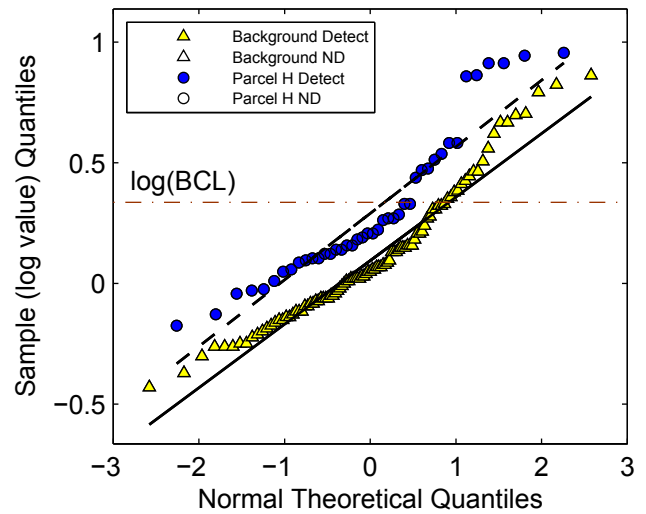
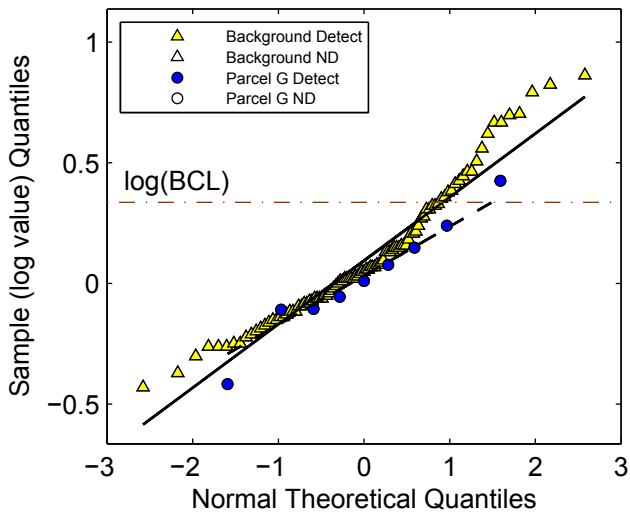
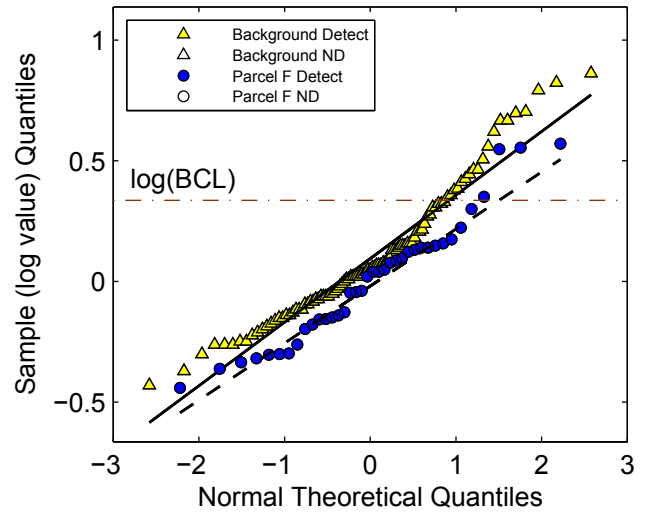
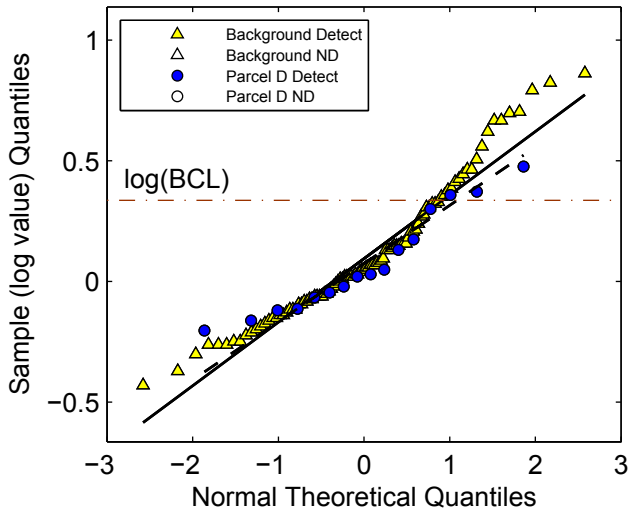
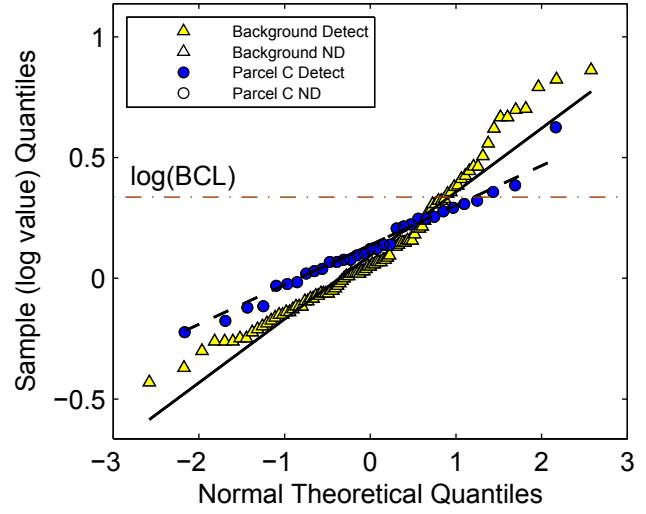
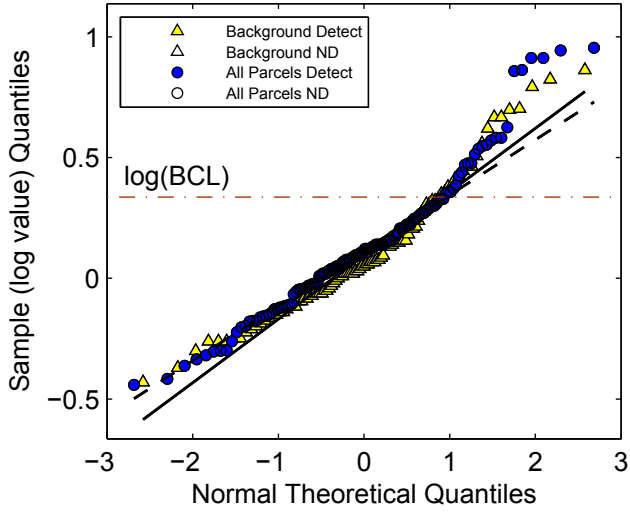


