TECHNICAL MEMORANDUM — FINAL

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FROM:	Exponent and ERM West, Inc.
DATE:	July 21, 2020
PROJECT:	Upper Columbia River RI/FS
SUBJECT:	Assessment of background concentrations of metals and metalloids in upland soils

1 Introduction

This memorandum presents the revised results of the upland soils natural background assessment and an exploratory evaluation of area background performed for the Upper Columbia River (UCR) Site (hereafter the Site[1]). The results present background threshold values (BTVs) for metals and metalloids[2] that estimate natural background in and around the Site. The background assessment was conducted according to the U.S. Environmental Protection Agency (EPA)-approved data quality objectives (DQOs) (TAI 2018b; USEPA 2018) based in part on EPA's level of effort (LOE) memorandum regarding the assessment and estimation of background elemental concentrations in upland soils from the UCR (USEPA 2016a). In addition, this technical memorandum incorporates comments by EPA related to previous versions of this assessment (USEPA 2019, 2020a,b,c). The results will be used to inform the UCR remedial investigation and feasibility study (RI/FS) and baseline ecological risk assessment (BERA) being conducted by Teck American Incorporated (TAI), and

1 The UCR Site as defined within the June 2, 2006 Settlement Agreement (USEPA 2006a) is the areal extent of hazardous substances contamination within the United States in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake, from the U.S.-Canada border to the Grand Coulee Dam, and those areas in proximity to the contamination that are suitable and necessary for implementation of response actions.

2 The metals and metalloids assessed will include those listed in Table 2-1 of the Upper Columbia River Soil Study (TAI 2015b), which are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Thus, in this document "metals and metalloids" refers only to this list of elements. These metals and metalloids were identified as chemicals of interest for the referenced soil study and were considered in the assessment of natural background soil concentrations.

the site-wide human health risk assessment (HHRA) being conducted by EPA (USEPA 2006a, 2016b).

The natural background assessment screened a large dataset from multiples sources (see Section 2.3.1 for details). After exclusionary criteria were applied, the data were assessed for consistent and representative soil measurements comparable to the soil data developed for use in the RI/FS. The background dataset that was initially developed following the data screening and selection criteria in the EPA-approved final DQOs included samples collected from 23 locations for the UCR Upland Soil Study (TAI 2015b). This dataset was deemed insufficient in size and geographic distribution to characterize background soil conditions in the study area. Thus, at EPA's request, the exclusionary criteria were relaxed to increase the number of samples included and the geographical coverage (USEPA 2019). This included merging results into one dataset regardless of the method of sample preparation and analysis. Subsequently, EPA requested that results be segregated by method for comparability to like results (USEPA 2020a,b). In comments provided to TAI on May 29, 2020, EPA required certain additional results be excluded from the BTV dataset based on multivariate analyses provided with their comments (USEPA 2020c). These deviations from the DQOs are described in the following sections.

An exploratory assessment of area background (e.g., an evaluation of anthropogenic influences on soil chemistry not related to the smelter in Trail, BC) was also conducted. Some of the exclusion criteria that were applied to the background dataset for estimation of natural background were designed to eliminate samples associated with anthropogenic activities and features and therefore, resulted in screening out data useful for the area background assessment. Metal and metalloid data plus added location-based information about anthropogenic sources were used to derive the exploratory area background dataset.

Figures and tables are included after the main text unless presented as an insert.

2 Natural Background Assessment

The primary objective of the natural background assessment was to ascertain the natural background soil concentrations as defined by Model Toxics Control Act (MTCA; Washington Administrative Code [WAC] 173-340-200[3]) and EPA (USEPA 2002a[4]). Results will be used in the RI to identify those areas where measured soil concentrations of the chemicals of potential concern (COPC) are no higher than natural background. This information will be used to provide context in the BERA and HHRA.

2.1 Study Background

In 2016, EPA issued an LOE memorandum to TAI (USEPA 2016a), which outlined an approach for compiling a background dataset from preexisting data sources and included DQO Steps 1, 2, and 3 of the EPA's DQO process (USEPA 2006b). In the memorandum, EPA evaluated 13 studies considered usable for compiling a background dataset for the Site. EPA's primary criteria were that all samples should have a known location (i.e., known spatial coordinates and depth) that is near the Site and were collected in areas outside the following influences:

- The 100-year floodplain
- The 1931 "zone of sulfur dioxide injury" described by Scheffer and Hedgcock (1955; referred to herein as the "1931 SO_2 plume area")
- Areas disturbed by human activity

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[3] WAC 173-340-200:

> "Natural background" means the concentration of hazardous substance consistently present in the environment that has not been influenced by localized human activities. For example, several metals and radionuclides naturally occur in the bedrock, sediments, and soils of Washington state due solely to the geologic processes that formed these materials and the concentration of these hazardous substances would be considered natural background. Also, low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout much of the state due to global distribution of these hazardous substances. These low concentrations would be considered natural background. Similarly, concentrations of various radionuclides that are present at low concentrations throughout the state due to global distribution of fallout from bomb testing and nuclear accidents would be considered natural background.
>
> "Area background" means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

[4] USEPA (2002a) defines background as "constituents or locations that are not influenced by the releases from a site, and is usually described as naturally occurring or anthropogenic (EPA, 1989; EPA, 1995a):

1) *Anthropogenic* – natural and human-made substances present in the environment as a result of human activities (not specifically related to the CERCLA release in question); and,

2) *Naturally occurring* – substances present in the environment in forms that have not been influenced by human activity."

- Areas affected by natural processes such as landslides that may expose lithic materials that are not representative of surficial soils.

Data that met these initial screening criteria were evaluated further by EPA with respect to sample collection methods, chemical analysis methods, and detection limits.

The DQOs for this study (TAI 2018b) expanded upon the LOE memorandum (USEPA 2016a) to compile a dataset of soil metal and metalloid concentrations in surface and near-surface soils from northeast Washington State that is of sufficient data quality to calculate summary statistics for use in the BERA and HHRA. Methods for defining natural background concentrations are provided in WAC 173-340-709, which stipulates that samples for background determination should "have the same basic characteristics as the [soil] of concern at the site."

2.2 Study Design

For this study, EPA's seven-step DQO process (USEPA 2006b) was used to determine the type, quantity, and quality of data needed to achieve study goals and establish performance and acceptance criteria for the data (TAI 2018b). EPA informed TAI on October 23, 2018, that it had no further comments on the DQO document (USEPA 2018; included in Attachment A). The DQOs (TAI 2018b) along with the associated responses to EPA's consolidated comments (RTC) (TAI 2018a) are also included in this memorandum in Attachment A.

The approach for assessing background metals concentrations described in the DQOs and implemented for this study is generally consistent with a study completed independently by the Washington State Department of Ecology (Ecology 2019) for the same area, whereby existing data were compiled, filtered, and analyzed to calculate background values. However, there are several significant differences between the Ecology (2019) study and this study. These differences include, but are not limited to, the establishment of DQOs for study planning following EPA's seven-step DQO process (USEPA 2006b) and the statistical methods used for calculating background values.

2.3 Background Dataset Assembly

As presented in the DQOs, assembly and screening of the data considered for the natural background assessment was done in three stages or "tiers," which are described below and in the flow chart shown in Figure 1.

2.3.1 Data Sources Considered

The data sources considered included the following:[5,6]

- Soils data from studies identified in EPA's LOE memorandum (USEPA 2016a)
- Studies referenced in other TAI UCR reports, as well as studies prepared for Teck Metals' Trail operations
- UCR RI/FS database
- Soil and sediment samples from the National Uranium Resource Evaluation (NURE)-Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) dataset (Smith 2006; USGS 2004)[7,8]
- U.S. Geological Survey (USGS) databases and datasets including the National Geochemical Database (USGS 2016), the National Geochemical Survey (USGS 2008b), and the North American Soil Geochemical Landscapes Project (Smith et al. 2013).

2.3.2 Study Area

The study area is defined by 11 Water Resource Inventory Areas (WRIAs) (TAI 2018b). These include the following:

- WRIA 49—Okanogan
- WRIA 51—Nespelem
- WRIA 52—Sanpoil
- WRIA 53—Lower Lake Roosevelt
- WRIA 54—Lower Spokane

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5 As discussed in the RTC (TAI 2018a), the Canadian datasets were removed from consideration for the background assessment (see Attachment A, Specific Comment 2) primarily because the 1931 SO_2 plume area as defined by Scheffer and Hedgcock (1955), an important exclusionary criterion, is not mapped north of the U.S.-Canada border.

6 Although the DQOs specified that data retrieved from the Ecology Environmental Information Management System (EIM) would be considered, these data are not included in this revised analysis over concerns by EPA (2019) that the data may lack the appropriate level of quality assurance for inclusion.

7 NURE-HSSR sediments, whether from wet or dry streams, were considered as requested by EPA (2018), in addition to soil samples.

8 The NURE-HSSR dataset includes numerous results determined by irradiated neutron activation analysis (INAA); however, only the results from Savannah River Laboratories were considered in this assessment. INAA data from Lawrence Livermore Laboratory were not included because previous work by Church (2010) concluded that the results for arsenic, cadmium, copper, mercury, lead, and zinc were not usable for background concentration determinations.

- WRIA 55—Little Spokane
- WRIA 58—Middle Lake Roosevelt
- WRIA 59—Colville
- WRIA 60—Kettle
- WRIA 61—Upper Lake Roosevelt
- WRIA 62—Pend Oreille

It is important to recognize that WRIAs are administrative areas designated by Ecology for the management of water resources and are based on watershed and drainage characteristics. Their boundaries do not consider the physical, chemical, geological, and other characteristics necessary to evaluate upland soil background conditions. A "landscape" approach that takes into consideration multiple geomorphological and geochemical factors present in the UCR area will be appropriate for future geographic stratification of the BTVs for use in the RI/FS.

2.3.3 Elements Considered

As discussed in the DQOs (TAI 2018b), this study includes the metals and metalloids[2,9] that were agreed upon by TAI and EPA as those that would be quantified in the Upland Soil Sampling Quality Assurance Project Plan (TAI 2014) for risk determination. Potassium, magnesium, calcium, and sodium were initially retained for this analysis because cation exchange capacity (CEC) may be estimated using these elements and soil pH (TAI 2018a,b). However, these elements in the datasets reviewed for this study were analyzed by methods that are not appropriate for CEC calculation because either the digestion procedures involved strong acids or the samples were analyzed for the total-element composition of the sample (e.g., irradiated neutron activation analysis; INAA). Thus, potassium, magnesium, calcium, and sodium are not included in the BTV calculations.

2.3.4 The Tier I Dataset

Using the data sources listed above, the Tier I dataset includes soil and NURE-HSSR soil and sediment samples collected from the designated WRIAs at depths of 24 in. or less with results for any of the metals and metalloids.[10] Table 1 includes a list of the studies that make up the Tier I dataset. The table also contains the number of sample locations and the years of sample collection. These locations are shown in Figure 2.

Additional descriptive data were added to the Tier I dataset based on location as discussed in the DQOs. These included the following:

- WRIA designation (Ecology 2017)

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[9] Molybdenum was inadvertently omitted from the list of metals and metalloids to be evaluated in this background assessment. It has since been added to the list provided in Section 2.3.8 and is included in the BTV calculations.

[10] For many samples, only some of the metals and metalloids were analyzed.

- Location relative to the 1931 SO_2 plume area described in Scheffer and Hedgcock (1955)
- Land use code (Ecology 2010)
- Distance to the following features
  - 100-year floodplain (FEMA 2017)
  - Nearest road (USGS 2017b)
  - Nearest railway (USGS 2017b)
  - Nearest landfill (USGS 2008a)
  - Nearest landslide (WADNR 2017)
  - Mines/mills categorized by the Mineral Resources Data System (MRDS) as producer, past producer, plant, and unknown along with the name of the feature and the associated commodity codes[11] (USGS 2005)
- NURE-HSSR contamination code referred to as "CONTAMC" in the publicly available NURE-HSSR dataset[12]
- Geologic unit (Ludington et al. 2007)
- Soil designation (map units from STATSGO; USDA 2016, 2019)
- Hydrologic units (USGS 2017a) including the name and codes (HUC6, HUC8, HUC10, HUC12), plus distances to the following:
  - Nearest drainage feature
  - Nearest upgradient mineralized area and mill located in the same drainage based on the MRDS classifications included above
  - Nearest upgradient road, railway, landfill, and landslide located in the same drainage.

The distances between samples and nearest features of interest were calculated in ArcGIS by joining sample locations with the data layers containing locations of features of interest. Each sample location was assigned a straight-line distance representing how close that location was to the nearest feature in the corresponding layer. The geospatial platform used for determining the nearest upgradient feature was ArcGIS 10.5 and its Spatial Analyst extension using the "Flow Length" function in the Hydrology module. First, a flow direction raster was created from digital elevation model (DEM) using the "Flow Direction" tool. The flow direction raster shows the direction of flow out of each cell. Second, an upstream flow length raster was created using the "Flow Length" tool, which calculates the upslope distance along the flow path, from each cell to the upstream features. Lastly, the flow length to upstream features for each sample was extracted from the upstream flow length raster based on its spatial location.

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[11] MRDS locations with the following metal and metalloid commodity codes were included in the screening: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.

[12] https://mrdata.usgs.gov/nure/sediment/

2.3.5 The Tier II Dataset

Using the Tier I dataset plus added location-based information, the Tier II criteria described in the DQOs (TAI 2018b Table 1; provided in Attachment A) were applied to screen out samples potentially impacted by anthropogenic activity with several exceptions. At the request of EPA (2019), the screening criteria were relaxed to expand the dataset to consider samples regardless of the land use code associated with their location. Because the contamination code associated with the NURE-HSSR soil and sediment samples is somewhat similar to a land use designation (e.g., grazing, farming, mining), this screening criterion[13] was also removed. Table 1 shows the number of sample locations remaining after the Tier II screening; locations are mapped in Figure 3. Sample locations screened out and the rationale for their removal are shown in Table 2.

The samples retained for additional assessment met the following criteria and are referred to as the Tier IIA dataset in the flow chart (Figure 1):

- Outside 1931 SO_2 plume area
- Distance to the nearest
  - Road ≥50 m
  - Railway ≥50 m
  - Landfill ≥500 m
  - Mine/Mill as describe above ≥500 m
  - Landslide—Outside footprint (>0 m)
  - 100-year floodplain—Outside (>0 m)

Straight-line distances were used for the Tier II screening because the potential sources of contamination to be avoided (i.e., roads, railways, landfills, mines, and mills) all include not only surface water runoff, but also fugitive dust.

After applying the above screening criteria, replicate samples were averaged and some additional exclusions were made. The resulting dataset is referred to as the Tier IIB dataset (see Table 1):

- Multiple analyses of the same sample—A subset of the NURE-HSSR samples from the Study “NURE Seds” underwent reanalysis decades after the original collection date (Church et al. 2008 [Study “CHURC08A] and USGS 2008b [Study “geochem-fU53”][14]). In order to have one set of results per sample, the reanalysis results, with the exception of silver, were retained over

[13] The DQOs only allowed the NURE-HSSR soils and sediments with a contamination code that was either “NONE”, “GRAZING”, or not populated (i.e., null).

[14] Study “CHURC08A” has 44 samples and Study “geochem-fu53” has 63 samples in the Tier IIA dataset, respectively. One sample (DSOR424S01) was reanalyzed in both studies. The CHURC08A results were given priority because the concentrations were lower.

the older NURE-HSSR results from the 1970s as the former include more of the metals and metalloids of interest and the analytical techniques are well documented. The older silver results were retained because the detection limit was lower.

- Additional review of Tier IIA assessments
  - Ecology (2013b) samples in proximity to the Van Stone Mine—During review of the post-Tier IIA screening, a number of samples collected from mine waste and impacted areas made it past the MRDS screening. After reviewing the location samples near the mine against information included in Ecology (2013b; Figures 5 through 7), an additional 72 samples were removed from background based on proximity to mine waste and roads (Ecology 2013b, Study "HARTC13C" 70 samples; USEPA 2002c, Study "USEPA2001Mines/Mills" 2 samples).
  - USEPA (2002c) and Church et al. (2008) samples in proximity to other mines—The locations of samples from Studies "USEPA2001Mines/Mills" and "CHURC08A" underwent supplemental review based on elevated lead, zinc, or arsenic results for samples just beyond the 500 m setback (e.g., lead, zinc, and arsenic concentrations as high as 5,000 mg/kg, 15,000 mg/kg, and 182 mg/kg, respectively). The review indicated that although the samples were over 500 m away from the MRDS points designated for nearby mines, the samples were collected near what appear to be tailings areas. Thus, 14 samples in the proximity of the Sierra Zinc, Pend Oreille, Yellowhead, and Midnite Mines were excluded.
  - Remove replicate results for arsenic from USGS (2008b), Study "geochem-fU53". (Results by atomic adsorption spectrometry [AAS] had lower detection limits and were retained over inductively coupled plasma [ICP]-atomic emission spectrometry [AES] results.)

2.3.6 The Tier IIIA Dataset

As stated in the DQOs, additional information on samples in the Tier IIB dataset were reviewed and supplemental data added as needed to create the Tier IIIA dataset.

These include the following:

- Depth interval
- Preparation for analysis (e.g., digestion method)
- Analytical method
- Geology and parent soil material

- Sample type (e.g., grab, composite, incremental soil composite)
- Particle size (e.g., <2 mm, <150 μm)

Of these, only the depth interval and particle size are exclusionary criteria established in the DQOs. At this point, the seven samples collected from depths greater than 6 in. were removed from the dataset because the number was deemed insufficient to justify relaxing the depth interval considered. All samples in this dataset met the particle size criterion. This group of samples and results are referred to as the Tier IIIA dataset, which was then reviewed to evaluate suitability as a single dataset. Potential influence of geology and soil parent material are important factors to assess if specific data are representative of background conditions in the upland soil study area. Although these factors were not used to screen in or out samples and results in the Tier IIIA dataset, it may be necessary to consider these factors as part of a refinement of the background dataset as part of the site characterization that will be included in the RI report. These factors are discussed further in Section 2.3.7.1 of this memorandum.

2.3.6.1 Assessing Methods of Sample Preparation and Analysis

The methods of sample preparation and analysis were researched for each of the remaining studies, and generally fit into four categories: total metals, partial digestion (also known as total-recoverable), loss on ignition (LOI) plus digestion (Wells 2015), and mercury. These distinctions are meaningful because each has the potential to extract a different portion of the sample depending on particle size and the mineral phases in the soil (Fishman and Friedman 1989; Ames and Prych 1995; USEPA 1996; Smith et al. 2009). These sample preparation groupings are shown in Table 3 for the Tier IIIA studies along with the number of results in each category. Locations for all metal and metalloid results are shown by study in Figures 4a through 4t.

The total metals category includes methods that aim to measure the entire concentration of an element in a sample, which includes biologically available metals as well as the full mineral content of the soil (i.e., mineral grains). These methods include INAA, which was used for many of the NURE-HSSR soil and sediment samples,[15] and "total digestion", which was also used for NURE-HSSR samples and the USGS studies Smith (2006), USGS (2008b), and Smith et al. (2013). The total digestion methods use strong acids such as hydrofluoric and perchloric acids to achieve a high percent recovery for an element (95 percent; Ames and Prych 1995).

The partial digestion category includes methods designed to liberate "most material bound by surficial coatings on soil particles but removes less than 95 percent of the metals from the mineral matrix" (Ames and Prych 1995; Smith et al. 2009). This includes EPA Method 3050 (USEPA 1996). Although partial digestion methods also use strong acids, they may not achieve the high recoveries seen with total digestion methods. Wells (2015) is unique in that the volatile portion of the sample was measured by LOI before the sample was digested by microwave

[15] Elements by INAA included only aluminum, iron, manganese, sodium, and vanadium.

assisted nitric acid digestion. By oxidizing the sample before digestion, the dissolution properties of the samples are modified.

Additional review of sample preparation methods suggests that some samples underwent additional treatment before dissolution. This includes the reanalysis of archived NURE samples in Church et al. (2008; Study "CHURC08A"). Further examination of how samples were prepared for the NURE-HSSR program shows samples prepared for chemical analysis at Savannah River Laboratory were not only sieved to -100 mesh (<150 μm) but were also ground to -500 mesh in a ball mill (Grimes 1984; Figure 3.12). Whether the reanalyzed samples were from an unground archived split or a finer -500 mesh split is unknown. The latter finer sample would facilitate sample dissolution because of the increased surface area of all portions of the sample (matrix and mineral content).

Metal and metalloid concentrations are shown in boxplots in Attachment B. Results were grouped into the sample preparation categories: INAA, total digestion, LOI+digestion, and partial digestion. Incidentally, the total digestion methods are used on almost all samples with particle size <150 μm;[16] while the partial digestion methods were a mixture of samples with particle sizes <2 mm and <150 μm. There are variations in concentrations between methods and size fraction (see Attachment B for statistical analyses); thus, the results were segregated by total metals, partial digestion, and mercury. LOI+digestion results were excluded because they are not comparable to the other studies considered. The results retained for the Tier IIIB dataset include samples analyzed by INAA, AAS, ICP-AES, and ICP-mass spectrometry (MS), which are considered equivalent methods.

2.3.6.2 Assessing Sample Type

The Tier IIIA dataset has three general sample types: grab (i.e., independent, discrete), composite, and incremental composite samples (ICS). Grab samples by definition represent a point location. Composite samples in the Tier IIIA dataset generally represent a composite of five or more samples collected from areas of varying size. In contrast, the ICS method (ITRC 2012) used for the 2014 Upland Soil Study (TAI 2015b, Study "Teck_2014_UplandSoil") consisted of 30 subsamples per decision unit, which were approximately 25 acres in size. The screened dataset at this stage includes 15 grab samples from three studies, 23 areas sampled by ICS for the 2014 Upland Soil Study, and over 3,200 composite sample locations (Table 4). Each of the sample types represents background concentrations on a different spatial scale, but in combination characterize concentrations throughout the study area.

[16] All but six of the samples for total digestion represent the <150 μm size fraction.

2.3.6.3 Assessing Particle Size

The Tier IIIA dataset includes samples sieved to <2 mm and <150 μm which are most representative for ecological and human health exposures, respectively. There was no need for further exclusions based on particle size.

The 2014 Upland Soil Study measured metals and metalloids for samples from both size fractions (<2 mm and <149 μm), many from the same location (Table 4). To avoid over-weighting these locations, the <2 mm samples were retained in the Tier IIIB dataset and used for derivation of BTVs (i.e., <149 μm results from 2014 Upland Soil Study are not used in this assessment).

2.3.7 Geospatial Consistency of the Tier IIIB Dataset

Geospatial sample characteristics merged with the measured metal and metalloid concentrations provide the starting dataset for evaluations to determine consistent groups of samples (i.e., populations) for characterizing BTVs for each element. The original objective of statistical comparisons based on geospatial classifications was to identify groups of samples that represent significantly different conditions that would justify separate risk evaluations for sub-areas of the Site. The Tier IIIB dataset consists of samples from two particle sizes, multiple sample types, and various preparation and analysis methods, in addition to other differences in sampling between studies. The screened background data were evaluated for differences between assessment variables as stated in the DQOs (TAI 2018b) as follows:

- Maps of metal concentrations with geospatial classifications to visually assess variability across the region.
- Analysis of variance (ANOVA) based on metal concentrations to determine significant differences between geospatial classifications.

2.3.7.1 Spatial Variability

Maps showing sample concentrations[17] of each metal and metalloid (Figures 5a through 5t) demonstrate the spatial variability in concentrations across the study area. This variability is likely the result of several confounding factors that makes the interpretation of metals concentrations in surface soils in the areas surrounding the UCR challenging. The overemphasis of a single factor (e.g., particulate deposition from smelter emissions) to the occurrence of metals in a specific part of the UCR Site may lead to an inaccurate assessment of background conditions that are relevant to the upland soil dataset.

Geologic formations enriched in lead and zinc, in mineable concentrations, are present in the UCR area, and are often associated with calcareous materials, such as limestone and dolomite.

[17] This subset of metals is provided for consistency with the earlier maps demonstrating sampling locations.

The occurrence of formations enriched in lead and zinc is reported in Lovering (1976), not as uniform occurrences in country rock, but in mineralized zones where the emplacement of lead has occurred regionally. These formations are prevalent in the Northport and Metaline mining districts, located in Stevens County and Pend Oreille County, respectively, and are found throughout the northeastern portion of WRIA 61 and extending north into Canada. This area is part of the principal lead deposits in the continental United States and along with southeastern British Columbia, Canada, and northern Idaho comprise "one of the great lead-zinc provinces of the world" (Lovering 1976; Weissenborn et al. 1970, p. 3). Furthermore, Mills (1977) identified 98 mines and prospects in Stevens County, mostly within carbonate rocks associated with the Kootenay Arc that extends from southern British Columbia into northeastern Washington, indicating widespread occurrences of bedrock assemblages in the UCR area. An example of this is the Metaline Limestone of Middle Cambrian age, which is the host for all stratiform lead and zinc in in Stevens County (Mills 1977). These lead-zinc deposits transition in eastern Stevens County and into Pend Oreille County, to occurrences that are associated with more meta-granitic deposits (Jenkins 1924).

Quaternary surface deposits in the UCR have likely been partially derived from weathered bedrock formations and transported by glacial and hydraulic events and are therefore widely distributed across the UCR Site and likely influence local natural background concentrations. Therefore, soil parent material and underlying bedrock are significant factors influencing the natural background level of trace metals in the UCR area, specifically in Stevens County, where high concentrations of lead, zinc, and other associated metals have been historically observed in this area (see Figure 6). Consideration of these factors is beyond the scope of this memorandum, however, consideration of geologic and geochemical factors may be warranted as part of a future refinement of the background assessment and for use in the RI. Additional evaluation of soil compositions may be presented in the RI report if necessary to support a refinement of the background assessment.

Consideration of bedrock geology as an explanatory variable for elevated soil metals concentrations in a specific area is consistent with the approach used by Ecology (2019), where elevated chromium concentrations in WRIA 60 are attributed to the presence of chromium-bearing ultramafic mineralization within tributaries of this WRIA. In this case, chromium results from WRIA 60 were not eliminated. Instead, the authors state that "caution is advised for chromium background range applications, as the maximum value in particular may be best reserved to WRIA 60 only" (Ecology 2019, p. 49).

2.3.7.2 Analysis of Variance

Formal statistical comparisons of differences among assessment variables (sample preparation and analysis methods, sample type, particle size, WRIA, land use, and geology) using ANOVA were confounded by the multiple aspects that differ between studies. Attributing differences to one of the assessment variables is misguided and segregating by study does not provide the desired geographic coverage of the study area (see Attachment B for ANOVA by sample preparation and analysis method). Table 4 indicates the number of sampling locations by particle size, sample type, and WRIA. This dataset includes samples from 20 land use types, 43 geology classifications, and 62 soil map units. The imbalanced distribution of samples between categories, along with other differences between studies, confounds interpretation of ANOVA results, therefore no formal statistical comparisons were evaluated.

2.3.7.3 Upgradient Features

As stated in the DQOs, distance to various upgradient features was added to the dataset to help in the assessment of impacts from upgradient runoff. For the Tier IIIB dataset, none of the sample locations are in the flow path of a mine or mill, or landfill as described in Section 2.3.5. Only four locations are downgradient from railways (one almost 3 km away), while over 360 locations are downgradient from roads (most over 100 m away). However, the setback of 50 m for these is likely sufficient to avoid contamination without over screening samples for the assessment. As such, these features are unlikely to affect downgradient samples retained for the final natural background dataset.

2.3.8 The Tier IIIC Dataset

In their May 29, 2020 comments, EPA required additional partial digestion sample results be removed from the Tier IIIB dataset; no further refinements were required for the total digestion and mercury results. The exclusions are based on multivariate analyses conducted by EPA that used partial digestion sample results for selected metals and metalloids[18] (see Tables 3 and 4 regarding samples from Church et al. 2008[19]; Ecology 1994, 2013b; USEPA 2002c; TAI 2015b[20], Wells 2015). EPA's analyses also included air deposition area (ADA) sample results, from the 2014 Upland Soil study, located within the 1931 SO_2 plume area as determined by EPA (USEPA 2020c, Attachment 1). By applying this screening step, additional samples beyond the 1931 SO_2 plume area were removed, which included all partial digestion results for samples located in WRIA 61 plus two samples from other WRIAs.[21]

2.4 Background Threshold Values

BTVs were calculated as one-sided 95 percent upper confidence limit on the 95th percentiles, or 95/95 upper tolerance limits (UTLs), of the Tier IIIC dataset using ProUCL 5.1 (USEPA 2015a,b), as specified in the DQOs (TAI 2018b). Quantile-Quantile (QQ) plots of measured or

[18] Metals and metalloids included were aluminum, arsenic, beryllium, cadmium, chromium, copper, iron, lead, manganese, nickel, and zinc.

[19] EPA's analyses also include Sample DSOR460S1, which was excluded from Tables 3 and 4 because of its proximity to the Midnite Mine (i.e., total number of samples EPA used from Church et al. [2008] was 44).

[20] Particle size less than 2 mm (i.e., 23 samples outside the 1931 SO_2 plume area).

[21] For WRIA 61, this includes 17 samples from the 2014 Upland Soil Study ("Teck_2014_UplandSoil" samples; TAI 2015b) and 8 samples from the Van Stone Mine remedial investigation ("HARTC13C" samples; Ecology 2013b). The additional samples are Sample RZAH028S1 located in WRIA 54 (Church et al. 2008) and Sample MJ0FL1 located in WRIA 62 (USEPA 2002c).

log-transformed metal concentrations, depending on distributional assessment, were used to identify anomalous high concentrations that would overly influence the BTV in conjunction with formal outlier tests (i.e., Dixon or Rosner tests). Input data, output from ProUCL, and QQ-plots are provided in Attachment C: Attachment C-1 provides these materials based on the total metals results, Attachment C-2 based on the partial digestion results, and Attachment C-3 based on the mercury results. Each attachment includes summary statistics, goodness-of-fit distributional assessments, results of the outlier assessments, and the BTV with the calculation method for each metal and metalloid.

Table 5 summarizes the BTVs derived for each metal and metalloid for the total metals, partial digestion, and mercury results. BTVs with and without identified outliers are included in the table. An additional BTV for arsenic is included that reflects exclusion of five samples identified by EPA based on their multivariate analyses (USEPA 2020c, Attachment 1). As discussed in Section 2.3.7.1, the background dataset is complex. Therefore, the initial assessment of the contribution of natural background will be assessed using the BTVs presented in Table 5 that were derived from the Tier IIIC dataset. Recognizing the uncertainty in these BTV estimates, a refinement that takes into consideration the numerous physical, chemical, and geological factors present in the UCR area will be completed, if necessary, during preparation of the site characterization and RI reports. Confounding factors such as contributions from soil material that is naturally enriched with metals, spatial variability of aerial deposition (due to meteorological conditions, barriers to dispersal such as topography, slope orientation, and distance from area and point sources) may be used to identify data with attributes that indicate they are appropriate for the determination of refined background values and should be incorporated into the background dataset.

3 Exploratory Area Background Evaluation

The previous sections describe the analysis conducted to establish natural soil background concentrations for use in the RI/FS and risk assessments. As defined above and under MTCA (WAC 173-340-200), "natural background means the concentrations of hazardous substances consistently present in the environment that have not been influenced by localized human activities." However, in addition to natural background, the RI and the BERA require an evaluation of non-site related anthropogenic influences on soil chemistry, i.e., area background. Under MTCA, "Area background means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site, which are the result of human activities unrelated to releases from that site." Evidence for area background is a correlation between non-site-related anthropogenic sources of metals and metalloids and local or regional background concentrations. If a correlation exists, the magnitude and spatial distribution of area background can be determined.

The first step in the exploratory area background evaluation was to develop a preliminary understanding of the potential for anthropogenic features and/or land use to influence area background soil metals concentrations. Figure 7 includes a map showing the 1931 SO_2 plume area that established the boundary of the 2014 Upland Soil Study (TAI 2015b). This figure also shows the distribution of land use classifications (e.g., residential, manufacturing, mining, agriculture, etc.) and presence of anthropogenic features (e.g., active and inactive mines, mills, and smelters; roads; and railways) within and in the immediate vicinity of the 1931 SO_2 plume area. Based on Figure 7, the following observations were made:

- Land Use Classification
  - Land use inside and outside of the 1931 SO_2 plume area is primarily classified as undeveloped or public/private forest.
  - Residential and agricultural land uses are also represented.
  - Manufacturing and retail land uses are represented less frequently than residential or agricultural lands and are located primarily within or adjacent to the nearby towns of Colville and Kettle Falls.
  - The mining land use is represented in one location in the northeast corner of Figure 7 that appears to be associated with the inactive Anderson Calhoun Mine/Mill.
- Anthropogenic Features
  - Despite the infrequent occurrence of the mining land-use classification, there are a number of active and inactive mines, mills, and smelters inside and outside of the 1931 SO_2 plume area (e.g., Last Chance Mine & Mill, Young America Mine & Mill, etc.).
  - There are several secondary roads inside and outside the 1931 SO_2 plume area, including Highway 25, which runs parallel to the UCR directly down the middle of the 1931 SO_2 plume area. Highways 20 and 395 are also present within the immediate vicinity of the 1931 SO_2 plume area.
  - There are pervasive local paved and unpaved roads inside and outside the 1931 SO_2 plume area.
  - There is a railway that runs parallel to the UCR and Highway 25 directly down the middle of the 1931 SO_2 plume area, and another railway that runs parallel to Highway 395 to the west of the 1931 SO_2 plume area.

The presence of anthropogenic land uses (e.g., residential, agricultural) coupled with the numerous active and inactive anthropogenic features within and immediately adjacent to the 1931 SO_2 plume area strongly suggest that current and/or historical anthropogenic activities may have influenced area background soil metals and metalloids concentrations. An exploratory evaluation of the factors that may influence area background is summarized below.

3.1 Area Background Dataset

The Tier I dataset plus added location-based information described in Section 2.3.4 was used to derive the exploratory area background dataset. Many of the Tier II exclusion criteria that were applied to the natural background dataset were designed to eliminate samples associated with anthropogenic activities and features. As the goal of the area background evaluation is to characterize the effects of anthropogenic activities and features, most of the Tier II exclusions were not applied to the exploratory area background dataset.

Although the analytical and digestion methods (i.e., samples prepared using total digestion versus partial digestion methods) may bias the results, due to the large number of samples, spatial coverage, and consistent sample preparation and analytical methods within the NURE-HSSR dataset, it is useful for examining spatial correlation between metals and metalloids concentrations and potential anthropogenic sources. Additionally, the NURE-HSSR samples were collected between 1977 and 1979, which may be before more recent and current anthropogenic sources were present, and this will be considered when interpreting the NURE-HSSR results relative to specific anthropogenic features.

3.2 Example of Anthropogenic Influences on Soil Metals and Metalloids Concentrations

The exploratory area background evaluation included an assessment of the relationship between soil metals and metalloids concentrations and proximity to anthropogenic features. An example of this preliminary analysis focused on the proximity of inactive mines related to soil metals and metalloids concentrations. It was assumed that if inactive mines contribute to elevated soil metals and metalloids concentrations, then concentrations would be highest close to inactive mines, concentrations would decrease with increased distance from the inactive mines, and concentrations would eventually level off at distances beyond the mine zone of influence. Plots of concentrations as a function of distance from inactive mines were used to assess this relationship. Figure 8 (inset on the following page) shows an example with lead concentrations plotted against distance from inactive mines in soil samples collected outside the 1931 SO_2 plume area. A generalized additive model (GAM[22]) was used to fit a flexibly shaped curve that shows the general trend in concentrations across distance from the inactive mines (blue line in Figure 8).

As shown on Figure 8, the expected distribution of concentrations with distance from inactive mines was observed for lead. This suggests that inactive mines do, indeed, have an effect on soil metals and metalloids concentrations. Similar results were observed for lead, zinc, and copper

[22] A GAM uses splines to fit flexibly shaped curves that are particularly useful in initial data analysis and exploratory analyses. They are well suited to reveal potentially curvilinear relationships that are not restricted to the shapes imposed by typical straight line or polynomial regression models.

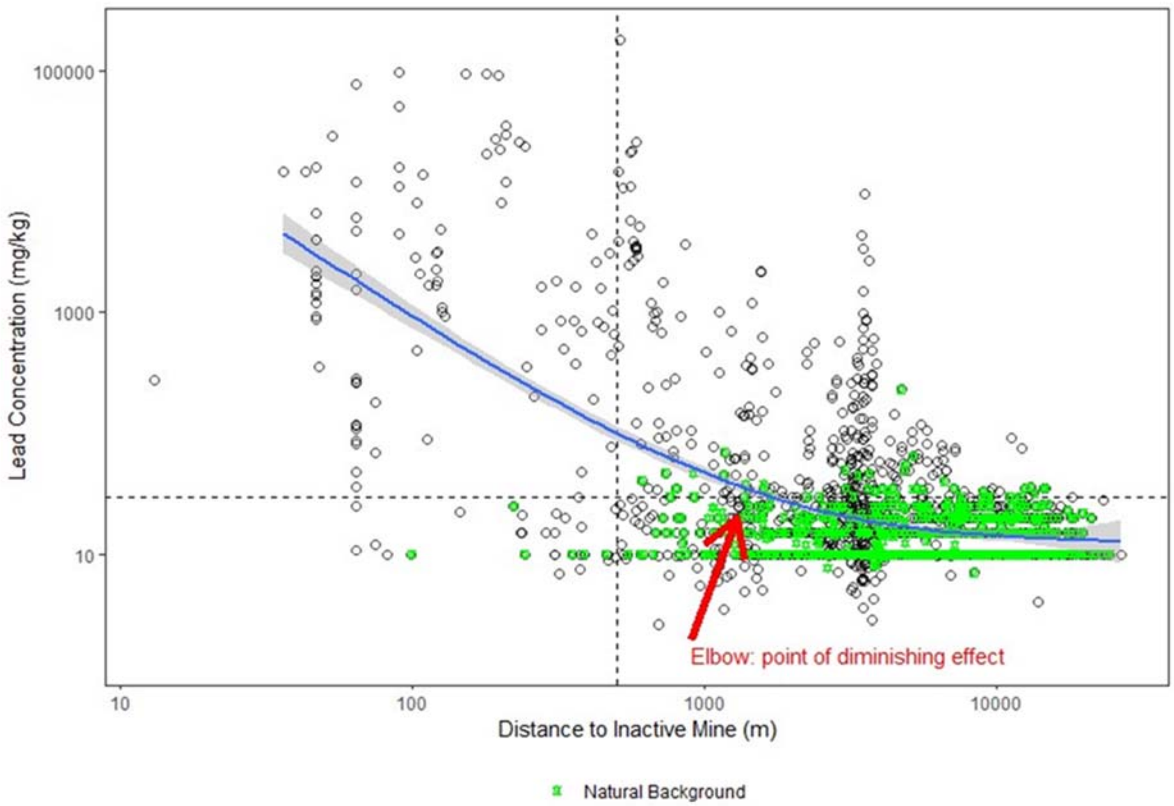
with distance from active and inactive mines and mills for soil outside the 1931 SO_2 plume area, and when the entire soil dataset was evaluated.

The distance at which concentrations stabilize is expected to be the point at which samples are beyond the mine zone of influence (as indicated by the point of diminishing effect illustrated by the GAM curve; see the arrow in Figure 8). This example suggests that the mine zone of influence may extend beyond the 500-m buffer zone used for the Tier II exclusions.

This exploratory evaluation included data from multiple observational studies that were performed for different purposes over many years, and the data did not fall neatly into categories that could be carefully controlled. Therefore, there is a potential for confounding factors that may influence conclusions. These potential confounding factors that may influence area background will be further evaluated as necessary in the site characterization summary and integrated into the RI report, which TAI will prepare in the future as required by Section V, Paragraph 13.c of the Settlement Agreement, Task 3 – Site Characterization (USEPA 2006a).

3.3 Summary of Exploratory Area Background Evaluation

This example suggests that some anthropogenic features within and immediately adjacent to the 1931 SO_2 plume area may have influenced area background soil metals and metalloids concentrations. However, further analysis is warranted to ensure multiple anthropogenic effects are not confounded in such a way as to mask or exaggerate the effects of the individual features. Area background will be comprehensively evaluated and discussed in the site characterization summary and RI report using techniques such as principle component analysis.



Notes: The vertical dashed line represents the 500-meter mine buffer, and the horizontal dashed line represents the natural background UTL for lead. Samples included in the natural background dataset are shown in green. The red arrow indicates the inflection point of the GAM curve that represents the point at which concentrations stabilize outside the mine zone of influence. The grey shading indicates the 95% confidence interval of the GAM fit.

GAM - generalized additive model
UTL - upper tolerance limit

Figure 8. Lead concentrations as a function of distance from inactive mines

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Figures

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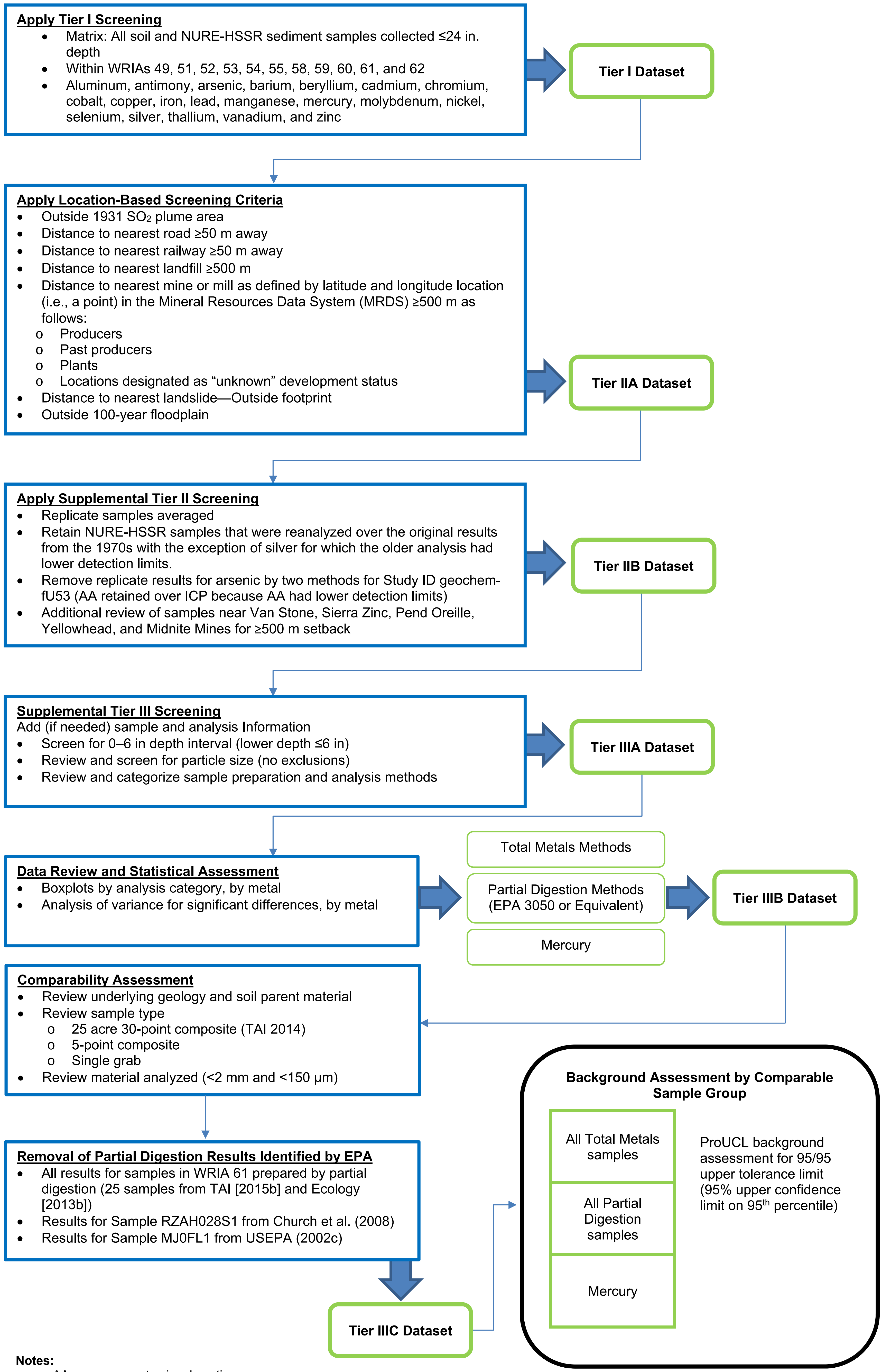


Notes:

AA	atomic adsorption
ICP	inductively coupled plasma
INAA	irradiated neutron activation analysis
LOI	loss on ignition
NURE-HSSR	National Uranium Resource Evaluation-Hydrogeochemical and Stream Sediment Reconnaissance
WRIA	water resources inventory area

Figure 1. Flow chart showing steps used to generate the natural background dataset

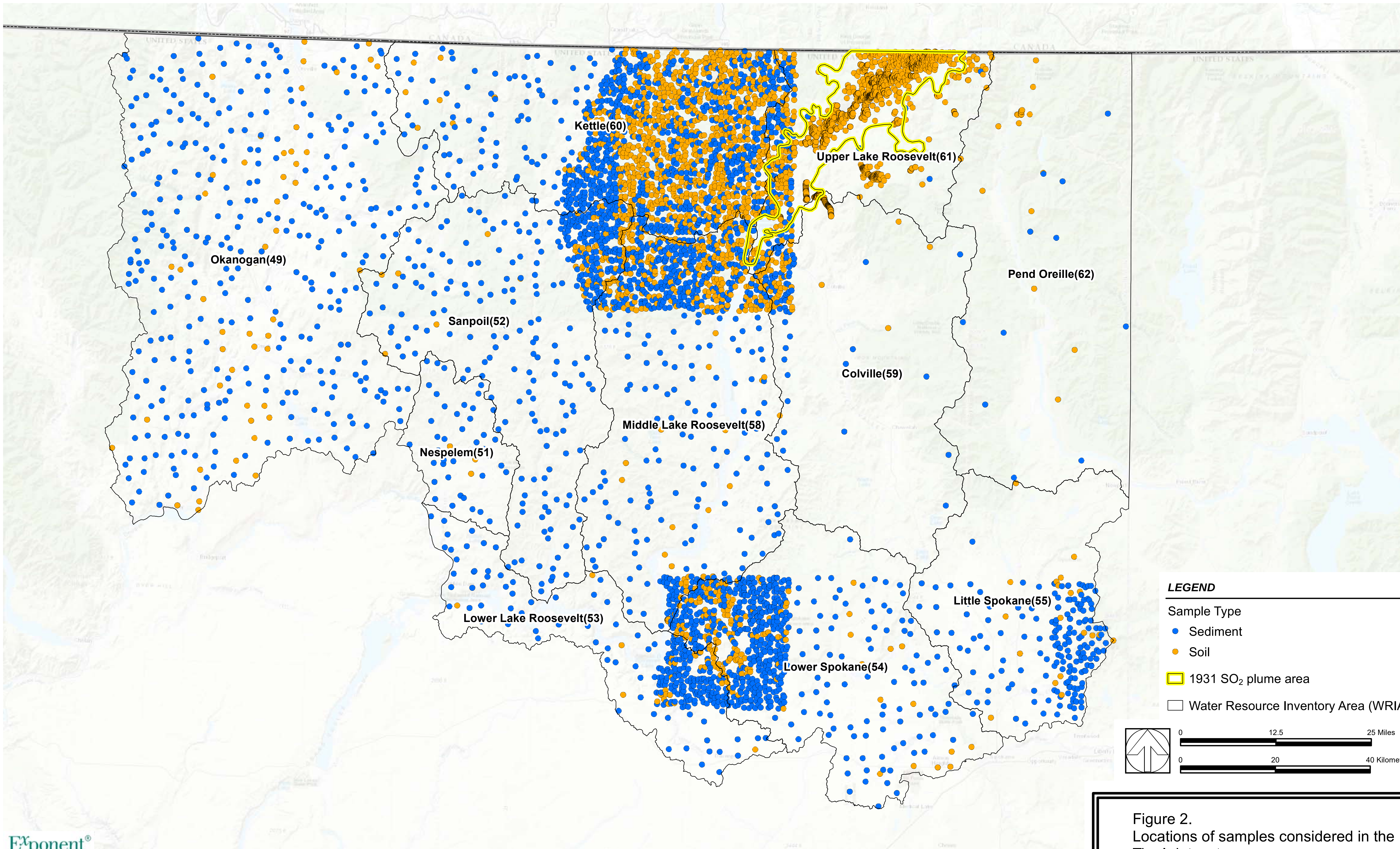


Figure 2.
Locations of samples considered in the Tier I dataset

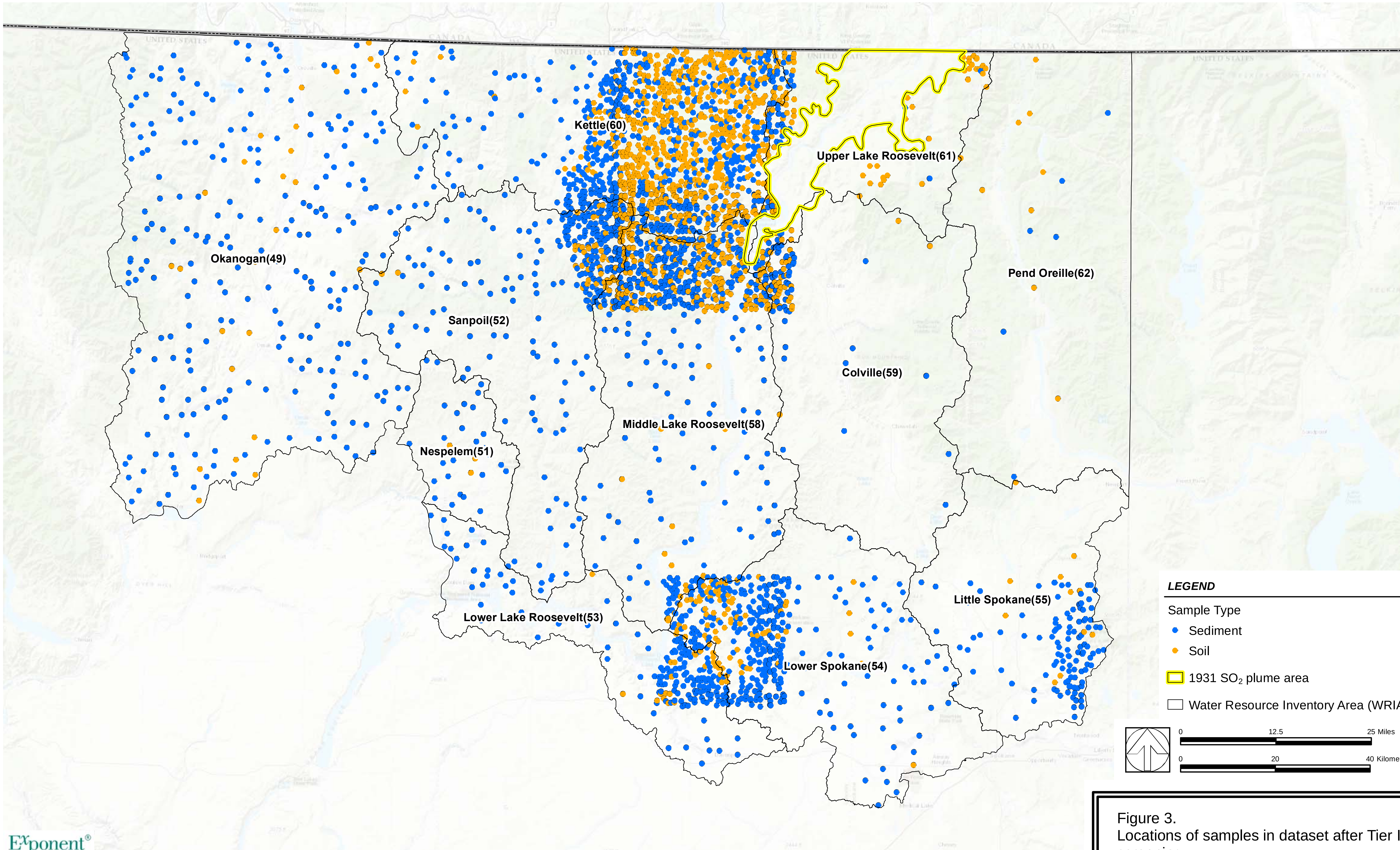


Figure 3.
Locations of samples in dataset after Tier II screening

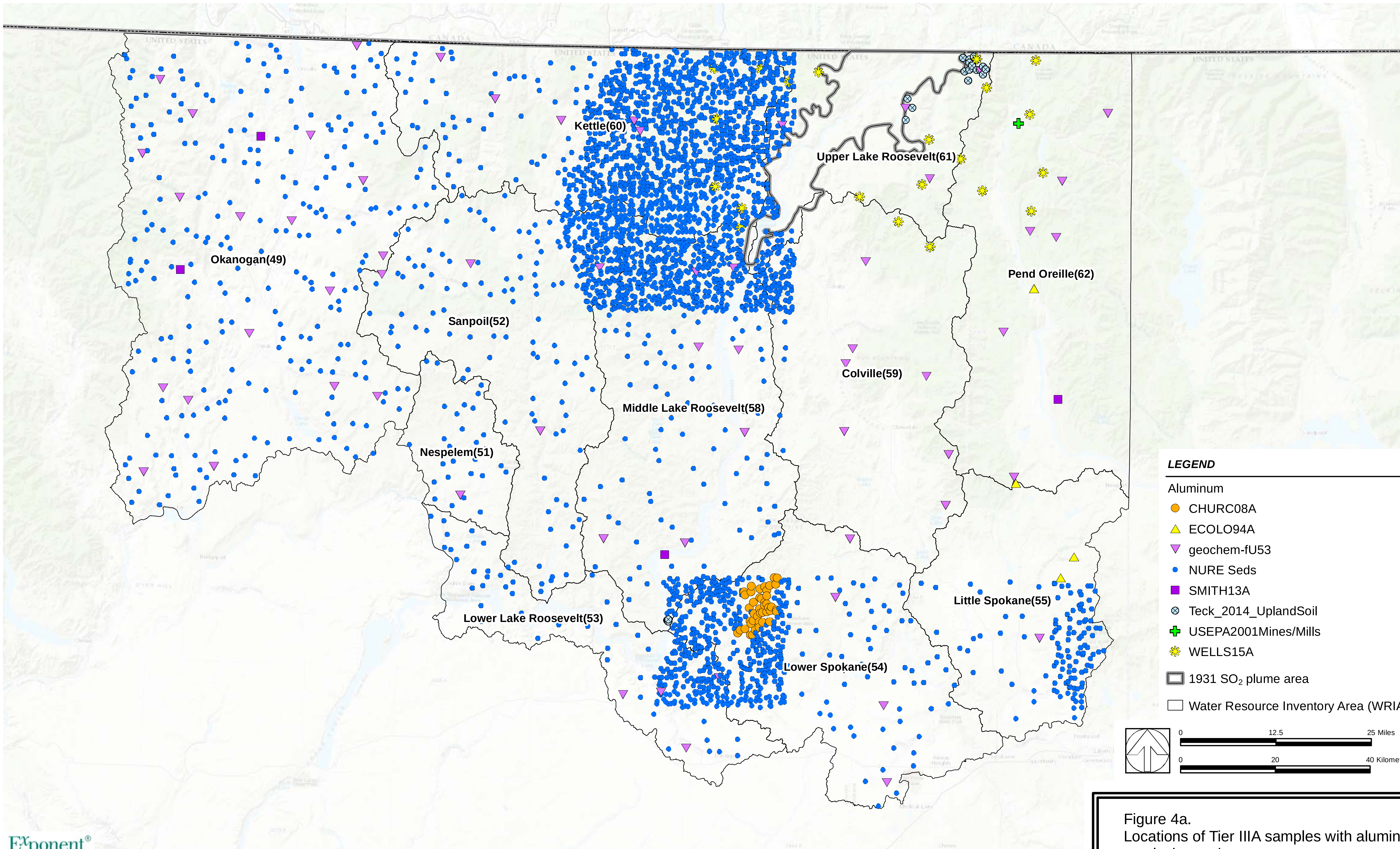


Figure 4a.
Locations of Tier IIIA samples with aluminum results by study

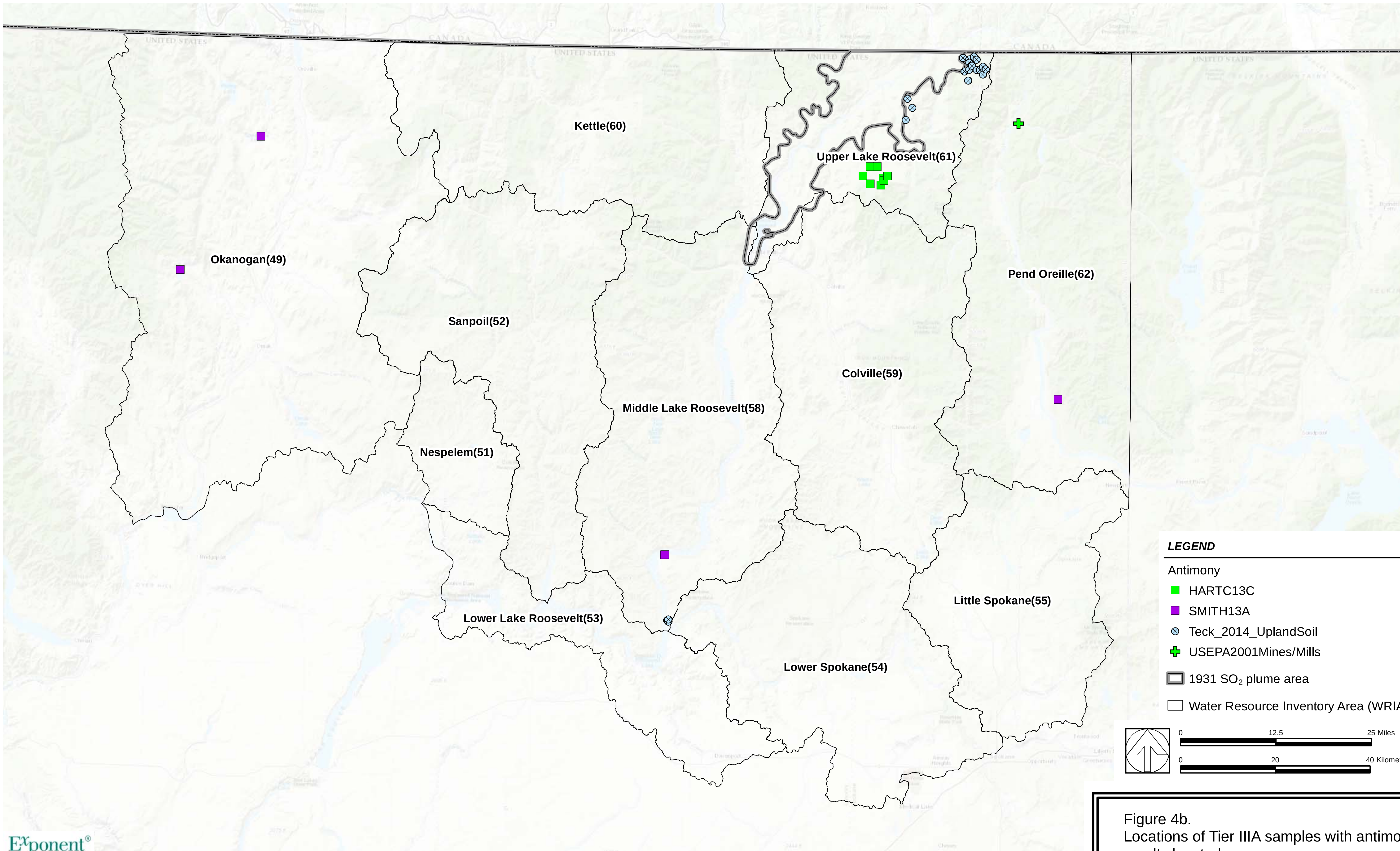


Figure 4b.
Locations of Tier IIIA samples with antimony results by study

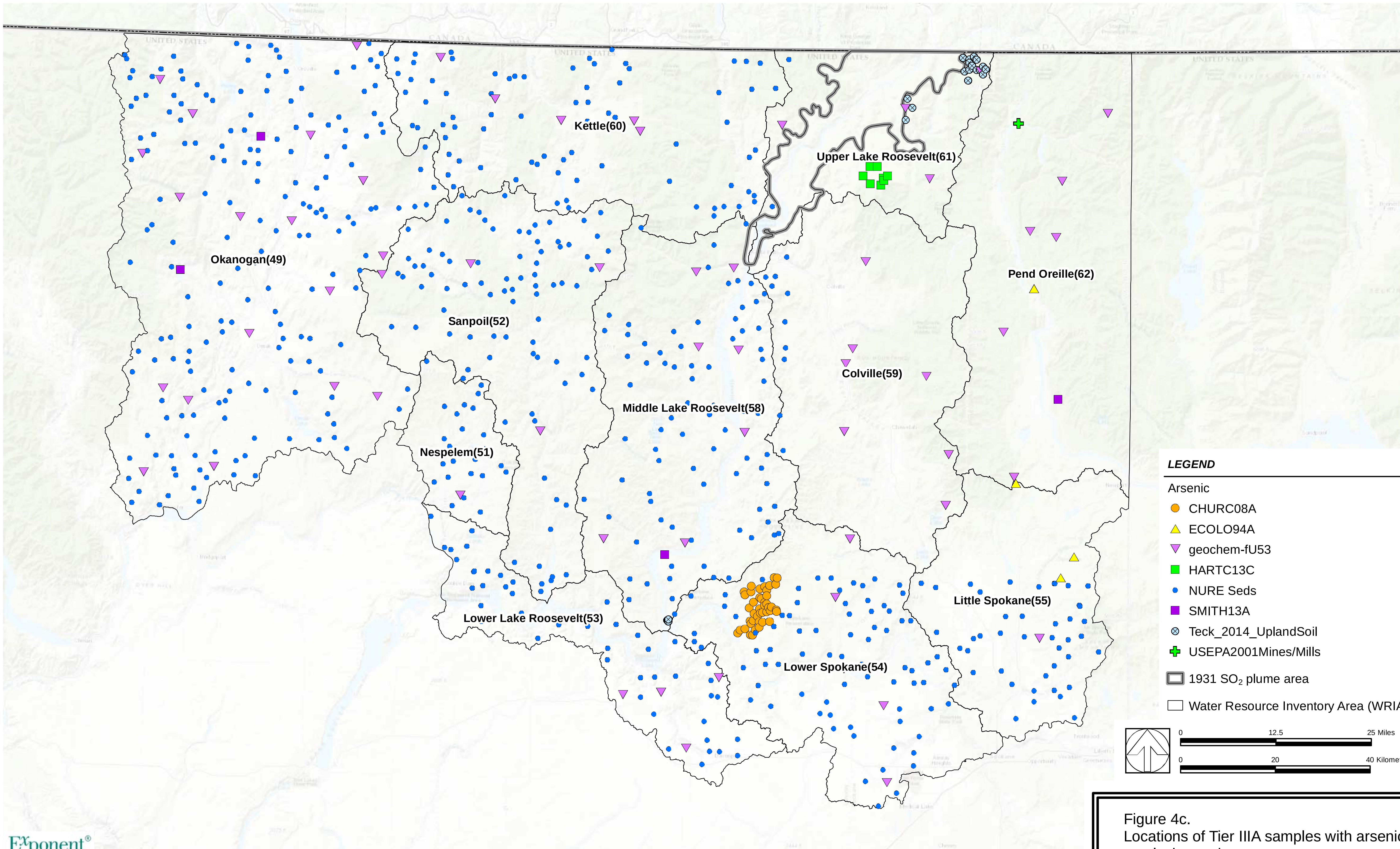


Figure 4c.
Locations of Tier IIIA samples with arsenic results by study

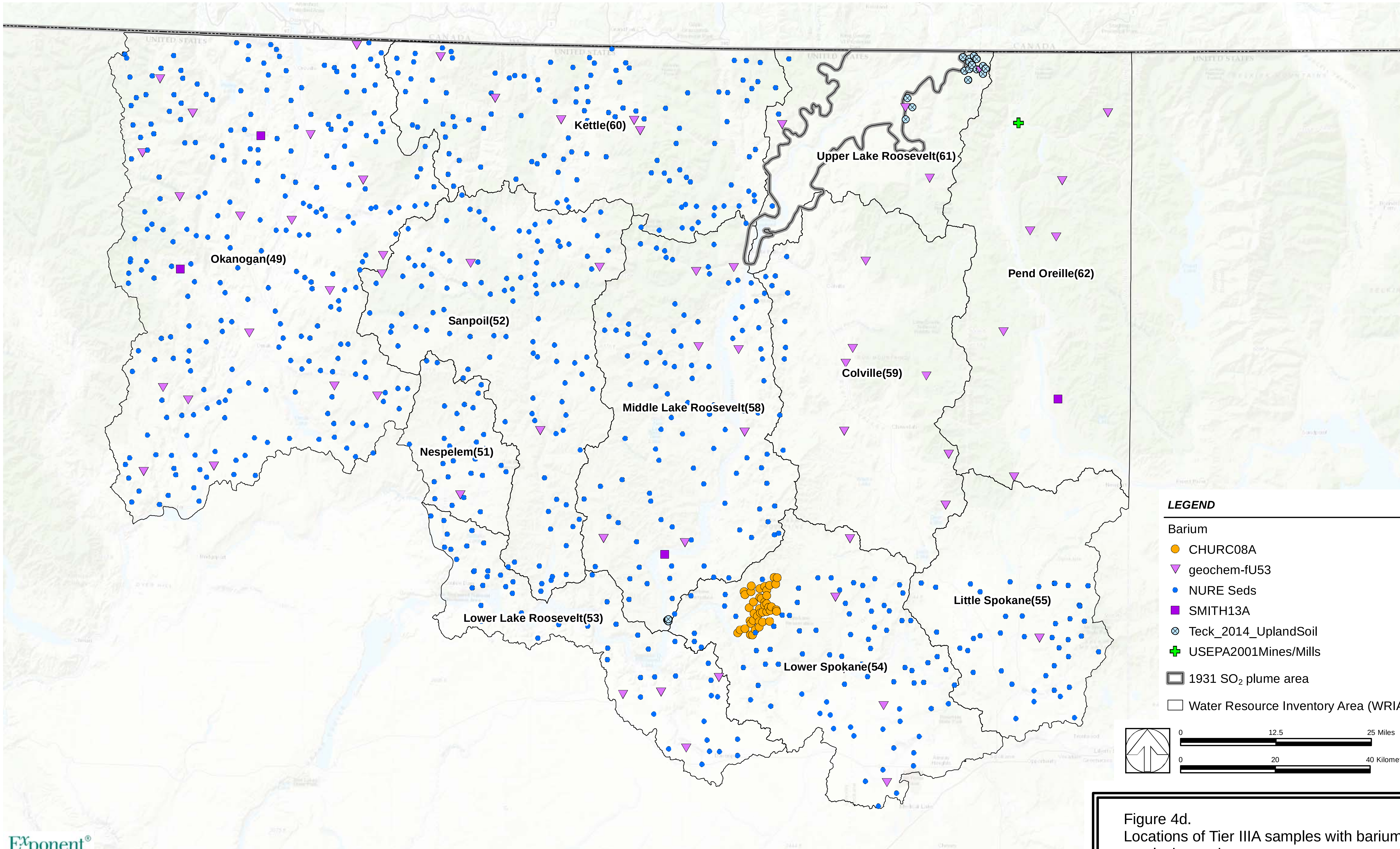


Figure 4d.
Locations of Tier IIIA samples with barium results by study

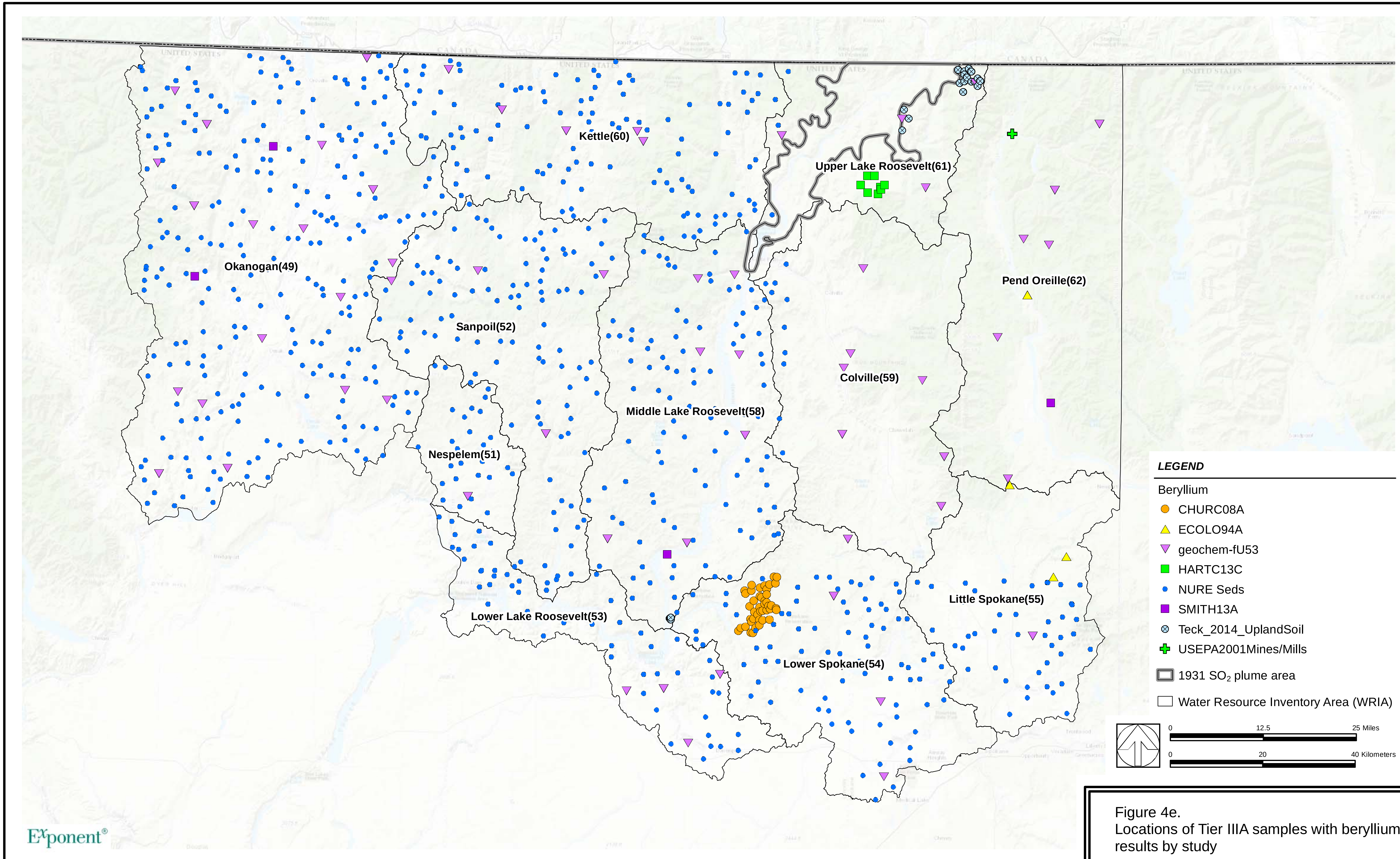


Figure 4e.
Locations of Tier IIIA samples with beryllium results by study

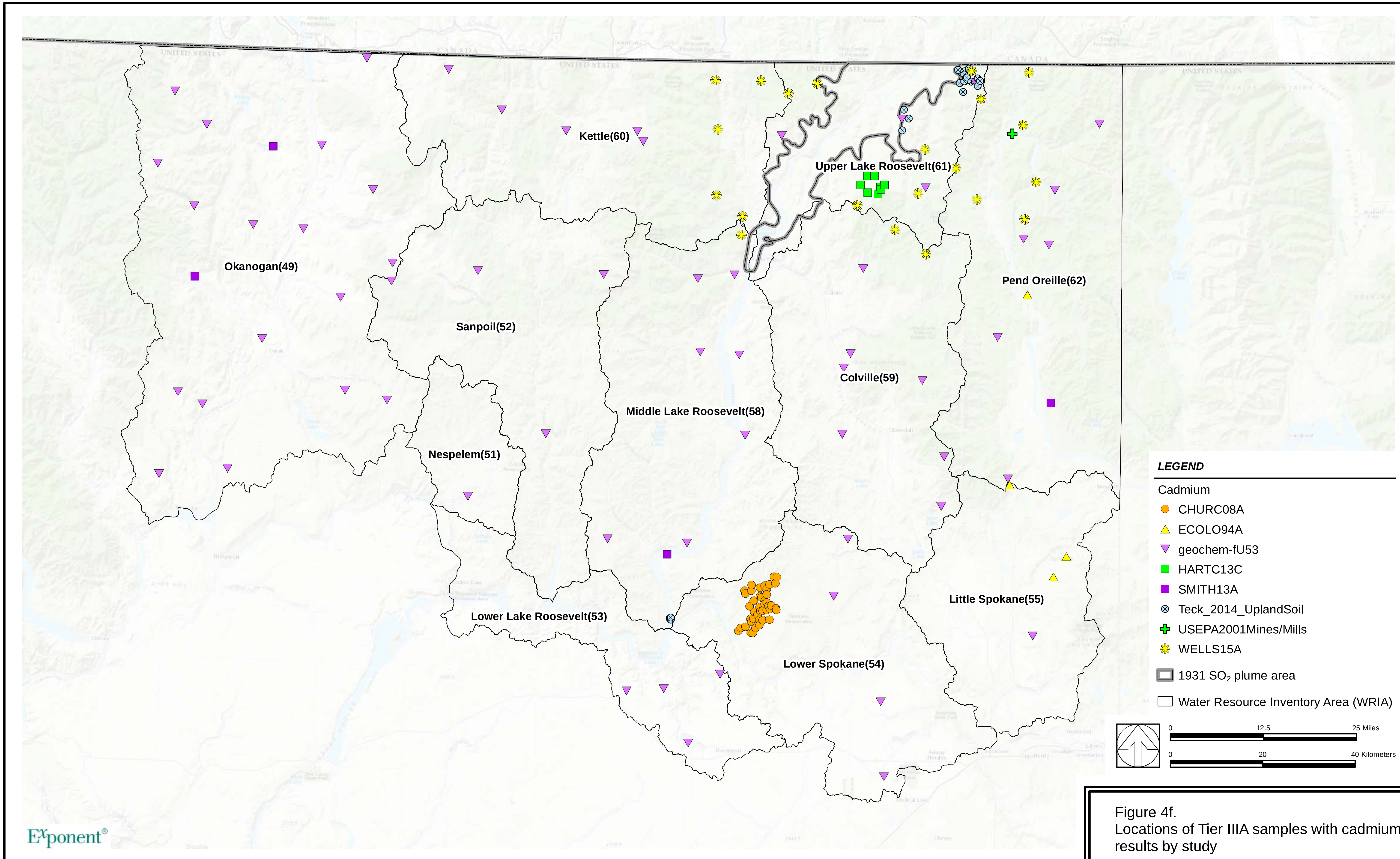


Figure 4f.
Locations of Tier IIIA samples with cadmium results by study

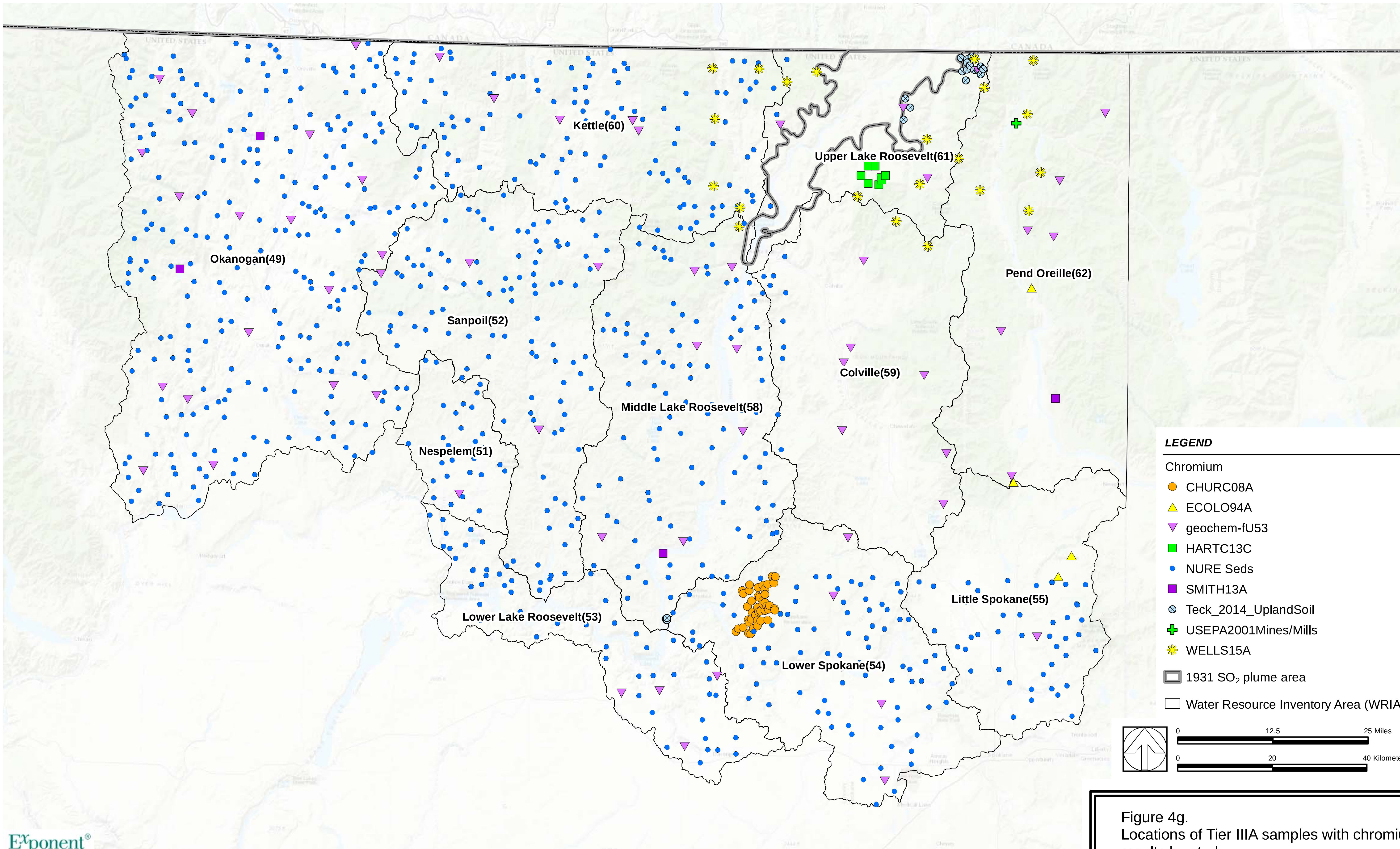


Figure 4g.
Locations of Tier IIIA samples with chromium results by study

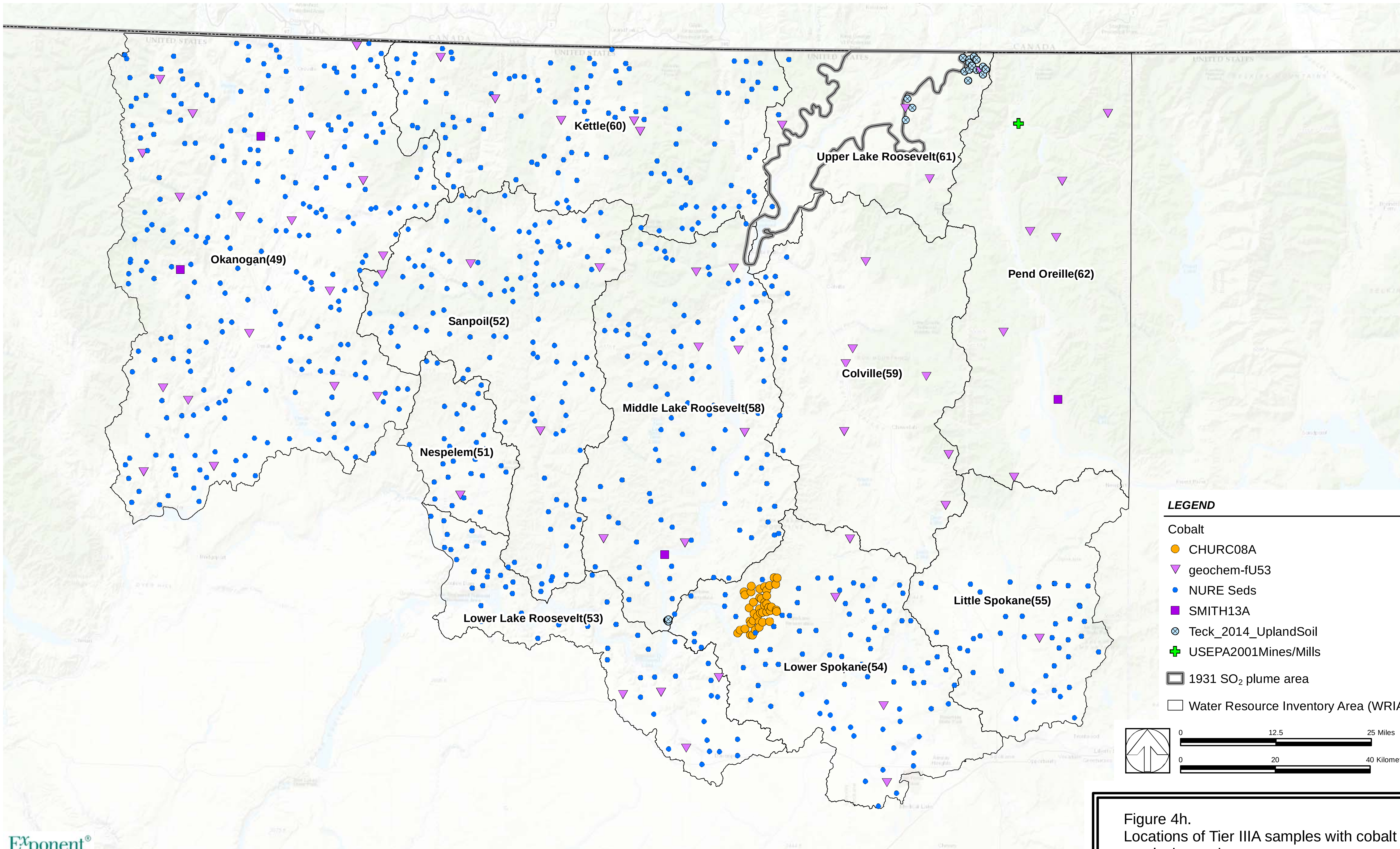


Figure 4h.
Locations of Tier IIIA samples with cobalt results by study

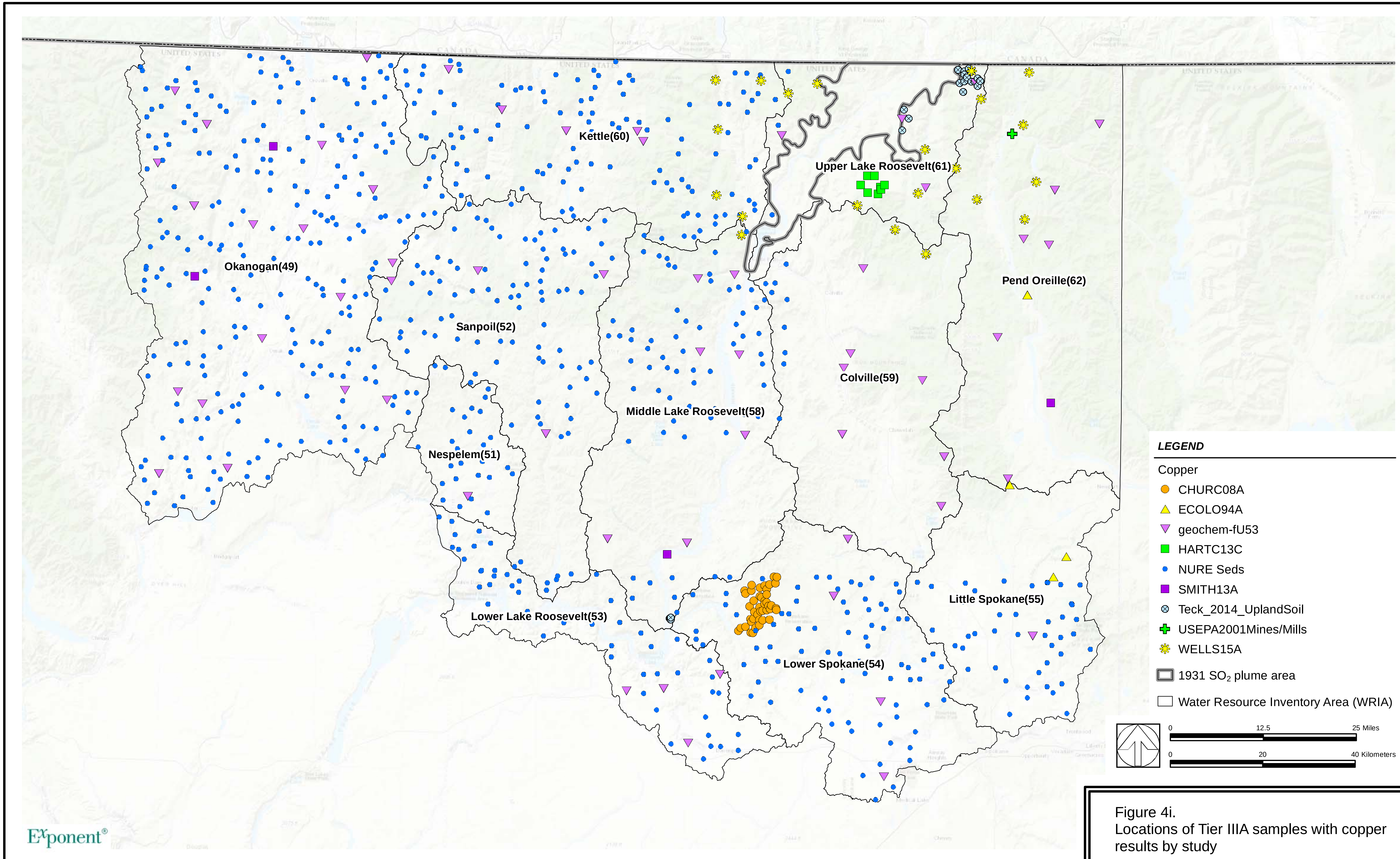


Figure 4i.
Locations of Tier IIIA samples with copper results by study

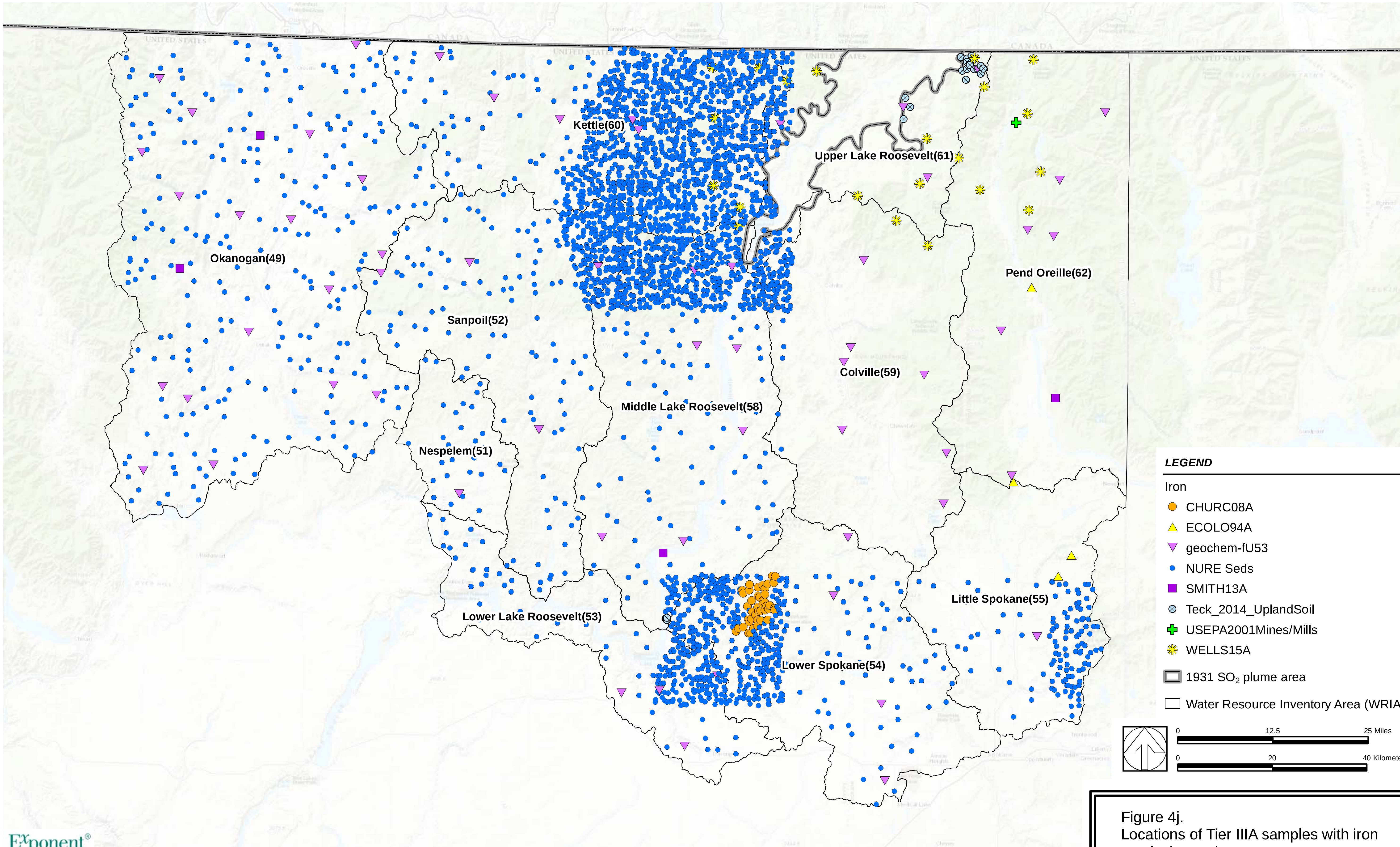


Figure 4j.
Locations of Tier IIIA samples with iron results by study

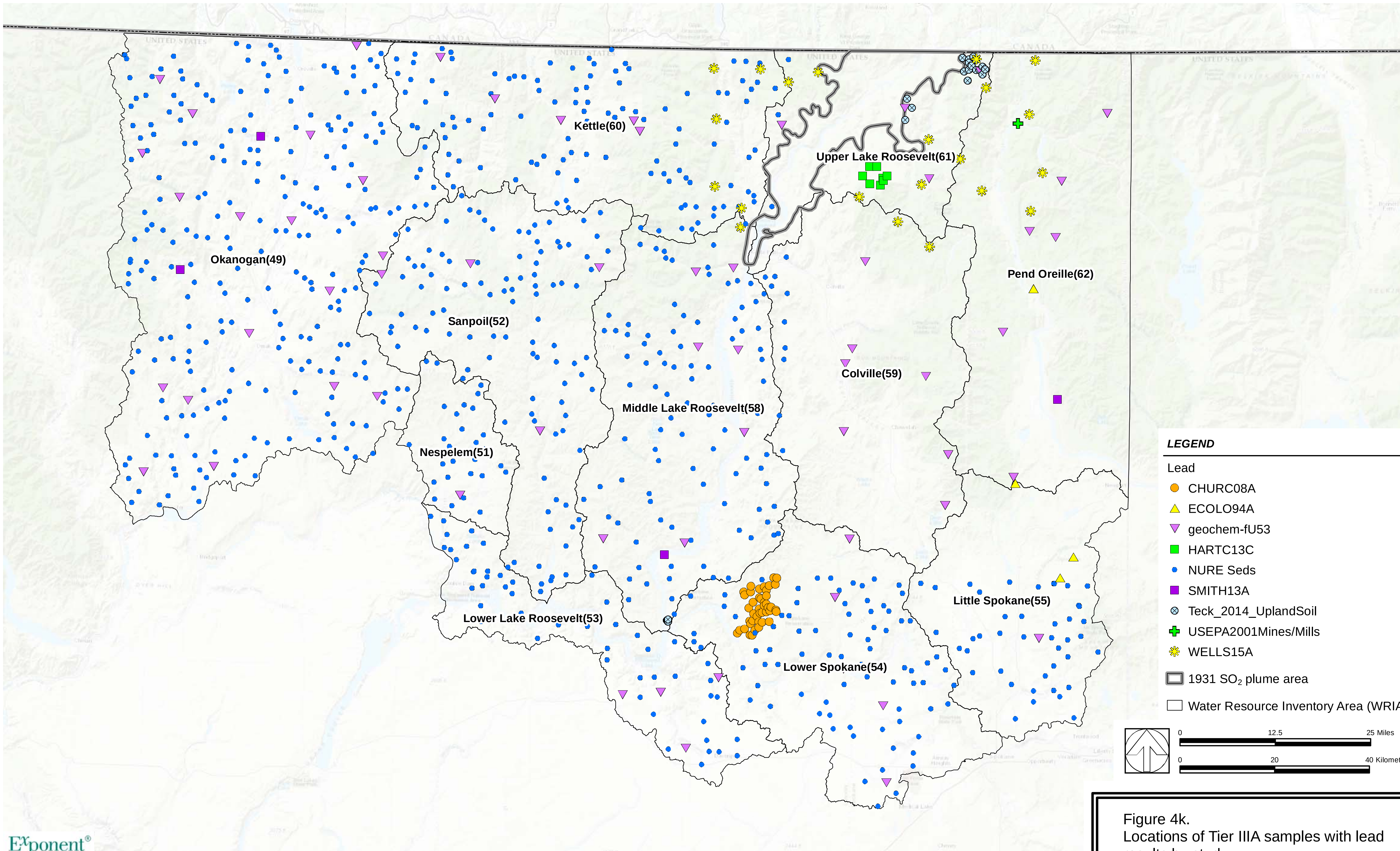


Figure 4k.
Locations of Tier IIIA samples with lead results by study

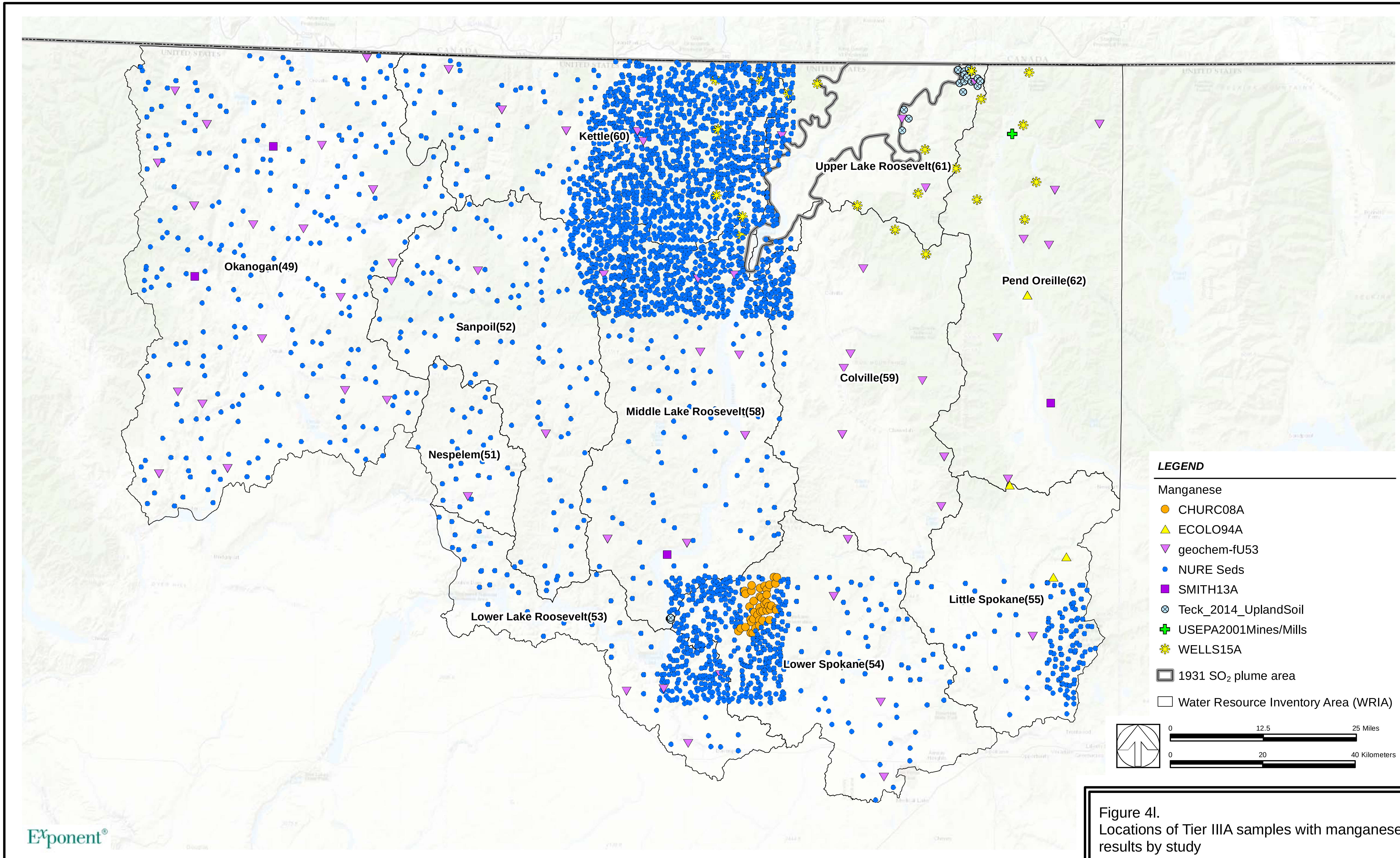


Figure 4l.
Locations of Tier IIIA samples with manganese results by study

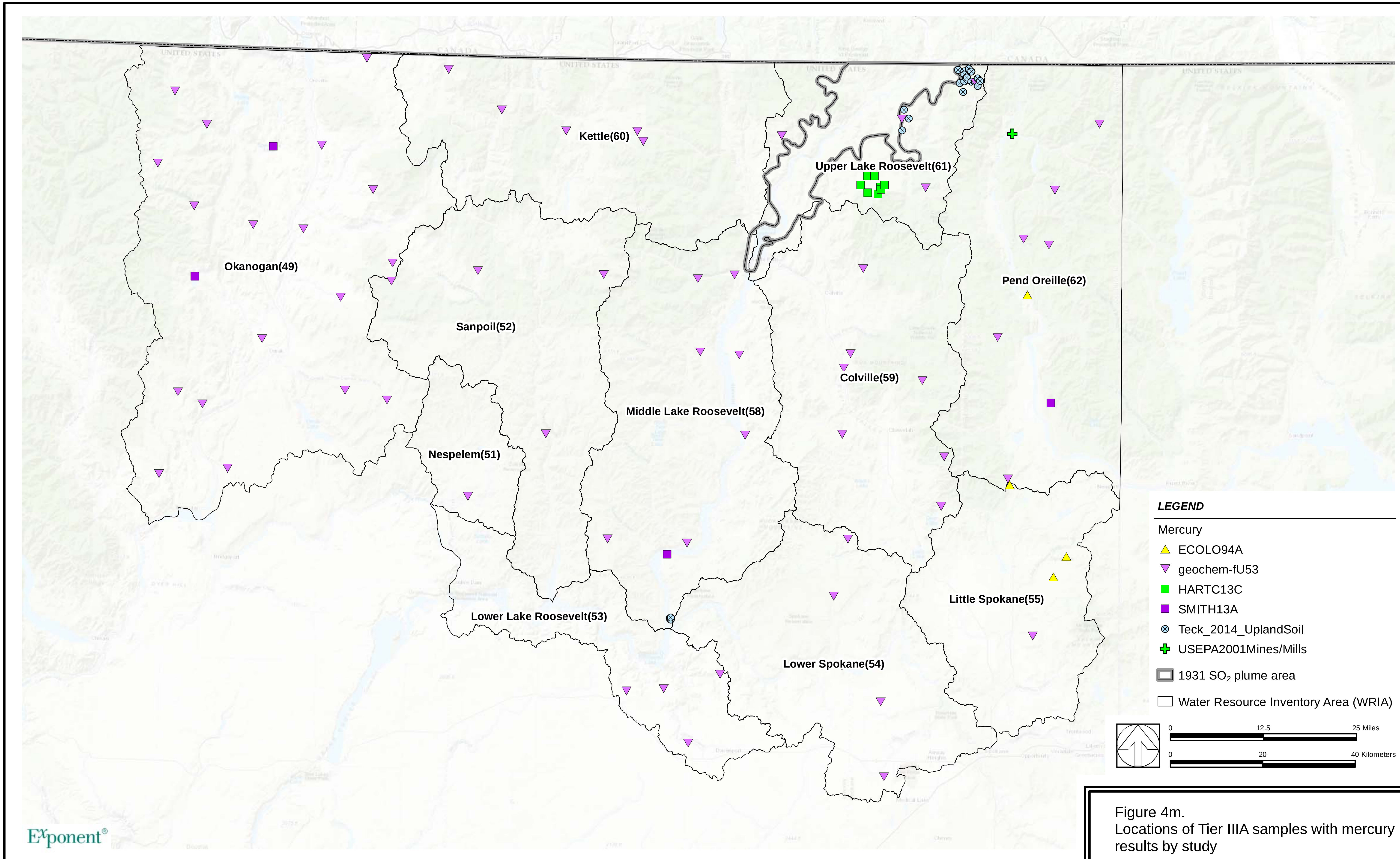


Figure 4m.
Locations of Tier IIIA samples with mercury results by study

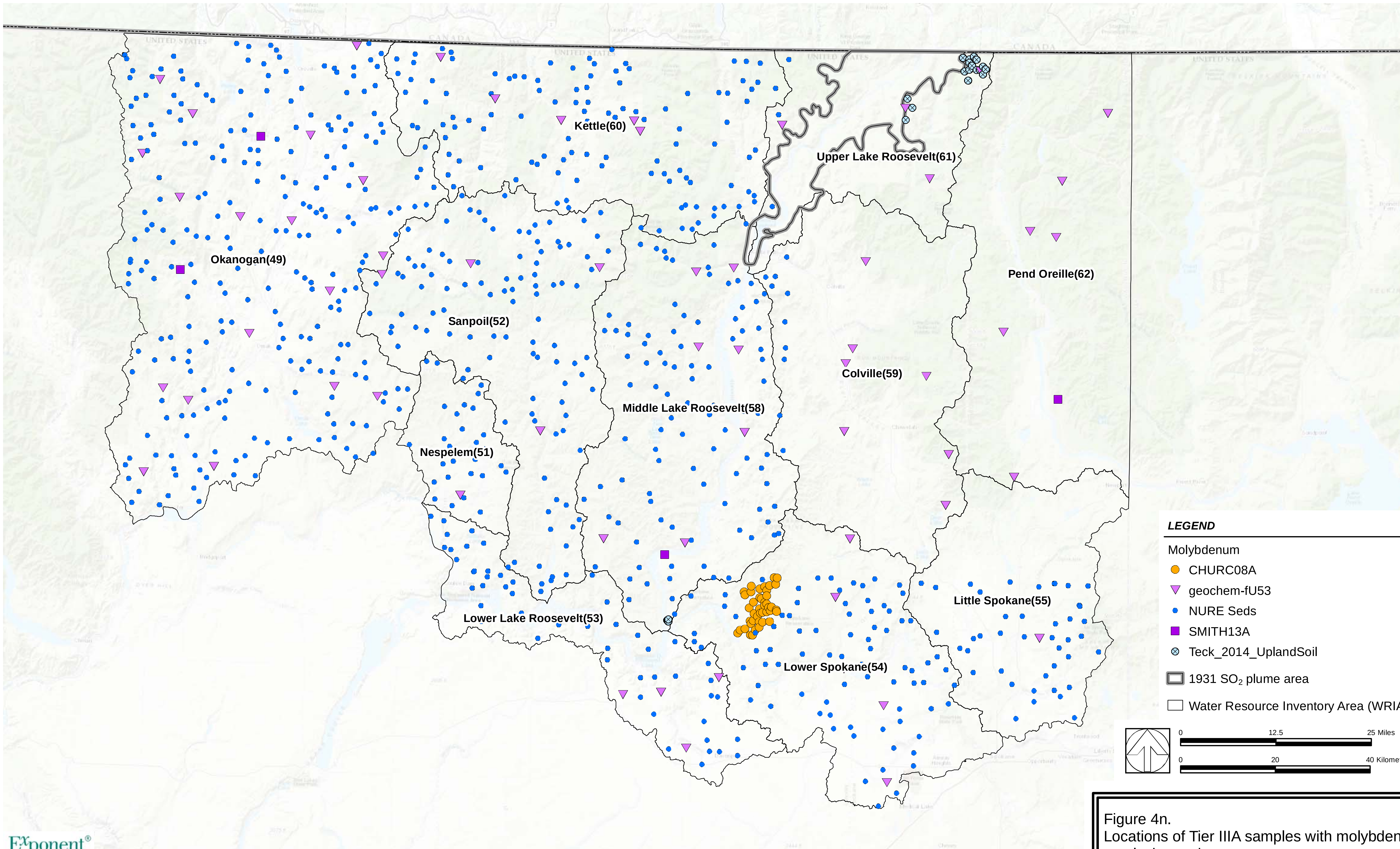


Figure 4n.
Locations of Tier IIIA samples with molybdenum results by study

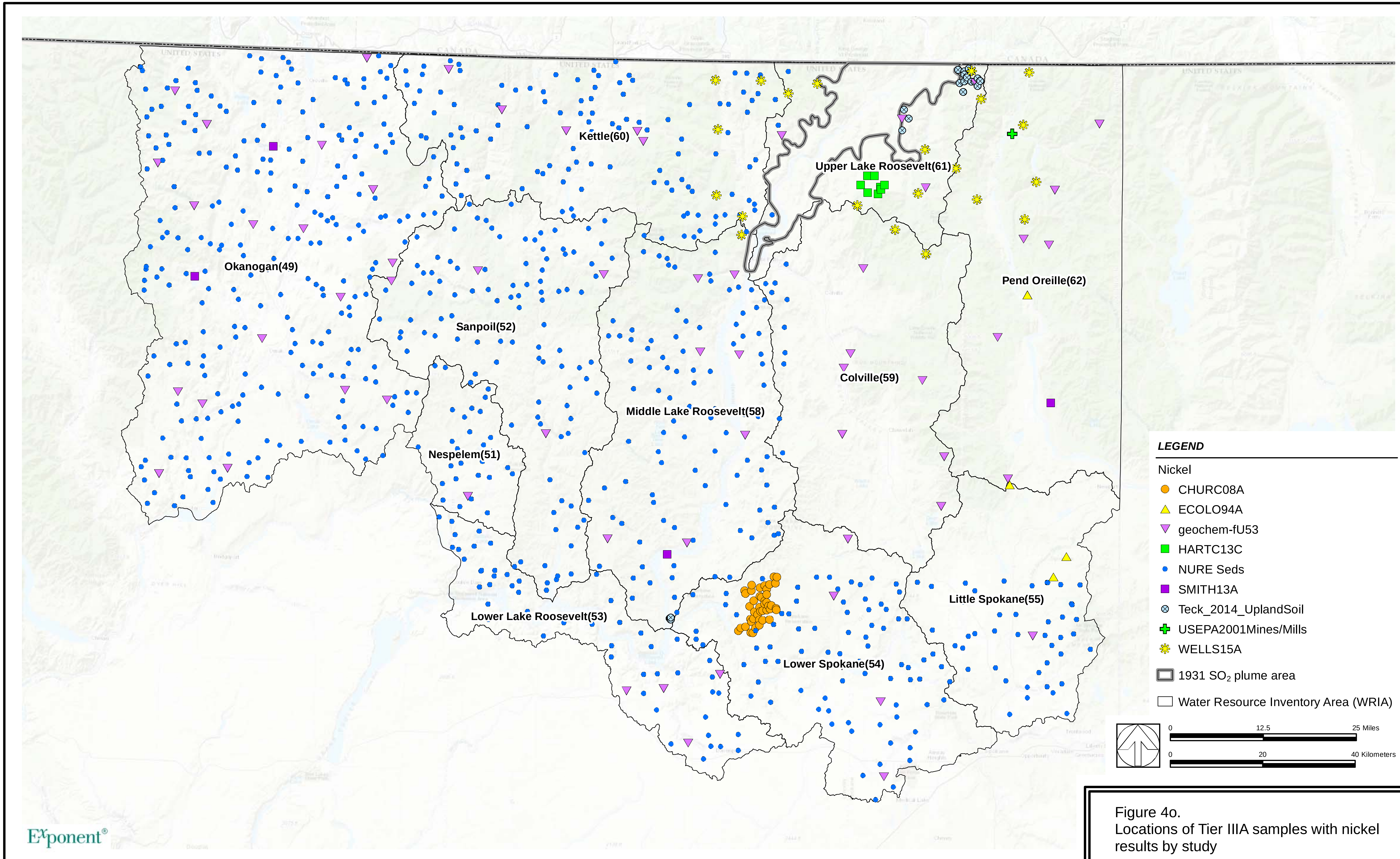


Figure 4o.