Figure 4-8B. Lognormal Q-Q Plots
U-238



APPENDIX G

**Risk Assessment Calculation Spreadsheets
and Supporting Documentation**

(Provided on CD)



APPENDIX H

**TestAmerica Laboratory Report for
Additional Confirmation Samples for PAHs dated December 3, 2010**



LABORATORY REPORT

Prepared For: Northgate Environmental Management
1100 Quail Street Suite 102
Newport Beach, CA 92660
Attention: Cindy Arnold

Project: Tronox - Henderson
Tronox - Henderson

Sampled: 11/30/10
Received: 12/01/10
Issued: 12/03/10 13:40

NELAP #01108CA California ELAP#2706 CSDLAC #10256 AZ #AZ0671 NV #CA01531

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The Chain of Custody, 1 page, is included and is an integral part of this report.

This entire report was reviewed and approved for release.

SAMPLE CROSS REFERENCE

LABORATORY ID

ITL0009-01

ITL0009-02

CLIENT ID

Q3-PF-3-1-0.0_2

Q3-PF-3-1-0.0_2-FD

MATRIX

Soil

Soil

Reviewed By:



TestAmerica Irvine

Sushmitha Reddy For Amy Harris
Project Manager

Northgate Environmental Management
1100 Quail Street Suite 102
Newport Beach, CA 92660
Attention: Cindy Arnold