Locations of Tier IIIA samples with nickel results by study

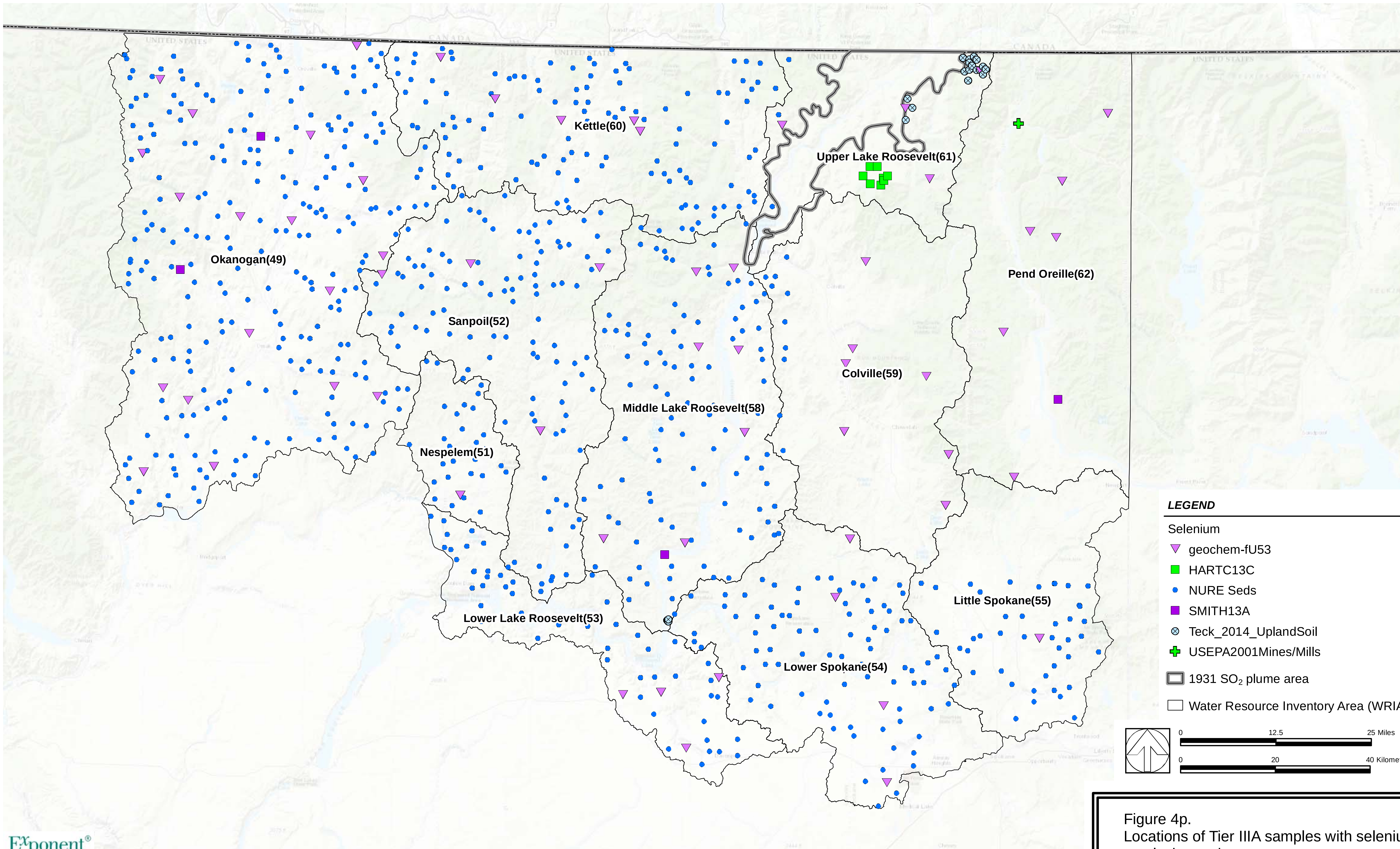


Figure 4p.
Locations of Tier IIIA samples with selenium results by study

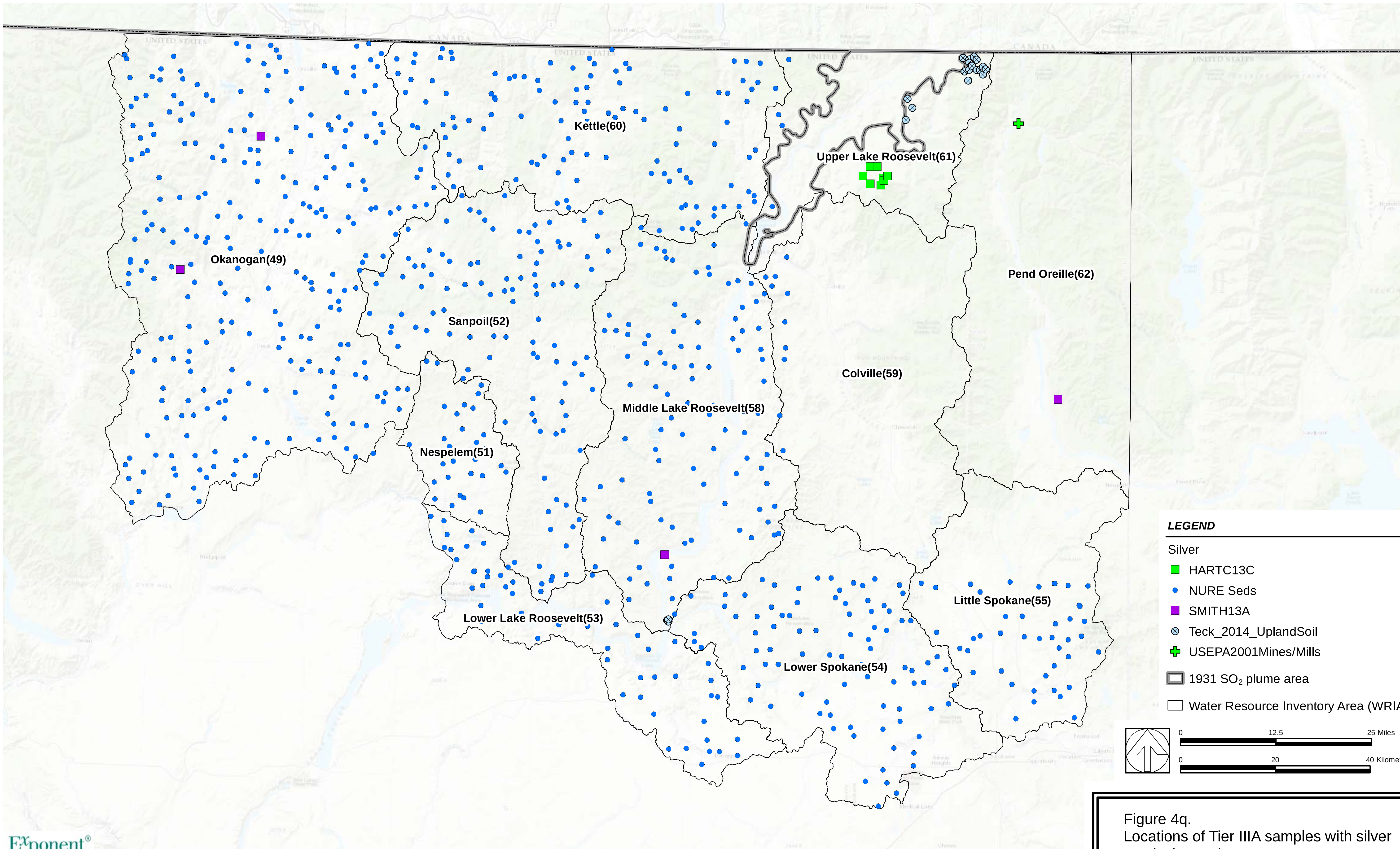


Figure 4q.
Locations of Tier IIIA samples with silver results by study

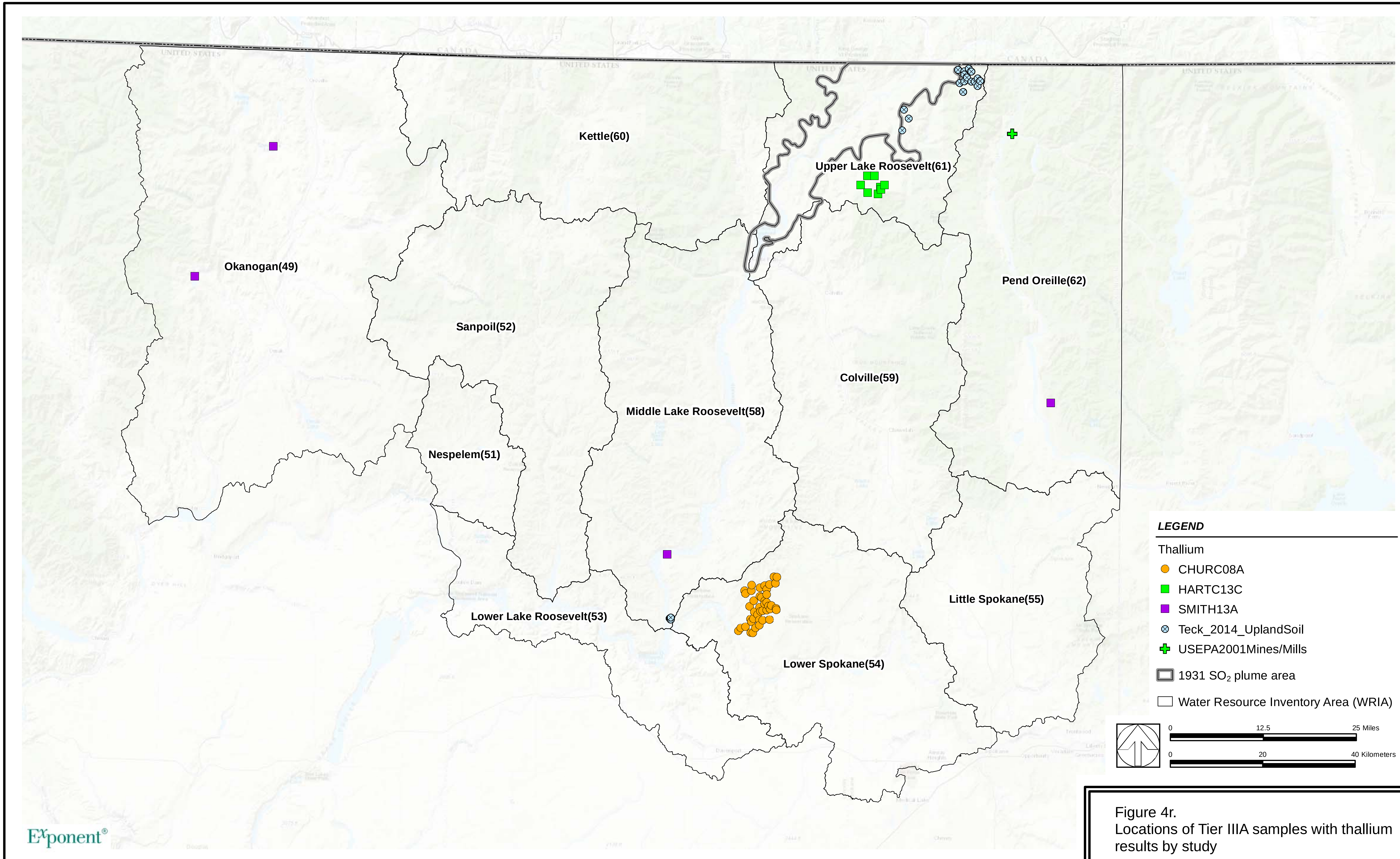


Figure 4r.
Locations of Tier IIIA samples with thallium results by study

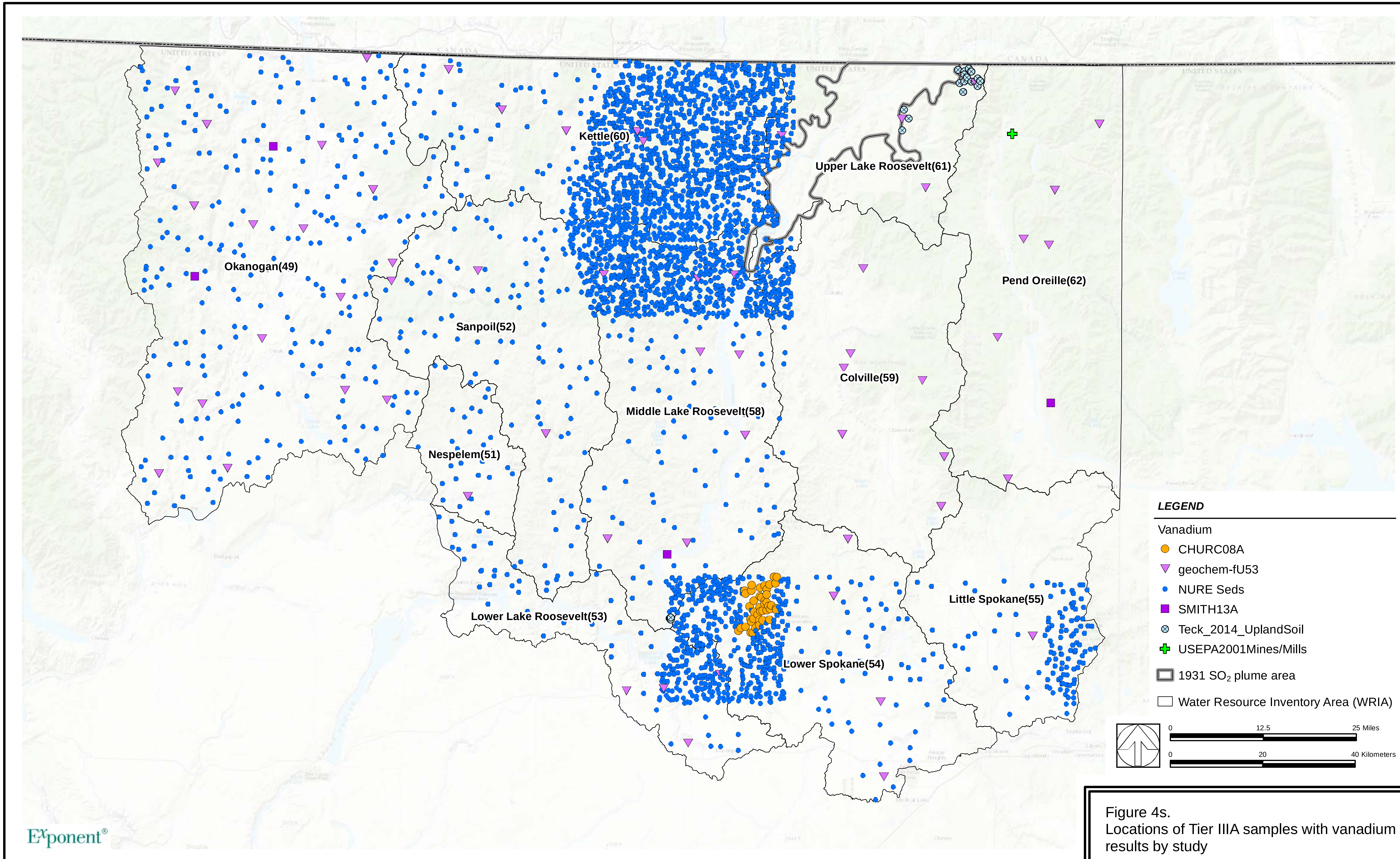


Figure 4s.
Locations of Tier IIIA samples with vanadium results by study

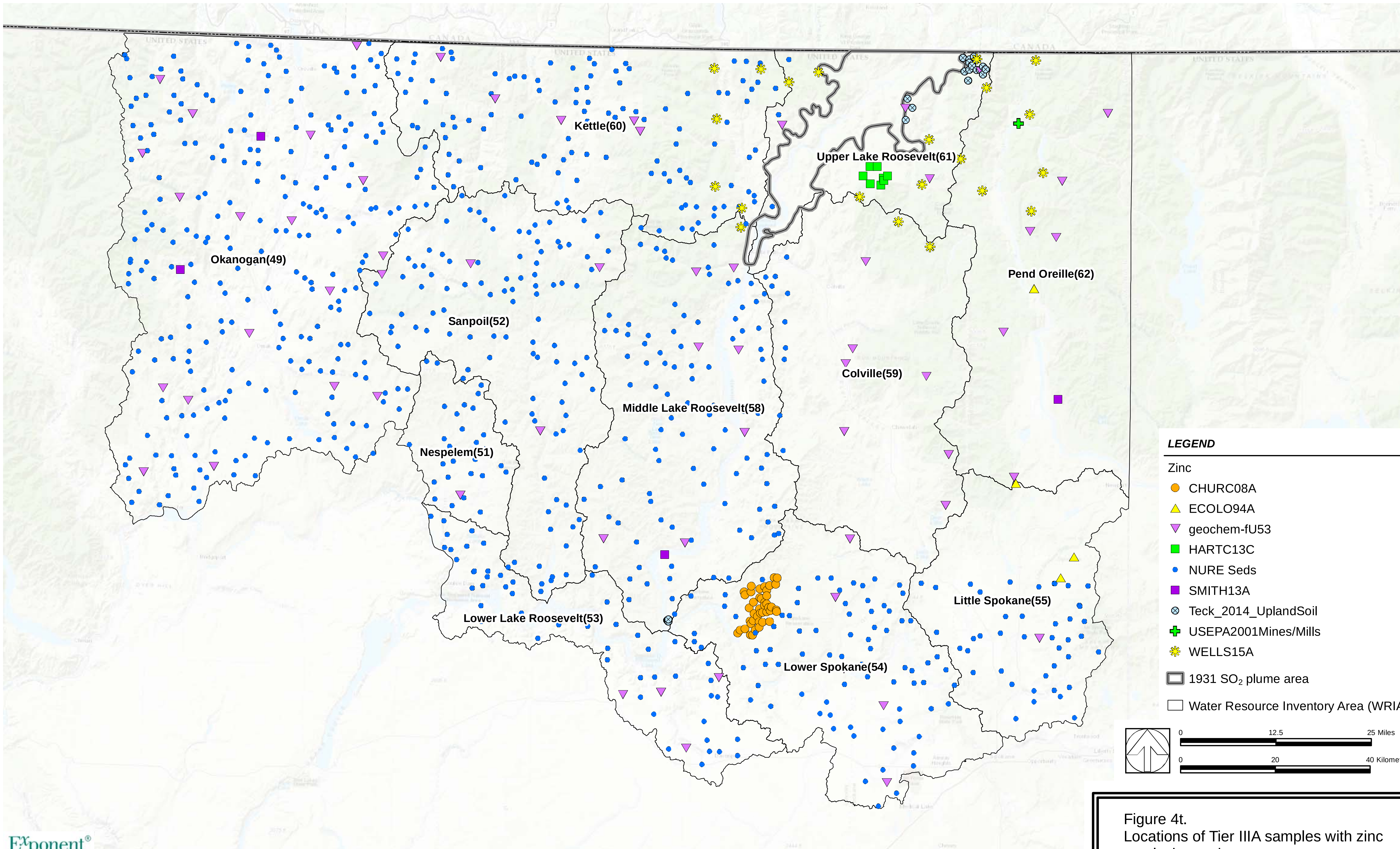


Figure 4t.
Locations of Tier IIIA samples with zinc results by study

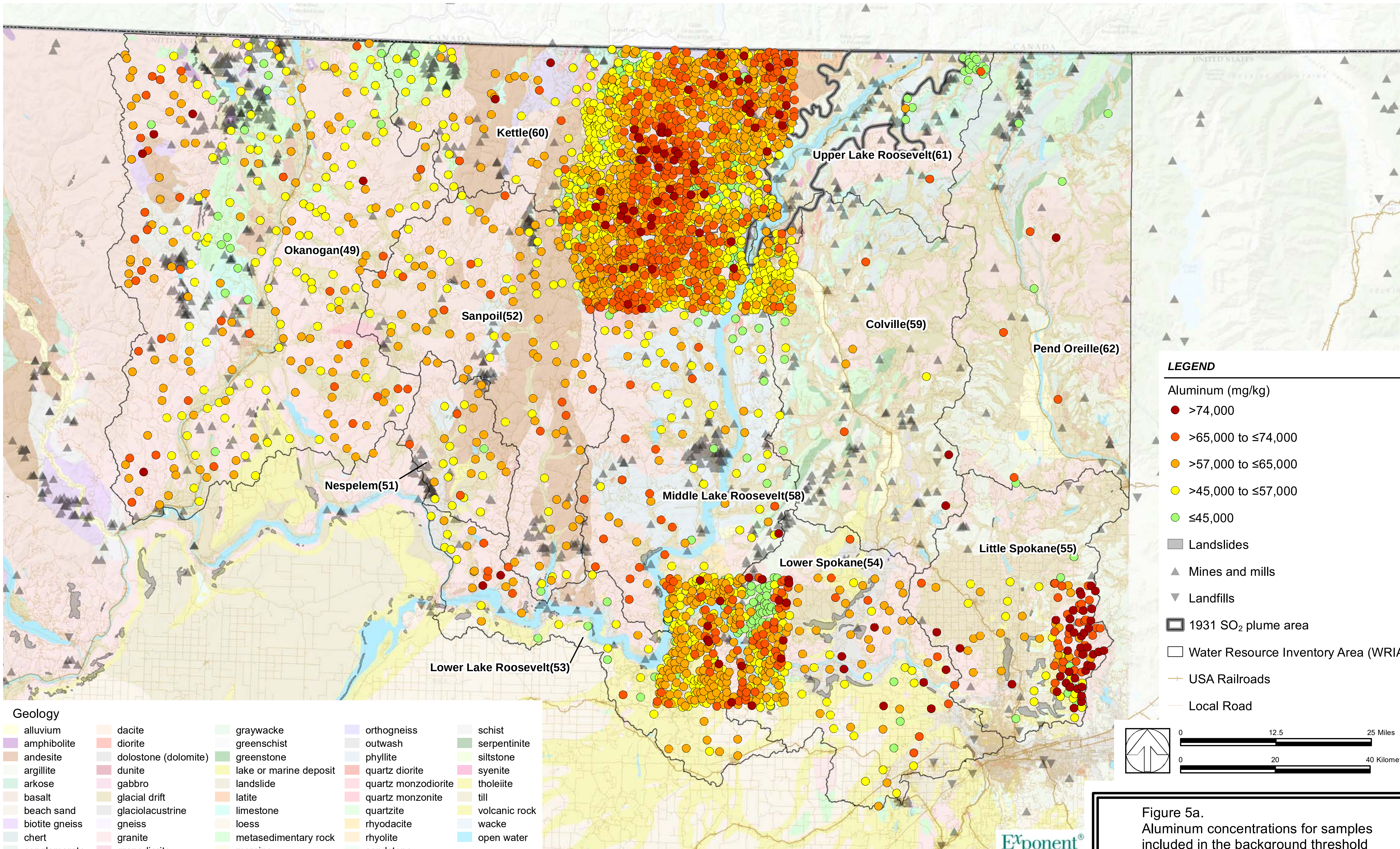


Figure 5a.
Aluminum concentrations for samples included in the background threshold value dataset

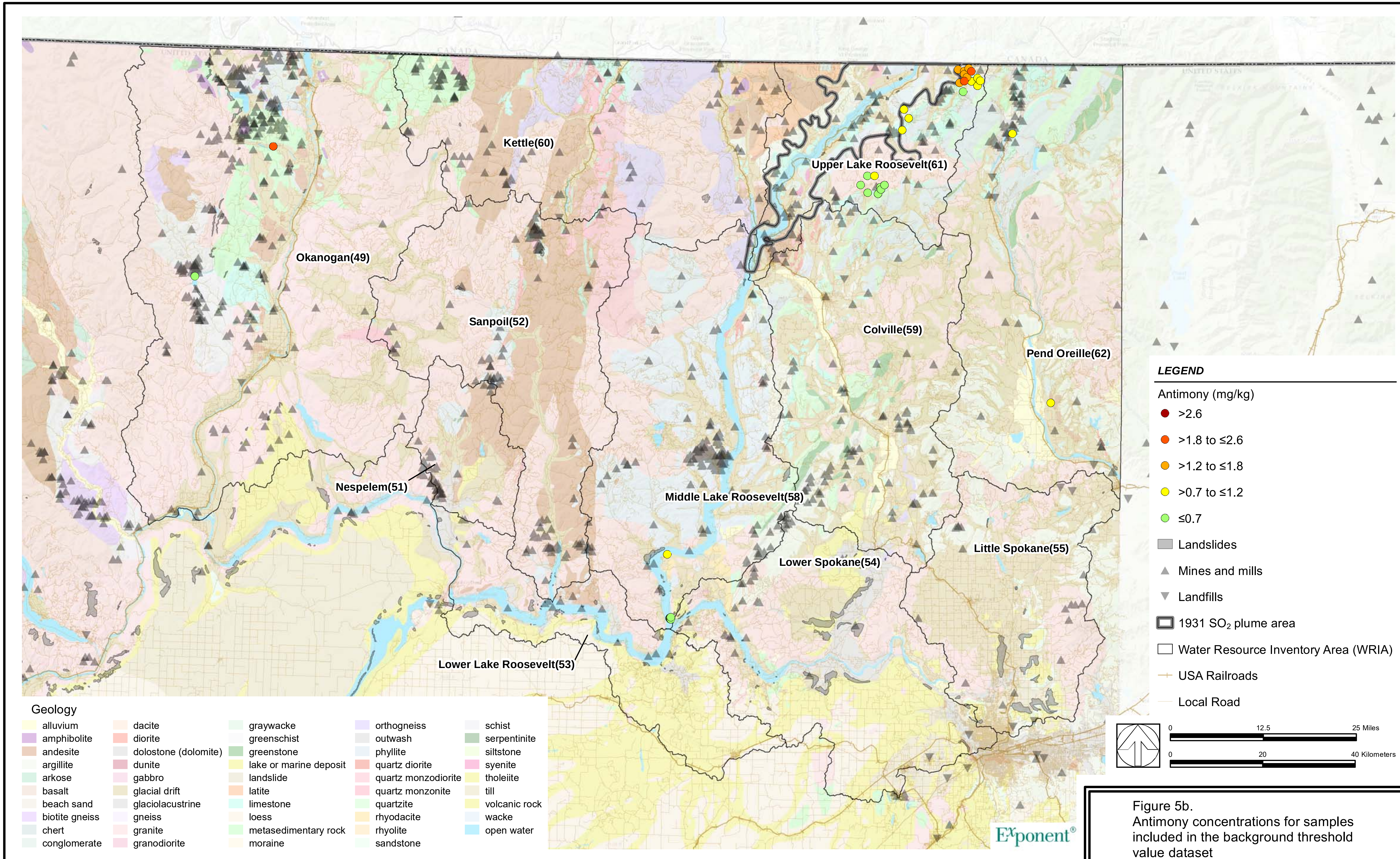


Figure 5b.
Antimony concentrations for samples included in the background threshold value dataset

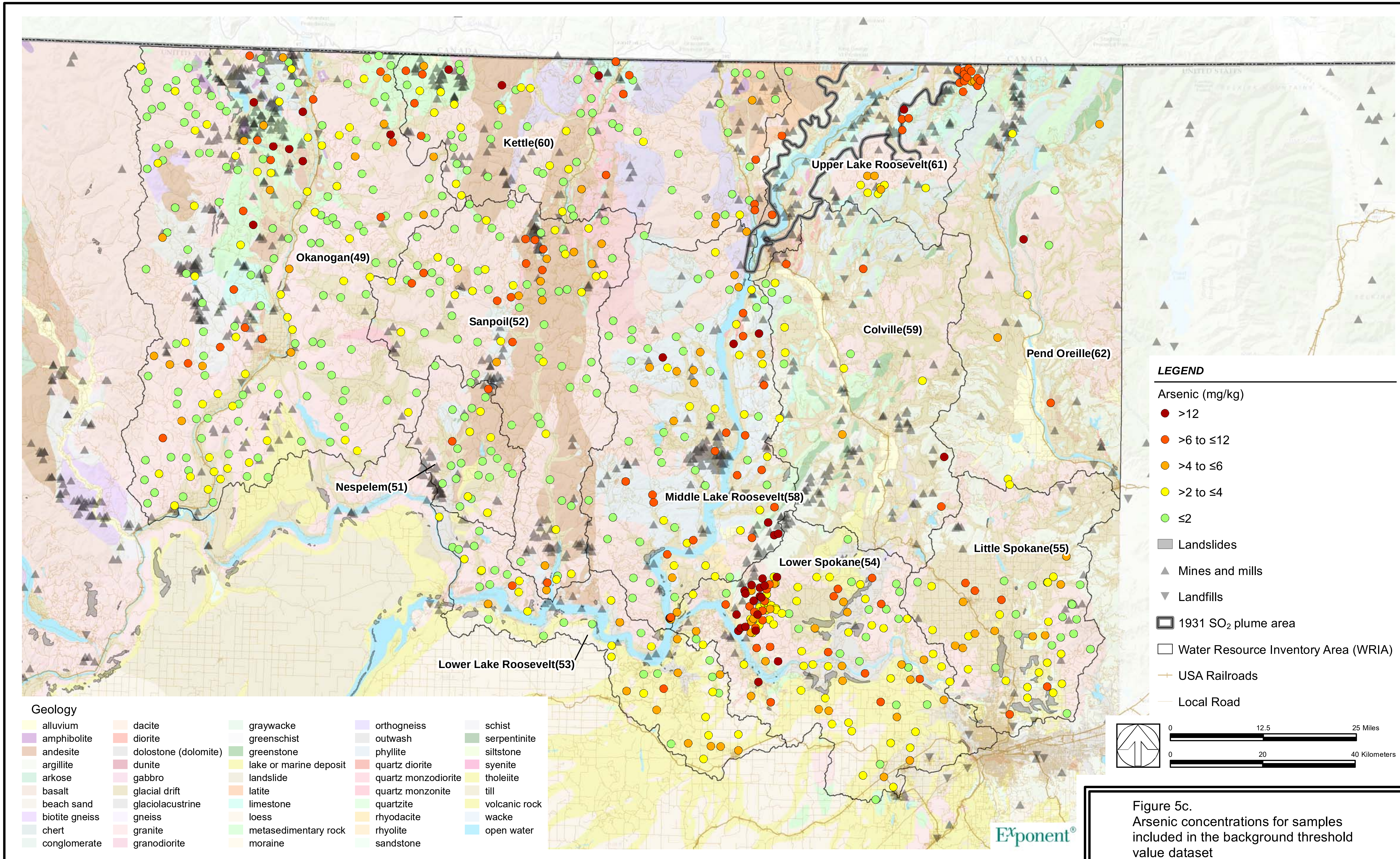


Figure 5c.
Arsenic concentrations for samples included in the background threshold value dataset

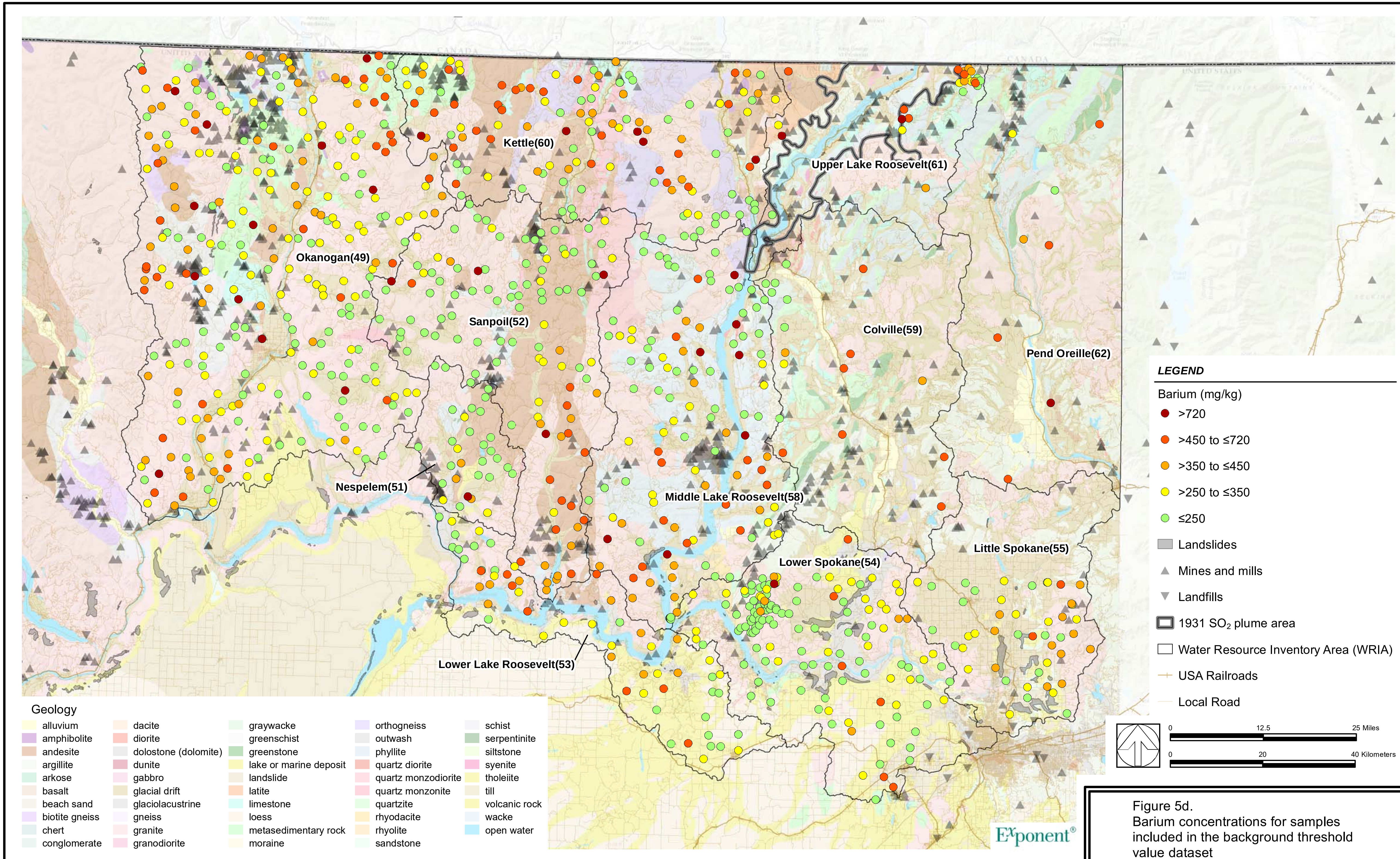


Figure 5d.
Barium concentrations for samples included in the background threshold value dataset

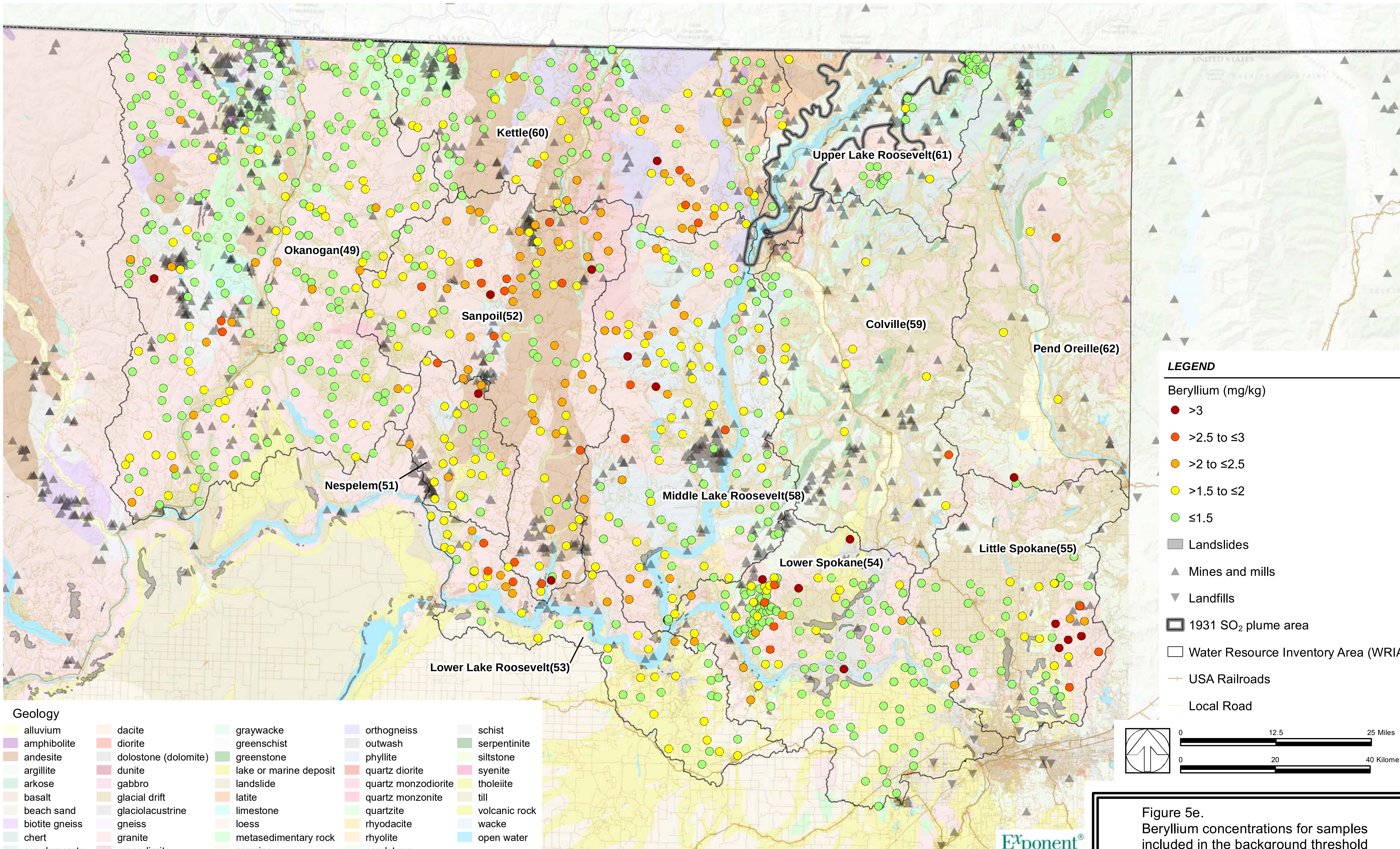


Figure 5e.
Beryllium concentrations for samples included in the background threshold value dataset

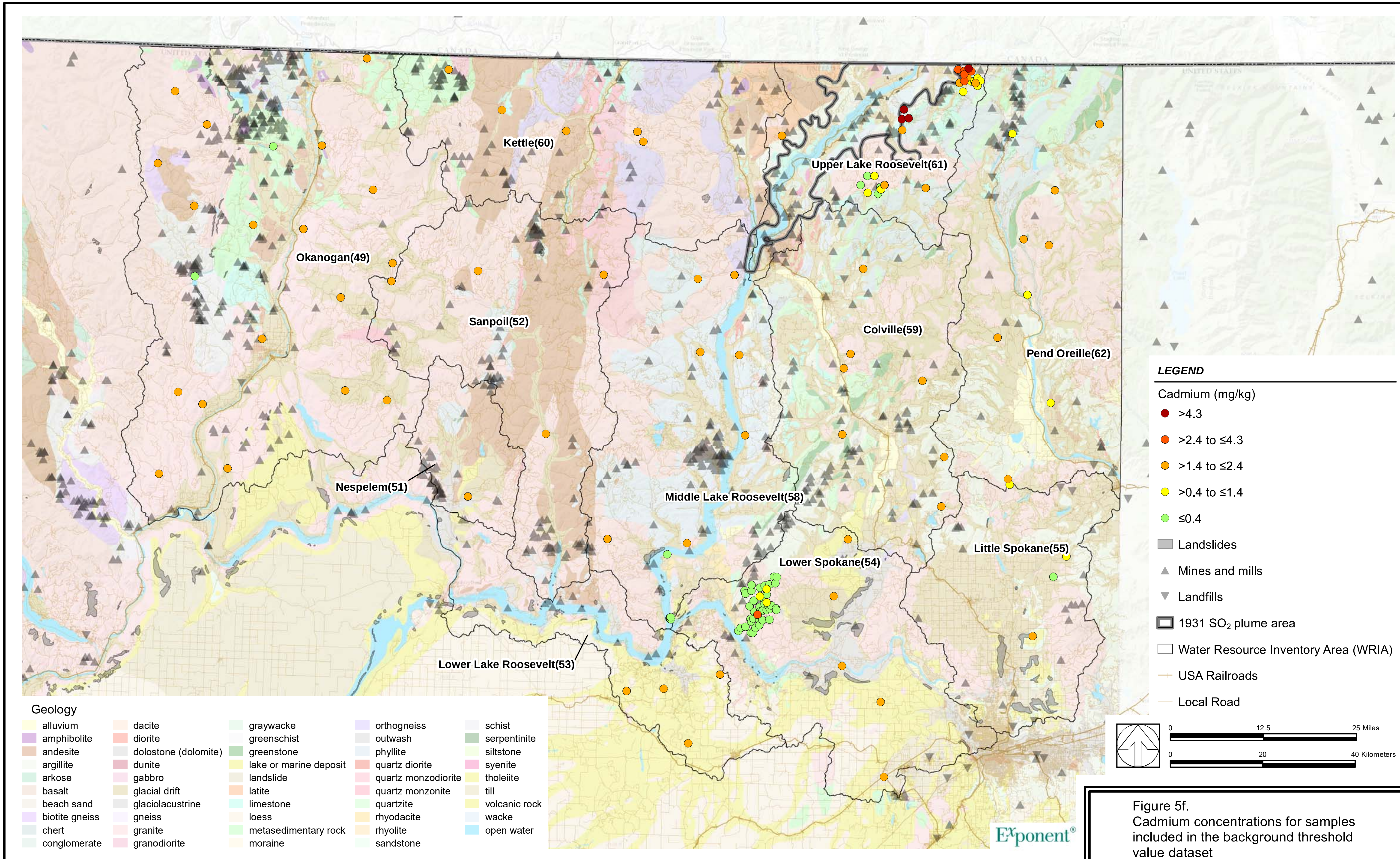


Figure 5f.
Cadmium concentrations for samples included in the background threshold value dataset

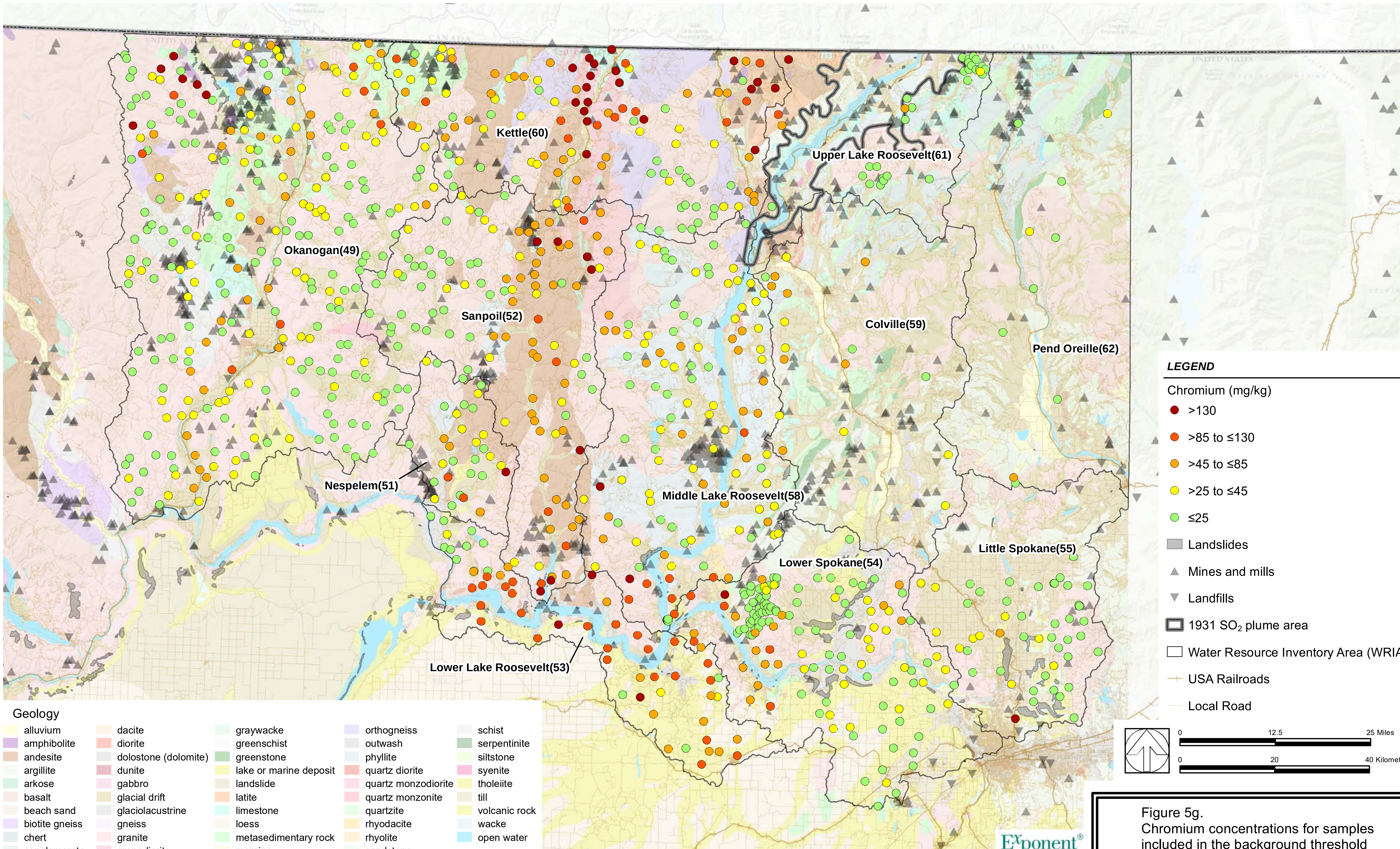


Figure 5g.
Chromium concentrations for samples included in the background threshold value dataset

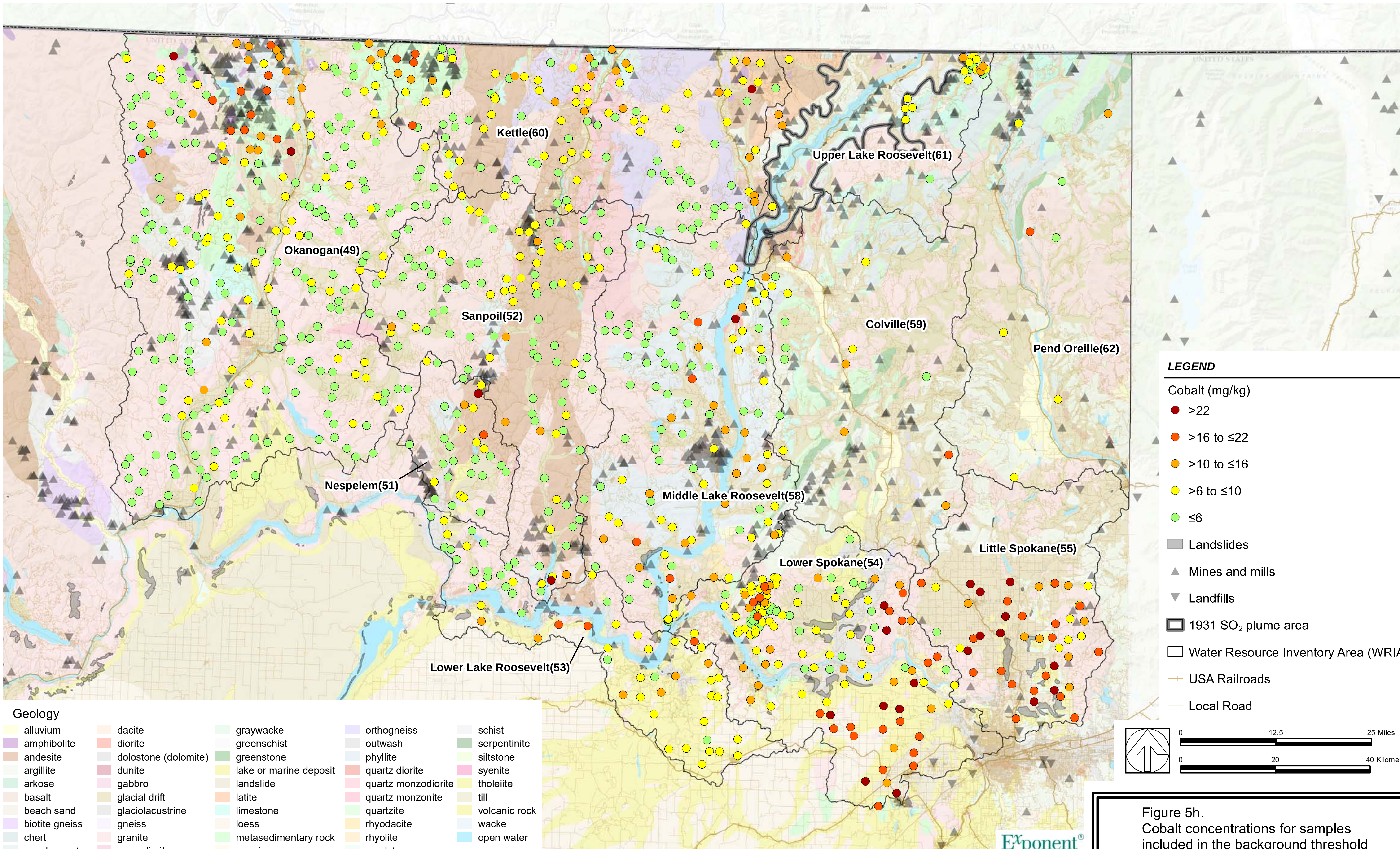


Figure 5h.
Cobalt concentrations for samples included in the background threshold value dataset

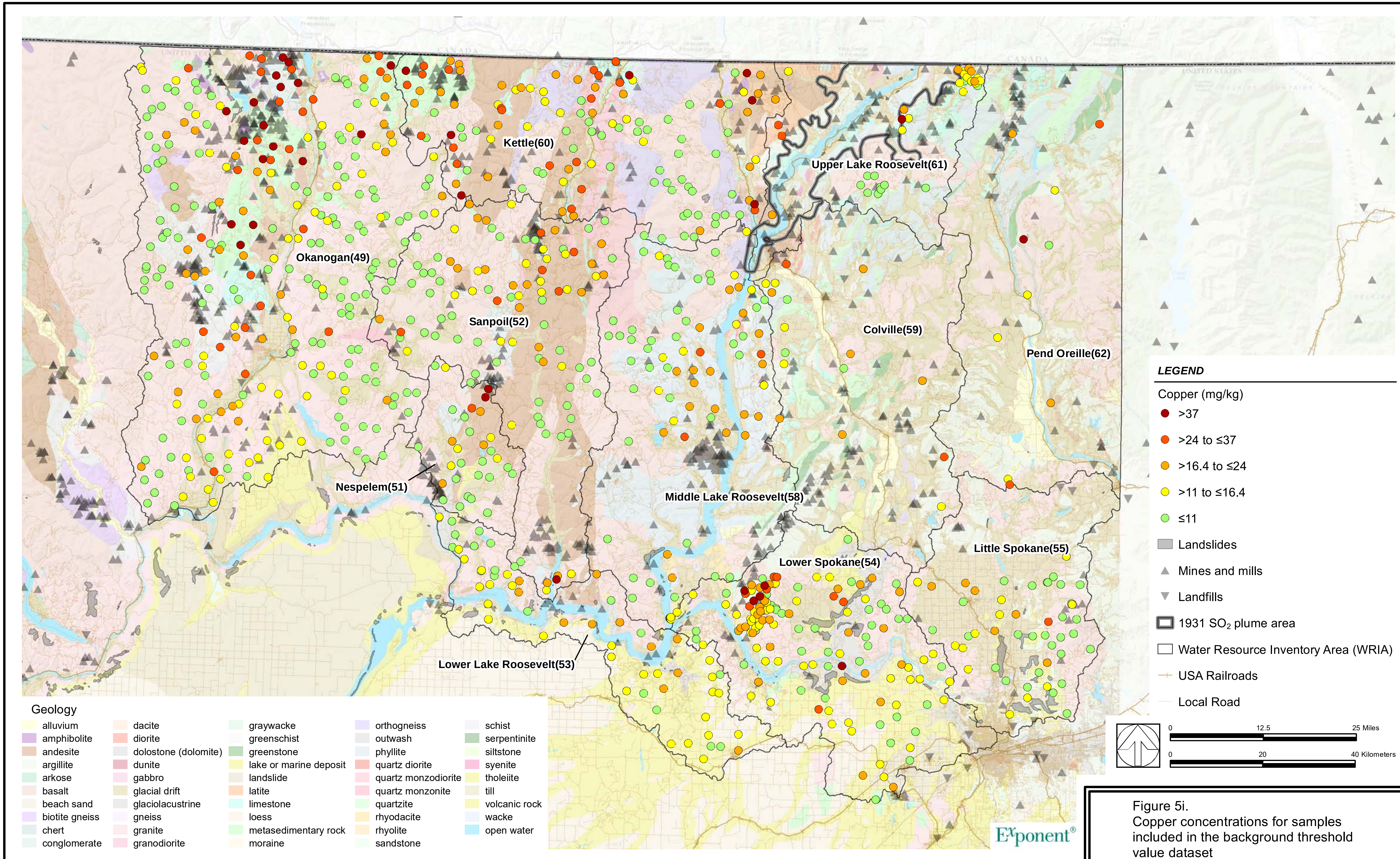


Figure 5i.
Copper concentrations for samples included in the background threshold value dataset

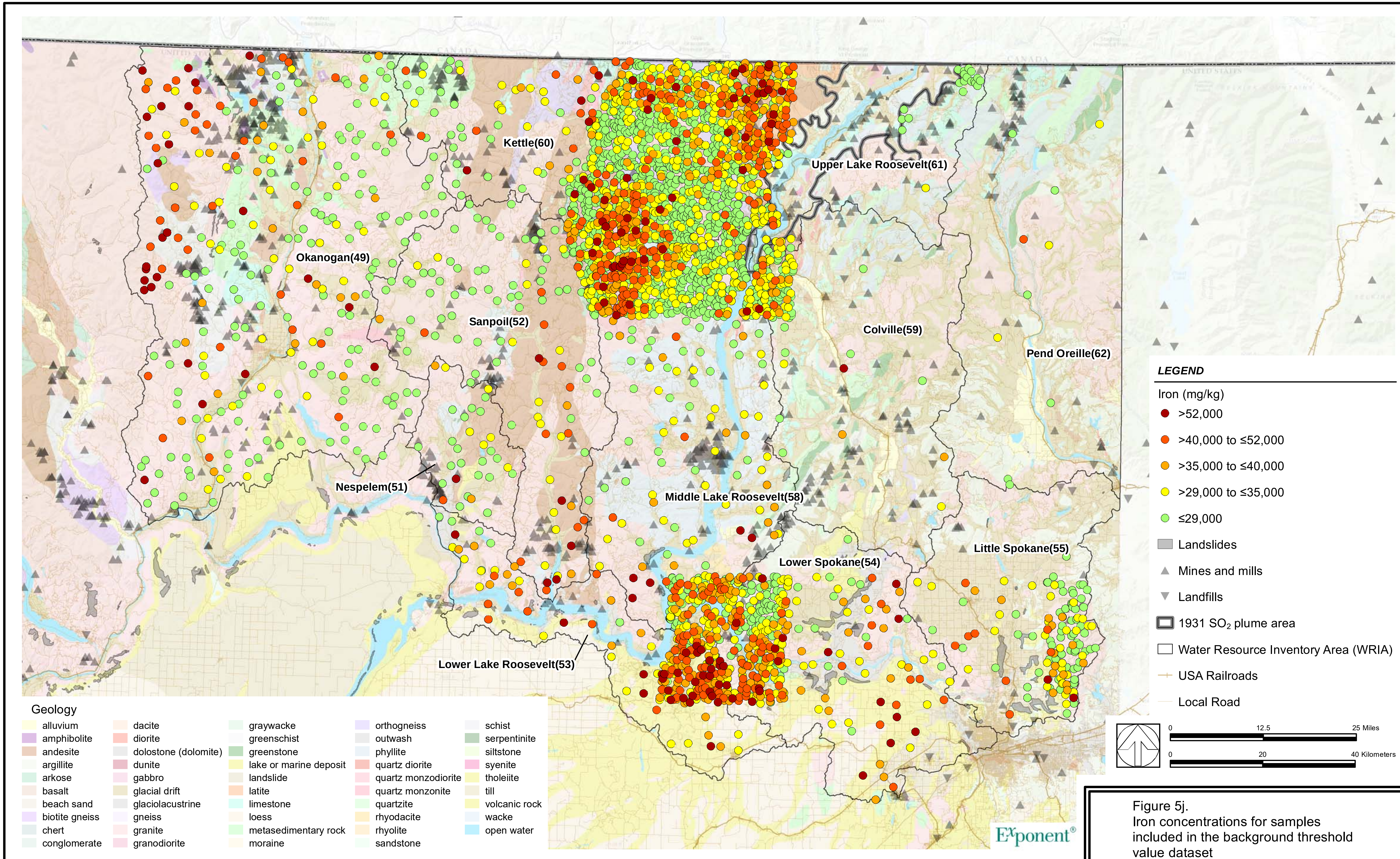


Figure 5j.
Iron concentrations for samples included in the background threshold value dataset

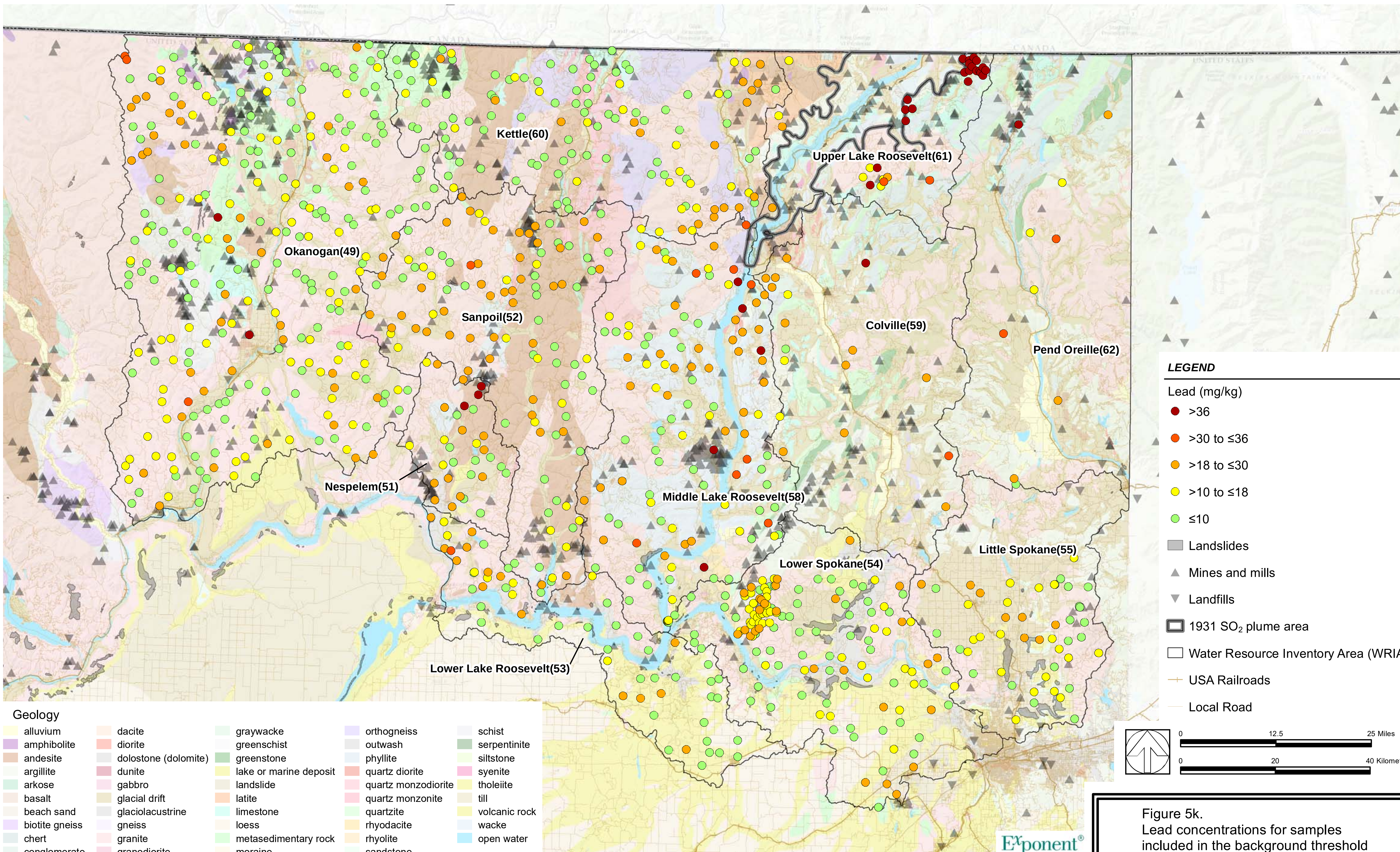


Figure 5k.
Lead concentrations for samples included in the background threshold value dataset

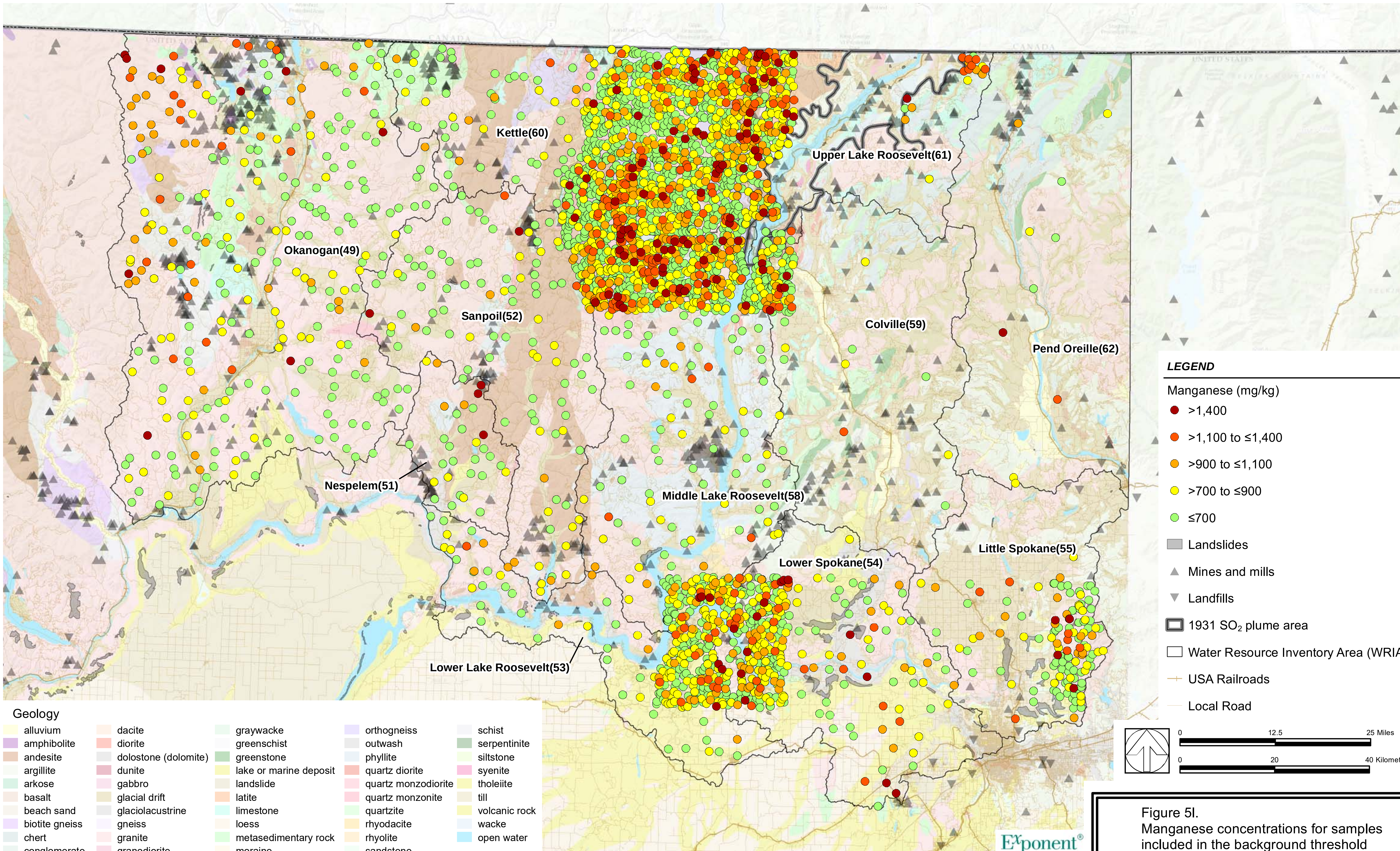


Figure 5l.
Manganese concentrations for samples included in the background threshold value dataset

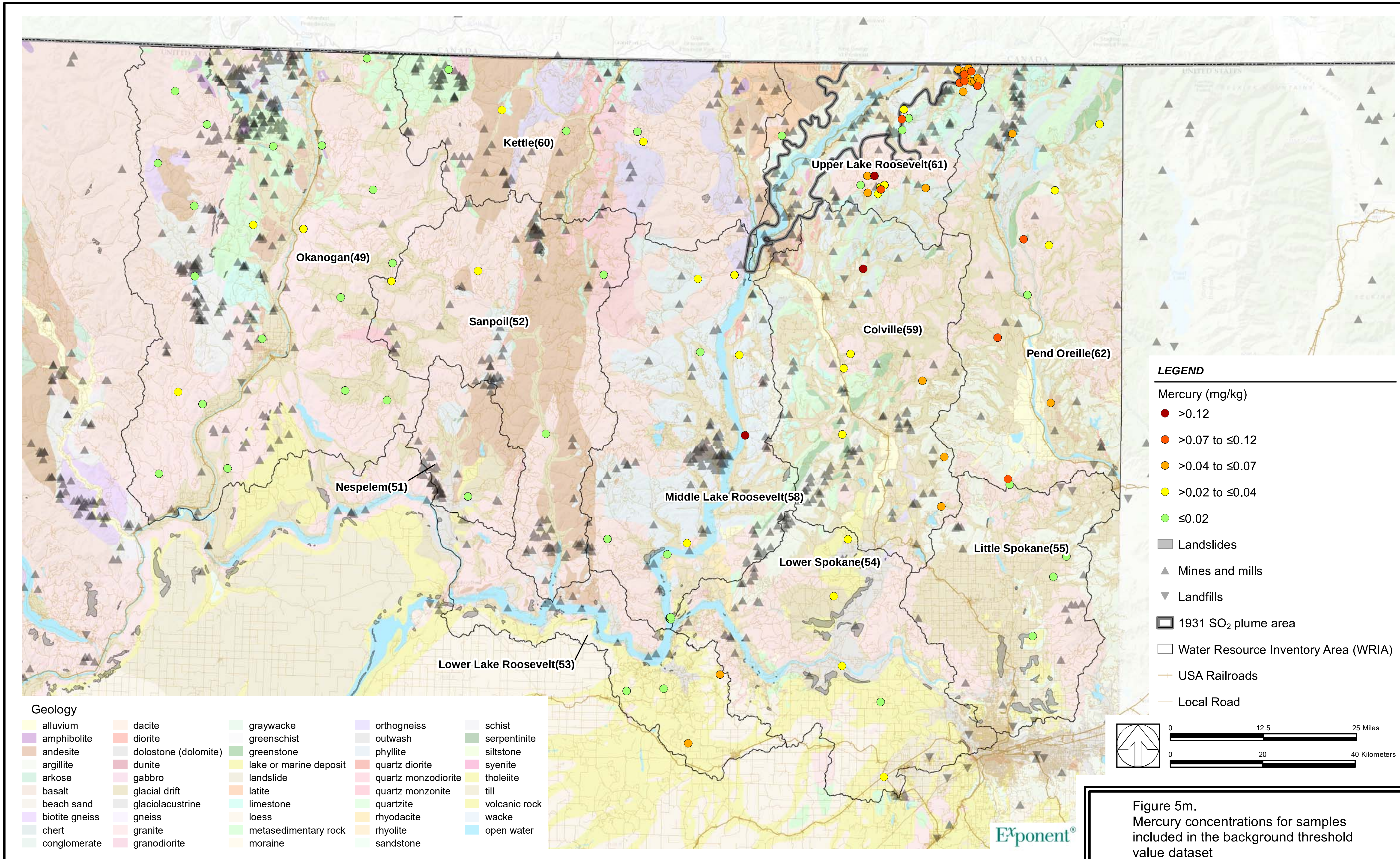


Figure 5m.
Mercury concentrations for samples included in the background threshold value dataset

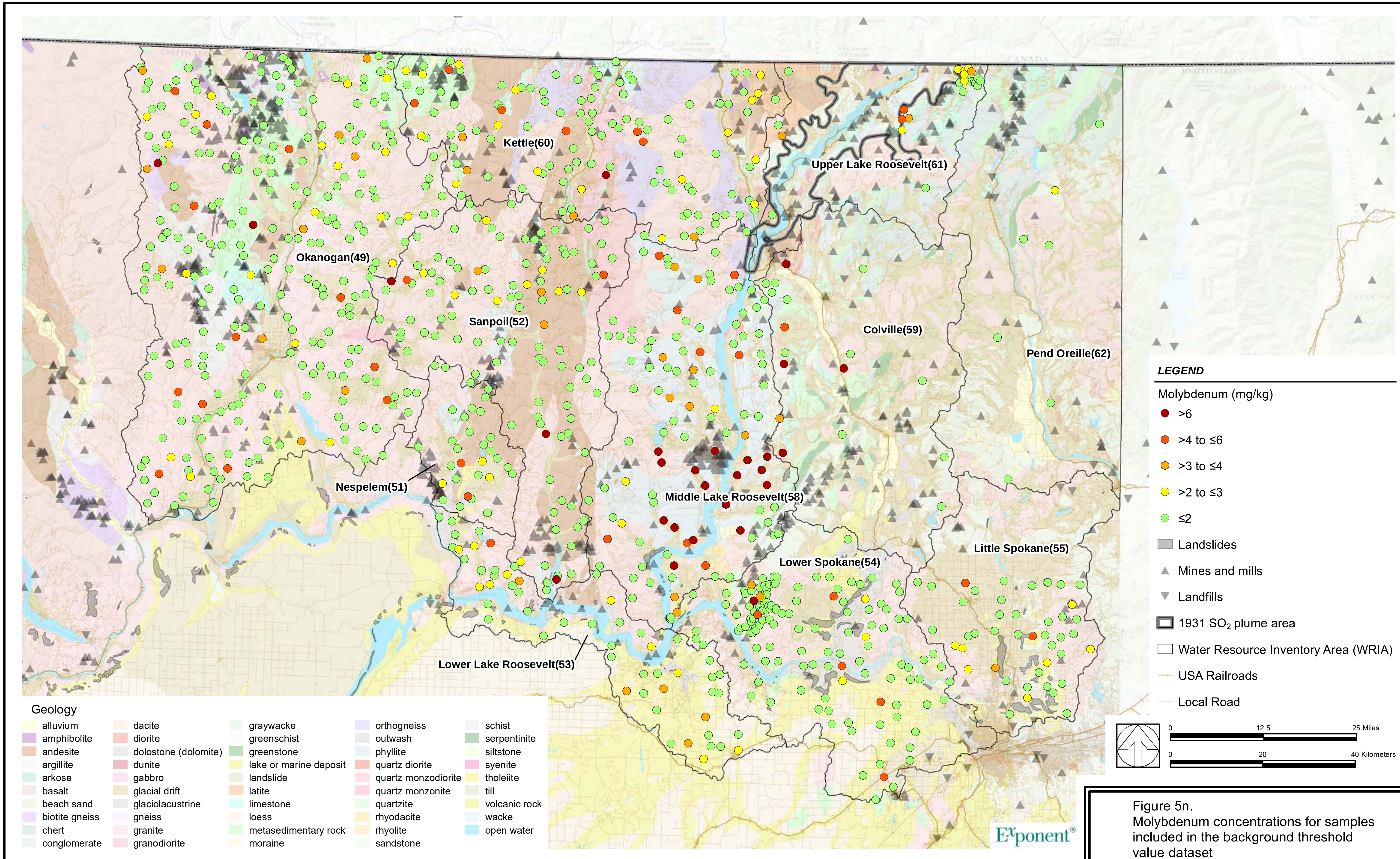


Figure 5n.
Molybdenum concentrations for samples included in the background threshold value dataset

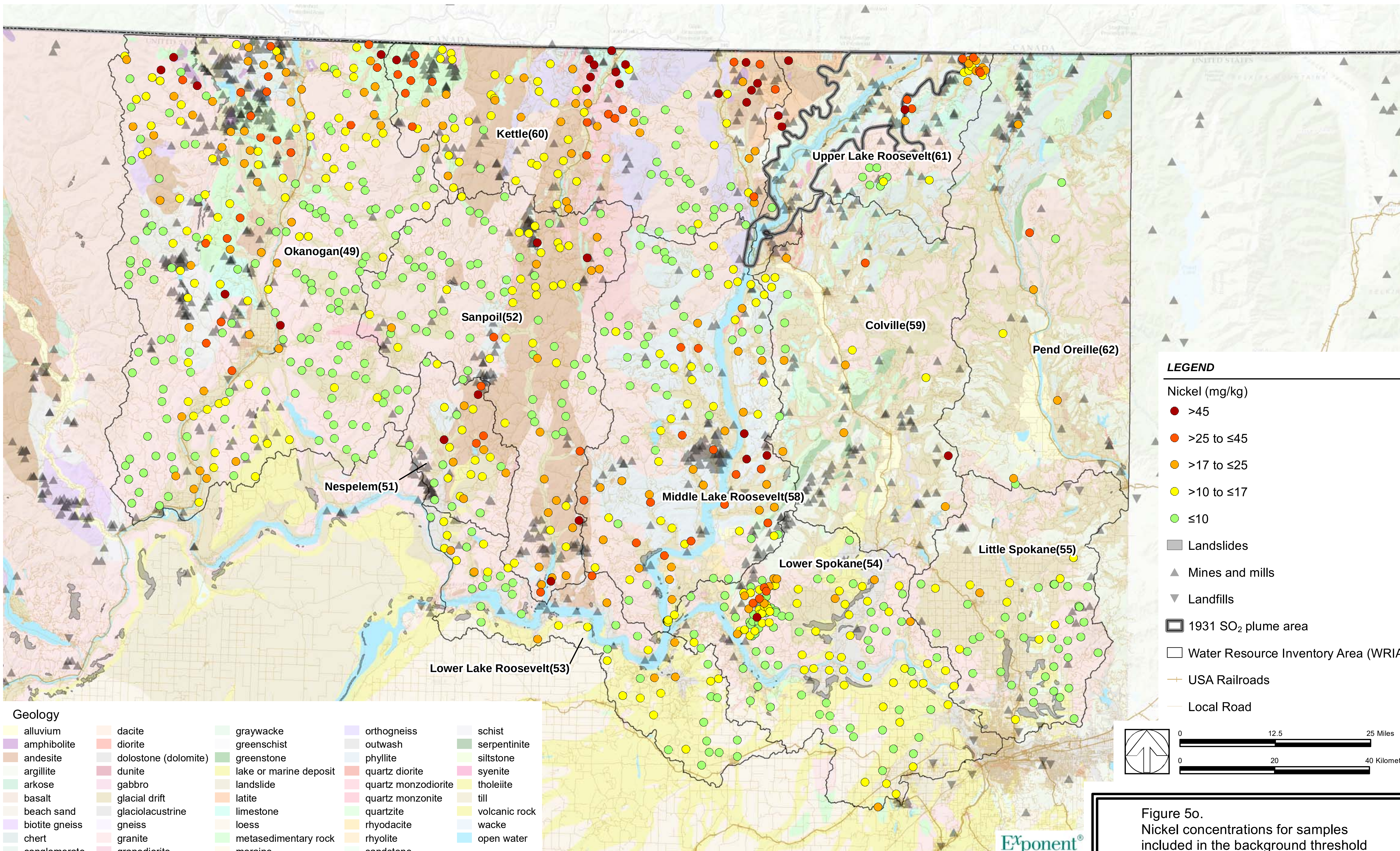


Figure 5o.
Nickel concentrations for samples included in the background threshold value dataset

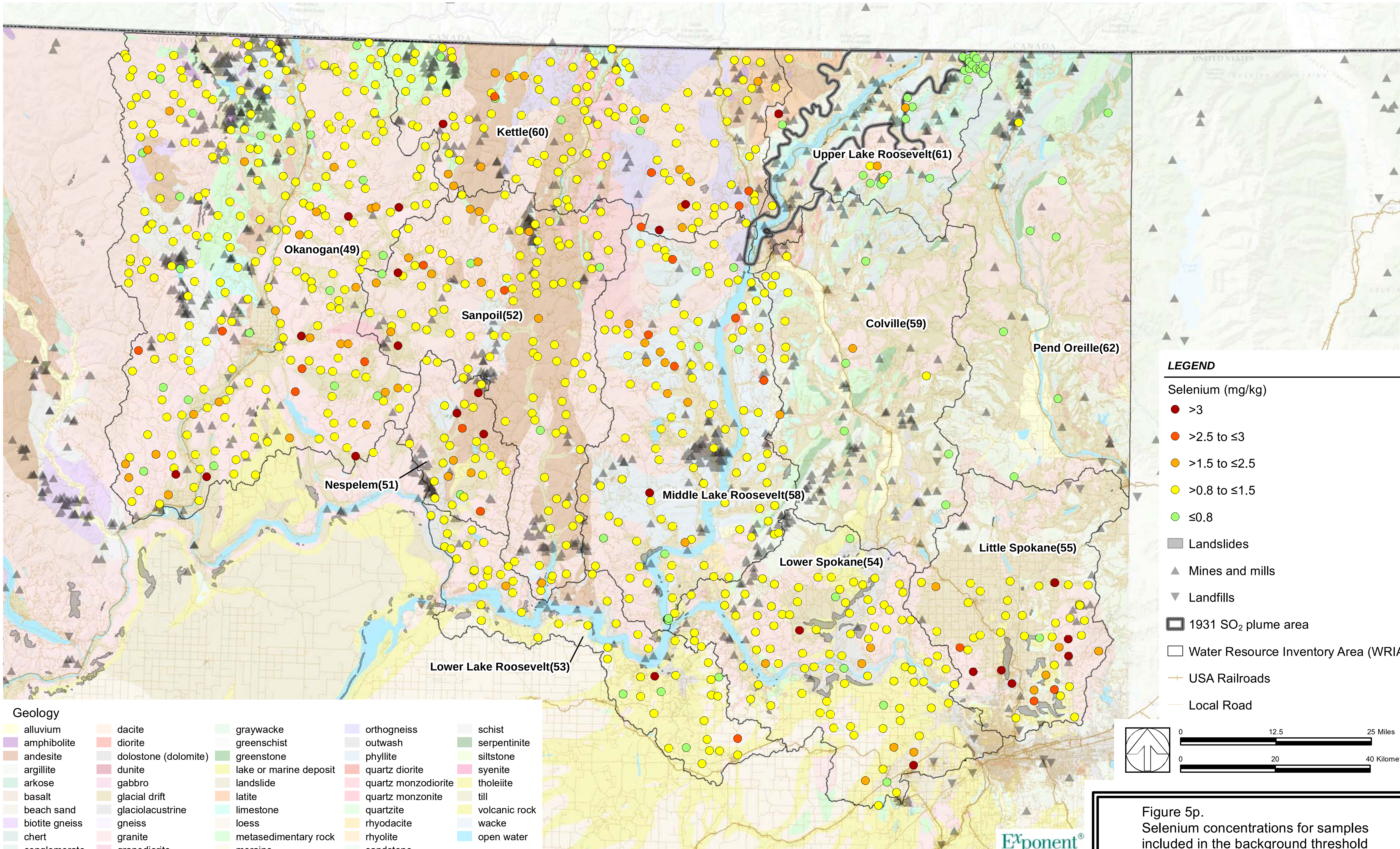


Figure 5p.
Selenium concentrations for samples included in the background threshold value dataset

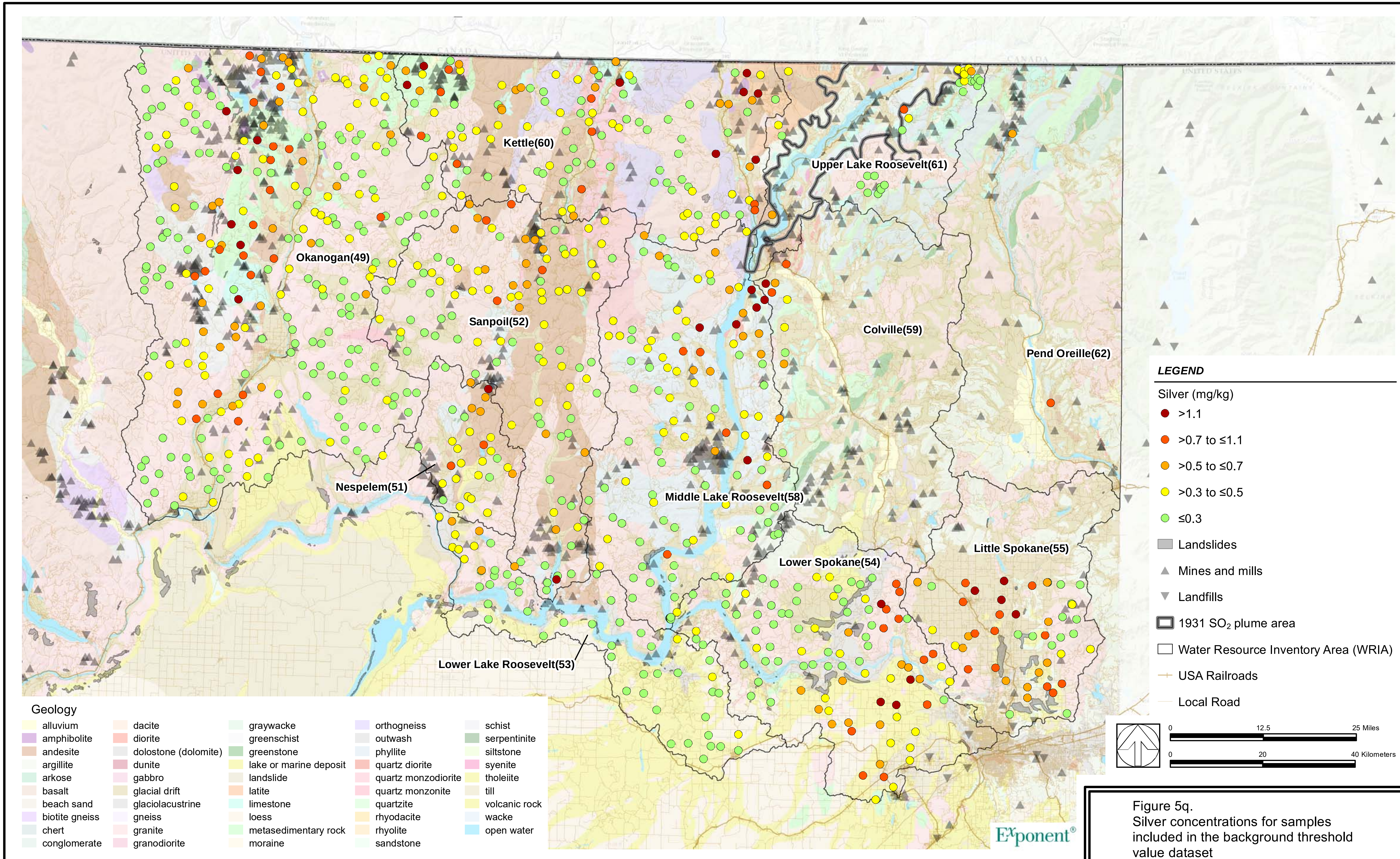


Figure 5q.
Silver concentrations for samples included in the background threshold value dataset

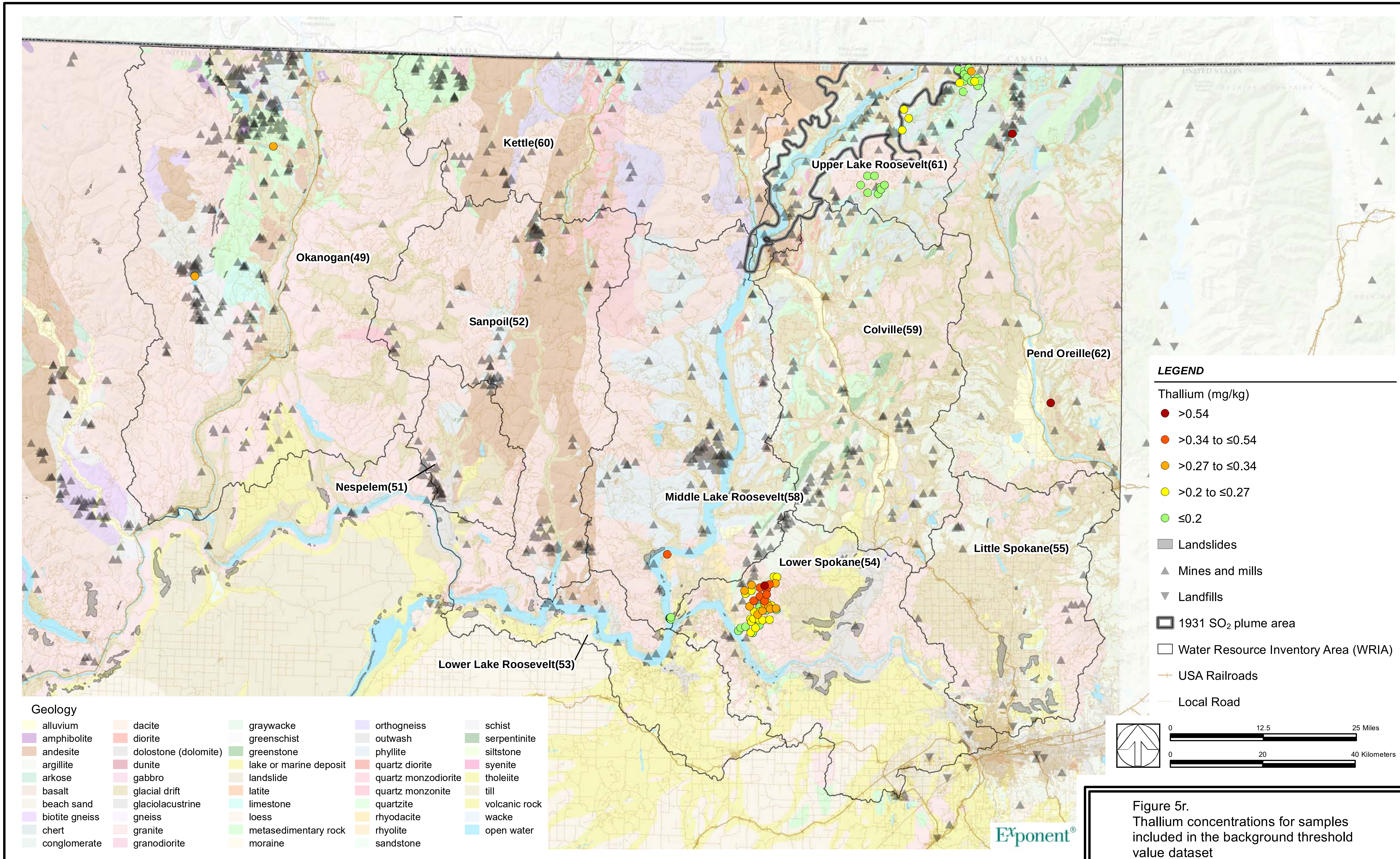


Figure 5r.
Thallium concentrations for samples included in the background threshold value dataset

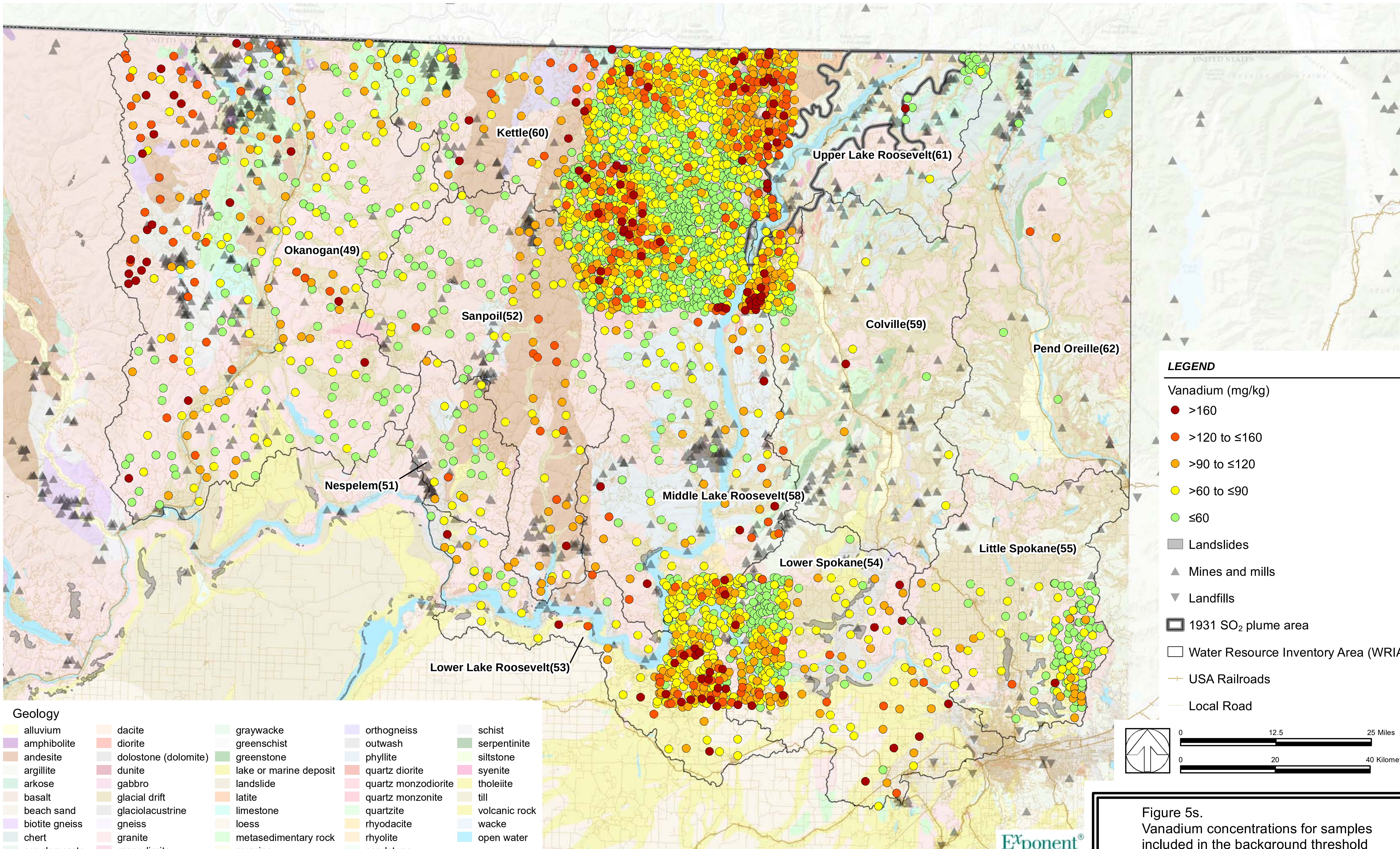


Figure 5s.
Vanadium concentrations for samples included in the background threshold value dataset

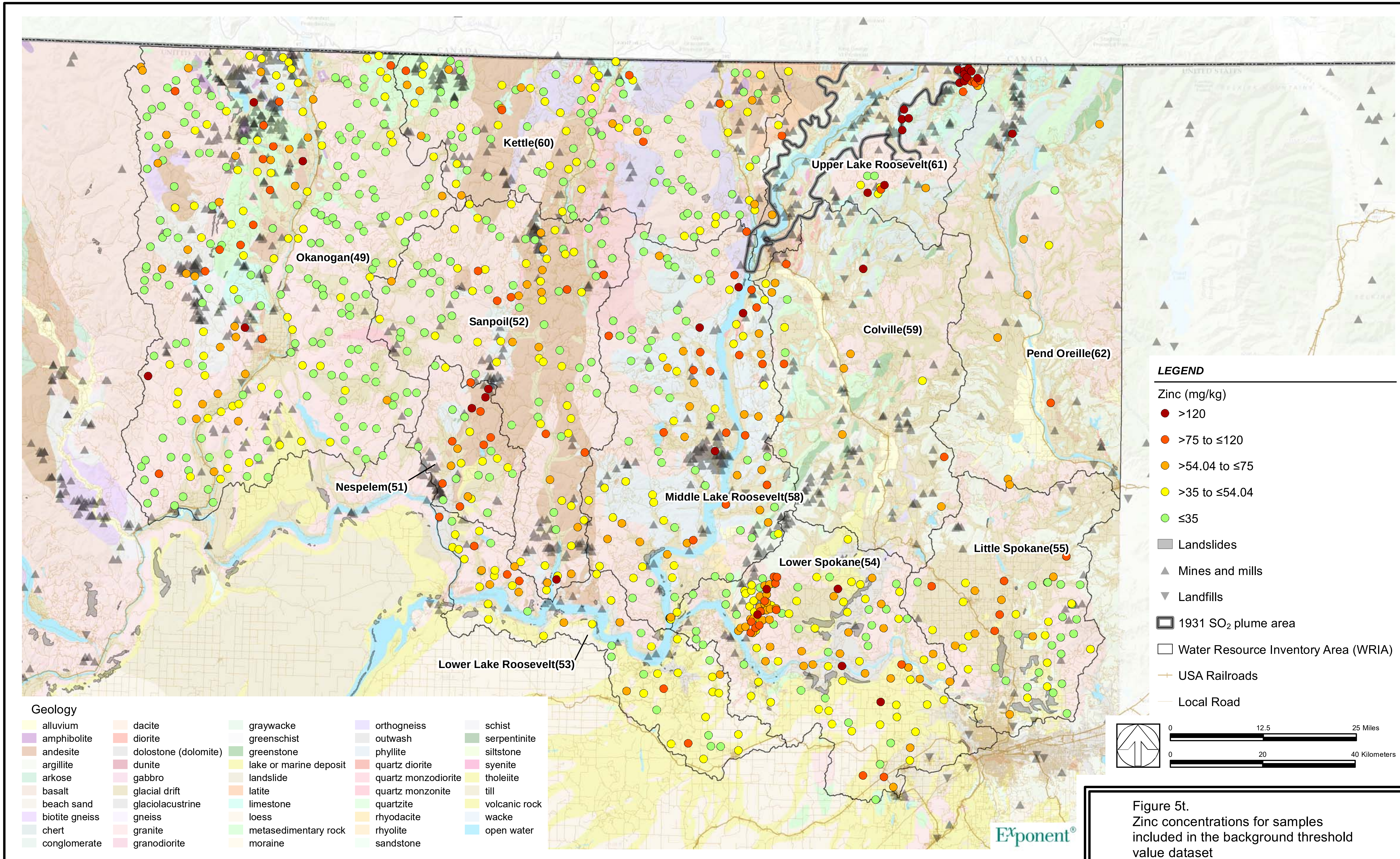
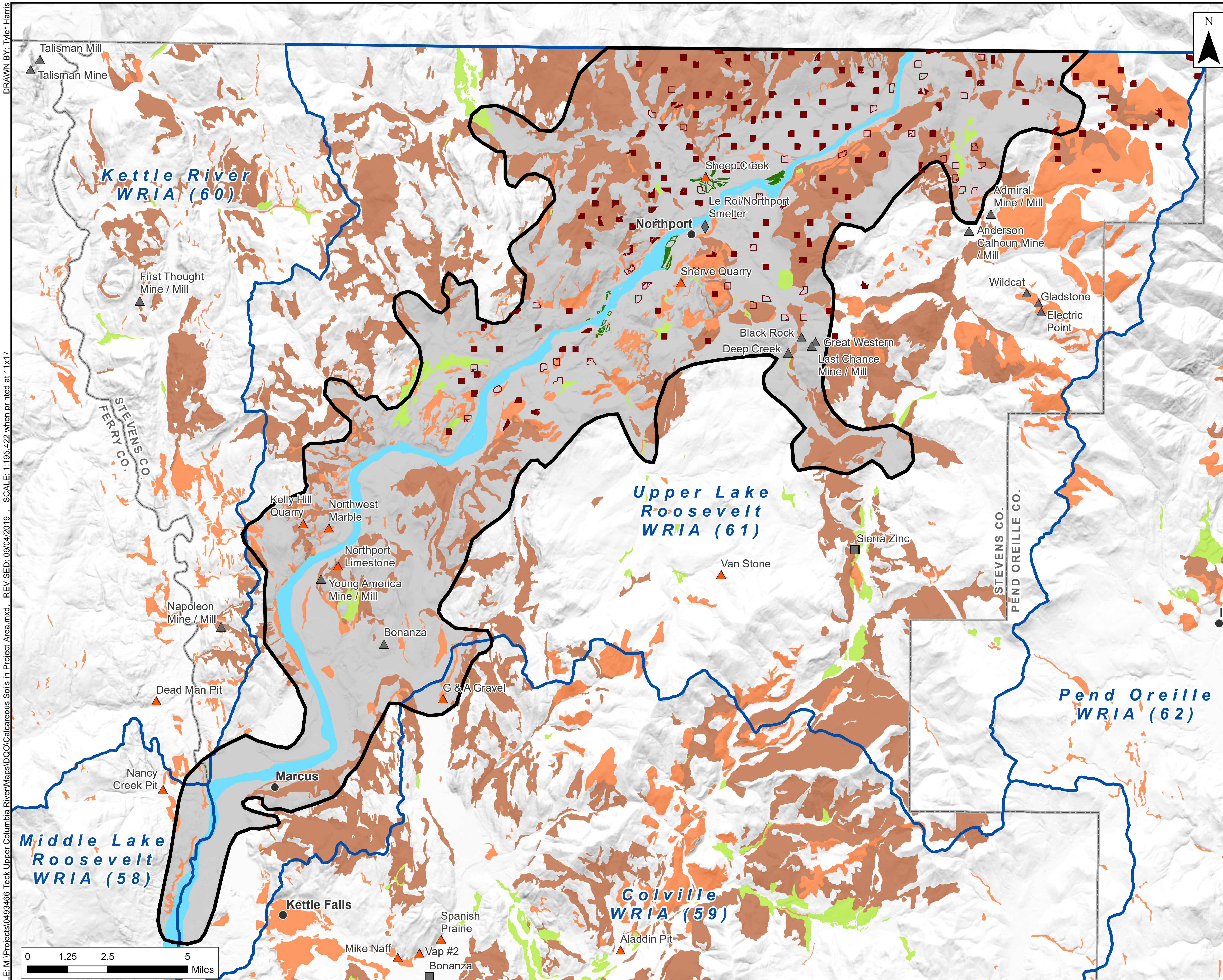


Figure 5t.
Zinc concentrations for samples included in the background threshold value dataset



DRAWN BY: Tyler Harris

FILE: M:\Projects\0493466 Teck Upper Columbia River\Maps\DQO\Calcareous Soils in Project Area.mxd, REVISED: 09/04/2019, SCALE: 1:195,422 when printed at 11x17

Source: Esri - World Topographic Map; NAD 1983 UTM Zone 11N

Legend

- Active Mine or Quarry
- Inactive Mine or Quarry
- Inactive Mill
- Inactive Smelter
- City/Town
- 1931 SO2 Plume Area
- Water Resource Inventory Area (WRIA)
- WA County Boundary

ADA Decision Unit

- Sampled
- Not sampled

Relict Floodplain Decision Unit

- Sampled
- Not sampled

Soil Parent Material

- Other calcareous soil
- Volcanic ash and loess over calcareous glacial till
- Volcanic ash over silty glaciolacustrine deposits

Notes:

Calcareous Soils identified using data from the USDA Natural Resources Conservation Service SSURGO Database.

Figure 6
Mines and Calcareous Soils in Vicinity of The 1931 SO2 Plume Area
Teck American Incorporated
Upper Columbia River, Washington

Environmental Resources Management
www.erm.com
ERM

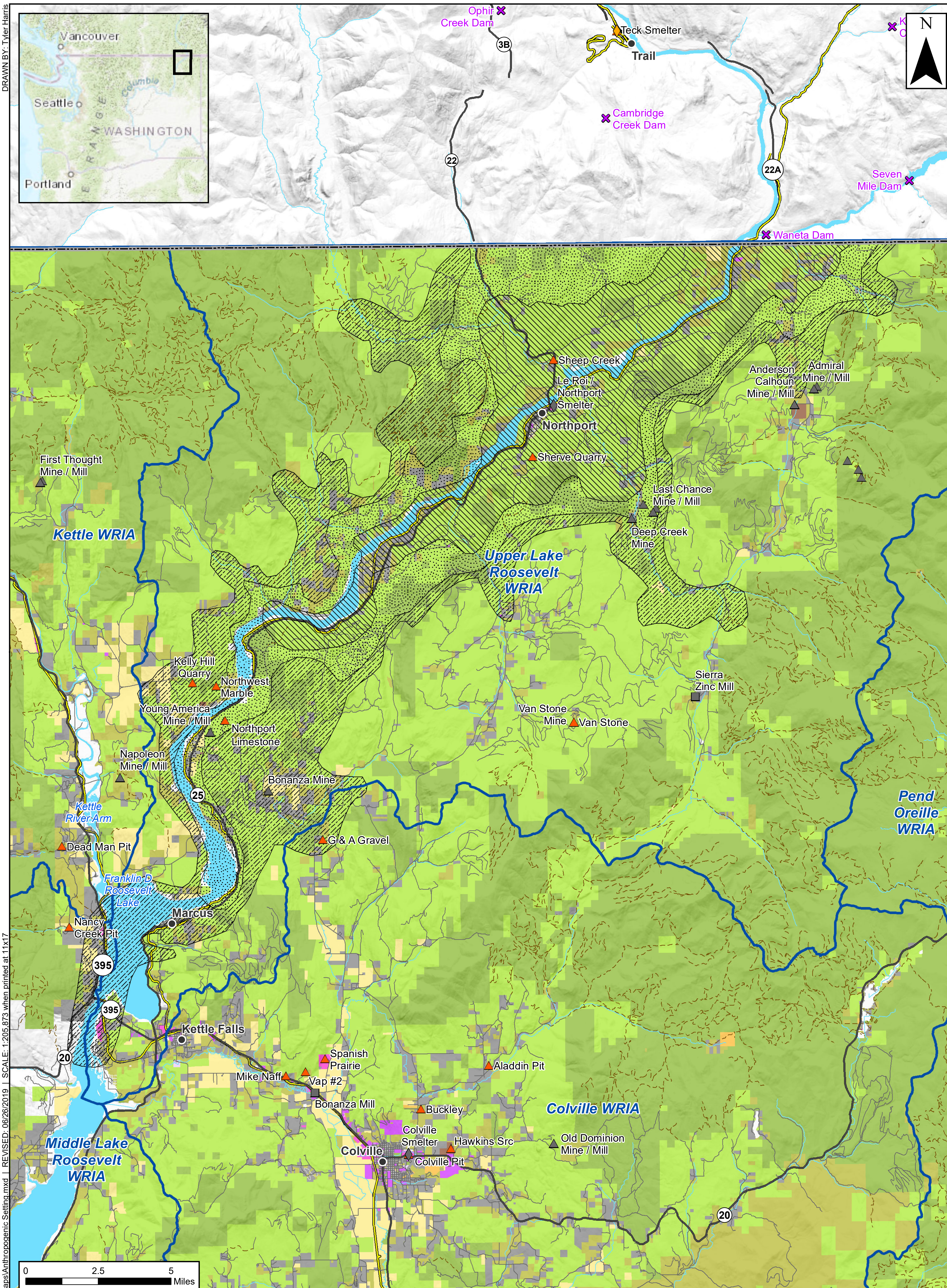


Figure 7
Land use and mining within the 1931 SO_2 Plume Area
Teck American Incorporated
Upper Columbia River, Washington

Environmental Resources Management
www.erm.com
ERM

Source: Esri - World Topoographic Map; NAD 1983 UTM Zone 11N

DRAWN BY: Tyler Harris

FILE: M:\Projects\0493466 Teck Upper Columbia River\Maps\Anthropogenic Setting.mxd | REVISED: 06/26/2019 | SCALE: 1:205,873 when printed at 11x17

General land use codes used in Figure 7

General Land Use Category	Code	Description
Residential	11	Household, single family units
	12	Household, 2-4 units
	13	Household, multiunits (5 or more)
	14	Residential condominiums
	15	Mobile home parks or courts
	16	Hotels/motels
	17	Institutional lodging
	18	All other residential not elsewhere coded
	19	Vacation and cabin
Manufacturing	21	Food and kindred products
	22	Textile mill products
	23	Apparel and other finished products made from fabrics, leather, and similar materials
	24	Lumber and wood products (except furniture)
	25	Furniture and fixtures
	26	Paper and allied products
	27	Printing and publishing
	28	Chemicals
	29	Petroleum refining and related industries
	30	Rubber and miscellaneous plastic products
	31	Leather and leather products
	32	Stone, clay and glass products
	33	Primary metal industries
	34	Fabricated metal products
	35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks-manufacturing
	36	Not presently assigned
	37	Not presently assigned
	38	Not presently assigned
	39	Miscellaneous manufacturing
Transportation; Utilities	41	Railroad/transit transportation
	42	Motor vehicle transportation
	43	Aircraft transportation
	44	Marine craft transportation
	45	Highway and street right of way
	46	Automobile parking
	47	Communication
	48	Utilities
	49	Other transportation, communication, and utilities not classified elsewhere
Retail; Services	50	Condominiums - other than residential condominiums
	51	Wholesale trade
	52	Retail trade - building materials, hardware, and farm equipment
	53	Retail trade - general merchandise
	54	Retail trade - food
	55	Retail trade - automotive, marine craft, aircraft, and accessories
	56	Retail trade - apparel and accessories
	57	Retail trade - furniture, home furnishings and equipment
	58	Retail trade - eating and drinking
	59	Other retail trade
	61	Finance, insurance, and real estate services
	62	Personal services
	63	Business services
	64	Repair services
	65	Professional services

General land use codes used in Figure 7 (Continued)

General Land Use Category	Code	Description
Retail; Services (*Cont.*)	66	Contract construction services
	67	Governmental services
	68	Educational services
	69	Miscellaneous services
Culture; Recreation	71	Cultural activities and nature exhibitions
	72	Public assembly
	73	Amusements
	74	Recreational activities
	75	Resorts and group camps
	77	Not presently assigned
	78	Not presently assigned
	79	Other cultural, entertainment, and recreational
	84	Fishing activities and related services
Agriculture	81	Agriculture (not classified under current use law)
	82	Agriculture related activities
	83	Agriculture classified under current use chapter 84.34 RCW
Mining	85	Mining activities and related services
Parks; Undeveloped	76	Parks
	94	Open space land classified under chapter 84.34 RCW, also public owned land; wildlife refuges, DNR range land, other open space
	91	Undeveloped land
	99	Other undeveloped land
Public Forest	87	Public forest land
Private Forest	88	Designated forest land under chapter 84.33 RCW
	92	Noncommercial forest
	95	Timberland classified under chapter 84.34 RCW

Notes: Land use codes from Ecology (1994)

Tables

List of Tables

Table 1. Sample locations in Tier I and Tier IIB datasets with depth ≤24 in.