Project ID: Tronox - Henderson
Tronox - Henderson
Report Number: ITL0009

Sampled: 11/30/10
Received: 12/01/10

POLYNUCLEAR AROMATIC HYDROCARBONS BY GC/MS (EPA 8270C)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITL0009-01 (Q3-PF-3-1-0.0_2 - Soil)									
Reporting Units: ug/kg									
Acenaphthene	EPA 8270C	10L0048	200	330	ND	1	12/01/10	12/02/10	
Acenaphthylene	EPA 8270C	10L0048	220	330	ND	1	12/01/10	12/02/10	
Anthracene	EPA 8270C	10L0048	80	330	ND	1	12/01/10	12/02/10	
Benzo(a)anthracene	EPA 8270C	10L0048	70	330	ND	1	12/01/10	12/02/10	
Benzo(a)pyrene	EPA 8270C	10L0048	55	330	ND	1	12/01/10	12/02/10	
Benzo(b)fluoranthene	EPA 8270C	10L0048	180	330	ND	1	12/01/10	12/02/10	
Benzo(g,h,i)perylene	EPA 8270C	10L0048	290	330	ND	1	12/01/10	12/02/10	
Benzo(k)fluoranthene	EPA 8270C	10L0048	70	330	ND	1	12/01/10	12/02/10	
Chrysene	EPA 8270C	10L0048	75	330	ND	1	12/01/10	12/02/10	
Dibenz(a,h)anthracene	EPA 8270C	10L0048	200	420	ND	1	12/01/10	12/02/10	
Fluoranthene	EPA 8270C	10L0048	180	330	ND	1	12/01/10	12/02/10	
Fluorene	EPA 8270C	10L0048	180	330	ND	1	12/01/10	12/02/10	
Indeno(1,2,3-cd)pyrene	EPA 8270C	10L0048	250	330	ND	1	12/01/10	12/02/10	
2-Methylnaphthalene	EPA 8270C	10L0048	230	330	ND	1	12/01/10	12/02/10	
Naphthalene	EPA 8270C	10L0048	230	330	ND	1	12/01/10	12/02/10	
Phenanthrene	EPA 8270C	10L0048	170	330	ND	1	12/01/10	12/02/10	
Pyrene	EPA 8270C	10L0048	150	330	ND	1	12/01/10	12/02/10	
Surrogate: 2-Fluorobiphenyl (35-120%)					60 %				
Surrogate: Nitrobenzene-d5 (30-120%)					52 %				
Surrogate: Terphenyl-d14 (40-135%)					73 %				

Sample ID: ITL0009-02 (Q3-PF-3-1-0.0_2-FD - Soil)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Reporting Units: ug/kg									
Acenaphthene	EPA 8270C	10L0048	200	330	ND	1	12/01/10	12/02/10	
Acenaphthylene	EPA 8270C	10L0048	220	330	ND	1	12/01/10	12/02/10	
Anthracene	EPA 8270C	10L0048	80	330	ND	1	12/01/10	12/02/10	
Benzo(a)anthracene	EPA 8270C	10L0048	70	330	ND	1	12/01/10	12/02/10	
Benzo(a)pyrene	EPA 8270C	10L0048	55	330	ND	1	12/01/10	12/02/10	
Benzo(b)fluoranthene	EPA 8270C	10L0048	180	330	ND	1	12/01/10	12/02/10	
Benzo(g,h,i)perylene	EPA 8270C	10L0048	290	330	ND	1	12/01/10	12/02/10	
Benzo(k)fluoranthene	EPA 8270C	10L0048	70	330	ND	1	12/01/10	12/02/10	
Chrysene	EPA 8270C	10L0048	75	330	ND	1	12/01/10	12/02/10	
Dibenz(a,h)anthracene	EPA 8270C	10L0048	200	420	ND	1	12/01/10	12/02/10	
Fluoranthene	EPA 8270C	10L0048	180	330	ND	1	12/01/10	12/02/10	
Fluorene	EPA 8270C	10L0048	180	330	ND	1	12/01/10	12/02/10	
Indeno(1,2,3-cd)pyrene	EPA 8270C	10L0048	250	330	ND	1	12/01/10	12/02/10	
2-Methylnaphthalene	EPA 8270C	10L0048	230	330	ND	1	12/01/10	12/02/10	
Naphthalene	EPA 8270C	10L0048	230	330	ND	1	12/01/10	12/02/10	
Phenanthrene	EPA 8270C	10L0048	170	330	ND	1	12/01/10	12/02/10	
Pyrene	EPA 8270C	10L0048	150	330	ND	1	12/01/10	12/02/10	
Surrogate: 2-Fluorobiphenyl (35-120%)					63 %				

TestAmerica Irvine

Sushmitha Reddy For Amy Harris
Project Manager

Northgate Environmental Management
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Tronox - Henderson
Report Number: ITL0009

Sampled: 11/30/10
Received: 12/01/10

POLYNUCLEAR AROMATIC HYDROCARBONS BY GC/MS (EPA 8270C)

Analyte	Method	Batch	MDL Limit	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: ITL0009-02 (Q3-PF-3-1-0.0_2-FD - Soil) - cont.									
Reporting Units: ug/kg									
Surrogate: Nitrobenzene-d5 (30-120%)					56 %				
Surrogate: Terphenyl-d14 (40-135%)					76 %				