Source Group	Study Name or Related Document	Study ID	Years Collected Start	Years Collected End	Locations: Soil Tier I	Locations: Soil Tier IIB	Locations: NURE Sediment Tier I	Locations: NURE Sediment Tier IIB
USEPA LOE Memorandum								
	Church et al. (2008)	CHURC08A	1979	1979	4	1	66	42
	Ecology (1994)	ECOLO94A	1990	1992	4	4	0	0
	Ecology (2013a)	HARTC13A	2012	2012	105	0	0	0
	Ecology (2013b)	HARTC13C	2011	2012	174	8	0	0
	Randolph Construction Services (2011)	SHANN11A	2011	2011	51	0	0	0
	Smith et al. (2013)	SMITH13A	2010	2010	18	4	0	0
	USEPA (2002b)	USEPA02A	2001	2001	1	0	0	0
	USEPA (2002b,c)	USEPA2001Mines/Mills	2001	2001	121	1	0	0
	Wells (2015)	WELLS15A	2015	2015	23	21	0	0
Referenced in TAI Studies								
	Goodarzi et al. (2002)	GOODA02A	1997	1997	1	0	0	0
In the UCR RI/FS Database								
	Stevens County (2008a)	WADOE_2007b	2007	2007	89	0	0	0
	Stevens County (2008b)	WADOE_2007c	2007	2007	186	0	0	0
	TAI (2015a)	USEPA_2015_TCRASoil	2015	2015	500	0	0	0
	TAI (2015b)	Teck_2014_UplandSoil	2014	2014	215	31	0	0
	TAI (2016a)	Teck_2015_Bossburg	2015	2015	32	0	0	0
	TAI (2016b)	Teck_2016_ResSoil	2016	2016	884	0	0	0
	USEPA (2005)	LeRoi2005	2004	2004	312	0	0	0
	USEPA (2016b)	USEPA_2014_ResSoil	2014	2014	579	0	0	0
NURE-HSSR Dataset								
	Smith (2006)	NURE Seds	1979	1979	1,476	1,086	3,023	2,037
USGS Datasets								
	USGS (2008b)	geochem-fU53	1977	1979	12	8	80	54
Total Locations[a]					4,787	1,164	3,169	2,133

Notes on next page.

Table 1. (Continued)

Notes: [a] Samples from some locations were analyzed in more than one study (i.e., NURE-HSSR samples that were reanalyzed).

NURE-HSSR	- National Uranium Resource Evaluation-Hydrogeochemical and Stream Sediment Reconnaissance
LOE	- level of effort
RI/FS	- remedial investigation/feasibility study
TAI	- Teck American Incorporated
UCR	- Upper Columbia River
USEPA	- U.S. Environmental Protection Agency
USGS	- U.S. Geological Survey

Table 2. Locations screened out using location-based criteria

		Number of Locations										
			Outside the 1931 SO_2 Plume									
						Mines and Mills						
Study ID	Locations Total	1931 SO_2 Plume Area	Road <50 m	Railway <50 m	Landfill <500 m	Past Producer <500 m	Producer <500 m	Plant <500 m	Unknown <500 m	Landslide Area	100-Year Floodplain	Additional Review[a]
CHURC08A	70	0	26	0	0	0	0	0	0	0	0	1
ECOLO94A	4	0	0	0	0	0	0	0	0	0	0	0
geochem-fU53	92	3	24	2	0	0	1	0	0	1	0	0
GOODA02A	1	1	0	0	0	0	0	0	0	0	0	0
HARTC13A	105	105	0	0	0	0	0	0	0	0	0	0
HARTC13C	174	0	80	0	0	23	0	0	0	0	0	70
LeRoi2005	312	311	1	0	0	0	0	0	0	0	0	0
NURE Seds	4,499	112	1,145	18	1	41	8	0	17	1	19	0
SHANN11A	51	48	3	0	0	0	0	0	0	0	0	0
SMITH13A	18	0	13	0	0	0	0	0	0	0	0	0
Teck_2014_UplandSoil	215	180	4	0	0	0	0	0	0	0	0	0
Teck_2015_Bossburg	32	32	0	0	0	0	0	0	0	0	0	0
Teck_2016_ResSoil	884	884	0	0	0	0	0	0	0	0	0	0
USEPA_2014_ResSoil	579	579	0	0	0	0	0	0	0	0	0	0
USEPA_2015_TCRASoil	500	500	0	0	0	0	0	0	0	0	0	0
USEPA02A	1	0	1	0	0	1	1	0	0	0	0	0
USEPA2001Mines/Mills	121	33	42	0	0	45	15	8	0	0	0	15
WADOE_2007b	89	89	0	0	0	0	0	0	0	0	0	0
WADOE_2007c	186	53	132	0	0	0	0	0	30	0	0	0
WELLS15A	23	2	0	0	0	0	0	0	0	0	0	0

Notes: [a] HARTC13C and USEPA2001Mines/Mills samples underwent additional review because of proximity to the Van Stone mine using Figures 5through 7 in Ecology (2013b).

[a] The remaining samples from USEPA2001Mines/Mills and CHURC08A were reviewed using Google Earth for proximity to nearby mines and mills in case the 500 m setback for plants and producers was insufficient.

NURE-HSSR - National Uranium Resource Evaluation-Hydrogeochemical and Stream Sediment Reconnaissance

Table 3. Number of sample results for the metals and metalloids in the Tier IIIA dataset

Study ID	Study Name or Related Document	Analytical Preparation Method Group	Mercury	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
CHURC08A	Church et al. (2008)	Partial Digestion	–	43	–	43	43	43	43	43	43	43	43	43	43	43	43	–	–	43	43	43
ECOLO94A	Ecology (1994)	Partial Digestion		4	–	4	–	4	4	4	–	4	4	4	4	–	4	–	–	–	–	4
		Mercury	4																			
geochem-fU53	USGS (2008b)	Total Digestion		62	–	62	62	62	62	62	62	62	62	62	62	63	62	62	–	–	62	62
		Mercury	62																			
HARTC13C	Ecology (2013b)	Partial Digestion		–	8	8	–	8	8	8	–	8	–	8	–	–	8	8	8	8	–	8
		Mercury	8																			
NURE Seds	Smith (2006)	Total Digestion		–	–	633	777	777	–	782	779	736	–	777	–	782	778	785	821	–	–	779
		INAA		3,080									3,031		3,074						3,061	
SMITH13A	Smith et al. (2013)	Total Digestion		6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
		Mercury	6																			
Teck_2014 _UplandSoil	TAI (2015b)	Partial Digestion		40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
		Mercury	40																			
USEPA2001 Mines/Mills	USEPA (2002c)	Partial Digestion		1	1	1	1	1	1	1	1	1	1	1	1	–	1	1	1	1	1	1
		Mercury	1																			
WELLS15A	Wells (2015)	LOI+Digestion	–	21	–	–	–	–	21	21	–	21	21	21	21	–	21	–	–	–	–	21

Notes: Total metals is subdivided into INAA and total digestion for additional detail
INAA - irradiated neutron activation analysis
LOI - loss on ignition

Table 4. Count of samples by assessment variables in Tier IIIB dataset

		<2 mm Soil						<150 µm Soil and Sediment			
Assessment Variable	Description	Teck_2014_ UplandSoil[a]	ECOLO94A[b]	HARTC13C[c]	SMITH13A[d]	USEPA2001 Mines/Mills[e]	WELLS15A[f]	Teck_2014_ UplandSoil[a]	NURE Seds[i]	CHURC08A[g]	geochem-fu53[h]
Sample type											
30-point	Incremental composite sampling, 25 acres	23						17			
5-point or more	Multipoint composite		4				21		3,123	43	62
Single	No compositing			8	6[j]	1					
WRIA											
49	Okanogan				2				269		18
51	Nespelem								30		1
52	Sanpoil								301		4
53	Lower Lake Roosevelt								178		4
54	Lower Spokane								345	43	5
55	Little Spokane		3						121		1
58	Middle Lake Roosevelt	6			2		1		550		7
59	Colville						2		76		7
60	Kettle						5		1,157		5
61	Upper Lake Roosevelt	17		8			8	17	96		4
62	Pend Oreille		1		2	1	5				6

Notes:
[a] TAI (2015b)
[b] Ecology (1994)
[c] Ecology (2013b)
[d] Smith et al. (2013)
[e] USEPA (2002c)
[f] Wells (2015)
[g] Church et al. (2008)
[h] USGS (2008b)
[i] Smith (2006)

[j] Although Smith et al. (2013) considers two of the samples collected at one of these locations a composite, it is a vertical composite of the A horizon over a few inches and is more like the grab samples discussed here.

WRIA - Water Resource Inventory Area

Table 5. Background threshold values for screened background samples

Metal/ Metalloid	Total Metals (mg/kg)	Partial Digestion (mg/kg)	Mercury (mg/kg)
Aluminum	73,800	40,500	
Antimony	3.0	0.41	
Arsenic	12.0 / 12.0 [a]	98.4 / 80.6 / 23.3 [a,b]	
Barium	722	395	
Beryllium	3.0 / 3.0 [a]	2.4	
Cadmium	2.0 / 0.54 [a]	0.74	
Chromium	155 / 140 [a]	27.1 / 23.8 [a]	
Cobalt	22.0 / 22.0 [a]	20.4	
Copper	37.0	41.5	
Iron	52,500	31,200	
Lead	30.0 / 30.0 [a]	27.2	
Manganese	1,380	1,240	
Mercury			0.14 / 0.12 [a]
Molybdenum	6.0	3.5 / 1.4 [a]	
Nickel	46.0 / 45.0 [a]	35.0	
Selenium	3.0	0.098 / 0.10 [a]	
Silver	1.1 / 1.1 [a]	0.078	
Thallium	1.1	0.56	
Vanadium	160 / 160 [a]	47.5	
Zinc	99.0 / 101 [a]	111	

Notes: Concentrations reported in mg/kg

[a] BTVs with and without outliers are indicated with a forward slash (for example, 2.0 / 0.54, respectively).

[b] Samples identified for exclusion by EPA based on multivariate analyses and location (USEPA 2020c).

BTV - background threshold value

Attachment A

Final DQOs, Response to EPA's Consolidated Comments, and EPA Approval

Attachment A-1

Final Data Quality Objectives for Determination of Background Metal and Metalloid Concentrations in Upland Soil (TAI 2018b)

Final Data Quality Objectives for Determination of Background Metal and Metalloid Concentrations in Upland Soil

Introduction

The upland soil background assessment will provide information on the range of soil concentrations for metals and metalloids[1] that are representative of natural background in and around the Upper Columbia River (UCR) Site (hereafter the Site[2]). This assessment is one of numerous tasks to be completed as part of the UCR remedial investigation and feasibility study (RI/FS) and baseline ecological risk assessment being conducted by Teck American Incorporated (TAI). This assessment will also inform the human health risk assessment that is being conducted by the U.S. Environmental Protection Agency (EPA) (USEPA 2006a, 2016). The purpose of this document is to summarize the data quality objectives (DQOs) identified for the upland soil background assessment. The primary objective for this assessment is to ascertain the natural background soil concentrations as defined by Washington State (WAC 173-340-200[3])

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1 The metals and metalloids assessed will include those listed in the Upper Columbia River Soil Study (TAI 2015) Table 2-1, which are aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc. Thus, in this document "metals and metalloids" refers only to this list of elements. These metals and metalloids were identified as chemicals of interest for the referenced soil study and therefore all of these elements will be included in the assessment of natural background soil concentrations to provide the appropriate context for interpretation of the soil analytical results. Additionally, cation exchange capacity (CEC) is calculated from potassium, magnesium, calcium, sodium, and hydrogen (pH) concentrations in soils, and can be used (along with pH) to understand the natural bioavailability of metals in soils in the study area.

2 The UCR Site as defined within the June 2, 2006 Settlement Agreement (USEPA 2006a) is the areal extent of hazardous substances contamination within the United States in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake, from the U.S.-Canada border to the Grand Coulee Dam, and those areas in proximity to the contamination that are suitable and necessary for implementation of response actions.

3 WAC 173-340-200:

"Natural background" means the concentration of hazardous substance consistently present in the environment that has not been influenced by localized human activities. For example, several metals and radionuclides naturally occur in the bedrock, sediments, and soils of Washington state due solely to the geologic processes that formed these materials and the concentration of these hazardous substances would be considered natural background. Also, low concentrations of some particularly persistent organic compounds such as polychlorinated biphenyls (PCBs) can be found in surficial soils and sediment throughout much of the state due to global distribution of these hazardous substances. These low concentrations would be considered natural background. Similarly, concentrations of various radionuclides that are present at low concentrations throughout the state due to global distribution of fallout from bomb testing and nuclear accidents would be considered natural background.

"Area background" means the concentrations of hazardous substances that are consistently present in the environment in the vicinity of a site which are the result of human activities unrelated to releases from that site.

and the EPA (USEPA 2002[4]). Soil conditions, including concentrations of metals, minerals, and nutrients, are major determinants of plant communities. (Other determinants include, but are not limited to, soil moisture, soil texture, temperature, and sunlight.) Therefore, it is not possible to conclude "risk" to plant communities if metals, minerals, and nutrients are at natural background levels, even if these concentrations are higher than those determined through laboratory toxicity tests to result in phytotoxicity in test species. Species that are sensitive to certain metals, minerals, or nutrients simply will not be present in areas that have naturally high concentrations of these substances. Plant communities, in turn, are determinants of animal (invertebrate and vertebrate) communities, which also should not be considered at risk when metal concentrations in soil are at naturally occurring levels. Knowledge of natural background concentrations for UCR soils can be applied during the RI/FS process by removing from further consideration those areas where measured soil concentrations of the contaminants of potential concern are no higher than natural background. Areas where concentrations are higher than natural background would be further evaluated to determine which species/communities are likely to be at risk from the elevated concentrations of metals or minerals in soils.

In 2016, EPA prepared and provided TAI with a "level of effort" (LOE) memorandum that outlined an approach to compiling a background dataset from preexisting data sources along with DQO Steps 1to 3 for that process (USEPA 2016). In the memorandum, EPA evaluated 13 studies that may be usable in compiling a background dataset for the Site. EPA's primary criteria were that all samples should have a known location (i.e., known spatial coordinates and depth) that is near the UCR, but is outside the pre-dam 100-year floodplain, the historical sulfur dioxide (SO_2) smelter injury footprint described by Scheffer and Hedgcock (1955), areas disturbed by human activity, and possibly natural forces such as landslides. Data that met these initial screening criteria were evaluated further with respect to sample collection method, chemical analysis methods, and detection limits. This document expands upon EPA's LOE memorandum (USEPA 2016). As stated above, the results of the background assessment will inform future tasks and analyses related to assessing ecological and human health risks.

Data Quality Objectives

Step 1—State the Problem

The determination of natural background concentrations of metals and metalloids in upland soils is needed for use in the RI/FS as stated above. The analysis will determine natural background concentrations of metals and metalloids in soil consistent with the definition of *natural background* contained in the Washington State Model Toxics Control Act (MTCA).[1] This

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[4] USEPA (2002) defines background as "constituents or locations that are not influenced by the releases from a site, and is usually described as naturally occurring or anthropogenic (EPA, 1989; EPA, 1995a):

1) *Anthropogenic* – natural and human-made substances present in the environment as a result of human activities (not specifically related to the CERCLA release in question); and,

2) *Naturally occurring* – substances present in the environment in forms that have not been influenced by human activity."

includes anthropogenic influences from large-scale diffuse sources (e.g., mercury, PCBs, dioxin), but eliminates local or point source anthropogenic input. The area for the UCR background assessment is a large, heterogeneous area, which makes it difficult to account generally for local anthropogenic inputs. These include point sources such as aerial transport and deposition from smelter stack emissions from the Teck operations at Trail, BC, and those of the LeRoi/Northport smelter in Northport, WA. Therefore, as detailed in this DQO, soil data from areas in or near roads, railroads, mines, mills, or comparable sites will not be used. Similar to the approach presented by EPA in the LOE memorandum (USEPA 2016), soil data within the area delineated as injured by sulfur dioxide (SO_2) emissions from the 1920s into the1930s will be avoided to remove the potential for including samples that might be affected by aerial deposition from smelter stack emissions in the past. The remaining areas from which soil measurements will be used for background determination are remote from human influence and can be considered representative of natural background. Natural mineralization in the area that contain enrichment of some of the metals and metalloids of interest and related to geogenic processes will be clarified as part of the process of defining natural background concentrations. Further analysis of metal and metalloid concentrations in UCR soils is needed to identify those areas where measured soil metal and metalloid concentrations are at or below natural background and areas where concentrations are higher than natural background, and to inform the UCR remedial investigation and the ecological and human health risk assessments.

Step 2—Identify the Goals of the Study

The study goal is to compile a dataset of soil metal and metalloid concentrations from northeast Washington State that are of sufficient data quality to calculate summary statistics needed for assessing the nature and extent of soil concentrations above natural background levels and for assessing ecological and human health risks in these areas.

Step 3—Identify Information Inputs

The data sources to be considered include the following:

- Data from studies identified in EPA's LOE memorandum
- Studies referenced in other TAI UCR reports, as well as studies prepared for Teck Metals' Trail operations
- UCR-RI/FS database
- Washington State Department of Ecology (Ecology) Environmental Information Management System (EIM) data from northeastern Washington (Ecology 2018)

- National Uranium Resource Evaluation (NURE)–Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) dataset (Smith 2006)[5]
- U.S. Geological Survey (USGS) databases and datasets including the National Geochemical Database (USGS 2016), the National Geochemical Survey (USGS 2008), and the North American Soil Geochemical Landscapes Project (Smith et al. 2013). These include the NURE reanalysis data for Washington State (NURE 2000 dataset[6]), cooperative efforts by the USGS and the Washington State Department of Natural Resources (DNR) encompasses the States 2004, 2005, 2006a datasets, data from the PLUTO database,[7] and low density geochemical and mineralogical soil survey data.
- Canadian datasets available online
  - British Columbia Soil Information System (BCSIS; Province of British Columbia 2014)
  - British Columbia Ministry of Environment (BCME 2016)

See Attachment A for the specific data sources under consideration.

Step 4—Define the Boundaries of the Study

Surface soil samples from a broad area in northeastern Washington on either side (east and west) of the Columbia River will be considered in terms of their data quality and relevance. Data from studies conducted near the Columbia River will be given preference, but soil samples from farther away may be needed to verify that the closer-in data represent natural background and have not been influenced by the Trail or LeRoi/Northport smelters. The surficial soil layer is of greatest relevance to the ecological and human health risk assessments. As such, concentration data for surface soils are preferred; samples collected deeper than 6 in. will be critically reviewed and included in the dataset for the background assessment only if they are needed to fill data gaps.

Step 5—Define the Analytic Approach

This study has three steps:

- Compile the dataset.

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[5] Based on recommendations from EPA made at the October 2, 2017 meeting, data from the hydrogeochemical and stream sediment reconnaissance (HSSR) phase of the NURE program will be considered.

[6] USGS (2008), "A suite of samples from across the entire US, pulled from the NURE archive and analyzed in 2000. Four week-long forays to the warehouse by 5-10 person teams were required to identify and package the samples. In doing these analyses, the NGS [National Geochemical Survey] extended work done at a regional scale in the southeastern US to a national scale effort. Most were analyzed by the ICP40, As, Se, and Hg methods. ~10% were also analyzed by INAA."

[7] USGS (2008), "The PLUTO database contains the results of analyses of geological material done by the Branch of Analytical Laboratories (and its successors and predecessors at the USGS) between the late 1960's and mid 1990's. PLUTO is one component of the National Geochemical Database at the USGS."

- Examine the data geospatially to verify that the samples are representative of natural background (i.e., they are not influenced by local anthropogenic sources) and determine whether combined they represent a homogenous population as a single set of data, or should be segregated into two or more distinct geographic areas based on the data attributes.
- Evaluate the data statistically to characterize background concentrations and identify a natural background threshold value for each of the metals/metalloids of interest.

Data Compilation

The dataset used to determine natural background soil concentrations will be evaluated using a tiered approach similar to that presented in EPA's LOE memorandum. The three tiers will include the following:

- Tier I—Samples should conform to the following:
  - Include geographic coordinates
  - Located in northeast Washington State
  - Be a soil matrix[8]
- Tier II—Add key supplemental data based on sample location to identify or avoid, if possible, geogenic and anthropogenic sources of the metals and metalloids of interest.
  - Pre-dam era 100-year floodplain, if available, or the 100-year floodplain will be used
  - Within or outside the historical SO_2 injury area (recording which "%Injury" zone; Scheffer and Hedgcock 1955)
  - For the NURE-HSSR samples, include the field judgement of possible contaminant sources or major activities near the sample site (CONTAMC field)
  - Distance to the nearest road
  - Distance to the nearest railway
  - Distance to the nearest mine
  - Distance to the nearest ore- or rock-processing mill
  - Distance to the nearest landfill
  - Geology
  - State of Washington Water Resources Inventory Area (WRIA) and Hydrologic Unit Code, plus the following physiographic features and built structures or features:
    - Distance to the nearest drainage feature within the same drainage

8 For the NURE-HSSR dataset, the background dataset will not only consider soil, but also stream sediments.

        - Distance to the nearest mineralized area located upgradient in the same drainage
        - Distance to the nearest mill located upgradient in the same drainage
        - Distance to the nearest landfill located upgradient in the same drainage
        - Distance to the nearest road located upgradient in the same drainage
        - Distance to the nearest railway area or facility located upgradient in the same drainage
        - Distance to the nearest landslide upgradient in the same drainage
    - U.S. Department of Agriculture soil type
    - Land use
- Tier III—Add key sampling information to assess data compatibility and usability
    - Date of sample collection and sample depth
    - Sample type (e.g., grab/discrete or composite)
    - Size of particles analyzed (e.g., <2 mm, <149 μm)
    - Analytical suite (metals/metalloids only)
    - Digestion method
    - Analytical method

The supplemental data will be used to assess the influence of geogenic and anthropogenic sources as discussed above.

Geospatial Examination

Once all the data and their associated supplemental data have been tabulated and screened, soil concentrations will be used to determine background values for each metal and metalloid as follows. Maps will be generated to show concentrations overlaid with geospatial classifications, including drainage boundaries, geological classifications, and locations of anthropogenic alterations or disturbances. Analysis of variance[9] will be used to identify significant differences between the categories of each geospatial classification shown on the maps. Concentrations will be plotted to evaluate the distribution and analysis of variance used to identify significant differences between categories of each geospatial classification shown on the maps. Quantile-quantile (QQ) or cumulative distribution plots, with formal outlier tests (Dixon and Rosner,

[9] If the underlying assumptions of analysis of variance (ANOVA), specifically normality and homogeneity of variance, can be met using concentrations as measured or through a transformation (e.g., log) this will be preferred over using a non-parametric ANOVA such as Kruskal-Wallis. Comparison of results from both ANOVA methods can highlight overly influential samples or the impact of handling undetected analytical concentrations.

depending on the number of samples) if necessary, will be the basis to identify overly influential sample concentrations.

The geospatial analysis will determine if there are obvious differences between geographic regions (e.g., east versus west side of the Columbia River, specific drainages) or by underlying geology and evidence of anthropogenic alteration or disturbance. If no divisions are apparent, all of the data will be combined into a single dataset for the statistical analysis described below. However, if there is a technical basis to segregate the data, then the statistical analysis will be conducted separately on each group of data.

Background Threshold Values

Both the ecological and human health risk assessments include comparisons to background concentrations of metals and metalloids and rely on a background threshold value for screening. The ProUCL 5.1 (USEPA 2015) software is used by EPA regions, states, contractors, and stakeholders to summarize chemical concentrations in background soils and follows EPA guidance for developing background threshold values for use in risk assessments. A one-sided 95 percent upper confidence limit on the 95th percentile, or 95/95 upper tolerance limit (UTL), will be selected based on the distributional assessments and outlier evaluation from the multiple statistics provided in the ProUCL output. The report will include QQ or cumulative distribution plots along with a table of summary statistics, goodness-of-fit distributional assessments, and UTL concentrations for the entire dataset or geographically-limited subsets, depending upon the analysis described above, with and without identified outliers excluded. The complete output from ProUCL will be provided as an attachment to the report.

The complete steps of this analytical approach follow the approach described by EPA (2006b), for the entire dataset or more homogenous subsets that may be identified based upon the geospatial analysis.

Step 6—Specify the Performance Criteria

Geographical performance criteria in Tier II and III screening consists of the following, which are detailed in Table 1:

- Location undeveloped based on Ecology land use codes (see Table 1)
- Outside the SO_2 injury area
- WRIAs 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, and 62
- Pre-dam era 100-year floodplain or 100-year floodplain—Outside
- Distance to the nearest road—At least 50 m away
- Distance to the nearest railway—At least 50 m away
- Distance to the nearest mine—At least 500 m away
- Distance to the nearest mill—At least 500 m away
- Distance to the nearest landfill—At least 500 m away

- Distance to the nearest landslide—Outside footprint

Sampling and chemical analytical methods described in Tier III will be assessed according to the following criteria:

- Analytical methods should be by inductively coupled plasma or atomic adsorption, and for selected NURE-HSSR results instrumental neutron activation analysis (INAA).
- Detection limits should be below screening values for human health and ecological risk assessments (see Table 2).
- Depth intervals of 0 to 1 in. and 0 to 3 in. are preferred, but sample depths up to 6 in. may be acceptable in areas where significant data gaps are identified.
- Other features (e.g., sample type, particle size, date of sample collection, digestion method) will be assessed for bias in concentrations using graphical and statistical summaries.

In the unlikely event that all data will be screened out by the above criteria, i.e., no acceptable samples are identified, TAI will revisit the criteria to determine which ones are the most restrictive. TAI will then refine the criteria to be less restrictive, recognizing that the resulting background values may be less robust and subject to greater uncertainty. TAI will discuss the refined criteria with EPA before rescreening the data.

Step 7—Develop a Plan for Obtaining the Data

Attachment A lists the studies under consideration for supplying data for the background assessment. Analytical results of the chemical concentrations for the metals and metalloids from these studies are already tabulated, but additional information may need to be added for some, such as sample collection or analytical methods, size of particles analyzed (sieve size), and depths. Some of the supplemental data listed in Tier II will be added following the initial geospatial analyses.

Supplemental data will be retrieved from sources such as:

- USGS (e.g., geology, mines, mills, prospects, watersheds, landfill, roads, railways)
- DNR (e.g., land use, landslides, inactive and abandoned mines) (Wolff et al. 2008)
- Ecology (e.g., water resource inventory areas, site investigations, removal actions)
- Federal Emergency Management Agency (e.g., floodplain maps)
- U.S. Department of Agriculture (e.g., soil surveys)
- Scheffer and Hedgcock (1955; SO_2 smelter injury footprint).

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Attachment A

Information Under Consideration

Information Under Consideration

This attachment lists the documents and databases that will be considered for integration into the background soil dataset. The following general categories of studies are being reviewed:

- EPA's LOE memorandum (USEPA 2016)
- Studies referenced in other TAI reports prepared for the UCR remedial investigation and feasibility study, as well as studies prepared for Teck Metals' Trail operations that may inform the background assessment
- UCR-RIFS database
- EIM data from Northeastern Washington
- USGS Datasets
  - NURE- HSSR dataset
  - National Geochemical Database
  - National Geochemical Survey
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EIM Data from Northeastern Washington

EIM data will be filtered by evaluating an aerial photograph in which all the samples for the EIM Study ID are plotted. The study will be categorized “developed” or “further evaluation” since many studies may center around developed areas and can be filtered out.

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Table 1. Exclusion and performance criteria details

Criteria	Type	Tier	Basis	Limits	Method/Resources
Location					
Geographic coordinates	Exclusion	I	Geographical coordinate information needed to identify proximity to potential contamination.	Present	Reported by individual studies and data repositories
Regional geographic location within northeastern Washington State	Exclusion	I	Bounds sample selection to the relevant area.	WRIAs 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, and 62	Assign with ArcGIS—exclude outside of specified WRIAs (Ecology 2017)
Pre-dam era 100-year floodplain, if available or 100-year floodplain	Exclusion	II	Avoid areas that may include slag and effluent waste.	Floodplain perimeter	If the map can be located.
Historic SO_2 smelter injury zones	Exclusion	II	Avoid areas contaminated by historic smelter emissions.	Injury zone perimeter	Assign with ArcGIS—exclude inside of injury areas (Scheffer and Hedgcock 1955)
Land use	Exclusion	II	Avoid areas contaminated by residential, commercial, industrial, and natural resource extraction activities.	Land use codes 87, 88, 89, 91, 92, 93, 94, 95, 99[a]	Assign with ArcGIS—exclude outside of specified land use codes (Ecology 2010)
Soil type	Assessment	II	Soil type may affect sample composition.	None	Assign with ArcGIS (USDA 2016)
Geology	Assessment	II	Local geology may affect sample composition.	None	Assign with ArcGIS (USDA 2016)
NURE dataset contamination field	Exclusion	NA	Avoid areas contaminated by residential, commercial, industrial, and natural resource extraction activities.	Entry of “none” or “grazing”	Field from NURE-HSSR database—exclude entries beside “none” or “grazing” (USGS 2004)
Distance and gradient[b] to nearest					
Road	Exclusion	II	Avoid areas contaminated by historical use of leaded gasoline, imported roadbed materials, and fugitive dust from hauling loads without tarps or other containment.	50 m	Measure with ArcGIS—exclude within 50 m of road (USGS 2017)
Railway	Exclusion	II	Avoid areas contaminated by imported roadbed materials and fugitive dust from hauling loads without tarps or other containment.	50 m	Measure with ArcGIS—exclude within 50 m of railway (USGS 2017)
Landfill	Exclusion	II	Avoid areas contaminated by placement of waste materials on land surfaces.	500 m	Measure with ArcGIS—exclude within 500 m of landfill (USGS 2008)
Mine	Exclusion	II	Avoid areas contaminated by mining activities.	500 m	Measure with ArcGIS—exclude within 500 m of mine[c] (USGS 2005)
Mill	Exclusion	II	Avoid areas contaminated by milling activities.	500 m	Measure with ArcGIS—exclude within 500 m of mill[c] (USGS 2005)
Landslide	Exclusion	II	May have exposed materials not representative of surface or near-surface conditions.	Footprint perimeters	Measure with ArcGIS—exclude inside of landslide footprints (WADNR 2017)
Sample and analysis characteristics					
Matrix	Exclusion	I	Avoid mischaracterizing soil background by excluding non-soil matrices.	Soil[d]	Exclude non-soil matrices
Depth interval	Exclusion	III	The top 6 inches of soil is the active root zone, where plants take up nutrients (and contaminants) and where most soil microbes and invertebrates are found.	6 in	Exclude samples collected below 6 in
Sample type	Assessment	III	Sampling techniques may yield differential representativeness of the sample results (e.g., grab/discrete or composite).	None	Reported by individual studies and data repositories
Particle size	Exclusion	III	Particles larger than 2 mm are considered rock, not soil.	2 mm	Exclude sieve size >2 mm
	Assessment	III	Different particle sizes may result in different ranges for analytical results.	None	Reported by individual studies and data repositories

Table 1. Exclusion and performance criteria details

Criteria	Type	Tier	Basis	Limits	Method/Resources
Sample collection date	Assessment	III	Implications for analytical methods, detection limits, and potential nearby anthropogenic activities corresponding with the date.	None	Reported by individual studies and data repositories
Digestion method	Assessment	III	Digestion methods may liberate metals (e.g., loosely bound or total recovery)	None	Reported by individual studies and data repositories
Analytical method	Exclusion	III	Analytical methods may have different detection limits, analytical error, etc.	ICP or AA	Exclude analytical methods beside ICP or AA with the exception of INAA for some NURE-HSSR samples
Detection limits	Assessment	III	Non-detect results with high detection limits may artificially elevate background levels.	None	Reported by individual studies and data repositories

Note: ArcGIS version to be used in spatial analyses is 10.5.

AA - atomic adsorption
ICP - inductively coupled plasma
in - inch
INAA - instrumental neutron activation analysis
m - meter
mm - millimeter
NA - not applicable
NURE-HSSR - National Uranium Resource Evaluation–Hydrogeochemical and Stream Sediment Reconnaissance
UCR - Upper Columbia River
WRIA - water resource inventory area

[a] Land use code definitions:
87 Public timberland/non-designated forest
88 Designated forest land under chapter 84.33 RCW
89 Other resource production
91 Undeveloped land
92 Noncommercial forest
94 Open space land classified under chapter 84.34 RCW
95 Timberland classified under chapter 84.34 RCW
99 Other undeveloped land

[b] Distinction between features up- and down-gradient of sample locations will support assessment of potential surface runoff and fugitive dust impacts that may affect sample concentrations. The “Flow Length” function in the Hydrology module of the spatial Analyst extension in ArcGIS was used to calculate the distance to upstream features. First, a flow direction raster was created from a digital elevation model using the “Flow Direction” tool. The flow direction raster shows the direction of flow out of each cell. Second, an upstream flow length raster was created using “Flow Length” tool, which calculates the upslope distance along the flow path, from each cell to the upstream features. Lastly, the flow length to upstream features for each location was extracted from the upstream flow length raster based on its spatial location.

[c] Mines and mills considered for this criteria are producers, past producers, plants, or locations designated with an “unknown” development status. Locations with a development status of occurrence (outcrop, shallow pits, or isolated drill holes) or prospect (trenching adits, shafts, characterization) were not considered for this exclusion criteria (e.g., a sample collected < 500 m from an occurrence or prospect is not excluded). For full development status definitions, see USGS (2005).

[d] For the NURE-HSSR dataset, sediments will also be included.

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Table 2. Detection limits needed based on conservative risk-based screening values in mg/kg dry weight in soil

	Ecological Soil Screening Level (ecoSSL)								Maximum Detection Limit (or lower)
TAL Metals	Available	USEPA Document	Terrestrial Plants	Soil Invertebrates	Avian Wildlife	Mammalian Wildlife	Minimum ecoSSL	Human[a]	
Aluminum	Yes[b]	2003[a]	–	–	–	–	–	77,400	77,400
Antimony	Yes	2005[a]	[c]	78	[c]	0.27	0.27	31.3	0.27
Arsenic	Yes	2005[b]	18	[c]	43	46	18	20	18
Barium	Yes	2005[c]	[c]	330	[c]	2000	330	15,300	330
Beryllium	Yes	2005[d]	[c]	40	[c]	21	21	156	21
Cadmium	Yes	2005[e]	32	140	0.77	0.36	0.36	71.1	0.36
Calcium	No		–	–	–	–	–	–	10,000[g]
Chromium	Cr(III) Yes	2008	[c]	[c]	26	34	26	–	26
	Cr(V) Yes	2008	[c]	[c]	[c]	130	130		
Cobalt	Yes	2005[f]	13	[c]	120	230	13	23.4	13
Copper	Yes	2007[a]	70	80	28	49	28	3,130	28
Iron	Yes[d]	2003[b]	–	–	–	–	–	54,800	54,800
Lead	Yes	2005[g]	120	1700	11	56	11	400[e]	11
Magnesium	No		–	–	–	–	–	–	10,000[g]
Manganese	Yes	2007[b]	220	450	4300	4000	220	1,830	220
Mercury	No		–	–	–	–	–	10.9	0.2[h]
Nickel	Yes	2007[c]	38	280	210	130	38	1,550	38
Potassium	No		–	–	–	–	–	–	10,000[g]
Selenium	Yes	2007[d]	0.52	4.1	1.2	0.63	0.52	391	0.52
Silver	Yes	2006[c]	560	[c]	4.2	14	4.2	391	4.2
Sodium	No		–	–	–	–	–	–	10,000[g]
Thallium	No		–	–	–	–	–	0.782	0.25[i]
Vanadium	Yes[f] (interim final)	2005[h]	[c]	[c]	7.8	280	7.8	393	7.8
Zinc	Yes	2007[e]	160	120	46	79	46	23,500	46

Notes on following page.

Table 2. Detection limits needed based on conservative risk-based screening values in mg/kg dry weight in soil (continued)

	Ecological Soil Screening Level (ecoSSL)								Maximum
TAL Metals	Available	USEPA Document	Terrestrial Plants	Soil Invertebrates	Avian Wildlife	Mammalian Wildlife	Minimum ecoSSL	Human[a]	Detection Limit (or lower)

Notes:

[a] Except for arsenic, chromium, and four essential nutrients (calcium, magnesium, potassium, and sodium) screening levels are conservative risk-based concentrations calculated using EPA's Regional Screening Level Calculator (http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search) and default values for residential exposure factors. The screening level for arsenic is based on the Washington cleanup level (20 mg/kg) and was established as the project action limit for arsenic in the 2014 residential soils study. There is no human health screening level for total chromium.

[b] No numeric ecoSSLs. Aluminum identified as of potential concern only for soils with a soil pH < 5.5.

[c] Insufficient data to derive soil screening values.

[d] No numeric ecoSSLs. Iron identified as of concern as a mediator in the geochemistry of other metals and the potential physical hazard of depositing iron floc.

[e] The EPA screening value for lead (400 mg/kg) incorporates a default relative bioavailability (RBA) assumption and is not directly comparable to measured lead as reported by the analytical laboratory without adjustment for RBA. The State of Washington has adopted a screening level for lead of 250 mg/kg, which is the value that was reported to landowners in letters summarizing their residence-specific study results.

[f] Vanadium ecoSSL report is interim final.

[g] Calcium, magnesium, potassium, and sodium are toxic to wildlife in the percent range, and therefore the detection limit from any type of soil analysis that is less than 10,000 mg/kg is acceptable (NRC 2005).

[h] Soil mercury is in the inorganic form. According to NRC (2005), diets with "0.2 mg/kg is tolerated by rodents, poultry, and pigs".

[i] The maximum detection limit allowable for thallium is based on the U.S. Army's Wildlife Toxicity Assessment for Thallium (USACHPPM 2007) which has a rat-based toxicity reference values (TRV) derived from exposure of 10 ppm thallium in drinking water with additional uncertainty factors. The lowest-observed-adverse-effect level [LOAEL] uncertainty factor of 4 and NOAEL uncertainty factor of LOAEL/10). This results in 2.5 ppm for LOAEL and 0.25 ppm for NOAEL, thus 0.25 mg/kg would be conservative choice for the maximum allowed detection limit. No information was found for birds, invertebrates, or plants.

mg/kg – milligram(s) per kilogram(s)

Attachment A-2

TAI Responses to EPA's Consolidated Comments (TAI 2018a)

Comment Number	Comment	Type	TAI Response
General Comments			
1	The draft document notes that results from the background soil assessment will inform future tasks related to assessing ecological and human health risks. Describe more concretely the specific RI/FS-related uses for this background soil data.	Additional detail	**<u>Specific RI/FS Use for Background Soil Data</u>** **<u>Ecological Risk Assessment</u>:** Soil conditions, including concentrations of metal, minerals, and nutrients, are major determinants of plant communities (other determinants include, but are not limited to, soil moisture, soil texture, temperature, and sunlight). Therefore, it is not possible to conclude "risk" to plant communities if metals, minerals, and nutrients are at natural background levels, even if these concentrations are higher than those determined through laboratory toxicity tests to result in phytotoxicity in test species. Species that are sensitive to certain metals, minerals, or nutrients simply will not be present in areas that have naturally high concentrations of these substances. Plant communities, in turn, are determinants of animal (invertebrate and vertebrate) communities, which also should not be considered at risk when soils concentrations are at naturally occurring levels. Knowledge of natural background concentrations in upland soils at the Upper Columbia River (UCR) Site (the Site) can be applied during the RI/FS process by removing from further consideration areas where measured soil concentrations of the contaminants of potential concern are no higher than natural background. Areas where concentrations are higher than natural background will be further evaluated to determine which species/communities are likely to be at risk from the elevated concentrations of metals or minerals. **<u>Human Health Risk Assessment</u>:** Understanding natural and area background concentrations is essential to distinguishing the potential for risk associated with the Site from risks unrelated to the Site. Consistent with U.S. Environmental Protection Agency (EPA) guidance, risks associated with natural and area background concentrations should be discussed in the risk characterization of the baseline human health risk assessment (BHHRA) by describing the contribution of background risks to cumulative risks (USEPA 2002). Human health risks based on the natural background concentrations developed in the background assessment will be compared to risks estimated for decision units (DUs) evaluated in the residential soil study. In areas where background risks are greater than those associated with the Site, the background concentrations will be used to refine numeric cleanup levels for those specific chemicals of concern (COCs), as cleanup levels cannot be set at concentrations below area or natural background concentrations. USEPA. 2002. Appendix B, Policy considerations for the application of background data in risk assessment and remedy selection, Role of background in the CERCLA cleanup program. OSWER 9285.6-07P. In: Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites. EPA 540-R-01-003, OSWER 9285.7-41. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency and Remedial Response, Washington, DC. September.

Comment Number	Comment	Type	TAI Response
2	The BERA workplan is not specific about which "background" will be used for comparison if unacceptable risks are determined. The DQO document needs to identify what kind of background is being defined ("area" versus "natural") and whether different types of background are needed for the different RI/FS and risk assessment tasks, or if an effort will be made to determine site-specific background with comparable natural and anthropogenic variability. Given that there are other sources of metals in the area, it makes sense to determine area background as well as geological (natural) background from non-site related anthropogenic (area) background.	Additional detail	The analysis will determine natural background as per the definition in the Washington State Model Toxics Control Act. This includes anthropogenic influence of large-scale diffuse sources (e.g., mercury; PCBs, dioxin), but eliminates local or point source anthropogenic input. The area to be evaluated in the background assessment is a large, heterogeneous area, which makes it difficult to account generally for local anthropogenic inputs. Therefore, as detailed in the data quality objectives (DQOs), soil data from areas such as in or near, roads, railroads, mines, mills will not be used. Similar to the approach presented by the EPA in the "level of effort" memorandum (USEPA 2016) that outlined an approach to compiling a background dataset from preexisting data sources along with DQO Steps 1to 3 for that process, soil data within the area delineated as injured by sulfur dioxide (SO_2) in the 1920s–1930s (Scheffer and Hedgcock 1955) will be avoided to remove the potential for deposition from Trail and LeRoi/Northport smelters. The area serves as a convenient exclusion zone for selecting background samples within the Site, away from areas affected by historical emissions from both the Trail and LeRoi/Northport smelter stacks without the use of air dispersion and deposition modeling. The remaining areas from which soil measurements will be used for background determination are remote from human influence and can be considered natural background. The DQOs are focused on defining natural background concentrations only, largely supporting the baseline ecological risk assessment (BERA), and do not address local area, or anthropogenic, background concentrations. While determination of natural background will be useful to both the BERA and BHHRA, the BHHRA also must consider anthropogenic *influences* on a localized scale affecting residential properties, which is an issue that will be addressed apart from defining the natural background levels. For example, the residential soil sampling and removal efforts documented discarded lead acid batteries, presence of treated wood, domestic waste incineration, past pesticide use, and other human sources of contamination to Site upland soils that are unrelated to historical aerial deposition of metals from smelter emissions or the presence of mineralized soils. The influence of human sources and activities contributes to "area" background concentrations, particularly for lead and arsenic, and must be considered on a case-by-case basis for those properties where measured metals concentrations in soil are greater than natural background. Scheffer, T.C., and G.G. Hedgcock. 1955. Injury to northwestern forest trees by sulfur dioxide from smelters. Technical Bulletin 1117. U.S. Department of Agriculture, Economic Research Service, Washington, DC. USEPA. 2016. EPA level of effort (LOE) for assessment and estimations of upland soils - Upper Columbia River Basin. U.S. Environmental Protection Agency, Technical Team. July.

Comment Number	Comment	Type	TAI Response
3	Provide basis for developing background concentrations for all 23 metals and metalloids. Some metals are essential nutrients and not risk drivers (e.g., calcium, magnesium, sodium, potassium, etc.). If Teck proposes using these additional metals for purposes of estimating soil cation exchange capacity or otherwise, such intended uses should be defined in the DQOs.	Study design	Knowledge about natural background soil concentrations is needed to assess risks to any inorganic substances of concern in the UCR uplands, as described in response to General Comment 1. We began with the 23 target analyte list (TAL) metals, which were agreed upon by Teck American Incorporated (TAI) and EPA as those that would be quantified in the Upland Soil Sampling QAPP (TAI 2014) for risk determination. The TAL was derived from EPA's Priority Pollutants list of 126 metal and organic substances, which are a subset of the "toxic pollutants" as defined in the Clean Water Act. The Priority Pollutants were those frequently found in wastewater, and the 23 TAL metals are those also frequently encountered at hazardous waste sites. The list was developed for aquatic systems, hence the inclusion of aluminum and iron, which are among the most abundant elements in the earth's crust). Aluminum and iron are highly unlikely to cause toxicity in terrestrial systems. The TAL contains some plant-associated nutrients (although nitrogen and phosphorus are notably missing) presumably, because they, too, are frequently elevated in wastewater and at contaminated aquatic sites. If EPA concurs that it is not necessary to assess ecotoxicological risks associated with plant nutrients in the upland soils, then those elements should be removed from the list of terrestrial chemicals of interest for the UCR RI/FS. There is value, however, in retaining potassium, magnesium, calcium, and sodium for further analysis in the BERA. Cation exchange capacity (CEC) is calculated from concentration data for these elements and hydrogen (pH) in soils. Thus, the CEC also can be used (along with pH) to understand the natural bioavailability of metals in soils from the area of interest. TAI. 2014. Upper Columbia River, final soil study quality assurance project plan. Prepared by Exponent, Bellevue, WA, and HDR, Mahwah, NJ, in association and consultation with Parametrix, Inc., Bellevue, WA, and Cardwell Consulting LLC, Corvallis, OR. Teck American Incorporated, Spokane, WA. August.

Comment Number	Comment	Type	TAI Response
4	The term "mineralized area" is used with little specificity. Define “mineralized area”.	Additional detail	For this study, “mineralized areas” are metal/loid deposits identified by the U.S. Geological Survey (USGS) Mineral Resources Data System (MRDS)[1] occurrences, prospects, active/inactive mines, and processing facilities.[2] The 500-m setback for sample selection will be applied to mines and processing facilities. When calculating the distance to the nearest occurrences, prospects, active/inactive mines, and processing facilities, we also added the name of the site and the commodity code[3] used (e.g., AU, PB, CU). We will review these for sites within 500-m to see we are over screening (i.e., excluding samples in areas with non-metallic commodities like pumice or gravel). [1] “MRDS is a collection of reports describing metallic and nonmetallic mineral resources throughout the world. Included are deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references.” https://mrdata.usgs.gov/mrds/ [2] For definitions see https://mrdata.usgs.gov/metadata/mrds.html [3] For definitions see https://mrdata.usgs.gov/mrds/commodity-codes.html
5	Elaborate on the criteria considered to deem a data set acceptable for establishing natural and/or area background (e.g., location relative to known sources, sample depth, target analytes, analytical methods)	Additional detail	The draft final DQO includes a new table, Table 1, which summarizes the criteria that will be used in the assessment.

Comment Number	Comment	Type	TAI Response
6	Limiting samples to those 6 inches and shallower may be unnecessarily restrictive. Although it is true that surface soils are of greatest interest, these are also most likely to be impacted by other sources that may alter concentrations. It might be beneficial to consider shallow subsurface data (6-18 inches) as additional verification data for the surface. If there is no difference between surface and subsurface (i.e., surface is not higher than subsurface), this will support a conclusion that surface samples represent background. However, if surface is greater, this might suggest contamination from some other source.	Study design	**Limiting Samples to the Upper 6 Inches of Soil:** Plants receive most of their nutrients from the soil A Horizon, which is where most soil invertebrates live as well (although some live only in the litter layer on top of the soil). Therefore, risk to terrestrial systems from metal contamination is primarily restricted to concentrations in the A Horizon, i.e., the top 6 inches of soil. While it is tempting to assume that the A Horizon should have similar metal concentrations to the subsoil horizon (e.g., the B Horizon at the 6 to 18 inches depth) in natural areas, there are many reasons why this might not be the case. These include decomposition of plant material, which changes pH, organic/clay ratios, and mobilization of metals and surface movement of topsoil from erosion and/or flooding. The B Horizon is of little to no interest from an ecological perspective, so measurements of the metals concentrations in subsoils would only add uncertainty (if different from surface soils) and not resolve the issue of natural background concentrations. WAC 173-340-200 defines “natural background” as “the concentration of hazardous substance consistently present in the environment that has not been influenced by localized human activities.” Methods for defining natural background concentrations are provided in WAC 173-340-709. Comparing soil horizons is not among the methods. WAC 173-340-709 stipulates that comparative samples should have the same basic characteristics as the (soil) of concern at the site, which precludes comparing soil horizons because they have different basic characteristics for the reasons noted above. **Avoiding Contamination from Anthropogenic Sources:** The background dataset will be carefully evaluated to confirm the samples represent a single consistent population without outliers, as explained in DQO Step 5 where it discusses how background threshold values will be derived for the background assessment.

Comment Number	Comment	Type	TAI Response
7	The analytic approach only mentions calculating the "95th UTL". The LOE specified that "For COI/COPCs and elements of interest, the minimum, maximum, mean, median geometric mean, and an upper percentile of the distribution will be estimated at a minimum, along with upper confidence limits where appropriate." Include these additional summary statistics in the Step 5 analytical approach. Additionally, geospatial analysis alone is not adequate to determine if sample results are representative of background. Include use of statistical tests to identify and exclude outliers.	Analytical approach	Complete output from the ProUCL software will be included in the background assessment report, providing all of the summary statistics listed in addition to goodness-of-fit distributional assessments and various statistics for consideration as background threshold value using multiple methods for handling undetected results. The report will include maps showing concentrations overlaid with geospatial classifications, including drainage boundaries, geological classifications, and locations of anthropogenic alternations or disturbances. Analysis of variance will be used to identify significant differences between the various geospatial categories.
8	The use of footnotes to list references as well as additional information is inconsistent with previous UCR documents. The reader would benefit from the addition of a references section and deletion of reference listings in the footnotes.	Editorial	References have been moved into a reference section in the DQO document and the referenced footnotes deleted.

Comment Number	Comment	Type	TAI Response
Specific Comments			
1	DQO Step 3, Pages 4 & 5. The list proposes the use of Ecology's EIM. Any data potentially being identified from this database will require extensive review of the nature and appropriateness of the data collected. A clear demonstration and application that the data found are appropriate for background purposes will be required. The vast majority of EIM data were collected from contaminated cleanup sites, not areas appropriate for developing natural background.	Study Design	The sample data selected for the background assessment will be screened using the criteria for avoiding contamination from anthropogenic sources, other than large-scale diffuse sources, detailed in DQO Table 1 (new) prepared for General Comment 5. TAI expects that by applying these criteria, samples from contaminated sites will be removed from consideration. In addition, project documents for samples from EIM that are not screened out will be reviewed for appropriateness as with any other study included in the background dataset.
2	DQO Step 3, Pages 4 & 5. Geographic study boundaries are a significant consideration. The proposed list includes online Canadian data sets. Unless the data being sought are from soil samples collected in NE Washington State, these Canadian data bases should be removed as potential data sources. This comment was rescinded in an email from EPA (2018), which stated, "Upon further consideration, we view background data from Canada in the vicinity of the Trail Smelter to be representative of local conditions. Data from Canada should therefore be included as potential data sources."	Study Design	TAI has reviewed the two Canadian datasets referred to in the preliminary draft DQO document dated June 1, 2018, i.e., the British Columbia Soil Information System (BCSIS) and British Columbia Ministry of the Environment (BCME) background soil data. For areas north of the Washington State Water Resource Inventory Areas (WRIAs) referred to in General Comment 3, none of the samples from BCSIS were collected from the A Horizon. The BCME background dataset includes surficial samples near 19 cities and towns in the Southern Interior and Kootenay ministry regions of British Columbia. Although some of these (e.g., Trail, Creston, Castlegar, Nelson) may be useful for the delineation study, others are in different physiographic regions and geologic settings, and far afield to be considered representative of background conditions of UCR upland areas. Thus, TAI has removed these datasets from further consideration for the background assessment.

Comment Number	Comment	Type	TAI Response
3	DQO Step 5, Page 5, Geographic scope and boundaries need to be set and acknowledged to manage the extent of data gathering and management. Consider limiting search to samples in the following 11 Water Resource Inventory Areas (WRIAs) connected to the UCR: WRIAs 49, 51, 52, 53, 54, 55, 58, 59, 60, 61, and 62.	Study Design	The revised draft final DQO indicates that the data used in the background assessment will be limited to the WRIAs listed in this comment.
4	DQO Step 4, Page 5. How will TAI determine if soils have been influenced by the LeRoi/Northport smelters? If the intent is to determine which data represent background (presuming natural) and have not been influenced by the Le Roi/Northport smelters (area) it is necessary to establish the area background. Will there be a range in area background as compared to natural background? Some explanation on the intent and process here would be helpful.	Clarification	Area background in the vicinity of Northport would vary by distance and direction away from the site of the former LeRoi/Northport smelter. Selecting samples outside the aerial influence of the LeRoi/Northport smelter is important for assembling a dataset from which natural background concentrations may be calculated. Emissions from the LeRoi/Northport smelter likely followed the same topographic pathway along the river as the area mapped for forest injury shown in Scheffer and Hedgcock (1955). Thus, TAI expects that by excluding samples from the SO_2 injury areas (Zones 1 to 3), most, if not all, the contamination from the LeRoi/Northport smelter should be excluded. Scheffer, T.C., and G.G. Hedgcock. 1955. Injury to northwestern forest trees by sulfur dioxide from smelters. Technical Bulletin 1117. U.S. Department of Agriculture, Economic Research Service, Washington, DC.
5	DQO Step 5, Page 6, Footnote 16. Regarding NURE sediment samples collected from tributary locations, samples collected from UCR tributary streams, whether wet or dry are useful to establishing background and should not be excluded because of conditions at the time of sampling.	Study Design	National Uranium Resource Evaluation (NURE) sediment and soil samples that pass the screening criteria summarized on DQO Table 1 (new; see General Comment 5) will be considered for the background dataset.

Comment Number	Comment	Type	TAI Response
6	DQO Step 5, Page 6 (first bullet, sub-bullet 4 and footnote 17). Describe how Tier 1 screening for undeveloped areas would be performed and how that screening differs from the specific screening criteria listed under Tier II.	Clarification	Removed sub-bullet from Tier I. See Table 1 for details on identification of undeveloped areas.
7	DQO step 5, Page 7. Include date of collection and analytical suite in Tier III in key sampling information.	Additional detail	Date of collection and analytical suite (for metals and metalloids only) have been added to Tier III.
8	DQO Step 5, Page 7. Describe what specific geospatial platform, methodology and criteria will be applied to the data, and what decision criteria will determine data pooling or segregation. Additionally, describe statistical tests to be used to identify and exclude outliers.	Analytical approach	The geospatial platform used is ArcGIS 10.5 with the Spatial Analyst extension. The "Flow Length" function in the Hydrology module of the Spatial Analyst extension in ArcGIS 10.5 was used to calculate the distance to upstream features. Additional details are in DQO Table 1 (new) (see General Comment 5). Analysis of variance will be used to identify significant differences between the various geospatial designations. Outlier tests will include Dixon and Rosner tests, depending on the number of samples, in addition to quantile-quantile plots based on as-measured and log-transformed concentrations.
9	DQO Step 6, Page 9. The draft DQOs propose that only ICP or AA data will be carried forward. This is not an appropriate restriction, as some metals evaluated under other analytic methods also apply. For example, Neutron Activation methods used in Savannah NURE labs are representative and defensible for selected metals of interest--specifically Al, Fe, and Mn.	Study design	For the USGS NURE-HSSR dataset, element concentrations measured by neutron activation by Savannah River National Laboratory will also be considered.
10	DQO Step 6, Page 9, 2nd bullet. Appropriate detection limits based on conservative risk-based screening values should be listed in a table. Also, suggest that these be described as screening values and not risk values.	Additional detail	The suggested revision has been made in the text of the revised DQOs and a new table was added. Table lists the ecological soil screening levels, human health soil risk-based concentrations, and appropriate detection limits.

Comment Number	Comment	Type	TAI Response
11	DQO Step 7, Page 10. The page following page 9 is labeled page 2 but should be page 10.	Editorial	Edit made.
12	Attachment A. There are some sections in the attachment with poorly explained sources (e.g., documents listed under the "Report Not Seen" and "Report Seen" headings). It is not apparent how data from these sources are to be used and evaluated.	Clarification	List has been revised for clarity. Also, studies that are sediment only have been removed from this list.

Attachment A-3

EPA Approval of the Draft Final Background Assessment DQOs (USEPA 2018)

McCaig Kris SPOK

From: Cerise, Kathy <Cerise.Kathryn@epa.gov>
Sent: Tuesday, October 23, 2018 10:44 AM
To: McCaig Kris SPOK
Cc: Gauthier, Marilyn/PDX
Subject: FW: UCR-Background Assessment DQO's - final comments

Kris,

We have no further comment of the Draft Final Background Assessment DQOs.

Thank you

Kathryn Cerise
UCR RPM

Attachment B

Assessment of Methods of Sample Preparation and Analysis

Attachment B
Assessment of Methods of Sample Preparation and Analysis

The methods of sample preparation and analysis were researched for each of the studies in the Tier IIIA dataset. These generally fit into four categories: total metals, partial digestion (also known as total-recoverable), loss on ignition (LOI) plus digestion, and mercury (see discussion in Section 2.3.6.1). Boxplots were made for each metal and metalloid by sample preparation method. In addition, each study is offset within each method group and the size fractions are represented by different symbols. The boxplots are included below. For many of the metals and metalloids, concentrations vary by sample preparation method and by study.

Statistical comparisons between the sample preparation methods (irradiated neutron activation analysis, total digestion, LOI+digestion, and partial digestion) also identified differences in concentrations, although there are other differences between the studies that confound interpretation of differences as only due to sample preparation. Table B-1 summarizes output from non-parametric Kruskal-Wallis and parametric analysis of variance (ANOVA) comparisons between preparation categories. The parametric ANOVA used log-transformed concentrations to better meet the underlying assumptions and Tukey's honest significant difference (HSD) to identify which categories differed at an overall 0.01 significance level after accounting for multiple comparisons.[1]

The boxplots and statistical comparisons indicate significant differences in concentrations between the preparation methods. Additionally, the studies shown on the boxplots and included in the statistical comparisons also reflect differences in sieving and physical location (multiple Washington State Water Resource Inventory Areas [WRIAs]). Although these differences exist, all sample preparation methods remained in the dataset to expand the geographical range and size of the dataset.

Reference

TAI (Teck American Incorporated). 2015. Upper Columbia River final soil study data summary report. Prepared by Windward Environmental LLC, Seattle, WA, in association and consultation with Exponent, Bellevue, WA, Parametrix, Inc., Bellevue, WA, and ENVIRON, Seattle, WA. Teck American Incorporated, Spokane, Washington. October.

[1] Theoretically, using 0.01 as the significance level could identify fewer significant differences than the standard 0.05 level, but for these comparisons most elements (all except antimony and cobalt) were significant at the 0.01 level.

Table B-1. Summary of significant differences between methods of sample preparation

	Method of Sample Preparation		Tukey HSD Similar Methods				Median Concentration Rankings[a]			
Metal	Kruskal-Wallis	ANOVA	INAA	Total Digestion	LOI+ Digestion	Partial Digestion	INAA	Total Digestion	LOI+ Digestion	Partial Digestion
Aluminum	<1.0E-15	<1.0E-15	b	b	a	a	2nd High	Highest	2nd Low	Lowest
Antimony	0.10	0.14	no significant differences					Highest		Lowest
Arsenic	<1.0E-15	<1.0E-15		a		b		Lowest		Highest
Barium	3.5E-03	0.00360		b		a		Highest		Lowest
Beryllium	<1.0E-15	<1.0E-15		b		a		Highest		Lowest
Cadmium	1.9E-12	1.1E-12		b	a	a		Highest	Middle	Lowest
Chromium	<1.0E-15	<1.0E-15		b	a	a		Highest	Lowest	Middle
Cobalt	0.53	0.53	no significant differences					Highest		Lowest
Copper	0.000052	0.00025		ab	a	b		Middle	Lowest	Highest
Iron	<1.0E-15	<1.0E-15	b	b	a	a	Highest	2nd High	Lowest	2nd Low
Lead	<1.0E-15	<1.0E-15		a	b	b		Lowest	Highest	Middle
Manganese	0.000017	8.5E-07	a	a	b	a	2nd Low	Lowest	Highest	2nd High
Molybdenum	<1.0E-15	<1.0E-15		b		a		Highest		Lowest
Nickel	0.00022	0.003		b	ab	a		Middle	Lowest	Highest
Selenium	<1.0E-15	<1.0E-15		b		a		Highest		Lowest
Silver	1.1E-10	<1.0E-15		b		a		Highest		Lowest
Thallium	0.00041	0.00003		b		a		Highest		Lowest
Vanadium	<1.0E-15	<1.0E-15	b	b		a	Middle	Highest		Lowest
Zinc	<1.0E-15	<1.0E-15		a	b	b		Lowest	Highest	Middle

Notes: [a] Rankings based on median of log-transformed concentrations

Mercury was only measured by a one method class, therefore no comparisons were possible.
Multiple comparisons between method classes by Tukey's honest significant difference (HSD) at an overall 0.01 significance level (i.e., 99% confidence level
The letters have no inherent meaning and are simply used to designate method classes that are similar or significantly different. Method classes not significantly different are indicated with the same letter.

ANOVA - analysis of variance
HSD - Tukey's honest significant difference
INAA - irradiated neutron activation analysis
LOI - loss on ignition
Partial Digestion - partial digestion methods
Total Digestion - total digestion methods