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Sushmitha Reddy For Amy Harris
Project Manager

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ITL0009 <Page 3 of 8>

Northgate Environmental Management
 1100 Quail Street Suite 102
 Newport Beach, CA 92660
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Project ID: Tronox - Henderson
 Tronox - Henderson
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Sampled: 11/30/10
 Received: 12/01/10

METHOD BLANK/QC DATA

POLYNUCLEAR AROMATIC HYDROCARBONS BY GC/MS (EPA 8270C)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L0048 Extracted: 12/01/10											
Blank Analyzed: 12/02/2010 (10L0048-BLK1)											
Acenaphthene	ND	330	200	ug/kg							
Acenaphthylene	ND	330	220	ug/kg							
Anthracene	ND	330	80	ug/kg							
Benzo(a)anthracene	ND	330	70	ug/kg							
Benzo(a)pyrene	ND	330	55	ug/kg							
Benzo(b)fluoranthene	ND	330	180	ug/kg							
Benzo(g,h,i)perylene	ND	330	290	ug/kg							
Benzo(k)fluoranthene	ND	330	70	ug/kg							
Chrysene	ND	330	75	ug/kg							
Dibenz(a,h)anthracene	ND	420	200	ug/kg							
Fluoranthene	ND	330	180	ug/kg							
Fluorene	ND	330	180	ug/kg							
Indeno(1,2,3-cd)pyrene	ND	330	250	ug/kg							
2-Methylnaphthalene	ND	330	230	ug/kg							
Naphthalene	ND	330	230	ug/kg							
Phenanthrene	ND	330	170	ug/kg							
Pyrene	ND	330	150	ug/kg							
Surrogate: 2-Fluorobiphenyl	2480			ug/kg	3330		74	35-120			
Surrogate: Nitrobenzene-d5	2170			ug/kg	3330		65	30-120			
Surrogate: Terphenyl-d14	3240			ug/kg	3330		97	40-135			
LCS Analyzed: 12/02/2010 (10L0048-BS1)											
Acenaphthene	2280	330	200	ug/kg	3330		68	50-120			
Acenaphthylene	2300	330	220	ug/kg	3330		69	50-120			
Anthracene	2430	330	80	ug/kg	3330		73	55-120			
Benzo(a)anthracene	2400	330	70	ug/kg	3330		72	55-120			
Benzo(a)pyrene	2640	330	55	ug/kg	3330		79	50-125			
Benzo(b)fluoranthene	2430	330	180	ug/kg	3330		73	45-125			
Benzo(g,h,i)perylene	2680	330	290	ug/kg	3330		80	35-130			
Benzo(k)fluoranthene	2610	330	70	ug/kg	3330		78	45-125			
Chrysene	2460	330	75	ug/kg	3330		74	55-120			
Dibenz(a,h)anthracene	2790	420	200	ug/kg	3330		84	40-135			
Fluoranthene	2280	330	180	ug/kg	3330		68	55-120			
Fluorene	2290	330	180	ug/kg	3330		69	55-120			
Indeno(1,2,3-cd)pyrene	2710	330	250	ug/kg	3330		81	30-135			
2-Methylnaphthalene	2090	330	230	ug/kg	3330		63	45-120			