Boxplots

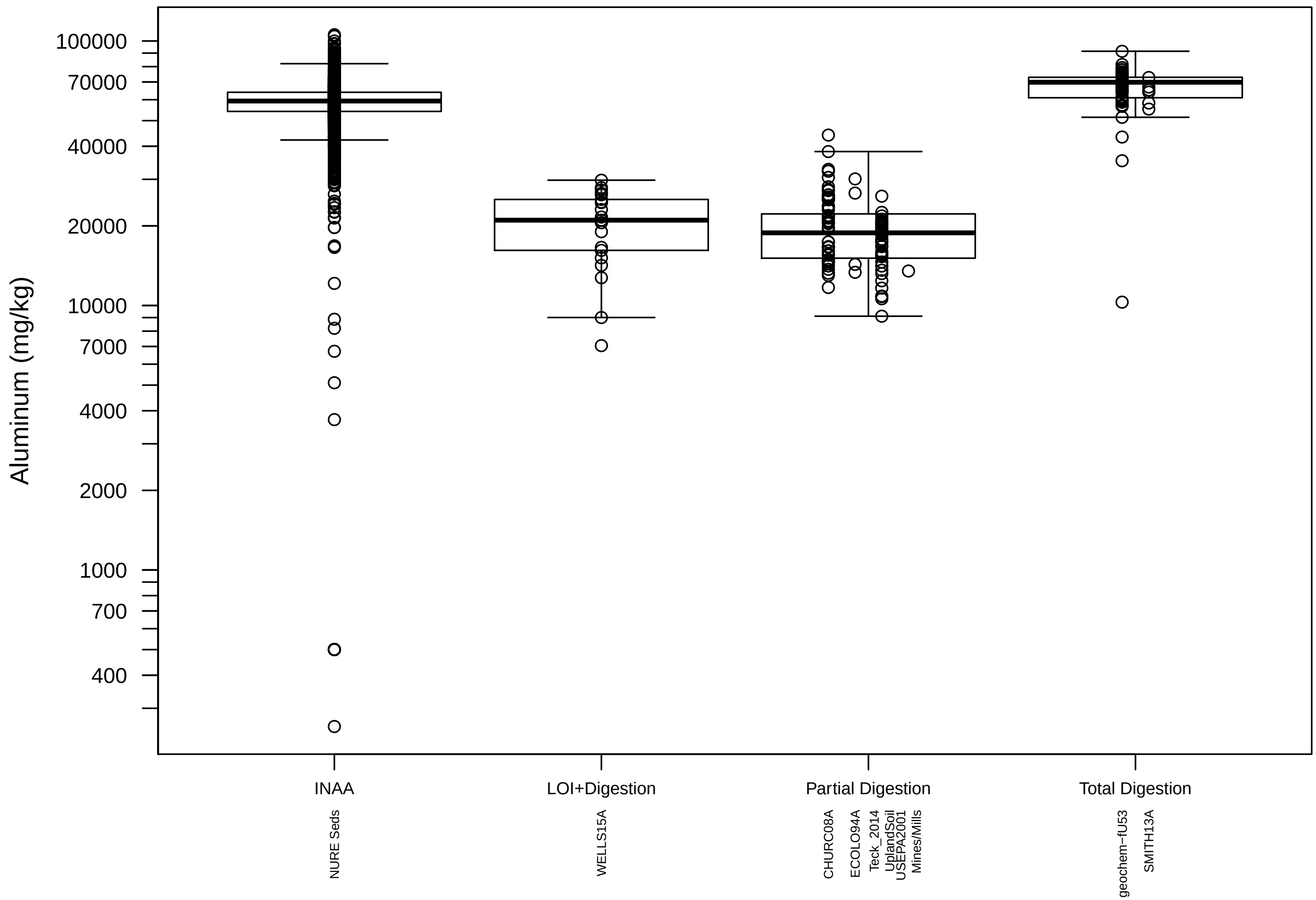

Figure B−1. Boxplots of aluminum concentrations by sample preparation method

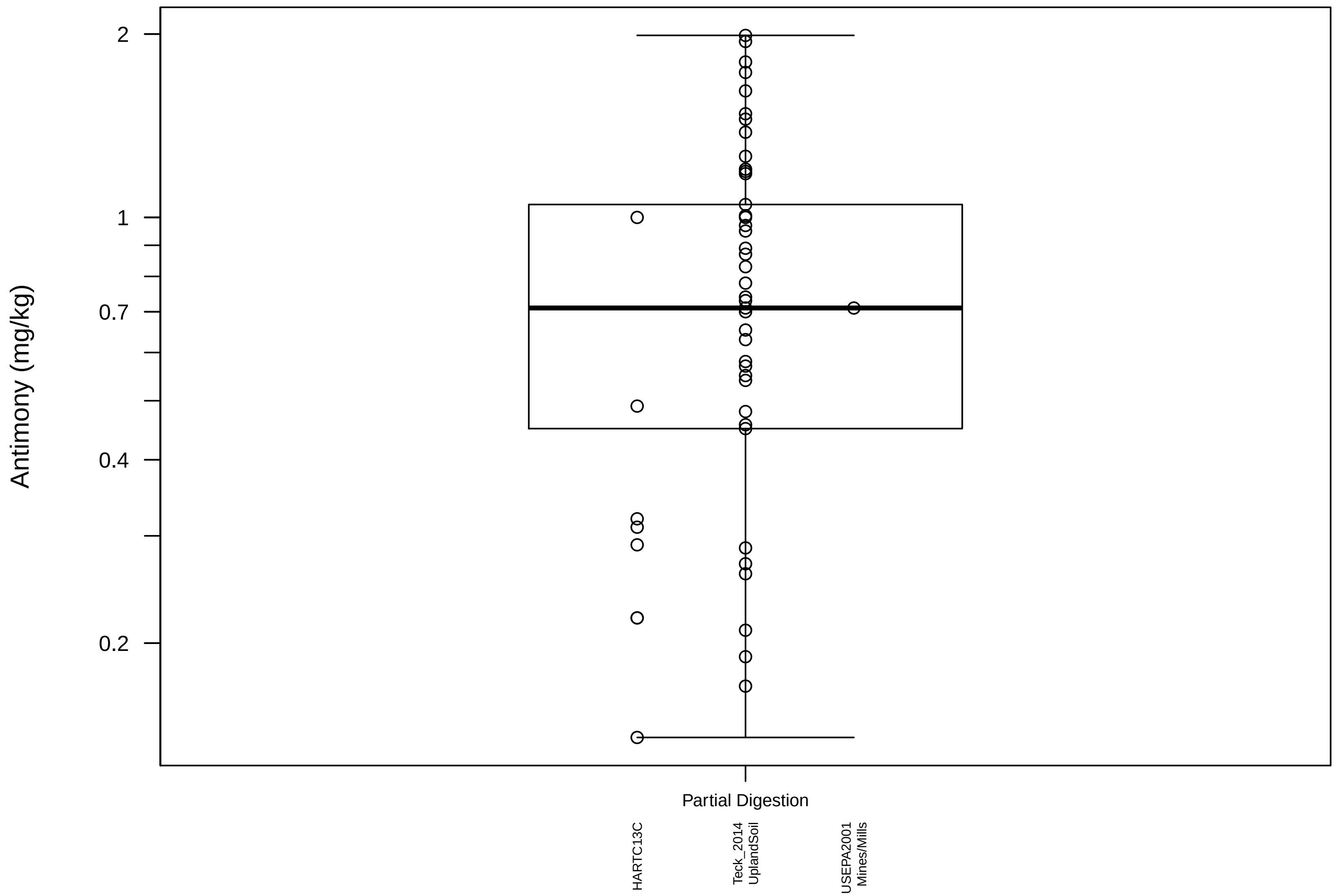

Figure B−2. Boxplots of antimony concentrations by sample preparation method

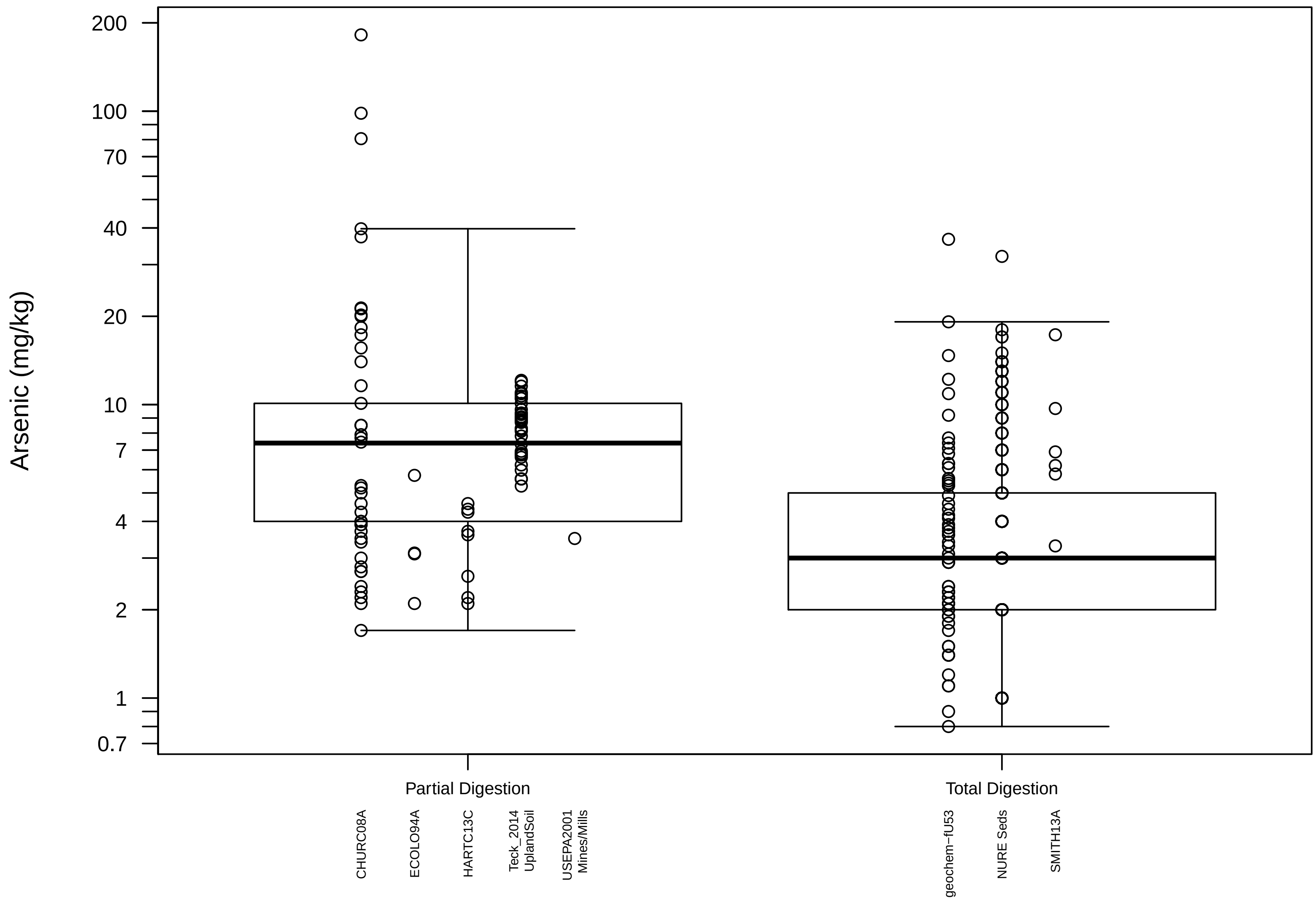

Figure B−3. Boxplots of arsenic concentrations by sample preparation method

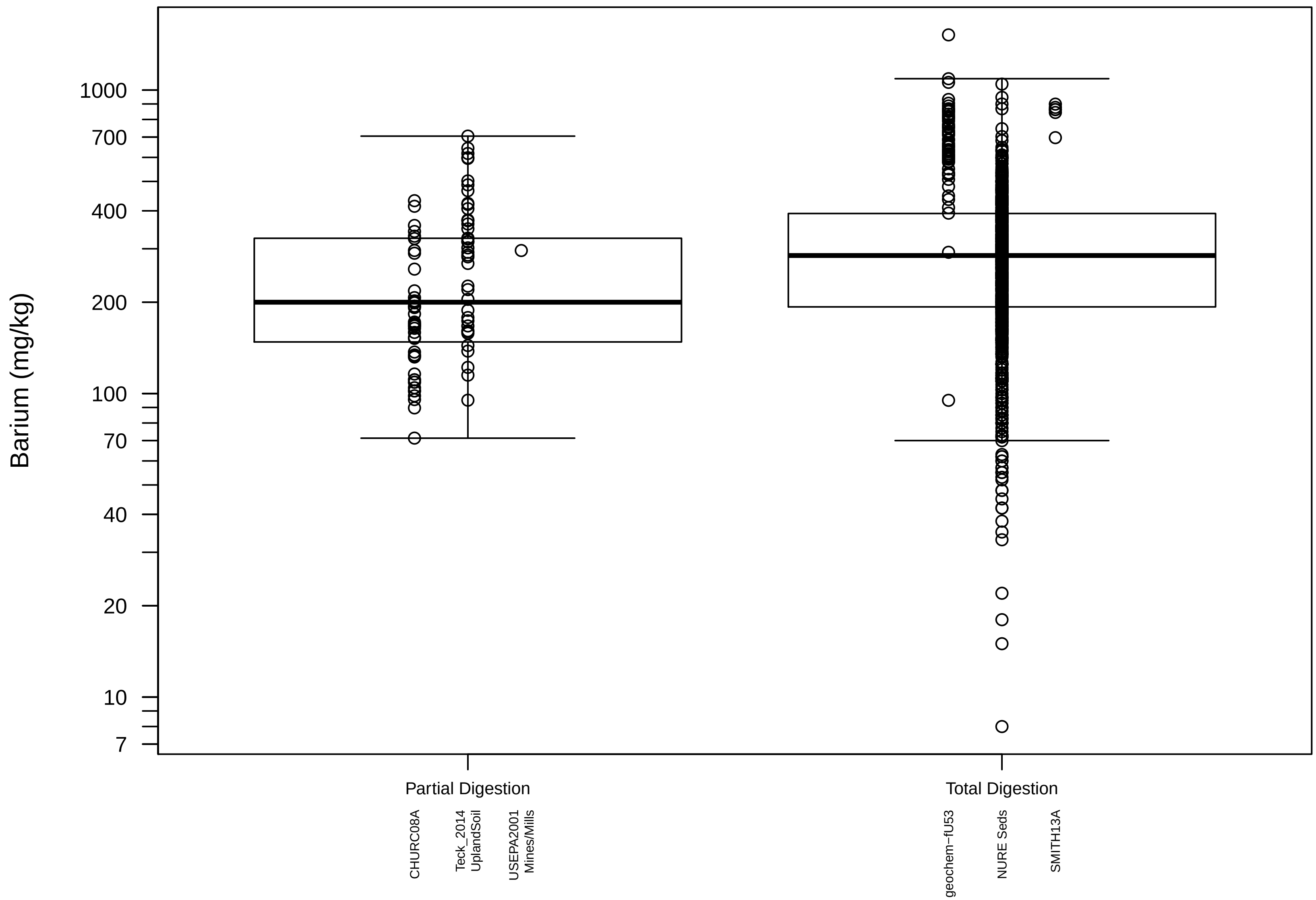

Figure B−4. Boxplots of barium concentrations by sample preparation method

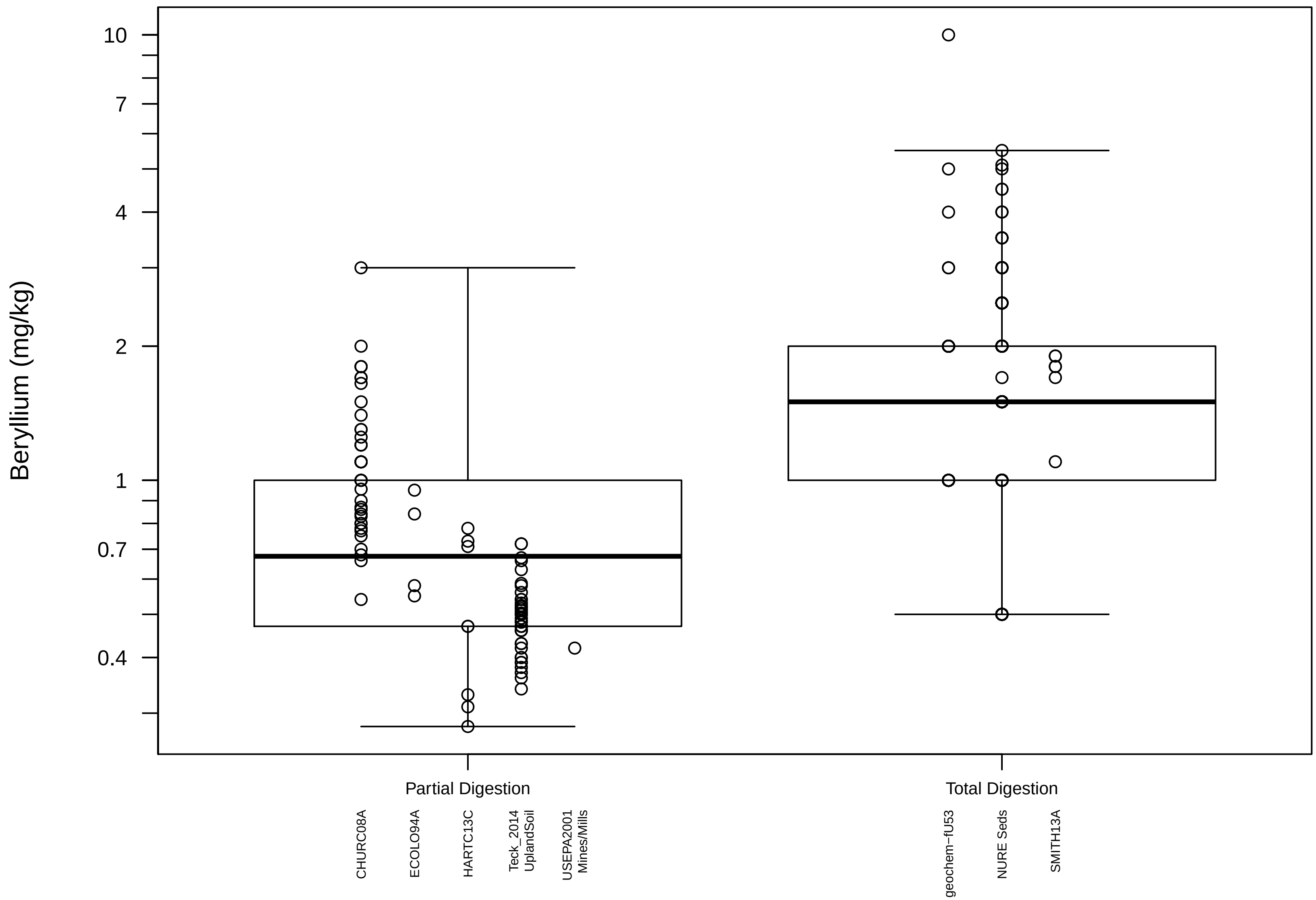

Figure B−5. Boxplots of beryllium concentrations by sample preparation method

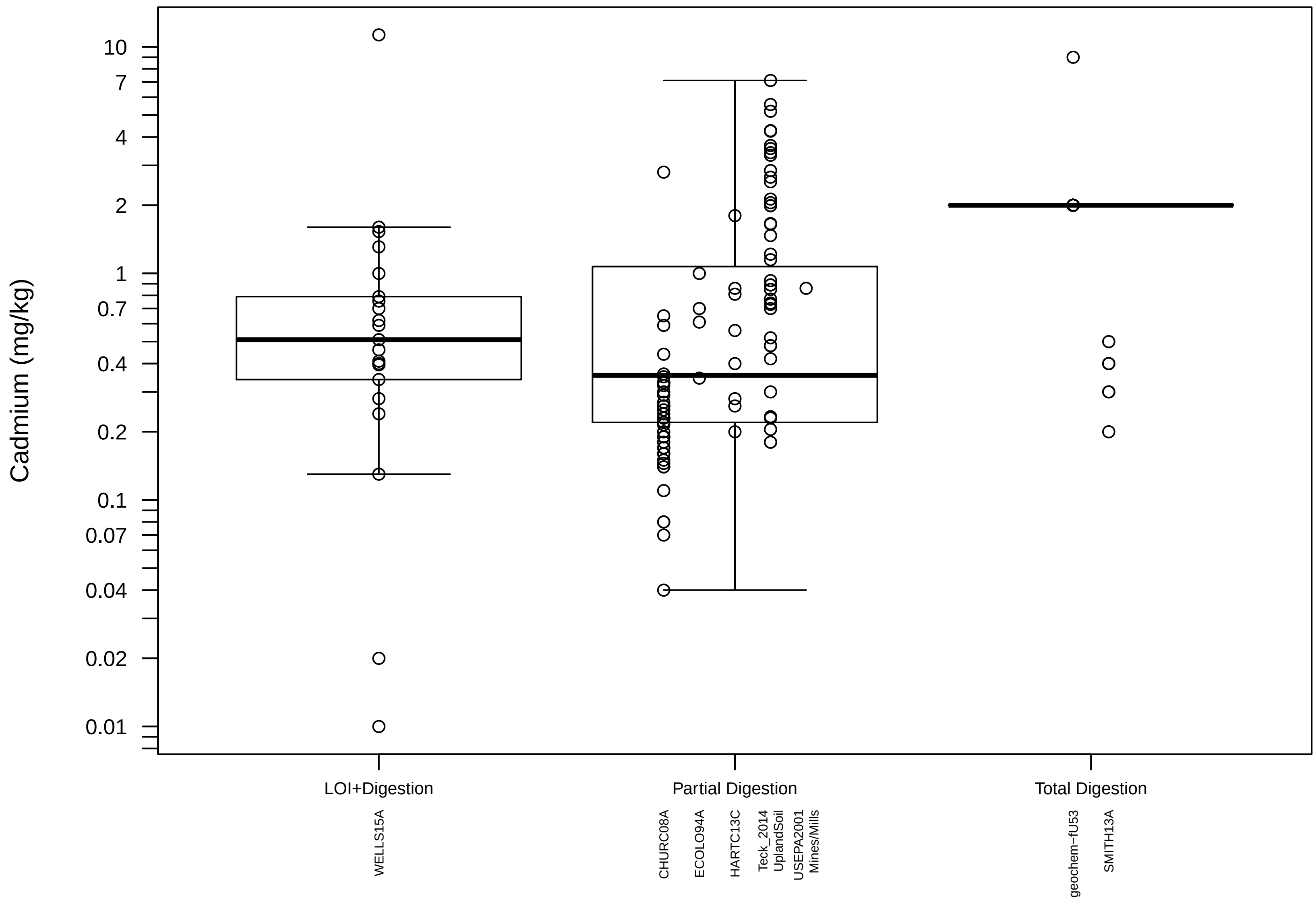

Figure B−6. Boxplots of cadmium concentrations by sample preparation method

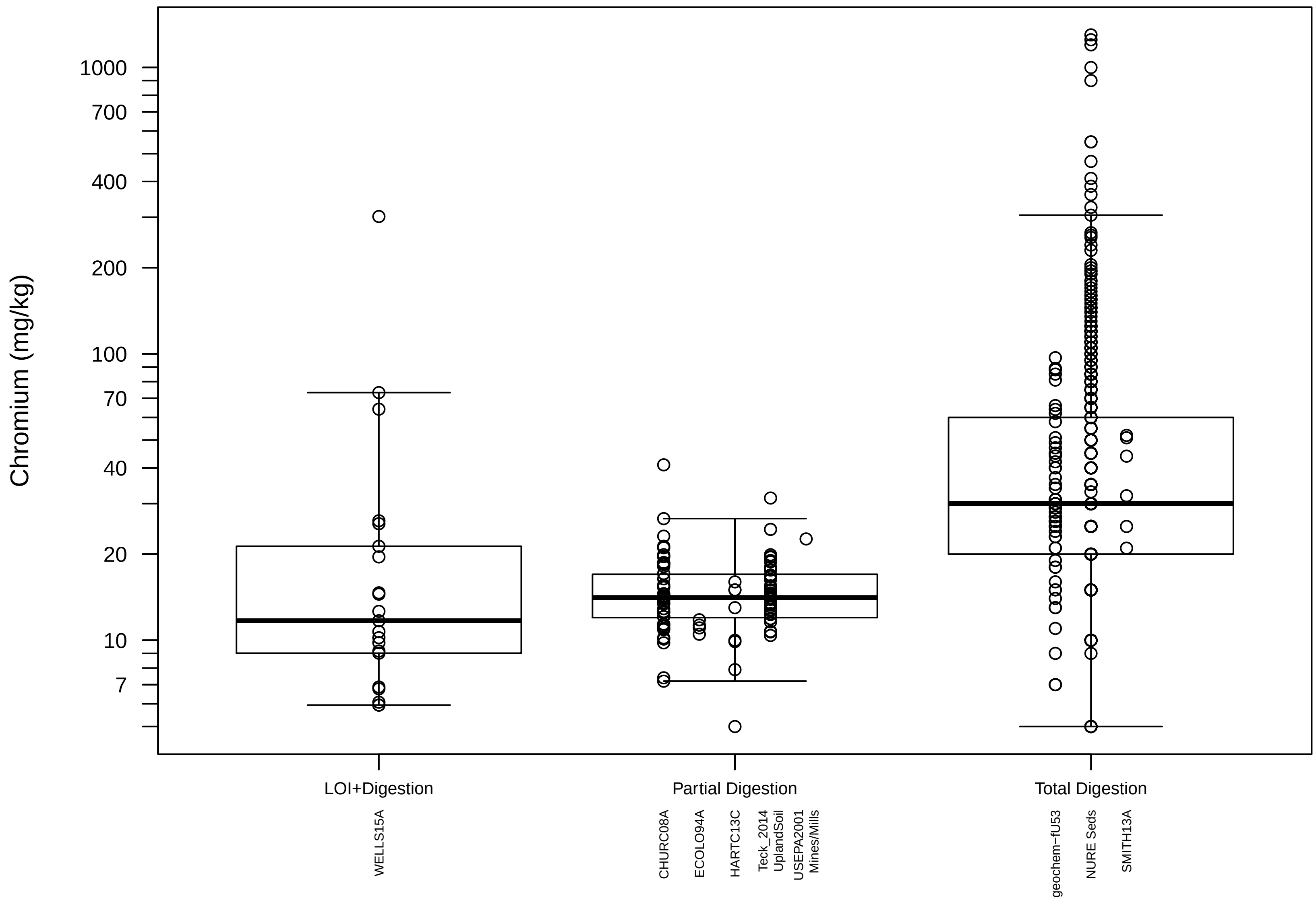

Figure B−7. Boxplots of chromium concentrations by sample preparation method

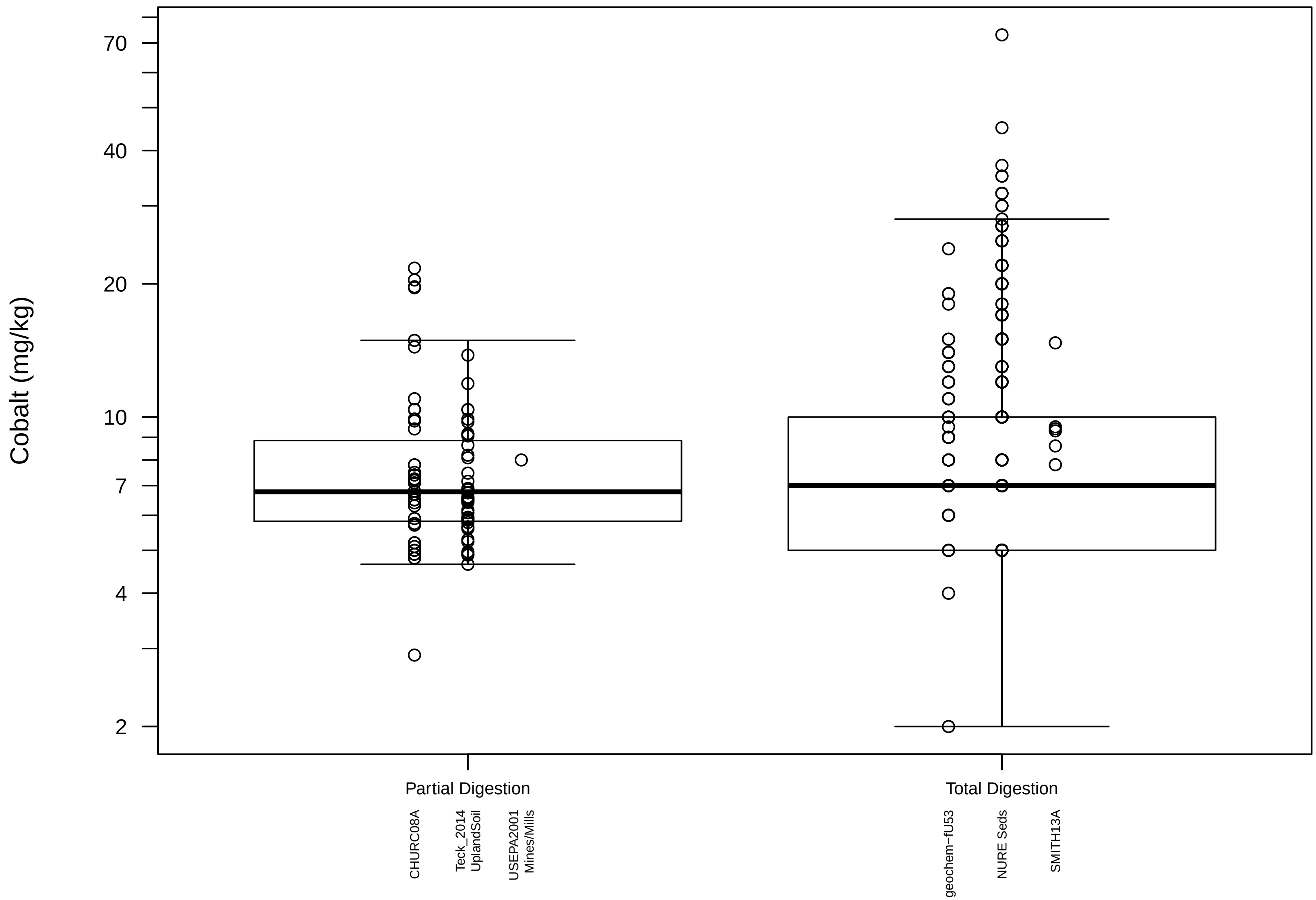

Figure B−8. Boxplots of cobalt concentrations by sample preparation method

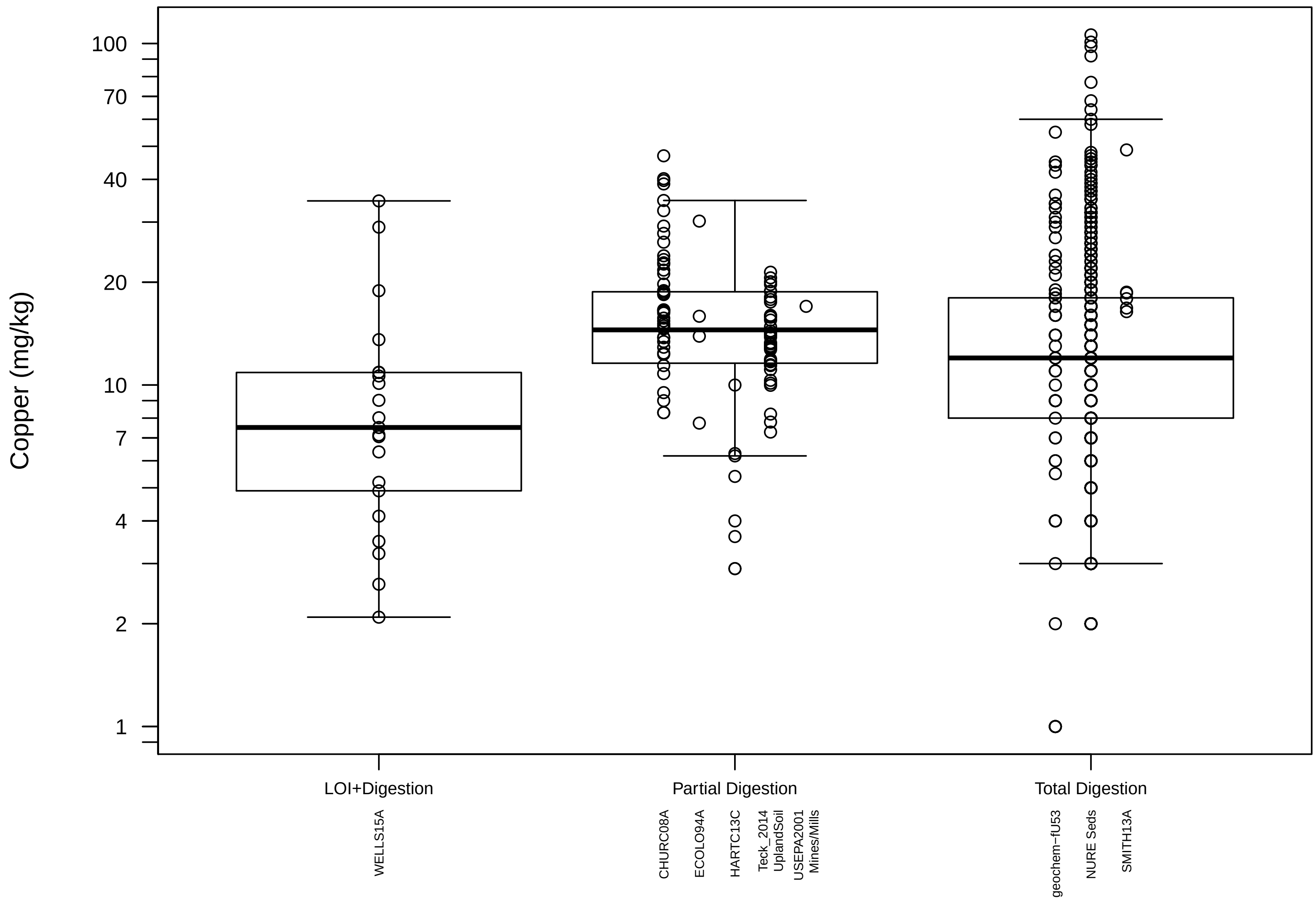

Figure B−9. Boxplots of copper concentrations by sample preparation method

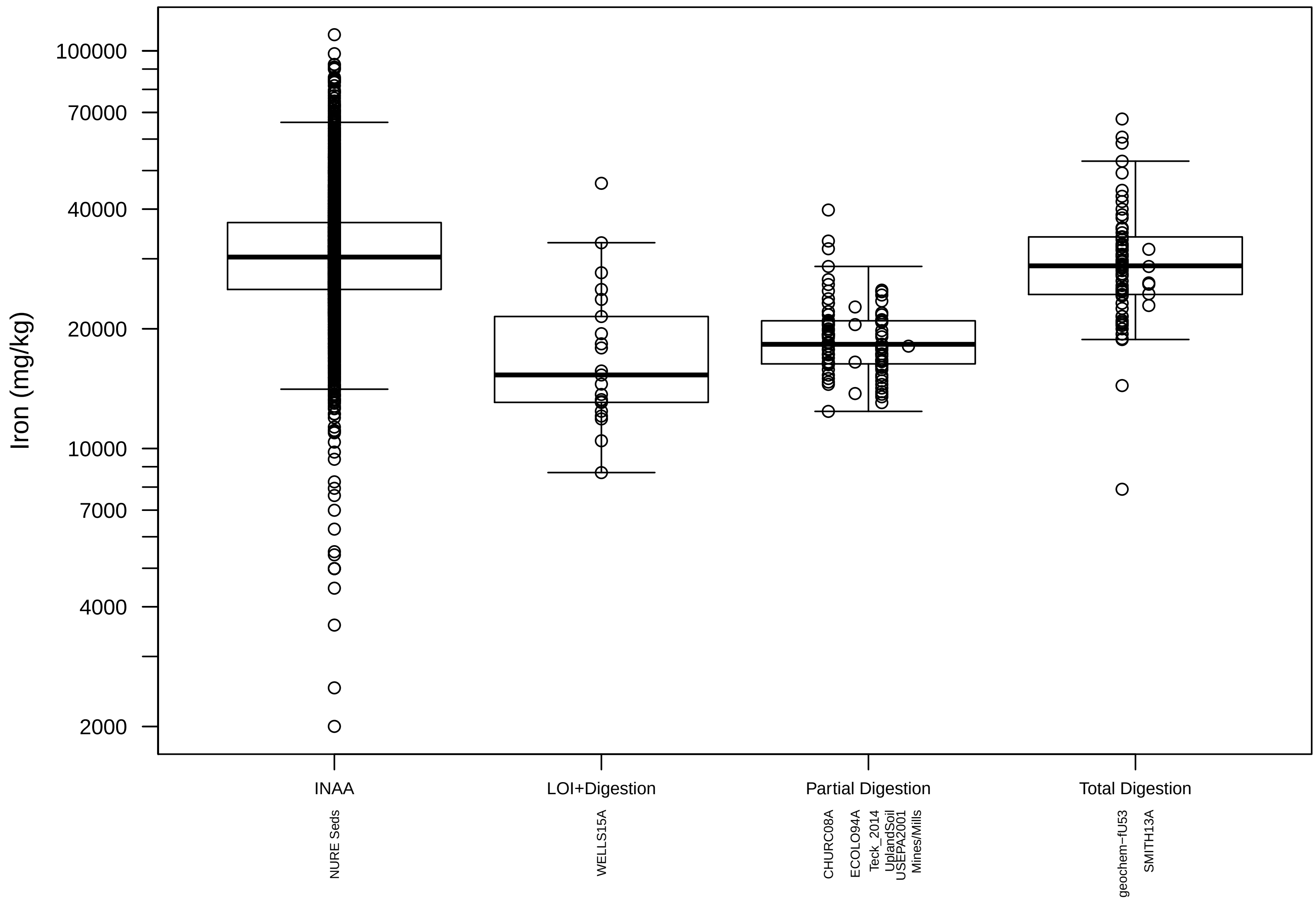

Figure B−10. Boxplots of iron concentrations by sample preparation method

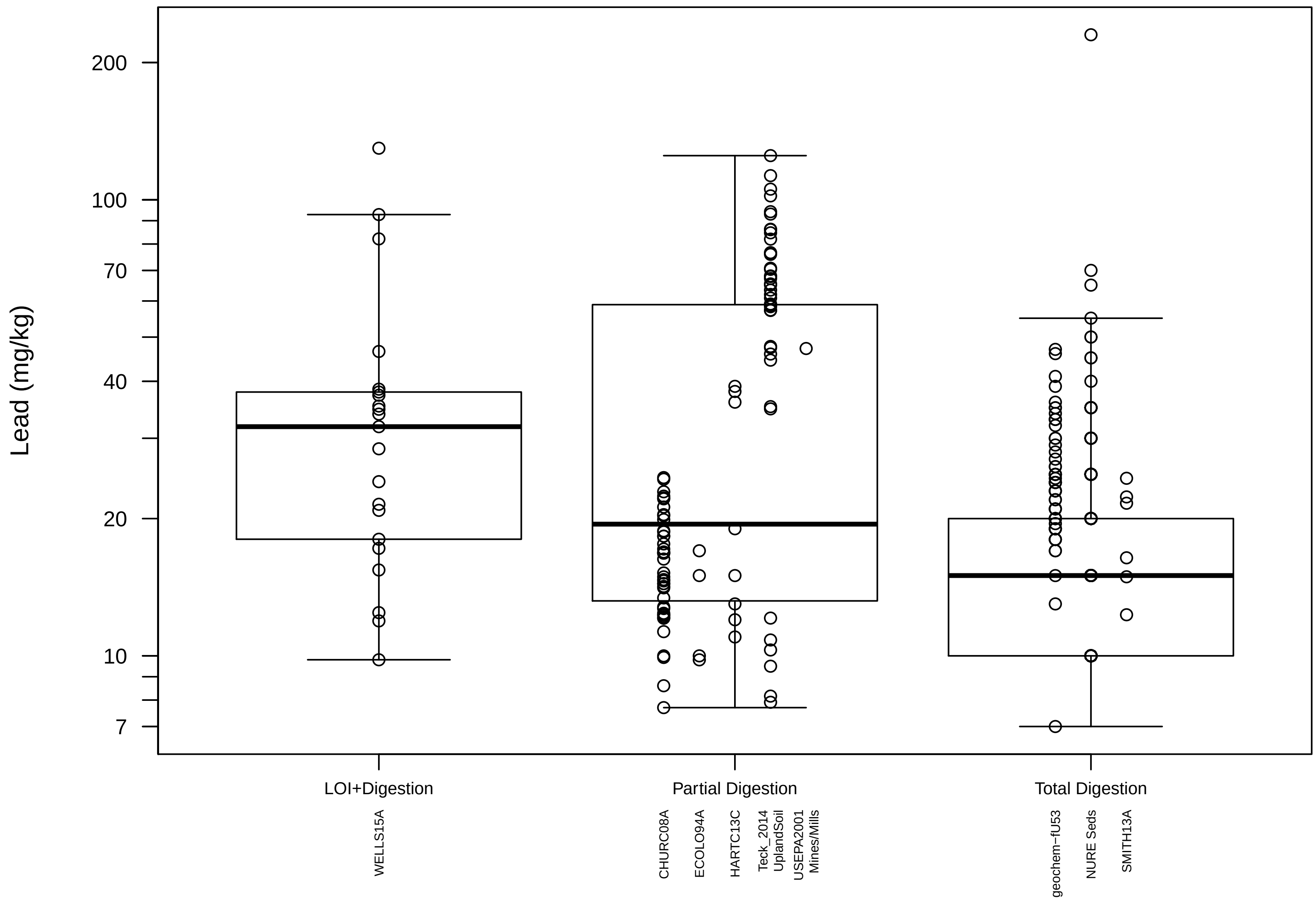

Figure B−11. Boxplots of lead concentrations by sample preparation method

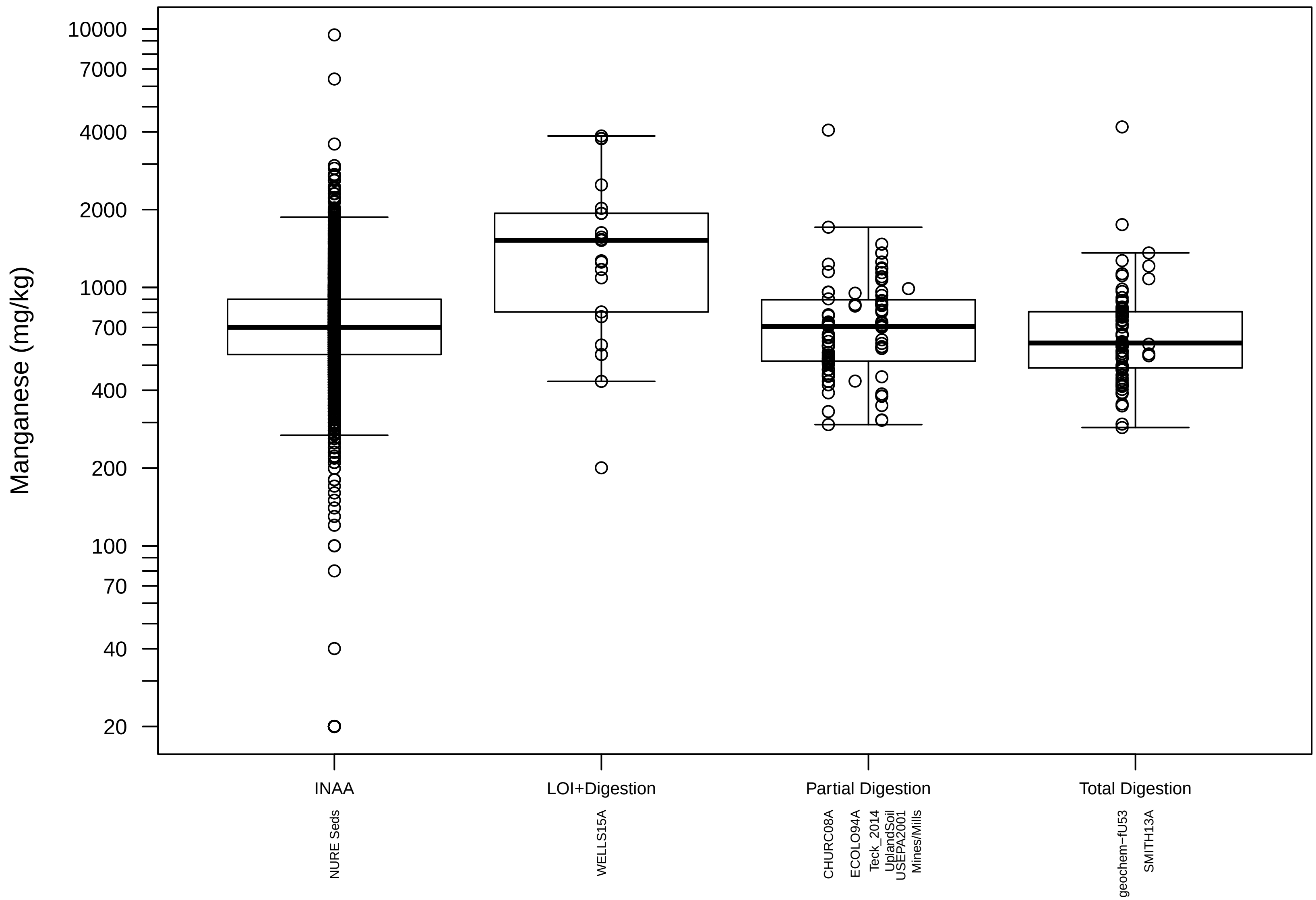

Figure B−12. Boxplots of manganese concentrations by sample preparation method

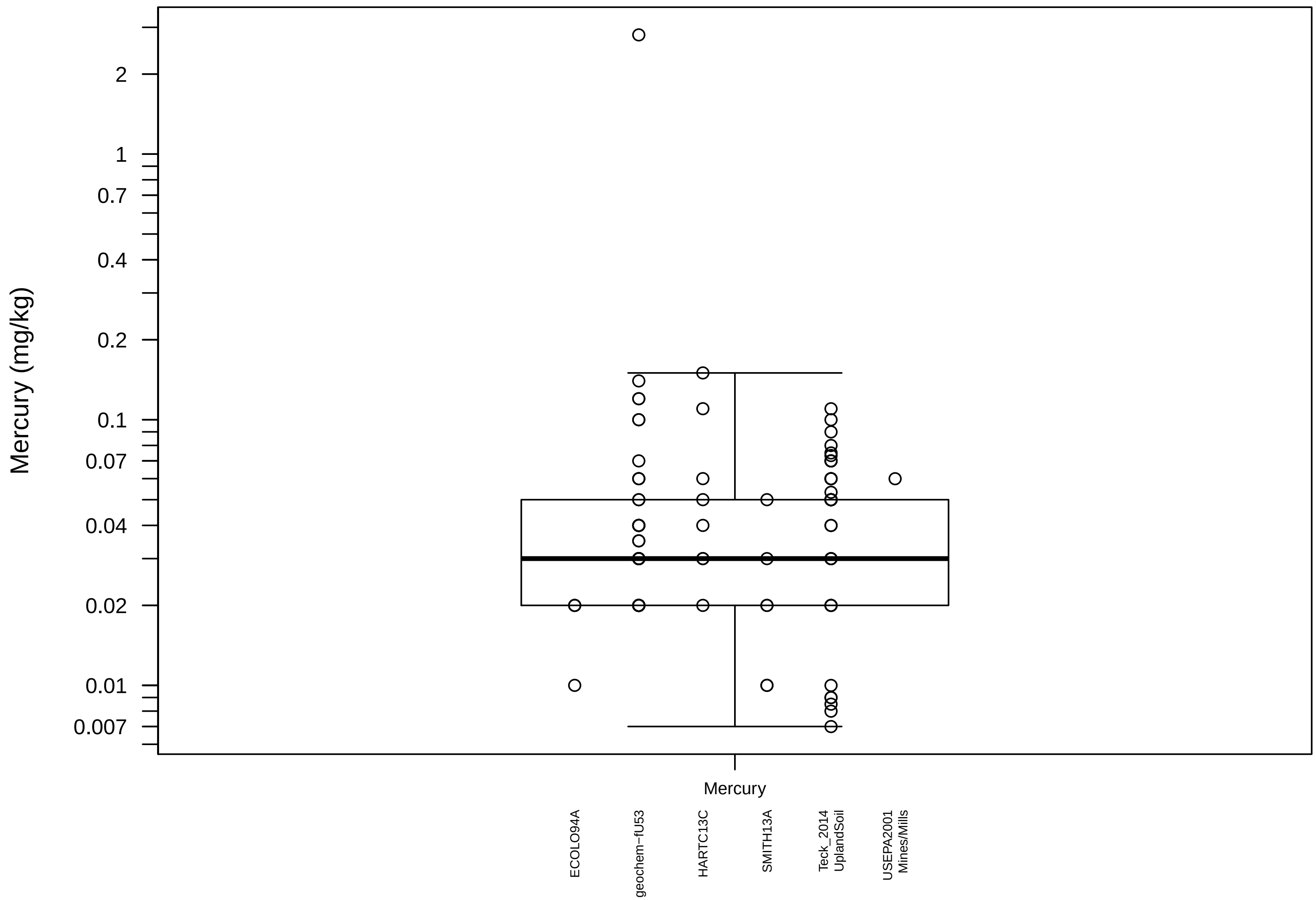

Figure B−13. Boxplots of mercury concentrations by sample preparation method

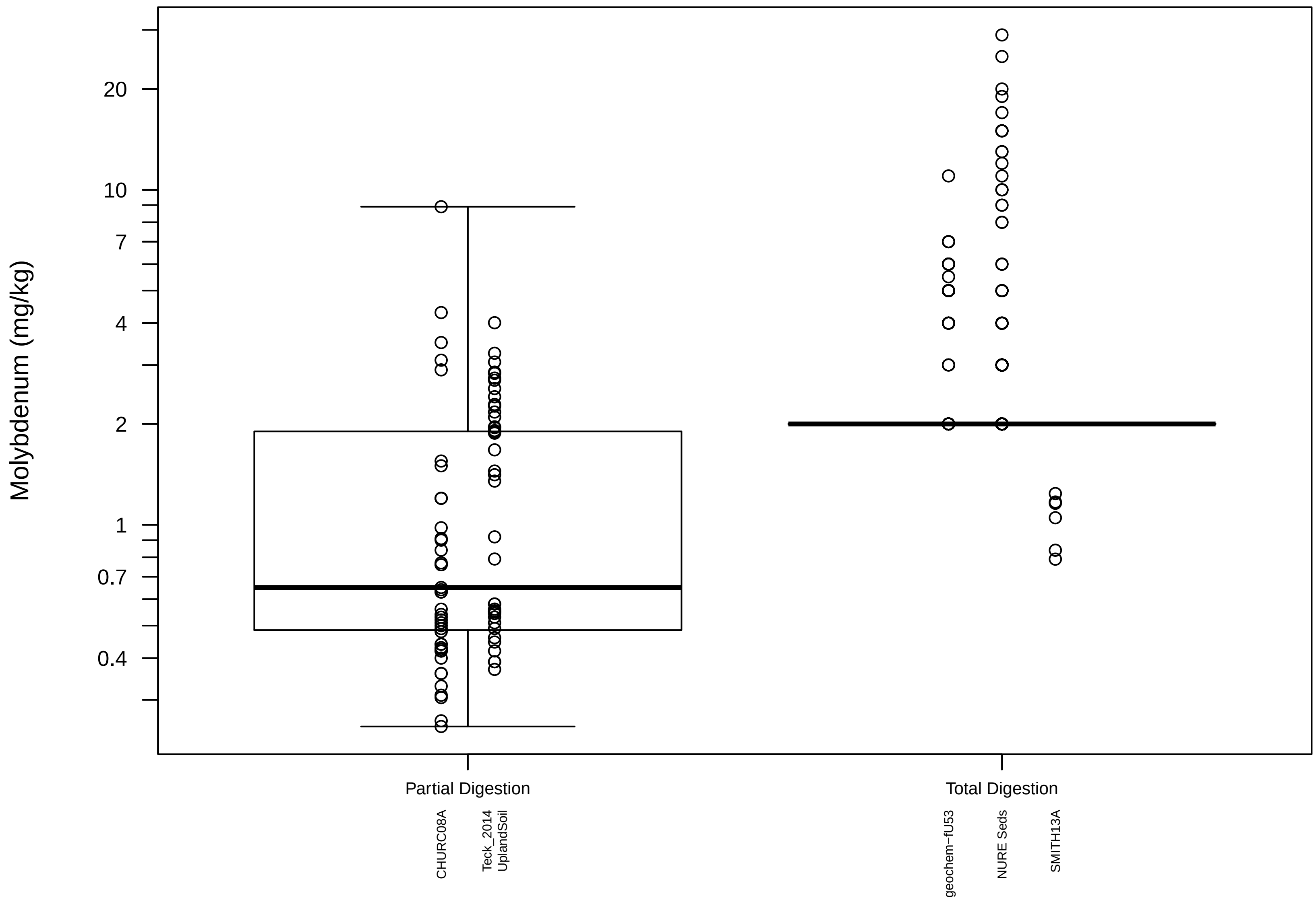

Figure B−14. Boxplots of molybdenum concentrations by sample preparation method

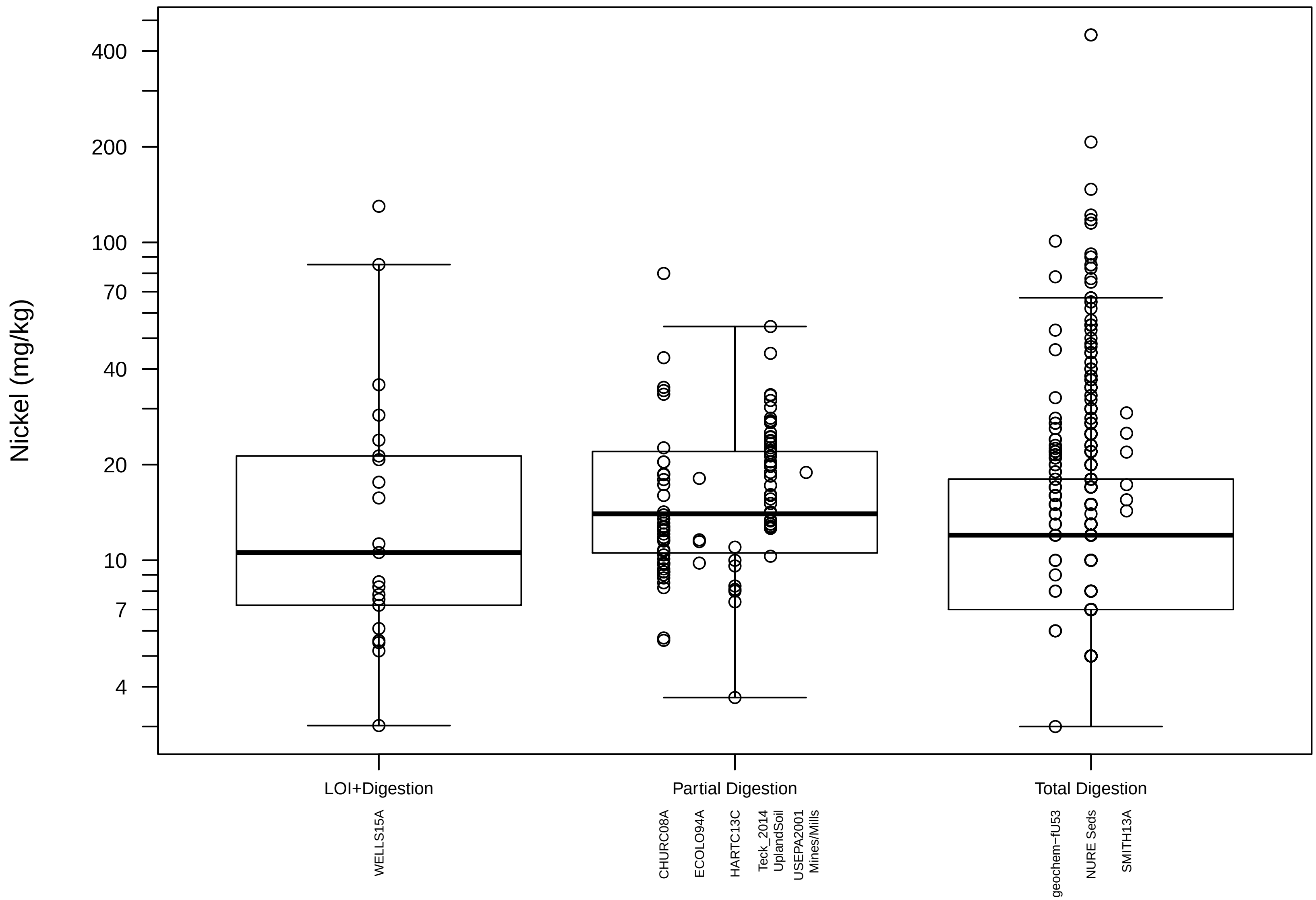

Figure B−15. Boxplots of nickel concentrations by sample preparation method

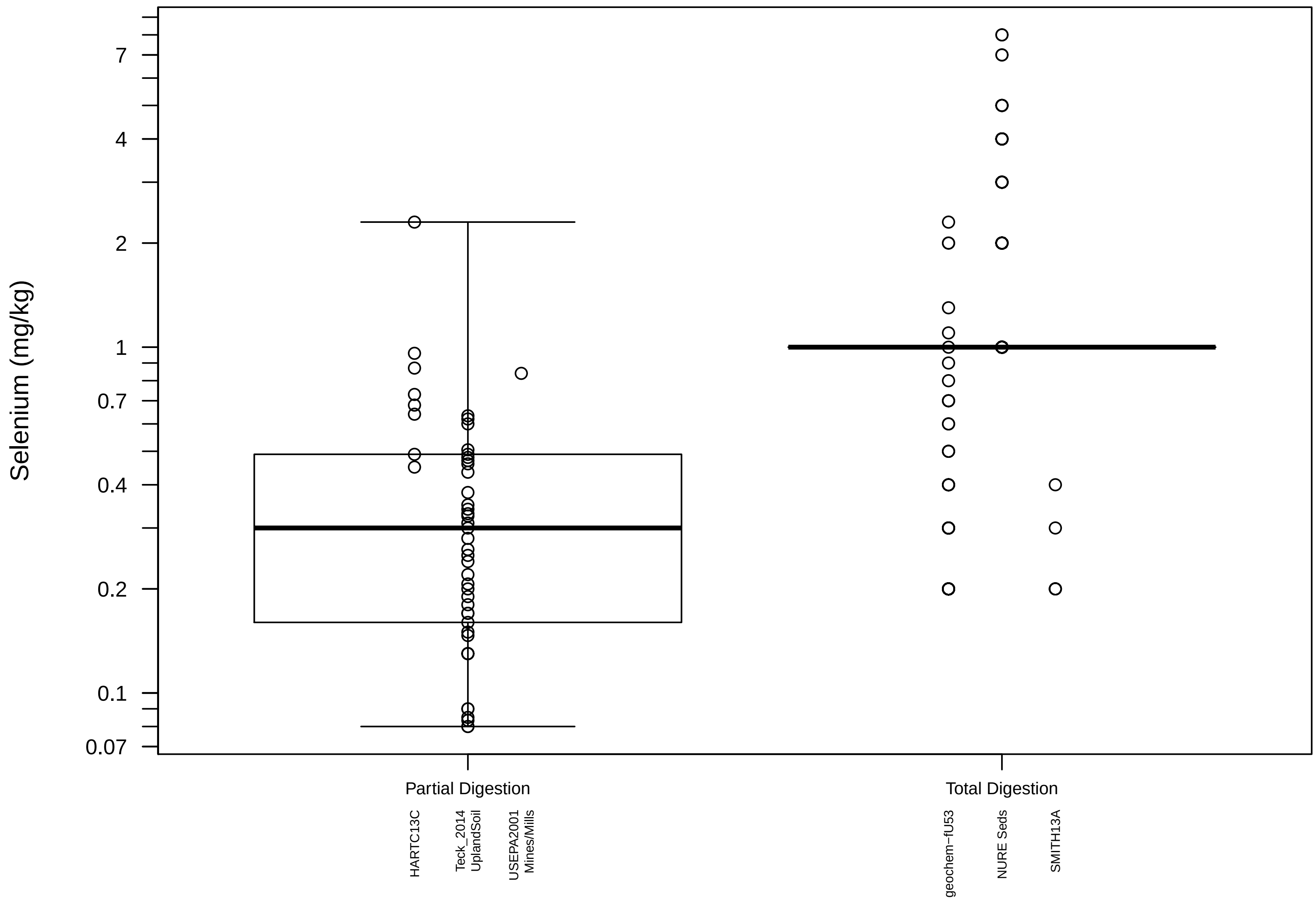

Figure B−16. Boxplots of selenium concentrations by sample preparation method

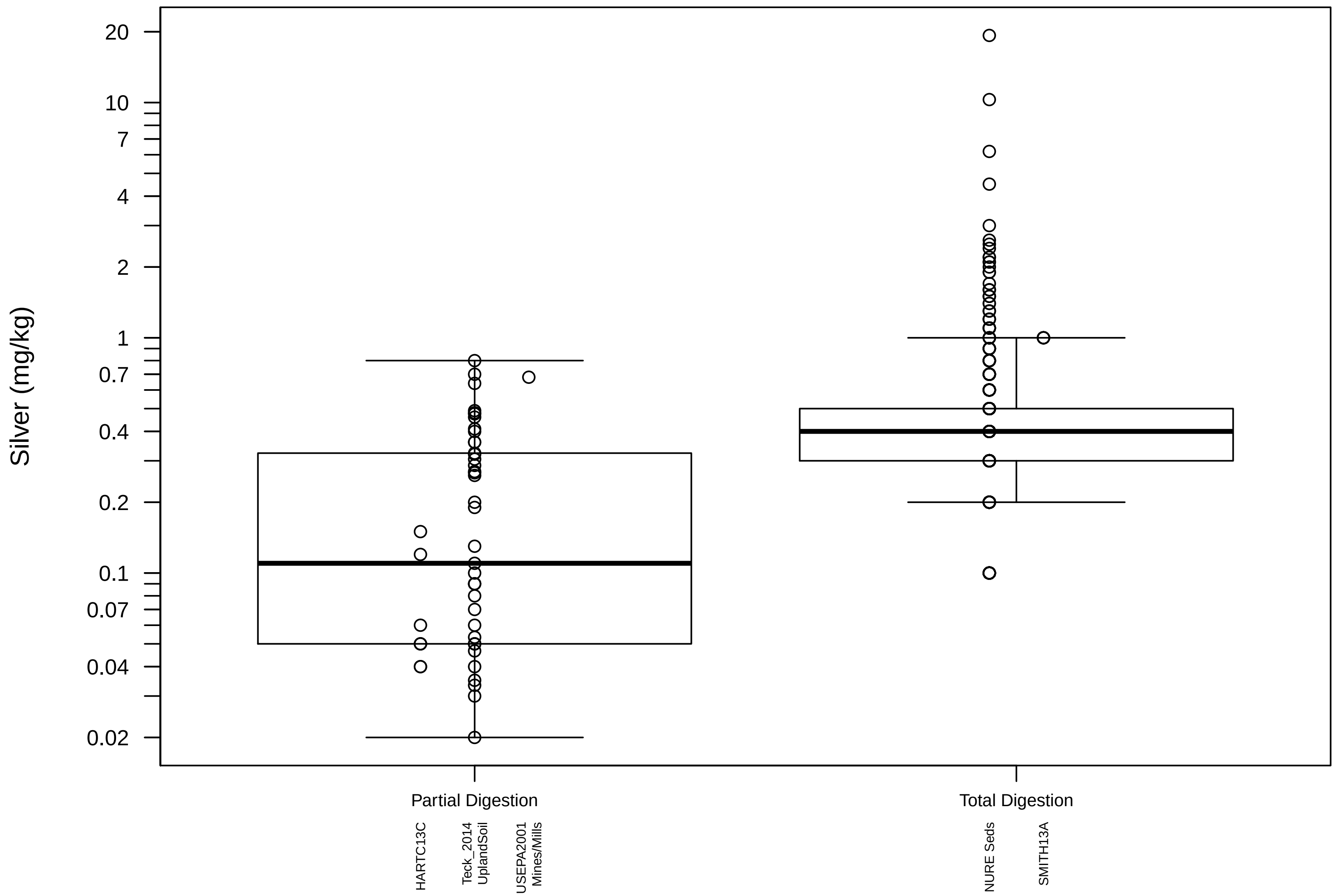

Figure B−17. Boxplots of silver concentrations by sample preparation method

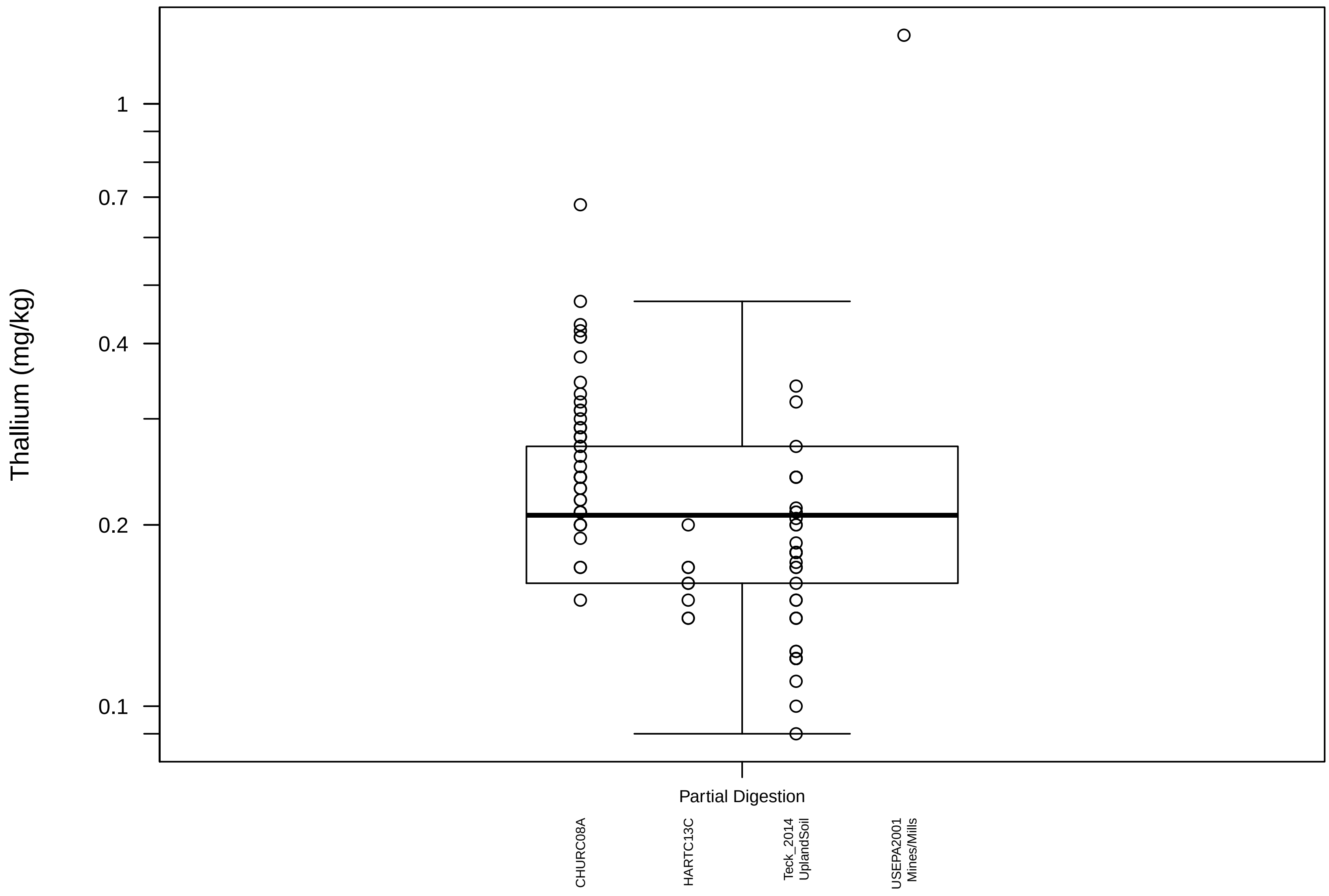

Figure B−18. Boxplots of thallium concentrations by sample preparation method

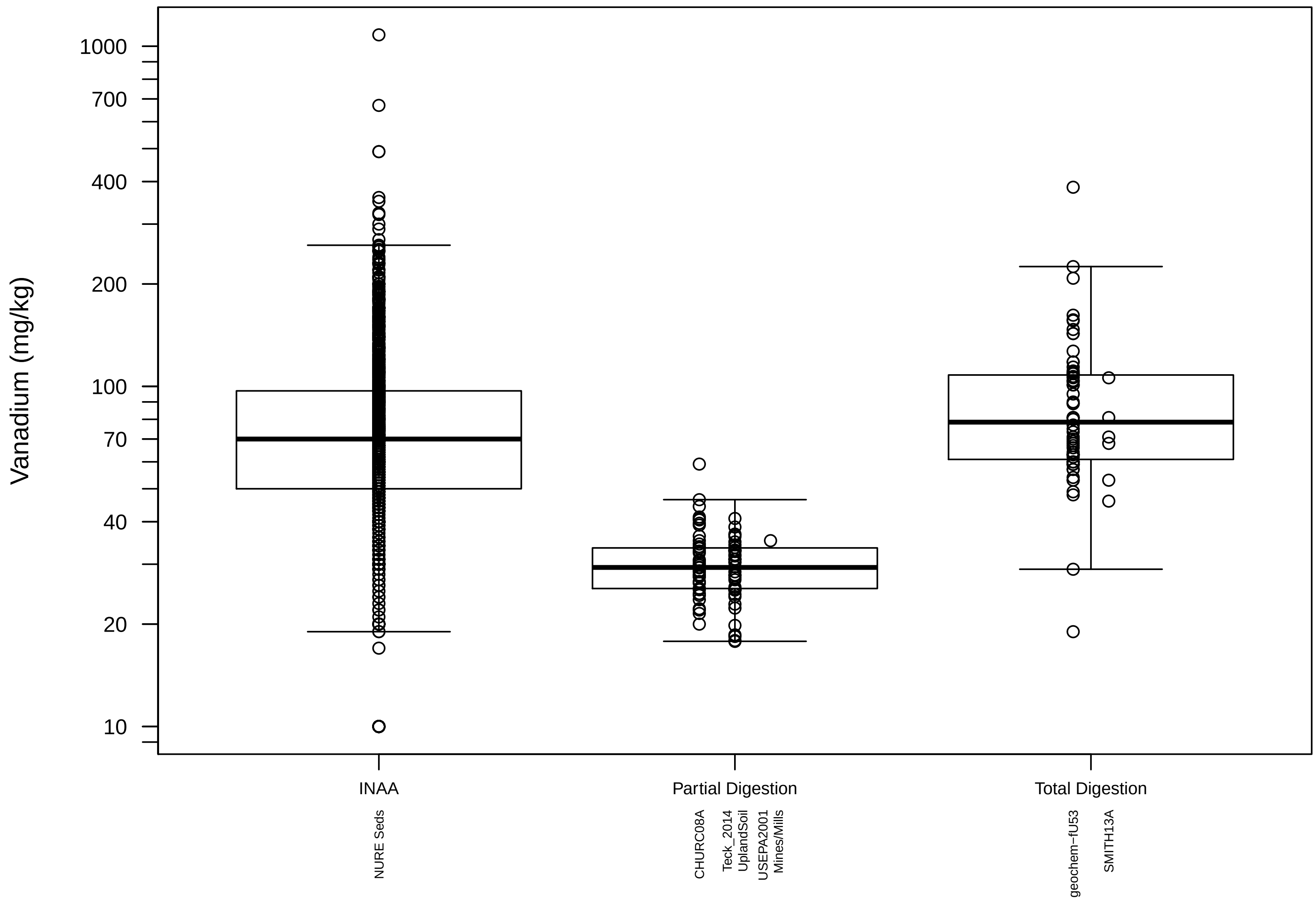

Figure B−19. Boxplots of vanadium concentrations by sample preparation method

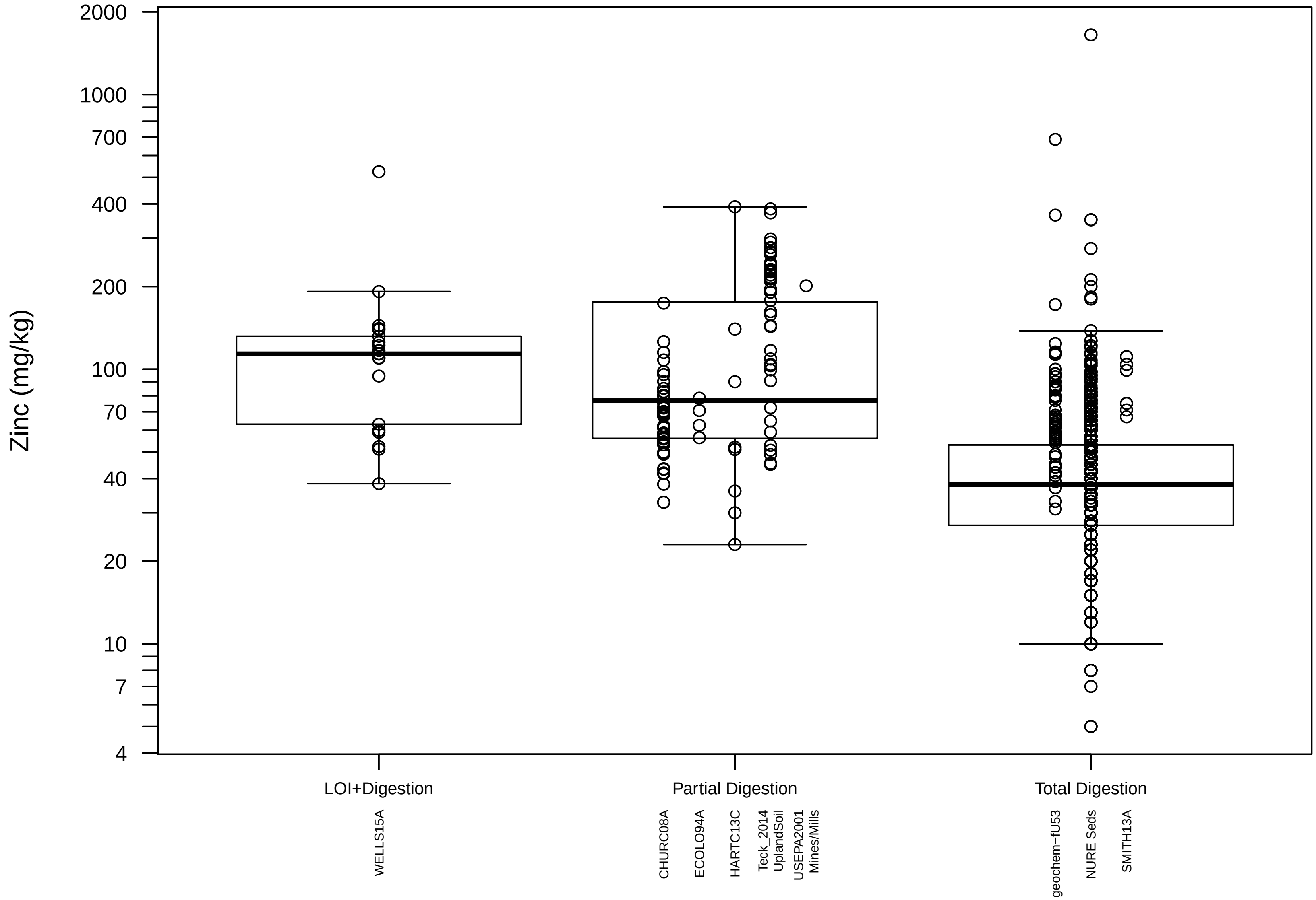

Figure B−20. Boxplots of zinc concentrations by sample preparation method

Attachment C

ProUCL Input Data, Output, and QQ-Plots for Final Background Datasets

Table C-1. Background threshold values for screened background samples analyzed by total metals methods

Metal/	Sample Count		Range (mg/kg)			Arith.	Geo.		Distributional Assessment			High Outliers[b]			BTV
Metalloid	N	ND	Min(ND)	Min(Det)	Max(Det)	Mean[a]	Mean[a]	Median	Normal	Gamma	Lognormal	QQ-Plot	Tests	BTV Method	(mg/kg)
Aluminum	3,148	38	500	256	105,500	58,602	55,050	59,404	No	No	No	0	0	NonParametric	73,800
Antimony	6	0	NA	0.39	2.0	1.1	1.0	1.1	Yes	Yes	Yes	0	0	Normal	3.0 [c]
Arsenic	701	0	NA	0.80	36.6	3.7	2.8	3.0	No	No	No	2	10+	NonParametric	12.0
w/o 2 outliers	699	0	NA	0.80	19.2	3.7	2.7	3.0	No	No	No	NA	NA	NonParametric	12.0
Barium	845	0	NA	8.0	1,520	316	267	285	No	No	No	0	0	NonParametric	722
Beryllium	845	17	0.50	0.50	10.0	1.7	1.5	1.5	No	No	No	1	5	NonParametric	3.0
w/o 1 outlier	844	17	0.50	0.50	5.5	1.7	1.5	1.5	No	No	No	NA	NA	NonParametric	3.0
Cadmium	68	61	2.0	0.20	9.0	2.0	1.7	2.0	No	No	No	1	1	NonParametric	2.0
w/o 1 outlier	67	61	2.0	0.20	0.50	1.9	1.7	2.0	Yes	Yes	Yes	NA	NA	KM Normal	0.54 [c]
Chromium	850	0	NA	5.0	1,300	54.5	35.6	30.0	No	No	No	5	10+	NonParametric	155
w/o 5 outliers	845	0	NA	5.0	550	48.1	34.9	30.0	No	No	No	NA	NA	NonParametric	140
Cobalt	847	205	5.0	2.0	73.0	8.7	7.6	7.0	No	No	No	1	10+	NonParametric	22.0
w/o 1 outlier	846	205	5.0	2.0	45.0	8.7	7.5	7.0	No	No	No	NA	NA	NonParametric	22.0
Copper	804	1	2.0	1.0	106	14.6	11.6	12.0	No	No	No	0	0	NonParametric	37.0
Iron	3,099	5	5,000	2,000	109,700	32,004	30,297	30,300	No	No	No	0	0	NonParametric	52,500
Lead	845	178	10.0	7.0	230	15.4	14.0	15.0	No	No	No	1	10+	NonParametric	30.0
w/o 1 outlier	844	178	10.0	7.0	70.0	15.2	13.9	15.0	No	No	No	NA	NA	NonParametric	30.0
Manganese	3,142	30	20.0	40.0	9,490	759	681	700	No	No	No	2	0	NonParametric	1,380
Molybdenum	850	537	2.0	0.79	29.0	2.6	2.3	2.0	No	No	No	0	0	NonParametric	6.0
Nickel	846	93	3.0	5.0	450	16.7	12.0	12.0	No	No	No	2	10+	NonParametric	46.0
w/o 2 outliers	844	93	3.0	5.0	207	15.6	11.9	12.0	No	No	No	NA	NA	NonParametric	45.0
Selenium	853	589	0.20	0.20	8.0	1.2	1.0	1.0	No	No	No	0	0	NonParametric	3.0
Silver	827	25	0.10	0.10	19.3	0.49	0.36	0.40	No	No	No	4	10+	NonParametric	1.1
w/o 4 outliers	823	25	0.10	0.10	3.0	0.45	0.36	0.40	No	No	No	NA	NA	NonParametric	1.1
Thallium	6	0	NA	0.30	0.70	0.48	0.46	0.50	Yes	Yes	Yes	0	0	Normal	1.1 [c]
Vanadium	3,129	75	10.0	10.0	1,080	79.8	69.6	70.0	No	No	No	4	2	NonParametric	160
w/o 2 outliers	3,127	75	10.0	10.0	490	79.3	69.5	70.0	No	No	No	NA	NA	NonParametric	160
Zinc	847	0	NA	5.0	1,650	47.1	37.7	38.0	No	No	No	2	5	NonParametric	99.0
w/o 2 outliers	845	0	NA	5.0	364	44.4	37.4	38.0	No	No	Yes	NA	NA	Lognormal	101

Notes on following page.

Table C-1. (Continued)

Notes: [a] Concentrations below detection limits are included at the result specific detection limit

[b] High concentration outliers determined from visual inspection of QQ-plots and formal outlier tests (Dixon or Rosner) based on log-transformed concentrations except antimony and thallium (follow a normal distribution, therefore measured concentrations used) with ND results excluded

[c] BTV is higher than the maximum detected concentration.

Arith. Mean	- arithmetic mean
BTV	- background threshold value (rounded to three significant figures or two significant figures if less than 10 mg/kg)
DQOs	- data quality objectives
Geo. Mean	- geometric mean
KM	- Kaplan-Meier
Max(Det)	- maximum of detected concentrations
Min(Det)	- minimum of the detected concentrations
Min(ND)	- minimum of the specified detection limits
N	- number of samples
NA	- not applicable
ND	- number of samples with concentrations below the detection limit
w/o 2 outliers	- values calculated without 2 highest concentration outliers; minimum number of outliers identified by QQ-plots and tests.

Table C-2. Background threshold values for screened background samples analyzed by partial digestion and mercury methods

Metal/ Metalloid	Sample Count		Range (mg/kg)			Arith.	Geo.		Distributional Assessment			High Outliers[c]			BTV
	N[a]	ND	Min(ND)	Min(Det)	Max(Det)	Mean[b]	Mean[b]	Median	Normal	Gamma	Lognormal	QQ-Plot	Tests	BTV Method	(mg/kg)
Partial Digestion															
Aluminum	52	0	NA	9,110	44,100	20,568	19,294	20,100	No	Yes	Yes	0	0	Lognormal	40,500
Antimony	6	0	NA	0.17	0.29	0.23	0.23	0.24	Yes	Yes	Yes	0	0	Normal	0.41
Arsenic	52	0	NA	1.7	182	14.8	7.1	5.4	No	No	No	5	1	NonParametric	98.4
w/o 1 outlier	51	0	NA	1.7	98.4	11.6	6.7	5.3	No	No	No	NA	NA	NonParametric	80.6
w/o 5 outliers[d]	47	0	NA	1.7	21.4	7.1	5.5	5.2	No	Yes	Yes	NA	NA	Lognormal	23.3 [e]
Barium	48	0	NA	89.7	432	183	167	162	No	Yes	Yes	0	0	Lognormal	395
Beryllium	52	0	NA	0.34	3.0	1.0	0.94	1.0	No	Yes	Yes	0	0	Lognormal	2.4
Cadmium	52	0	NA	0.040	1.0	0.27	0.23	0.23	No	Yes	Yes	0	0	Lognormal	0.74
Chromium	52	0	NA	7.2	41.0	15.1	14.4	14.2	No	Yes	Yes	1	1	Lognormal	27.1
w/o 1 outlier	51	0	NA	7.2	26.6	14.6	14.1	14.1	Yes	Yes	Yes	NA	NA	Gamma, WH	23.8
Cobalt	48	0	NA	2.9	21.7	7.9	7.2	6.8	No	No	No	5	0	Non-Parametric	20.4
Copper	52	0	NA	7.74	46.9	18.9	17.2	16.0	No	No	Yes	0	0	Lognormal	41.5
Iron	52	0	NA	12,400	39,800	19,853	19,293	19,200	No	No	Yes	3	0	Lognormal	31,200
Lead	52	0	NA	7.7	24.6	15.1	14.4	14.7	Yes	Yes	Yes	0	0	Lognormal	27.2 [e]
Manganese	52	0	NA	295	1,710	621	578	554	No	Yes	Yes	1	0	Lognormal	1,240
Molybdenum	48	0	NA	0.25	8.9	0.95	0.66	0.54	No	No	No	4	4	Non-Parametric	3.5
w/o 4 outliers	44	0	NA	0.25	1.6	0.62	0.56	0.52	No	No	Yes	NA	NA	Lognormal	1.4
Nickel	52	0	NA	5.6	43.4	14.3	13.0	12.5	No	No	No	4	0	Non-Parametric	35.0
Selenium	6	1	0.19	0.080	0.090	0.084	0.096	0.084	Yes	Yes	Yes	1	1	Gamma, WH	0.098 [e]
w/o 1 outlier	5	0	NA	0.080	0.090	0.084	0.084	0.083	Yes	Yes	Yes	NA	NA	Gamma, WH	0.10 [e]
Silver	6	0	NA	0.020	0.050	0.037	0.035	0.038	Yes	Yes	Yes	0	0	Normal	0.078 [e]
Thallium	48	0	NA	0.090	0.68	0.26	0.24	0.24	No	Yes	Yes	2	0	Lognormal	0.56
Vanadium	48	0	NA	18.4	59.1	30.3	29.4	27.9	No	No	Yes	1	0	Lognormal	47.5
Zinc	52	0	NA	32.8	126	64.5	61.9	58.8	No	Yes	Yes	0	0	Lognormal	111
Mercury															
Mercury	104	25	0.020	0.0070	2.8	0.067	0.033	0.030	No	No	No	1	1	NonParametric	0.14
w/o 1 outlier	103	25	0.020	0.0070	0.15	0.040	0.032	0.030	No	No	No	NA	NA	NonParametric	0.12

Notes on following page.

Table C-2. (Continued)

Notes: [a] Includes <2 mm sieved fraction for soil samples from the Teck 2014 Upland Soil study (excludes the <149 µm fraction)

[b] Concentrations below detection limits are included at the result specific detection limit

[c] High concentration outliers determined from visual inspection of QQ-plots and formal outlier tests (Dixon or Rosner) based on log-transformed concentrations except antimony and silver (follow a normal distribution, therefore measured concentrations used) with ND results excluded

[d] Samples identified for exclusion by EPA based on multivariate analysis and location (USEPA 2020c).

[e] BTV is higher than the maximum detected concentration.

Arith. Mean	- arithmetic mean
BTV	- background threshold value (rounded to three significant figures or two significant figures if less than 10 mg/kg)
EPA	- U.S. Environmental Protection Agency
Geo. Mean	- geometric mean
Max(Det)	- maximum of detected concentrations
Min(Det)	- minimum of the detected concentrations
Min(ND)	- minimum of the specified detection limits
N	- number of samples
NA	- not applicable
ND	- number of samples with concentrations below the detection limit
w/o 4 outlier	- values calculated without four highest concentration outliers; minimum number of outliers identified by QQ-plots and tests.
WH	- Wilson-Hilferty

Attachment C-1

ProUCL Output and QQ-Plots for Total Metals Results

meas_value_update (total, aluminum)

General Statistics

Total Number of Observations	3148	Number of Missing Observations	0
Number of Distinct Observations	1145		
Number of Detects	3110	Number of Non-Detects	38
Number of Distinct Detects	1144	Number of Distinct Non-Detects	1
Minimum Detect	256	Minimum Non-Detect	500
Maximum Detect	105500	Maximum Non-Detect	500
Variance Detected	90008842	Percent Non-Detects	1.21%
Mean Detected	59312	SD Detected	9487
Mean of Detected Logged Data	10.97	SD of Detected Logged Data	0.218

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.155

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.0721	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	58599	KM SD	11423
95% UTL95% Coverage	77910	95% KM UPL (t)	77397
90% KM Percentile (z)	73238	95% KM Percentile (z)	77388
99% KM Percentile (z)	85173	95% KM USL	106062

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	58599	SD	11425
95% UTL95% Coverage	77914	95% UPL (t)	77400
90% Percentile (z)	73241	95% Percentile (z)	77392
99% Percentile (z)	85178	95% USL	106071

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	77.92	Anderson-Darling GOF Test	
5% A-D Critical Value	0.752	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.115	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0181	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	29.37	k star (bias corrected MLE)	29.34
Theta hat (MLE)	2019	Theta star (bias corrected MLE)	2021
nu hat (MLE)	182691	nu star (bias corrected)	182516
MLE Mean (bias corrected)	59312		
MLE Sd (bias corrected)	10949	95% Percentile of Chisquare (2kstar)	77.57

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	256	Mean	59059
Maximum	105500	Median	59404
SD	9706	CV	0.164
k hat (MLE)	28.07	k star (bias corrected MLE)	28.04
Theta hat (MLE)	2104	Theta star (bias corrected MLE)	2106
nu hat (MLE)	176738	nu star (bias corrected)	176571
MLE Mean (bias corrected)	59059	MLE Sd (bias corrected)	11152
95% Percentile of Chisquare (2kstar)	74.57	90% Percentile	73725
95% Percentile	78519	99% Percentile	88049

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	78797	79664	95% Approx. Gamma UPL	78202	79031
95% Gamma USL	116243	120632			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	58599	SD (KM)	11423
Variance (KM)	1.31E+08	SE of Mean (KM)	203.6
k hat (KM)	26.32	k star (KM)	26.29
nu hat (KM)	165686	nu star (KM)	165529
theta hat (KM)	2227	theta star (KM)	2229
80% gamma percentile (KM)	67938	90% gamma percentile (KM)	73639
95% gamma percentile (KM)	78577	99% gamma percentile (KM)	88408

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	95195	102223	95% Approx. Gamma UPL	94005	100735
95% KM Gamma Percentile	93985	100710	95% Gamma USL	176930	212411

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.151	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	59041	Mean in Log Scale	10.97
SD in Original Scale	9746	SD in Log Scale	0.222
95% UTL95% Coverage	84419	95% BCA UTL95% Coverage	73700

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	73800	95% UPL (t)	83580
90% Percentile (z)	77085	95% Percentile (z)	83566
99% Percentile (z)	97230	95% USL	145975

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	10.91	95% KM UTL (Lognormal)95% Coverage	158691
KM SD of Logged Data	0.631	95% KM UPL (Lognormal)	154254
95% KM Percentile Lognormal (z)	154181	95% KM USL (Lognormal)	751551

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	58599	Mean in Log Scale	10.91
SD in Original Scale	11425	SD in Log Scale	0.634
95% UTL95% Coverage	159327	95% UPL (t)	154854
90% Percentile (z)	122957	95% Percentile (z)	154780
99% Percentile (z)	238360	95% USL	759289

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	3011	95% UTL with95% Coverage	73800
Approx, f used to compute achieved CC	1.148	Approximate Actual Confidence Coefficient achieved by UT	0.95
Approximate Sample Size needed to achieve specified CC	3147	95% UPL	73300
95% USL	105500	95% KM Chebyshev UPL	108399

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, antimony)

General Statistics

Total Number of Observations	6	Number of Distinct Observations	6
Minimum	0.39	First Quartile	1.015
Second Largest	1.19	Median	1.095
Maximum	1.99	Third Quartile	1.183
Mean	1.128	SD	0.513
Coefficient of Variation	0.455	Skewness	0.522
Mean of logged Data	0.0181	SD of logged Data	0.531

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822

Normal GOF Test

Shapiro Wilk Test Statistic	0.904	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.285	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	3.031	90% Percentile (z)	1.786
95% UPL (t)	2.245	95% Percentile (z)	1.972
95% USL	2.063	99% Percentile (z)	2.322

Gamma GOF Test

A-D Test Statistic	0.485	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.296	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.333	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	5.031	k star (bias corrected MLE)	2.626
Theta hat (MLE)	0.224	Theta star (bias corrected MLE)	0.43
nu hat (MLE)	60.37	nu star (bias corrected)	31.52
MLE Mean (bias corrected)	1.128	MLE Sd (bias corrected)	0.696

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2.668	90% Percentile	2.061
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.771	95% Percentile	2.462
95% WH Approx. Gamma UTL with 95% Coverage	4.461	99% Percentile	3.336
95% HW Approx. Gamma UTL with 95% Coverage	4.879		
95% WH USL	2.337	95% HW USL	2.401

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.864	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.327	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.325	Data Not Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	7.302	90% Percentile (z)	2.012
95% UPL (t)	3.236	95% Percentile (z)	2.44
95% USL	2.681	99% Percentile (z)	3.505

Nonparametric Distribution Free Background Statistics
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	6	95% UTL with 95% Coverage	1.99
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by U1	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.99	95% BCA Bootstrap UTL with 95% Coverage	1.99
95% UPL	1.99	90% Percentile	1.59
90% Chebyshev UPL	2.791	95% Percentile	1.79
95% Chebyshev UPL	3.544	99% Percentile	1.95
95% USL	1.99		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, arsenic)

General Statistics

Total Number of Observations	701	Number of Distinct Observations	65
Minimum	0.8	First Quartile	2
Second Largest	32	Median	3
Maximum	36.6	Third Quartile	5
Mean	3.748	SD	3.506
Coefficient of Variation	0.935	Skewness	3.193
Mean of logged Data	1.013	SD of logged Data	0.764

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.744	d2max (for USL)	3.785

Normal GOF Test

Shapiro Wilk Test Statistic	0.724	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.214	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	9.861	90% Percentile (z)	8.241
95% UPL (t)	9.527	95% Percentile (z)	9.515
95% USL	17.02	99% Percentile (z)	11.9

Gamma GOF Test

A-D Test Statistic	17.88	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.165	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0363	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics

k hat (MLE)	1.769	k star (bias corrected MLE)	1.762
Theta hat (MLE)	2.119	Theta star (bias corrected MLE)	2.127
nu hat (MLE)	2480	nu star (bias corrected)	2471
MLE Mean (bias corrected)	3.748	MLE Sd (bias corrected)	2.824

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	9.097	90% Percentile	7.512
95% Hawkins Wixley (HW) Approx. Gamma UPL	9.173	95% Percentile	9.259
95% WH Approx. Gamma UTL with 95% Coverage	9.589	99% Percentile	13.16
95% HW Approx. Gamma UTL with 95% Coverage	9.706		
95% WH USL	24.78	95% HW USL	27.75

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.92	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.139	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	10.43	90% Percentile (z)	7.327
95% UPL (t)	9.695	95% Percentile (z)	9.671
95% USL	49.59	99% Percentile (z)	16.27

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	675	95% UTL with 95% Coverage	12
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by U1	0.936
		Approximate Sample Size needed to achieve specified CC	716
95% Percentile Bootstrap UTL with 95% Coverage	12	95% BCA Bootstrap UTL with 95% Coverage	11
95% UPL	11	90% Percentile	7.4
90% Chebyshev UPL	14.27	95% Percentile	11
95% Chebyshev UPL	19.04	99% Percentile	15
95% USL	36.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, barium)

General Statistics

Total Number of Observations	845	Number of Distinct Observations	348
Minimum	8	First Quartile	193
Second Largest	1090	Median	285
Maximum	1520	Third Quartile	392
Mean	316	SD	182.3
Coefficient of Variation	0.577	Skewness	1.485
Mean of logged Data	5.587	SD of logged Data	0.621

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test

Shapiro Wilk Test Statistic	0.903	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.105	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	632.1	90% Percentile (z)	549.6
95% UPL (t)	616.3	95% Percentile (z)	615.8
95% USL	1015	99% Percentile (z)	740

Gamma GOF Test

A-D Test Statistic	1.769	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.761	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0356	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0326	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.124	k star (bias corrected MLE)	3.113
Theta hat (MLE)	101.2	Theta star (bias corrected MLE)	101.5
nu hat (MLE)	5279	nu star (bias corrected)	5261
MLE Mean (bias corrected)	316	MLE Sd (bias corrected)	179.1

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	653.2	90% Percentile	556.1
95% Hawkins Wixley (HW) Approx. Gamma UPL	667.4	95% Percentile	656.1
95% WH Approx. Gamma UTL with 95% Coverage	678.6	99% Percentile	872.5
95% HW Approx. Gamma UTL with 95% Coverage	695.3		
95% WH USL	1509	95% HW USL	1679

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.961	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0644	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	783.8	90% Percentile (z)	591.7
95% UPL (t)	742.7	95% Percentile (z)	741.4
95% USL	2886	99% Percentile (z)	1132

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	812	95% UTL with 95% Coverage	722
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by U1	0.92
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	727.8	95% BCA Bootstrap UTL with 95% Coverage	722
95% UPL	683.4	90% Percentile	536.2
90% Chebyshev UPL	863.1	95% Percentile	679
95% Chebyshev UPL	1111	99% Percentile	893.8
95% USL	1520		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, beryllium)

General Statistics

Total Number of Observations	845	Number of Missing Observations	0
Number of Distinct Observations	17		
Number of Detects	828	Number of Non-Detects	17
Number of Distinct Detects	17	Number of Distinct Non-Detects	2
Minimum Detect	0.5	Minimum Non-Detect	0.5
Maximum Detect	10	Maximum Non-Detect	1
Variance Detected	0.582	Percent Non-Detects	2.01%
Mean Detected	1.697	SD Detected	0.763
Mean of Detected Logged Data	0.433	SD of Detected Logged Data	0.453

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.863	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.169	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0311	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.673	KM SD	0.773
95% UTL95% Coverage	3.014	95% KM UPL (t)	2.947
90% KM Percentile (z)	2.664	95% KM Percentile (z)	2.945
99% KM Percentile (z)	3.472	95% KM USL	4.638

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.671	SD	0.777
95% UTL95% Coverage	3.018	95% UPL (t)	2.951
90% Percentile (z)	2.667	95% Percentile (z)	2.949
99% Percentile (z)	3.478	95% USL	4.649

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	21.42	Anderson-Darling GOF Test
5% A-D Critical Value	0.757	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.154	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0328	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.365	k star (bias corrected MLE)	5.346
Theta hat (MLE)	0.316	Theta star (bias corrected MLE)	0.317
nu hat (MLE)	8884	nu star (bias corrected)	8853
MLE Mean (bias corrected)	1.697		
MLE Sd (bias corrected)	0.734	95% Percentile of Chisquare (2kstar)	19.26

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.253	Mean	1.673
Maximum	10	Median	1.5
SD	0.774	CV	0.463
k hat (MLE)	4.909	k star (bias corrected MLE)	4.893
Theta hat (MLE)	0.341	Theta star (bias corrected MLE)	0.342
nu hat (MLE)	8297	nu star (bias corrected)	8269
MLE Mean (bias corrected)	1.673	MLE Sd (bias corrected)	0.756
95% Percentile of Chisquare (2kstar)	18.01	90% Percentile	2.686
95% Percentile	3.079	99% Percentile	3.912

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.173	3.225	95% Approx. Gamma UPL	3.074	3.118
95% Gamma USL	6.266	6.751			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.673	SD (KM)	0.773
Variance (KM)	0.598	SE of Mean (KM)	0.0266
k hat (KM)	4.678	k star (KM)	4.662
nu hat (KM)	7905	nu star (KM)	7879
theta hat (KM)	0.358	theta star (KM)	0.359
80% gamma percentile (KM)	2.266	90% gamma percentile (KM)	2.71
95% gamma percentile (KM)	3.116	99% gamma percentile (KM)	3.977

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.166	3.215	95% Approx. Gamma UPL	3.067	3.109
95% KM Gamma Percentile	3.064	3.106	95% Gamma USL	6.239	6.711

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.91	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.184	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0311	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.675	Mean in Log Scale	0.413
SD in Original Scale	0.771	SD in Log Scale	0.47
95% UTL95% Coverage	3.415	95% BCA UTL95% Coverage	3
95% Bootstrap (%) UTL95% Coverage	3	95% UPL (t)	3.279
90% Percentile (z)	2.76	95% Percentile (z)	3.274
99% Percentile (z)	4.511	95% USL	9.163