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METHOD BLANK/QC DATA

POLYNUCLEAR AROMATIC HYDROCARBONS BY GC/MS (EPA 8270C)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L0048 Extracted: 12/01/10											
LCS Analyzed: 12/02/2010 (10L0048-BS1)											
Naphthalene	2040	330	230	ug/kg	3330		61	45-120			
Phenanthrene	2420	330	170	ug/kg	3330		73	50-120			
Pyrene	2700	330	150	ug/kg	3330		81	45-125			
Surrogate: 2-Fluorobiphenyl	2140			ug/kg	3330		64	35-120			
Surrogate: Nitrobenzene-d5	1840			ug/kg	3330		55	30-120			
Surrogate: Terphenyl-d14	2630			ug/kg	3330		79	40-135			
Matrix Spike Analyzed: 12/02/2010 (10L0048-MS1)											
Source: ITL0009-01											
Acenaphthene	2150	330	200	ug/kg	3330	ND	65	45-120			
Acenaphthylene	2170	330	220	ug/kg	3330	ND	65	45-120			
Anthracene	2250	330	80	ug/kg	3330	ND	67	55-120			
Benzo(a)anthracene	2210	330	70	ug/kg	3330	ND	66	50-120			
Benzo(a)pyrene	2390	330	55	ug/kg	3330	ND	72	45-125			
Benzo(b)fluoranthene	2240	330	180	ug/kg	3330	ND	67	45-125			
Benzo(g,h,i)perylene	2720	330	290	ug/kg	3330	ND	82	25-130			
Benzo(k)fluoranthene	2470	330	70	ug/kg	3330	ND	74	45-125			
Chrysene	2300	330	75	ug/kg	3330	ND	69	55-120			
Dibenz(a,h)anthracene	2560	420	200	ug/kg	3330	ND	77	25-135			
Fluoranthene	2270	330	180	ug/kg	3330	ND	68	45-120			
Fluorene	2160	330	180	ug/kg	3330	ND	65	50-120			
Indeno(1,2,3-cd)pyrene	2480	330	250	ug/kg	3330	ND	74	20-130			
2-Methylnaphthalene	2100	330	230	ug/kg	3330	ND	63	40-120			
Naphthalene	1980	330	230	ug/kg	3330	ND	59	40-120			
Phenanthrene	2270	330	170	ug/kg	3330	ND	68	50-120			
Pyrene	2280	330	150	ug/kg	3330	ND	68	40-125			
Surrogate: 2-Fluorobiphenyl	1970			ug/kg	3330		59	35-120			
Surrogate: Nitrobenzene-d5	1720			ug/kg	3330		52	30-120			
Surrogate: Terphenyl-d14	2220			ug/kg	3330		67	40-135			

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Sampled: 11/30/10
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METHOD BLANK/QC DATA

POLYNUCLEAR AROMATIC HYDROCARBONS BY GC/MS (EPA 8270C)

Analyte	Result	Reporting Limit	MDL	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 10L0048 Extracted: 12/01/10											
Matrix Spike Dup Analyzed: 12/02/2010 (10L0048-MSD1)					Source: ITL0009-01						
Acenaphthene	2250	330	200	ug/kg	3330	ND	67	45-120	4	25	
Acenaphthylene	2250	330	220	ug/kg	3330	ND	67	45-120	4	20	
Anthracene	2360	330	80	ug/kg	3330	ND	71	55-120	5	25	
Benzo(a)anthracene	2310	330	70	ug/kg	3330	ND	69	50-120	4	25	
Benzo(a)pyrene	2520	330	55	ug/kg	3330	ND	76	45-125	5	25	
Benzo(b)fluoranthene	2370	330	180	ug/kg	3330	ND	71	45-125	6	30	
Benzo(g,h,i)perylene	2810	330	290	ug/kg	3330	ND	84	25-130	3	30	
Benzo(k)fluoranthene	2570	330	70	ug/kg	3330	ND	77	45-125	4	30	
Chrysene	2430	330	75	ug/kg	3330	ND	73	55-120	5	25	
Dibenz(a,h)anthracene	2690	420	200	ug/kg	3330	ND	81	25-135	5	30	
Fluoranthene	2260	330	180	ug/kg	3330	ND	68	45-120	0.2	25	
Fluorene	2250	330	180	ug/kg	3330	ND	67	50-120	4	25	
Indeno(1,2,3-cd)pyrene	2630	330	250	ug/kg	3330	ND	79	20-130	6	30	
2-Methylnaphthalene	2190	330	230	ug/kg	3330	ND	66	40-120	4	20	
Naphthalene	2050	330	230	ug/kg	3330	ND	62	40-120	4	25	
Phenanthrene	2400	330	170	ug/kg	3330	ND	72	50-120	5	25	
Pyrene	2650	330	150	ug/kg	3330	ND	79	40-125	15	30	
Surrogate: 2-Fluorobiphenyl	2030			ug/kg	3330		61	35-120			
Surrogate: Nitrobenzene-d5	1820			ug/kg	3330		55	30-120			
Surrogate: Terphenyl-d14	2550			ug/kg	3330		76	40-135			

TestAmerica Irvine

Sushmitha Reddy For Amy Harris
 Project Manager

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Attention: Cindy Arnold

Project ID: Tronox - Henderson
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Report Number: ITL0009

Sampled: 11/30/10
Received: 12/01/10

DATA QUALIFIERS AND DEFINITIONS

ND Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
RPD Relative Percent Difference

TestAmerica Irvine

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Certification Summary

TestAmerica Irvine

Method	Matrix	Nelac	California
EPA 8270C	Soil	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for TestAmerica may be obtained by contacting the laboratory or visiting our website at www.testamericainc.com

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