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.41	95% KM UTL (Lognormal)95% Coverage	3.434
KM SD of Logged Data	0.475	95% KM UPL (Lognormal)	3.296
95% KM Percentile Lognormal (z)	3.291	95% KM USL (Lognormal)	9.308

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.671	Mean in Log Scale	0.405
SD in Original Scale	0.777	SD in Log Scale	0.49
95% UTL95% Coverage	3.508	95% UPL (t)	3.362
90% Percentile (z)	2.81	95% Percentile (z)	3.357
99% Percentile (z)	4.688	95% USL	9.813

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	812	95% UTL with95% Coverage	3
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UT	0.92
Approximate Sample Size needed to achieve specified CC	877	95% UPL	3
95% USL	10	95% KM Chebyshev UPL	5.046

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, cadmium)

General Statistics

Total Number of Observations	68	Number of Missing Observations	0
Number of Distinct Observations	6		
Number of Detects	7	Number of Non-Detects	61
Number of Distinct Detects	5	Number of Distinct Non-Detects	1
Minimum Detect	0.2	Minimum Non-Detect	2
Maximum Detect	9	Maximum Non-Detect	2
Variance Detected	10.7	Percent Non-Detects	89.71%
Mean Detected	1.586	SD Detected	3.271
Mean of Detected Logged Data	-0.621	SD of Detected Logged Data	1.277

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.991	d2max (for USL)	3.073

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.482	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.487	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.477	KM SD	1.046
95% UTL95% Coverage	2.559	95% KM UPL (t)	2.234
90% KM Percentile (z)	1.817	95% KM Percentile (z)	2.197
99% KM Percentile (z)	2.91	95% KM USL	3.691

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.06	SD	0.995
95% UTL95% Coverage	3.042	95% UPL (t)	2.732
90% Percentile (z)	2.336	95% Percentile (z)	2.697
99% Percentile (z)	3.375	95% USL	4.119

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.564	Anderson-Darling GOF Test
5% A-D Critical Value	0.747	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.463	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.326	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.575	k star (bias corrected MLE)	0.424
Theta hat (MLE)	2.759	Theta star (bias corrected MLE)	3.743
nu hat (MLE)	8.047	nu star (bias corrected)	5.932
MLE Mean (bias corrected)	1.586		
MLE Sd (bias corrected)	2.436	95% Percentile of Chisquare (2kstar)	3.451

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.892
Maximum	9	Median	0.248
SD	1.557	CV	1.745
k hat (MLE)	0.352	k star (bias corrected MLE)	0.347
Theta hat (MLE)	2.532	Theta star (bias corrected MLE)	2.574
nu hat (MLE)	47.91	nu star (bias corrected)	47.13
MLE Mean (bias corrected)	0.892	MLE Sd (bias corrected)	1.515
95% Percentile of Chisquare (2kstar)	3.024	90% Percentile	2.58
95% Percentile	3.892	99% Percentile	7.244

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.599	5.232	95% Approx. Gamma UPL	3.44	3.707
95% Gamma USL	10.61	14.37			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.477	SD (KM)	1.046
Variance (KM)	1.093	SE of Mean (KM)	0.143
k hat (KM)	0.208	k star (KM)	0.209
nu hat (KM)	28.33	nu star (KM)	28.41
theta hat (KM)	2.291	theta star (KM)	2.284
80% gamma percentile (KM)	0.643	90% gamma percentile (KM)	1.443
95% gamma percentile (KM)	2.431	99% gamma percentile (KM)	5.13

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.243	1.143	95% Approx. Gamma UPL	1.06	0.976
95% KM Gamma Percentile	1.04	0.958	95% Gamma USL	2.043	1.894

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.674	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.38	Lilliefors GOF Test
5% Lilliefors Critical Value	0.304	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.661	Mean in Log Scale	-0.946
SD in Original Scale	1.14	SD in Log Scale	0.961
95% UTL95% Coverage	2.628	95% BCA UTL95% Coverage	2.382
95% Bootstrap (%) UTL95% Coverage	2.538	95% UPL (t)	1.95
90% Percentile (z)	1.33	95% Percentile (z)	1.885
99% Percentile (z)	3.627	95% USL	7.434

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.042	95% KM UTL (Lognormal)95% Coverage	0.937
KM SD of Logged Data	0.491	95% KM UPL (Lognormal)	0.805
95% KM Percentile Lognormal (z)	0.791	95% KM USL (Lognormal)	1.594

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.06	Mean in Log Scale	-0.0639
SD in Original Scale	0.995	SD in Log Scale	0.427
95% UTL95% Coverage	2.194	95% UPL (t)	1.921
90% Percentile (z)	1.621	95% Percentile (z)	1.893
99% Percentile (z)	2.531	95% USL	3.482

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	67	95% UTL with95% Coverage	2
Approx, f used to compute achieved CC	1.763	Approximate Actual Confidence Coefficient achieved by UT	0.86
Approximate Sample Size needed to achieve specified CC	93	95% UPL	2
95% USL	9	95% KM Chebyshev UPL	5.068

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, chromium)

General Statistics

Total Number of Observations	850	Number of Distinct Observations	91
Minimum	5	First Quartile	20
Second Largest	1250	Median	30
Maximum	1300	Third Quartile	60
Mean	54.47	SD	98.83
Coefficient of Variation	1.814	Skewness	8.708
Mean of logged Data	3.573	SD of logged Data	0.797

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.835

Normal GOF Test

Shapiro Wilk Test Statistic	0.351	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.309	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	225.9	90% Percentile (z)	181.1
95% UPL (t)	217.3	95% Percentile (z)	217
95% USL	433.5	99% Percentile (z)	284.4

Gamma GOF Test

A-D Test Statistic	35.2	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.776	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.165	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0329	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics

k hat (MLE)	1.318	k star (bias corrected MLE)	1.314
Theta hat (MLE)	41.33	Theta star (bias corrected MLE)	41.45
nu hat (MLE)	2241	nu star (bias corrected)	2234
MLE Mean (bias corrected)	54.47	MLE Sd (bias corrected)	47.52

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	137.9	90% Percentile	117.2
95% Hawkins Wixley (HW) Approx. Gamma UPL	134.5	95% Percentile	148.4
95% WH Approx. Gamma UTL with 95% Coverage	145.4	99% Percentile	219.3
95% HW Approx. Gamma UTL with 95% Coverage	142.2		
95% WH USL	420.1	95% HW USL	453.6

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.106	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	141.8	90% Percentile (z)	98.86
95% UPL (t)	132.3	95% Percentile (z)	132.1
95% USL	756.5	99% Percentile (z)	227.3

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	817	95% UTL with 95% Coverage	155
Approx, f used to compute achieved CC	1.265	Approximate Actual Confidence Coefficient achieved by UT	0.926
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	155	95% BCA Bootstrap UTL with 95% Coverage	140
95% UPL	127.3	90% Percentile	97.3
90% Chebyshev UPL	351.1	95% Percentile	125
95% Chebyshev UPL	485.5	99% Percentile	397.8
95% USL	1300		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, cobalt)

General Statistics

Total Number of Observations	847	Number of Missing Observations	0
Number of Distinct Observations	34		
Number of Detects	642	Number of Non-Detects	205
Number of Distinct Detects	34	Number of Distinct Non-Detects	1
Minimum Detect	2	Minimum Non-Detect	5
Maximum Detect	73	Maximum Non-Detect	5
Variance Detected	40.37	Percent Non-Detects	24.20%
Mean Detected	9.936	SD Detected	6.354
Mean of Detected Logged Data	2.155	SD of Detected Logged Data	0.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.75	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.216	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0353	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	8.257	KM SD	6.294
95% UTL95% Coverage	19.17	95% KM UPL (t)	18.63
90% KM Percentile (z)	16.32	95% KM Percentile (z)	18.61
99% KM Percentile (z)	22.9	95% KM USL	32.39

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	8.136	SD	6.383
95% UTL95% Coverage	19.21	95% UPL (t)	18.65
90% Percentile (z)	16.32	95% Percentile (z)	18.64
99% Percentile (z)	22.99	95% USL	32.61

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	22.68	Anderson-Darling GOF Test
5% A-D Critical Value	0.76	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.162	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0373	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.694	k star (bias corrected MLE)	3.677
Theta hat (MLE)	2.69	Theta star (bias corrected MLE)	2.702
nu hat (MLE)	4742	nu star (bias corrected)	4722
MLE Mean (bias corrected)	9.936		
MLE Sd (bias corrected)	5.181	95% Percentile of Chisquare (2kstar)	14.58

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	7.703
Maximum	73	Median	7
SD	6.81	CV	0.884
k hat (MLE)	0.672	k star (bias corrected MLE)	0.671
Theta hat (MLE)	11.45	Theta star (bias corrected MLE)	11.48
nu hat (MLE)	1139	nu star (bias corrected)	1136
MLE Mean (bias corrected)	7.703	MLE Sd (bias corrected)	9.405
95% Percentile of Chisquare (2kstar)	4.638	90% Percentile	19.53
95% Percentile	26.62	99% Percentile	43.62

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	26.68	31.72	95% Approx. Gamma UPL	25.04	29.4
95% Gamma USL	91.12	142.3			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	8.257	SD (KM)	6.294
Variance (KM)	39.62	SE of Mean (KM)	0.277
k hat (KM)	1.721	k star (KM)	1.716
nu hat (KM)	2915	nu star (KM)	2906
theta hat (KM)	4.798	theta star (KM)	4.813
80% gamma percentile (KM)	12.58	90% gamma percentile (KM)	16.66
95% gamma percentile (KM)	20.58	99% gamma percentile (KM)	29.35

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	19.23	19.5	95% Approx. Gamma UPL	18.42	18.63
95% KM Gamma Percentile	18.4	18.61	95% Gamma USL	46.49	51.5

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.906	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.155	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0353	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	8.23	Mean in Log Scale	1.879
SD in Original Scale	6.314	SD in Log Scale	0.675
95% UTL95% Coverage	21.09	95% BCA UTL95% Coverage	19
95% Bootstrap (%) UTL95% Coverage	22	95% UPL (t)	19.89
90% Percentile (z)	15.54	95% Percentile (z)	19.86
99% Percentile (z)	31.45	95% USL	87.01

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.885	95% KM UTL (Lognormal)95% Coverage	21.03
KM SD of Logged Data	0.669	95% KM UPL (Lognormal)	19.84
95% KM Percentile Lognormal (z)	19.81	95% KM USL (Lognormal)	85.79

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	8.136	Mean in Log Scale	1.855
SD in Original Scale	6.383	SD in Log Scale	0.688
95% UTL95% Coverage	21.07	95% UPL (t)	19.85
90% Percentile (z)	15.43	95% Percentile (z)	19.81
99% Percentile (z)	31.66	95% USL	89.3

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	814	95% UTL with95% Coverage	22
Approx, f used to compute achieved CC	1.26	Approximate Actual Confidence Coefficient achieved by UT	0.922
Approximate Sample Size needed to achieve specified CC	877	95% UPL	20
95% USL	73	95% KM Chebyshev UPL	35.71

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, copper)

General Statistics

Total Number of Observations	804	Number of Missing Observations	0
Number of Distinct Observations	65		
Number of Detects	803	Number of Non-Detects	1
Number of Distinct Detects	65	Number of Distinct Non-Detects	1
Minimum Detect	1	Minimum Non-Detect	2
Maximum Detect	106	Maximum Non-Detect	2
Variance Detected	129.2	Percent Non-Detects	0.12%
Mean Detected	14.59	SD Detected	11.37
Mean of Detected Logged Data	2.454	SD of Detected Logged Data	0.681

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.737	d2max (for USL)	3.821

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.749	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.161	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0316	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.57	KM SD	11.36
95% UTL95% Coverage	34.31	95% KM UPL (t)	33.3
90% KM Percentile (z)	29.13	95% KM Percentile (z)	33.26
99% KM Percentile (z)	41.01	95% KM USL	57.99

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	14.57	SD	11.37
95% UTL95% Coverage	34.32	95% UPL (t)	33.31
90% Percentile (z)	29.14	95% Percentile (z)	33.27
99% Percentile (z)	41.02	95% USL	58.02

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.132	Anderson-Darling GOF Test
5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0719	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0337	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.367	k star (bias corrected MLE)	2.359
Theta hat (MLE)	6.164	Theta star (bias corrected MLE)	6.185
nu hat (MLE)	3801	nu star (bias corrected)	3788
MLE Mean (bias corrected)	14.59		
MLE Sd (bias corrected)	9.499	95% Percentile of Chisquare (2kstar)	10.63

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	14.57
Maximum	106	Median	12
SD	11.37	CV	0.78
k hat (MLE)	2.295	k star (bias corrected MLE)	2.287
Theta hat (MLE)	6.349	Theta star (bias corrected MLE)	6.37
nu hat (MLE)	3690	nu star (bias corrected)	3678
MLE Mean (bias corrected)	14.57	MLE Sd (bias corrected)	9.635
95% Percentile of Chisquare (2kstar)	10.41	90% Percentile	27.47
95% Percentile	33.15	99% Percentile	45.64

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	34.13	34.84	95% Approx. Gamma UPL	32.66	33.23
95% Gamma USL	82.31	92.24			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.57	SD (KM)	11.36
Variance (KM)	129.1	SE of Mean (KM)	0.401
k hat (KM)	1.645	k star (KM)	1.639
nu hat (KM)	2645	nu star (KM)	2636
theta hat (KM)	8.86	theta star (KM)	8.888
80% gamma percentile (KM)	22.32	90% gamma percentile (KM)	29.72
95% gamma percentile (KM)	36.86	99% gamma percentile (KM)	52.88

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	33.97	34.55	95% Approx. Gamma UPL	32.51	32.97
95% KM Gamma Percentile	32.46	32.92	95% Gamma USL	81.61	90.79

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.977	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	1.97E-04	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.068	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0316	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	14.57	Mean in Log Scale	2.452
SD in Original Scale	11.37	SD in Log Scale	0.683
95% UTL95% Coverage	38.05	95% BCA UTL95% Coverage	37
95% Bootstrap (%) UTL95% Coverage	37	95% UPL (t)	35.81
90% Percentile (z)	27.88	95% Percentile (z)	35.74
99% Percentile (z)	56.93	95% USL	158.1

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.451	95% KM UTL (Lognormal)95% Coverage	38.16
KM SD of Logged Data	0.685	95% KM UPL (Lognormal)	35.9
95% KM Percentile Lognormal (z)	35.83	95% KM USL (Lognormal)	159.2

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	14.57	Mean in Log Scale	2.451
SD in Original Scale	11.37	SD in Log Scale	0.686
95% UTL95% Coverage	38.18	95% UPL (t)	35.92
90% Percentile (z)	27.94	95% Percentile (z)	35.85
99% Percentile (z)	57.21	95% USL	159.5

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	773	95% UTL with95% Coverage	37
Approx, f used to compute achieved CC	1.271	Approximate Actual Confidence Coefficient achieved by UT	0.924
Approximate Sample Size needed to achieve specified CC	831	95% UPL	35
95% USL	106	95% KM Chebyshev UPL	64.13

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, iron)

General Statistics

Total Number of Observations	3099	Number of Missing Observations	0
Number of Distinct Observations	1126		
Number of Detects	3094	Number of Non-Detects	5
Number of Distinct Detects	1124	Number of Distinct Non-Detects	2
Minimum Detect	2000	Minimum Non-Detect	5000
Maximum Detect	109700	Maximum Non-Detect	6284
Variance Detected	1.19E+08	Percent Non-Detects	0.16%
Mean Detected	32047	SD Detected	10897
Mean of Detected Logged Data	10.32	SD of Detected Logged Data	0.331

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.151

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.0852	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0161	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	32001	KM SD	10948
95% UTL95% Coverage	50512	95% KM UPL (t)	50016
90% KM Percentile (z)	46031	95% KM Percentile (z)	50008
99% KM Percentile (z)	57469	95% KM USL	77448

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	32000	SD	10952
95% UTL95% Coverage	50518	95% UPL (t)	50022
90% Percentile (z)	46035	95% Percentile (z)	50014
99% Percentile (z)	57478	95% USL	77465

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	14.17	Anderson-Darling GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.044	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0182	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	9.537	k star (bias corrected MLE)	9.528
Theta hat (MLE)	3360	Theta star (bias corrected MLE)	3363
nu hat (MLE)	59015	nu star (bias corrected)	58959
MLE Mean (bias corrected)	32047		
MLE Sd (bias corrected)	10382	95% Percentile of Chisquare (2kstar)	30.21

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	2000	Mean	32010
Maximum	109700	Median	30300
SD	10928	CV	0.341
k hat (MLE)	9.391	k star (bias corrected MLE)	9.382
Theta hat (MLE)	3408	Theta star (bias corrected MLE)	3412
nu hat (MLE)	58207	nu star (bias corrected)	58152
MLE Mean (bias corrected)	32010	MLE Sd (bias corrected)	10450
95% Percentile of Chisquare (2kstar)	29.84	90% Percentile	45919
95% Percentile	50910	99% Percentile	61182

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	51472	51811	95% Approx. Gamma UPL	50827	51135
95% Gamma USL	95277	99773			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	32001	SD (KM)	10948
Variance (KM)	1.20E+08	SE of Mean (KM)	196.7
k hat (KM)	8.545	k star (KM)	8.537
nu hat (KM)	52960	nu star (KM)	52910
theta hat (KM)	3745	theta star (KM)	3749
80% gamma percentile (KM)	40670	90% gamma percentile (KM)	46593
95% gamma percentile (KM)	51884	99% gamma percentile (KM)	62811

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	51700	52114	95% Approx. Gamma UPL	51046	51426
95% KM Gamma Percentile	51035	51415	95% Gamma USL	96213	101111

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0423	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0161	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	32014	Mean in Log Scale	10.32
SD in Original Scale	10919	SD in Log Scale	0.333
95% UTL95% Coverage	53253	95% BCA UTL95% Coverage	52502

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	52502	95% UPL (t)	52456
90% Percentile (z)	46470	95% Percentile (z)	52443
99% Percentile (z)	65795	95% USL	120778

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	10.32	95% KM UTL (Lognormal)95% Coverage	54087
KM SD of Logged Data	0.343	95% KM UPL (Lognormal)	53252
95% KM Percentile Lognormal (z)	53238	95% KM USL (Lognormal)	125858

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	32000	Mean in Log Scale	10.32
SD in Original Scale	10952	SD in Log Scale	0.345
95% UTL95% Coverage	54218	95% UPL (t)	53377
90% Percentile (z)	47080	95% Percentile (z)	53363
99% Percentile (z)	67500	95% USL	126656

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	2964	95% UTL with95% Coverage	52480
Approx, f used to compute achieved CC	1.147	Approximate Actual Confidence Coefficient achieved by UT	0.948
Approximate Sample Size needed to achieve specified CC	3104	95% UPL	51200
95% USL	109700	95% KM Chebyshev UPL	79728

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, lead)

General Statistics

Total Number of Observations	845	Number of Missing Observations	0
Number of Distinct Observations	41		
Number of Detects	667	Number of Non-Detects	178
Number of Distinct Detects	41	Number of Distinct Non-Detects	1
Minimum Detect	7	Minimum Non-Detect	10
Maximum Detect	230	Maximum Non-Detect	10
Variance Detected	127.1	Percent Non-Detects	21.07%
Mean Detected	16.88	SD Detected	11.28
Mean of Detected Logged Data	2.727	SD of Detected Logged Data	0.407

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.524	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.269	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0346	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.8	KM SD	10.79
95% UTL95% Coverage	33.52	95% KM UPL (t)	32.58
90% KM Percentile (z)	28.63	95% KM Percentile (z)	32.55
99% KM Percentile (z)	39.9	95% KM USL	56.17

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	14.38	SD	11.13
95% UTL95% Coverage	33.68	95% UPL (t)	32.71
90% Percentile (z)	28.64	95% Percentile (z)	32.68
99% Percentile (z)	40.27	95% USL	57.04

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.50E+28	Anderson-Darling GOF Test
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.193	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.218	k star (bias corrected MLE)	5.195
Theta hat (MLE)	3.235	Theta star (bias corrected MLE)	3.249
nu hat (MLE)	6960	nu star (bias corrected)	6930
MLE Mean (bias corrected)	16.88		
MLE Sd (bias corrected)	7.406	95% Percentile of Chisquare (2kstar)	18.84

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	13.84
Maximum	230	Median	15
SD	11.66	CV	0.843
k hat (MLE)	1.064	k star (bias corrected MLE)	1.061
Theta hat (MLE)	13	Theta star (bias corrected MLE)	13.04
nu hat (MLE)	1799	nu star (bias corrected)	1794
MLE Mean (bias corrected)	13.84	MLE Sd (bias corrected)	13.43
95% Percentile of Chisquare (2kstar)	6.227	90% Percentile	31.39
95% Percentile	40.59	99% Percentile	61.84

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	40.26	46.14	95% Approx. Gamma UPL	38.17	43.33
95% Gamma USL	117	166			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.8	SD (KM)	10.79
Variance (KM)	116.4	SE of Mean (KM)	0.372
k hat (KM)	1.881	k star (KM)	1.875
nu hat (KM)	3179	nu star (KM)	3169
theta hat (KM)	7.868	theta star (KM)	7.893
80% gamma percentile (KM)	22.33	90% gamma percentile (KM)	29.23
95% gamma percentile (KM)	35.83	99% gamma percentile (KM)	50.55

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	29.48	29.47	95% Approx. Gamma UPL	28.48	28.43
95% KM Gamma Percentile	28.45	28.4	95% Gamma USL	61.47	64.69

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.869	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.209	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0346	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	14.67	Mean in Log Scale	2.538
SD in Original Scale	10.91	SD in Log Scale	0.526
95% UTL95% Coverage	31.52	95% BCA UTL95% Coverage	30
95% Bootstrap (%) UTL95% Coverage	30	95% UPL (t)	30.11
90% Percentile (z)	24.84	95% Percentile (z)	30.07
99% Percentile (z)	43.04	95% USL	95.14

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.563	95% KM UTL (Lognormal)95% Coverage	29.9
KM SD of Logged Data	0.481	95% KM UPL (Lognormal)	28.67
95% KM Percentile Lognormal (z)	28.64	95% KM USL (Lognormal)	82.15

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	14.38	Mean in Log Scale	2.492
SD in Original Scale	11.13	SD in Log Scale	0.582
95% UTL95% Coverage	33.14	95% UPL (t)	31.51
90% Percentile (z)	25.47	95% Percentile (z)	31.46
99% Percentile (z)	46.77	95% USL	112.4

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	812	95% UTL with95% Coverage	30
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UT	0.92
Approximate Sample Size needed to achieve specified CC	877	95% UPL	30
95% USL	230	95% KM Chebyshev UPL	61.87

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, manganese)

General Statistics

Total Number of Observations	3142	Number of Missing Observations	0
Number of Distinct Observations	673		
Number of Detects	3112	Number of Non-Detects	30
Number of Distinct Detects	672	Number of Distinct Non-Detects	1
Minimum Detect	40	Minimum Non-Detect	20
Maximum Detect	9490	Maximum Non-Detect	20
Variance Detected	142676	Percent Non-Detects	0.96%
Mean Detected	766.3	SD Detected	377.7
Mean of Detected Logged Data	6.557	SD of Detected Logged Data	0.404

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.155

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.122	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	759.2	KM SD	382.8
95% UTL95% Coverage	1406	95% KM UPL (t)	1389
90% KM Percentile (z)	1250	95% KM Percentile (z)	1389
99% KM Percentile (z)	1650	95% KM USL	2350

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	759.1	SD	383
95% UTL95% Coverage	1407	95% UPL (t)	1389
90% Percentile (z)	1250	95% Percentile (z)	1389
99% Percentile (z)	1650	95% USL	2350

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.21E+27	Anderson-Darling GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0553	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0182	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.091	k star (bias corrected MLE)	6.085
Theta hat (MLE)	125.8	Theta star (bias corrected MLE)	125.9
nu hat (MLE)	37908	nu star (bias corrected)	37873
MLE Mean (bias corrected)	766.3		
MLE Sd (bias corrected)	310.6	95% Percentile of Chisquare (2kstar)	21.25

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	38.56	Mean	760.1
Maximum	9490	Median	700
SD	381.1	CV	0.501
k hat (MLE)	5.511	k star (bias corrected MLE)	5.506
Theta hat (MLE)	137.9	Theta star (bias corrected MLE)	138.1
nu hat (MLE)	34630	nu star (bias corrected)	34598
MLE Mean (bias corrected)	760.1	MLE Sd (bias corrected)	324
95% Percentile of Chisquare (2kstar)	19.69	90% Percentile	1194
95% Percentile	1359	99% Percentile	1708

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1373	1386	95% Approx. Gamma UPL	1352	1363
95% Gamma USL	2916	3119			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	759.2	SD (KM)	382.8
Variance (KM)	146536	SE of Mean (KM)	6.83
k hat (KM)	3.933	k star (KM)	3.93
nu hat (KM)	24716	nu star (KM)	24693
theta hat (KM)	193	theta star (KM)	193.2
80% gamma percentile (KM)	1049	90% gamma percentile (KM)	1273
95% gamma percentile (KM)	1479	99% gamma percentile (KM)	1919

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1416	1449	95% Approx. Gamma UPL	1393	1423
95% KM Gamma Percentile	1392	1423	95% Gamma USL	3110	3437

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0312	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.016	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	761.2	Mean in Log Scale	6.547
SD in Original Scale	379.5	SD in Log Scale	0.417
95% UTL95% Coverage	1409	95% BCA UTL95% Coverage	1370

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	1380	95% UPL (t)	1383
90% Percentile (z)	1189	95% Percentile (z)	1383
99% Percentile (z)	1837	95% USL	3934

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	6.523	95% KM UTL (Lognormal)95% Coverage	1670
KM SD of Logged Data	0.531	95% KM UPL (Lognormal)	1631
95% KM Percentile Lognormal (z)	1630	95% KM USL (Lognormal)	6176

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	759.1	Mean in Log Scale	6.517
SD in Original Scale	383	SD in Log Scale	0.577
95% UTL95% Coverage	1794	95% UPL (t)	1748
90% Percentile (z)	1417	95% Percentile (z)	1747
99% Percentile (z)	2589	95% USL	7438

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	3005	95% UTL with95% Coverage	1380
Approx, f used to compute achieved CC	1.146	Approximate Actual Confidence Coefficient achieved by UT	0.948
Approximate Sample Size needed to achieve specified CC	3147	95% UPL	1345
95% USL	9490	95% KM Chebyshev UPL	2428

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, molybdenum)

General Statistics

Total Number of Observations	850	Number of Missing Observations	0
Number of Distinct Observations	25		
Number of Detects	313	Number of Non-Detects	537
Number of Distinct Detects	25	Number of Distinct Non-Detects	1
Minimum Detect	0.79	Minimum Non-Detect	2
Maximum Detect	29	Maximum Non-Detect	2
Variance Detected	11.52	Percent Non-Detects	63.18%
Mean Detected	3.75	SD Detected	3.394
Mean of Detected Logged Data	1.118	SD of Detected Logged Data	0.562

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.835

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.573	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.284	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0505	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	2.039	KM SD	2.44
95% UTL95% Coverage	6.27	95% KM UPL (t)	6.059
90% KM Percentile (z)	5.166	95% KM Percentile (z)	6.052
99% KM Percentile (z)	7.715	95% KM USL	11.4

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	2.013	SD	2.448
95% UTL95% Coverage	6.258	95% UPL (t)	6.046
90% Percentile (z)	5.15	95% Percentile (z)	6.04
99% Percentile (z)	7.708	95% USL	11.4

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	24.31	Anderson-Darling GOF Test
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.238	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.0517	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.614	k star (bias corrected MLE)	2.591
Theta hat (MLE)	1.434	Theta star (bias corrected MLE)	1.447
nu hat (MLE)	1637	nu star (bias corrected)	1622
MLE Mean (bias corrected)	3.75		
MLE Sd (bias corrected)	2.329	95% Percentile of Chisquare (2kstar)	11.35

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.404
Maximum	29	Median	0.01
SD	2.73	CV	1.944
k hat (MLE)	0.265	k star (bias corrected MLE)	0.265
Theta hat (MLE)	5.295	Theta star (bias corrected MLE)	5.298
nu hat (MLE)	450.7	nu star (bias corrected)	450.4
MLE Mean (bias corrected)	1.404	MLE Sd (bias corrected)	2.727
95% Percentile of Chisquare (2kstar)	2.521	90% Percentile	4.195
95% Percentile	6.677	99% Percentile	13.23

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	5.82	6.275	95% Approx. Gamma UPL	5.307	5.616
95% Gamma USL	30.48	48.16			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	2.039	SD (KM)	2.44
Variance (KM)	5.952	SE of Mean (KM)	0.0948
k hat (KM)	0.698	k star (KM)	0.697
nu hat (KM)	1187	nu star (KM)	1185
theta hat (KM)	2.919	theta star (KM)	2.926
80% gamma percentile (KM)	3.352	90% gamma percentile (KM)	5.124
95% gamma percentile (KM)	6.952	99% gamma percentile (KM)	11.32

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	4.95	4.858	95% Approx. Gamma UPL	4.727	4.629
95% KM Gamma Percentile	4.72	4.622	95% Gamma USL	12.74	13.47

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.836	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.229	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0505	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.888	Mean in Log Scale	0.167
SD in Original Scale	2.523	SD in Log Scale	0.946
95% UTL95% Coverage	6.092	95% BCA UTL95% Coverage	4
95% Bootstrap (%) UTL95% Coverage	6	95% UPL (t)	5.613
90% Percentile (z)	3.971	95% Percentile (z)	5.599
99% Percentile (z)	10.66	95% USL	44.43

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.429	95% KM UTL (Lognormal)95% Coverage	4.673
KM SD of Logged Data	0.642	95% KM UPL (Lognormal)	4.42
95% KM Percentile Lognormal (z)	4.412	95% KM USL (Lognormal)	18

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	2.013	Mean in Log Scale	0.412
SD in Original Scale	2.448	SD in Log Scale	0.638
95% UTL95% Coverage	4.567	95% UPL (t)	4.322
90% Percentile (z)	3.421	95% Percentile (z)	4.314
99% Percentile (z)	6.665	95% USL	17.46

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	817	95% UTL with95% Coverage	6
Approx, f used to compute achieved CC	1.265	Approximate Actual Confidence Coefficient achieved by UT	0.926
Approximate Sample Size needed to achieve specified CC	877	95% UPL	5
95% USL	29	95% KM Chebyshev UPL	12.68

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, nickel)

General Statistics

Total Number of Observations	846	Number of Missing Observations	0
Number of Distinct Observations	66		
Number of Detects	753	Number of Non-Detects	93
Number of Distinct Detects	65	Number of Distinct Non-Detects	2
Minimum Detect	5	Minimum Non-Detect	3
Maximum Detect	450	Maximum Non-Detect	5
Variance Detected	776.2	Percent Non-Detects	10.99%
Mean Detected	18.12	SD Detected	27.86
Mean of Detected Logged Data	2.594	SD of Detected Logged Data	0.671

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.358	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.319	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0326	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	16.46	KM SD	26.69
95% UTL95% Coverage	62.75	95% KM UPL (t)	60.43
90% KM Percentile (z)	50.66	95% KM Percentile (z)	60.36
99% KM Percentile (z)	78.54	95% KM USL	118.8

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	16.4	SD	26.73
95% UTL95% Coverage	62.77	95% UPL (t)	60.45
90% Percentile (z)	50.66	95% Percentile (z)	60.37
99% Percentile (z)	78.59	95% USL	118.9

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.33E+28	Anderson-Darling GOF Test
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.151	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.035	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.799	k star (bias corrected MLE)	1.793
Theta hat (MLE)	10.07	Theta star (bias corrected MLE)	10.11
nu hat (MLE)	2709	nu star (bias corrected)	2700
MLE Mean (bias corrected)	18.12		
MLE Sd (bias corrected)	13.53	95% Percentile of Chisquare (2kstar)	8.807

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	16.13
Maximum	450	Median	12
SD	26.89	CV	1.667
k hat (MLE)	0.628	k star (bias corrected MLE)	0.626
Theta hat (MLE)	25.7	Theta star (bias corrected MLE)	25.76
nu hat (MLE)	1062	nu star (bias corrected)	1059
MLE Mean (bias corrected)	16.13	MLE Sd (bias corrected)	20.38
95% Percentile of Chisquare (2kstar)	4.438	90% Percentile	41.54
95% Percentile	57.15	99% Percentile	94.75

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	54.27	63.63	95% Approx. Gamma UPL	50.92	58.98
95% Gamma USL	186.4	285.2			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	16.46	SD (KM)	26.69
Variance (KM)	712.3	SE of Mean (KM)	0.918
k hat (KM)	0.38	k star (KM)	0.38
nu hat (KM)	643.4	nu star (KM)	642.4
theta hat (KM)	43.28	theta star (KM)	43.35
80% gamma percentile (KM)	26.39	90% gamma percentile (KM)	46.91
95% gamma percentile (KM)	69.62	99% gamma percentile (KM)	127

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	42.82	42.51	95% Approx. Gamma UPL	40.71	40.29
95% KM Gamma Percentile	40.65	40.22	95% Gamma USL	118.7	130.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.93	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0872	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0326	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	16.46	Mean in Log Scale	2.427
SD in Original Scale	26.7	SD in Log Scale	0.798
95% UTL95% Coverage	45.23	95% BCA UTL95% Coverage	43.75
95% Bootstrap (%) UTL95% Coverage	46	95% UPL (t)	42.21
90% Percentile (z)	31.51	95% Percentile (z)	42.11
99% Percentile (z)	72.56	95% USL	241.9

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.43	95% KM UTL (Lognormal)95% Coverage	44.44
KM SD of Logged Data	0.787	95% KM UPL (Lognormal)	41.51
95% KM Percentile Lognormal (z)	41.42	95% KM USL (Lognormal)	231.9

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	16.4	Mean in Log Scale	2.409
SD in Original Scale	26.73	SD in Log Scale	0.824
95% UTL95% Coverage	46.42	95% UPL (t)	43.22
90% Percentile (z)	31.96	95% Percentile (z)	43.12
99% Percentile (z)	75.59	95% USL	261.7

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	813	95% UTL with95% Coverage	46
Approx, f used to compute achieved CC	1.259	Approximate Actual Confidence Coefficient achieved by UT	0.921
Approximate Sample Size needed to achieve specified CC	877	95% UPL	40
95% USL	450	95% KM Chebyshev UPL	132.9

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, selenium)

General Statistics

Total Number of Observations	853	Number of Missing Observations	0
Number of Distinct Observations	18		
Number of Detects	264	Number of Non-Detects	589
Number of Distinct Detects	18	Number of Distinct Non-Detects	2
Minimum Detect	0.2	Minimum Non-Detect	0.2
Maximum Detect	8	Maximum Non-Detect	1
Variance Detected	1.631	Percent Non-Detects	69.05%
Mean Detected	1.747	SD Detected	1.277
Mean of Detected Logged Data	0.331	SD of Detected Logged Data	0.687

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.836

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.776	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.259	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0549	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.749	KM SD	0.984
95% UTL95% Coverage	2.456	95% KM UPL (t)	2.371
90% KM Percentile (z)	2.01	95% KM Percentile (z)	2.368
99% KM Percentile (z)	3.038	95% KM USL	4.524

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.87	SD	0.924
95% UTL95% Coverage	2.473	95% UPL (t)	2.393
90% Percentile (z)	2.055	95% Percentile (z)	2.39
99% Percentile (z)	3.02	95% USL	4.416

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	11.99	Anderson-Darling GOF Test	
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.249	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0569	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.354	k star (bias corrected MLE)	2.33
Theta hat (MLE)	0.742	Theta star (bias corrected MLE)	0.75
nu hat (MLE)	1243	nu star (bias corrected)	1230
MLE Mean (bias corrected)	1.747		
MLE Sd (bias corrected)	1.144	95% Percentile of Chisquare (2kstar)	10.54

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.6
Maximum	8	Median	0.01
SD	1.055	CV	1.76
k hat (MLE)	0.33	k star (bias corrected MLE)	0.33
Theta hat (MLE)	1.817	Theta star (bias corrected MLE)	1.819
nu hat (MLE)	563	nu star (bias corrected)	562.3
MLE Mean (bias corrected)	0.6	MLE Sd (bias corrected)	1.044
95% Percentile of Chisquare (2kstar)	2.925	90% Percentile	1.747
95% Percentile	2.66	99% Percentile	5.006

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.417	2.574	95% Approx. Gamma UPL	2.216	2.323
95% Gamma USL	11.76	17.51			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.749	SD (KM)	0.984
Variance (KM)	0.968	SE of Mean (KM)	0.0369
k hat (KM)	0.58	k star (KM)	0.578
nu hat (KM)	988.9	nu star (KM)	986.8
theta hat (KM)	1.293	theta star (KM)	1.295
80% gamma percentile (KM)	1.235	90% gamma percentile (KM)	1.965
95% gamma percentile (KM)	2.732	99% gamma percentile (KM)	4.593

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	2.18	2.174	95% Approx. Gamma UPL	2.059	2.045
95% KM Gamma Percentile	2.056	2.04	95% Gamma USL	6.768	7.696

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.903	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.223	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0549	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.747	Mean in Log Scale	-0.92
SD in Original Scale	0.99	SD in Log Scale	1.143
95% UTL95% Coverage	2.891	95% BCA UTL95% Coverage	3
95% Bootstrap (%) UTL95% Coverage	3	95% UPL (t)	2.619
90% Percentile (z)	1.724	95% Percentile (z)	2.611
99% Percentile (z)	5.689	95% USL	31.96

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-0.801	95% KM UTL (Lognormal)95% Coverage	2.22
KM SD of Logged Data	0.922	95% KM UPL (Lognormal)	2.05
95% KM Percentile Lognormal (z)	2.045	95% KM USL (Lognormal)	15.41

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.87	Mean in Log Scale	-0.439
SD in Original Scale	0.924	SD in Log Scale	0.711
95% UTL95% Coverage	2.214	95% UPL (t)	2.082
90% Percentile (z)	1.605	95% Percentile (z)	2.078
99% Percentile (z)	3.374	95% USL	9.875

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	820	95% UTL with95% Coverage	3
Approx, f used to compute achieved CC	1.269	Approximate Actual Confidence Coefficient achieved by UT	0.929
Approximate Sample Size needed to achieve specified CC	877	95% UPL	3
95% USL	8	95% KM Chebyshev UPL	5.041

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, silver)

General Statistics

Total Number of Observations	827	Number of Missing Observations	0
Number of Distinct Observations	29		
Number of Detects	802	Number of Non-Detects	25
Number of Distinct Detects	29	Number of Distinct Non-Detects	2
Minimum Detect	0.1	Minimum Non-Detect	0.1
Maximum Detect	19.3	Maximum Non-Detect	1
Variance Detected	0.736	Percent Non-Detects	3.02%
Mean Detected	0.497	SD Detected	0.858
Mean of Detected Logged Data	-0.991	SD of Detected Logged Data	0.68

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.735	d2max (for USL)	3.828

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.29	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.322	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0316	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.487	KM SD	0.846
95% UTL95% Coverage	1.956	95% KM UPL (t)	1.882
90% KM Percentile (z)	1.572	95% KM Percentile (z)	1.88
99% KM Percentile (z)	2.456	95% KM USL	3.728

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.487	SD	0.847
95% UTL95% Coverage	1.957	95% UPL (t)	1.883
90% Percentile (z)	1.573	95% Percentile (z)	1.881
99% Percentile (z)	2.458	95% USL	3.731

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.25E+28	Anderson-Darling GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.155	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0338	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.859	k star (bias corrected MLE)	1.852
Theta hat (MLE)	0.268	Theta star (bias corrected MLE)	0.268
nu hat (MLE)	2981	nu star (bias corrected)	2971
MLE Mean (bias corrected)	0.497		
MLE Sd (bias corrected)	0.365	95% Percentile of Chisquare (2kstar)	9.005

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.485
Maximum	19.3	Median	0.4
SD	0.848	CV	1.748
k hat (MLE)	1.552	k star (bias corrected MLE)	1.547
Theta hat (MLE)	0.313	Theta star (bias corrected MLE)	0.314
nu hat (MLE)	2567	nu star (bias corrected)	2559
MLE Mean (bias corrected)	0.485	MLE Sd (bias corrected)	0.39
95% Percentile of Chisquare (2kstar)	7.977	90% Percentile	1.003
95% Percentile	1.251	99% Percentile	1.809

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.24	1.255	95% Approx. Gamma UPL	1.18	1.19
95% Gamma USL	3.342	3.771			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.487	SD (KM)	0.846
Variance (KM)	0.717	SE of Mean (KM)	0.0295
k hat (KM)	0.331	k star (KM)	0.331
nu hat (KM)	548.1	nu star (KM)	547.5
theta hat (KM)	1.47	theta star (KM)	1.472
80% gamma percentile (KM)	0.764	90% gamma percentile (KM)	1.419
95% gamma percentile (KM)	2.159	99% gamma percentile (KM)	4.059

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.187	1.173	95% Approx. Gamma UPL	1.132	1.116
95% KM Gamma Percentile	1.131	1.114	95% Gamma USL	3.071	3.292

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.936	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.15	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0316	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.487	Mean in Log Scale	-1.031
SD in Original Scale	0.847	SD in Log Scale	0.718
95% UTL95% Coverage	1.24	95% BCA UTL95% Coverage	1.07
95% Bootstrap (%) UTL95% Coverage	1.1	95% UPL (t)	1.165
90% Percentile (z)	0.895	95% Percentile (z)	1.162
99% Percentile (z)	1.896	95% USL	5.573

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.022	95% KM UTL (Lognormal)95% Coverage	1.212
KM SD of Logged Data	0.7	95% KM UPL (Lognormal)	1.14
95% KM Percentile Lognormal (z)	1.137	95% KM USL (Lognormal)	5.241

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.487	Mean in Log Scale	-1.035
SD in Original Scale	0.847	SD in Log Scale	0.735
95% UTL95% Coverage	1.272	95% UPL (t)	1.192
90% Percentile (z)	0.911	95% Percentile (z)	1.19
99% Percentile (z)	1.963	95% USL	5.92

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	795	95% UTL with95% Coverage	1.1
Approx, f used to compute achieved CC	1.268	Approximate Actual Confidence Coefficient achieved by UT	0.925
Approximate Sample Size needed to achieve specified CC	854	95% UPL	1
95% USL	19.3	95% KM Chebyshev UPL	4.179

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, thallium)

General Statistics			
Total Number of Observations	6	Number of Distinct Observations	4
Minimum	0.3	First Quartile	0.35
Second Largest	0.6	Median	0.5
Maximum	0.7	Third Quartile	0.575
Mean	0.483	SD	0.16
Coefficient of Variation	0.331	Skewness	-0.0405
Mean of logged Data	-0.777	SD of logged Data	0.354
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822
Normal GOF Test			
Shapiro Wilk Test Statistic	0.908	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.208	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	1.077	90% Percentile (z)	0.689
95% UPL (t)	0.832	95% Percentile (z)	0.747
95% USL	0.775	99% Percentile (z)	0.856
Gamma GOF Test			
A-D Test Statistic	0.437	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.251	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	10.18	k star (bias corrected MLE)	5.202
Theta hat (MLE)	0.0475	Theta star (bias corrected MLE)	0.0929
nu hat (MLE)	122.2	nu star (bias corrected)	62.43
MLE Mean (bias corrected)	0.483	MLE Sd (bias corrected)	0.212
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.918	90% Percentile	0.767
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.934	95% Percentile	0.876
95% WH Approx. Gamma UTL with 95% Coverage	1.366	99% Percentile	1.107
95% HW Approx. Gamma UTL with 95% Coverage	1.43		
95% WH USL	0.831	95% HW USL	0.841
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.873	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.26	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	1.708	90% Percentile (z)	0.724
95% UPL (t)	0.993	95% Percentile (z)	0.823
95% USL	0.876	99% Percentile (z)	1.047
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	6	95% UTL with 95% Coverage	0.7
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by U1	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.7	95% BCA Bootstrap UTL with 95% Coverage	0.7
95% UPL	0.7	90% Percentile	0.65
90% Chebyshev UPL	1.002	95% Percentile	0.675
95% Chebyshev UPL	1.238	99% Percentile	0.695
95% USL	0.7		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, vanadium)

General Statistics

Total Number of Observations	3129	Number of Missing Observations	0
Number of Distinct Observations	192		
Number of Detects	3054	Number of Non-Detects	75
Number of Distinct Detects	192	Number of Distinct Non-Detects	1
Minimum Detect	10	Minimum Non-Detect	10
Maximum Detect	1080	Maximum Non-Detect	10
Variance Detected	2056	Percent Non-Detects	2.40%
Mean Detected	81.48	SD Detected	45.35
Mean of Detected Logged Data	4.291	SD of Detected Logged Data	0.461

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.691	d2max (for USL)	4.154

Normal GOF Test on Detects Only

Lilliefors Test Statistic	0.148	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0162	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	79.77	KM SD	46.11
95% UTL95% Coverage	157.7	95% KM UPL (t)	155.6
90% KM Percentile (z)	138.9	95% KM Percentile (z)	155.6
99% KM Percentile (z)	187	95% KM USL	271.3

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	79.65	SD	46.3
95% UTL95% Coverage	157.9	95% UPL (t)	155.8
90% Percentile (z)	139	95% Percentile (z)	155.8
99% Percentile (z)	187.4	95% USL	272

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.27E+27	Anderson-Darling GOF Test	
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0844	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0183	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	4.726	k star (bias corrected MLE)	4.722
Theta hat (MLE)	17.24	Theta star (bias corrected MLE)	17.26
nu hat (MLE)	28867	nu star (bias corrected)	28840
MLE Mean (bias corrected)	81.48		
MLE Sd (bias corrected)	37.5	95% Percentile of Chisquare (2kstar)	17.54

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	79.77
Maximum	1080	Median	70
SD	46.12	CV	0.578
k hat (MLE)	3.629	k star (bias corrected MLE)	3.626
Theta hat (MLE)	21.98	Theta star (bias corrected MLE)	22
nu hat (MLE)	22711	nu star (bias corrected)	22691
MLE Mean (bias corrected)	79.77	MLE Sd (bias corrected)	41.89
95% Percentile of Chisquare (2kstar)	14.43	90% Percentile	135.9
95% Percentile	158.8	99% Percentile	207.7

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	159.6	163.4	95% Approx. Gamma UPL	156.7	160.2
95% Gamma USL	379.4	424.9			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	79.77	SD (KM)	46.11
Variance (KM)	2126	SE of Mean (KM)	0.824
k hat (KM)	2.993	k star (KM)	2.99
nu hat (KM)	18730	nu star (KM)	18713
theta hat (KM)	26.65	theta star (KM)	26.68
80% gamma percentile (KM)	113.8	90% gamma percentile (KM)	141.6
95% gamma percentile (KM)	167.6	99% gamma percentile (KM)	223.8

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	158.2	160.9	95% Approx. Gamma UPL	155.4	157.9
95% KM Gamma Percentile	155.3	157.8	95% Gamma USL	373	411.6

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0656	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0162	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	80.08	Mean in Log Scale	4.263
SD in Original Scale	45.69	SD in Log Scale	0.49
95% UTL95% Coverage	162.7	95% BCA UTL95% Coverage	160

Background Statistics for all samples in Data Sets with Non-Detects

95% Bootstrap (%) UTL95% Coverage	160	95% UPL (t)	159.1
90% Percentile (z)	133.1	95% Percentile (z)	159
99% Percentile (z)	222.1	95% USL	544

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	4.243	95% KM UTL (Lognormal)95% Coverage	175.8
KM SD of Logged Data	0.548	95% KM UPL (Lognormal)	171.5
95% KM Percentile Lognormal (z)	171.5	95% KM USL (Lognormal)	678

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	79.65	Mean in Log Scale	4.227
SD in Original Scale	46.3	SD in Log Scale	0.613
95% UTL95% Coverage	193.1	95% UPL (t)	187.9
90% Percentile (z)	150.3	95% Percentile (z)	187.8
99% Percentile (z)	285.2	95% USL	874.6

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	2993	95% UTL with95% Coverage	160
Approx, f used to compute achieved CC	1.15	Approximate Actual Confidence Coefficient achieved by UT	0.951
Approximate Sample Size needed to achieve specified CC	3126	95% UPL	152
95% USL	1080	95% KM Chebyshev UPL	280.8

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (total, zinc)

General Statistics

Total Number of Observations	847	Number of Distinct Observations	104
Minimum	5	First Quartile	27
Second Largest	687	Median	38
Maximum	1650	Third Quartile	53
Mean	47.06	SD	67.56
Coefficient of Variation	1.436	Skewness	17.29
Mean of logged Data	3.63	SD of logged Data	0.597

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test

Shapiro Wilk Test Statistic	0.312	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.283	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	164.2	90% Percentile (z)	133.6
95% UPL (t)	158.4	95% Percentile (z)	158.2
95% USL	306.1	99% Percentile (z)	204.2

Gamma GOF Test

A-D Test Statistic	1.18E+28	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.765	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.105	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0326	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics

k hat (MLE)	2.412	k star (bias corrected MLE)	2.404
Theta hat (MLE)	19.51	Theta star (bias corrected MLE)	19.57
nu hat (MLE)	4086	nu star (bias corrected)	4072
MLE Mean (bias corrected)	47.06	MLE Sd (bias corrected)	30.35

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	101.2	90% Percentile	87.71
95% Hawkins Wixley (HW) Approx. Gamma UPL	99.9	95% Percentile	105.4
95% WH Approx. Gamma UTL with 95% Coverage	105.5	99% Percentile	144.3
95% HW Approx. Gamma UTL with 95% Coverage	104.3		
95% WH USL	250.4	95% HW USL	263.9

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.977	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	6.04E-05	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0506	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0307	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	106.2	90% Percentile (z)	81.02
95% UPL (t)	100.8	95% Percentile (z)	100.6
95% USL	371.7	99% Percentile (z)	151.1

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	814	95% UTL with 95% Coverage	99
Approx, f used to compute achieved CC	1.26	Approximate Actual Confidence Coefficient achieved by U1	0.922
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	99.4	95% BCA Bootstrap UTL with 95% Coverage	99
95% UPL	95	90% Percentile	75.8
90% Chebyshev UPL	249.8	95% Percentile	94.7
95% Chebyshev UPL	341.7	99% Percentile	181.6
95% USL	1650		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

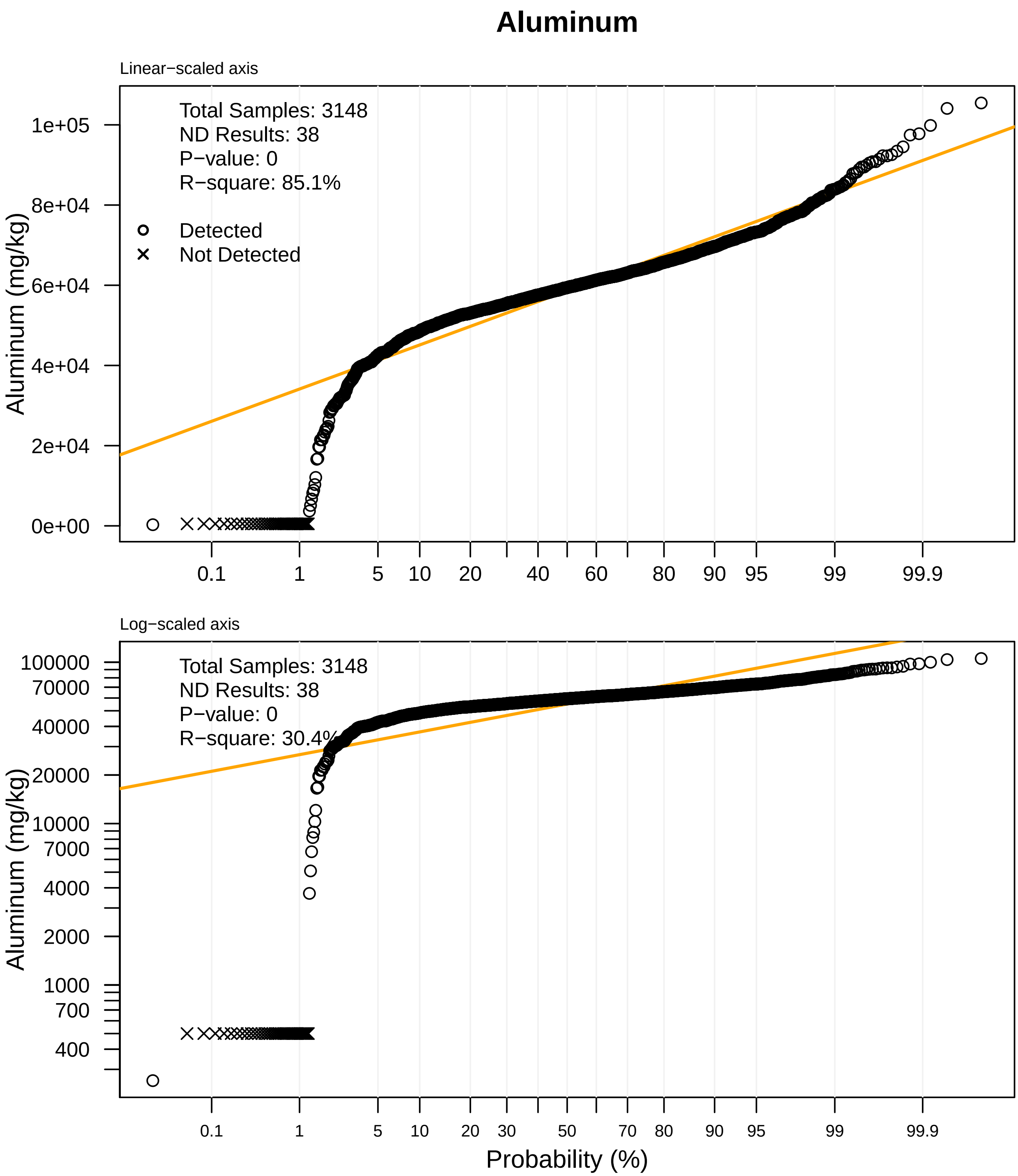

Figure C1−1. Boxplots of aluminum concentrations by total metals methods

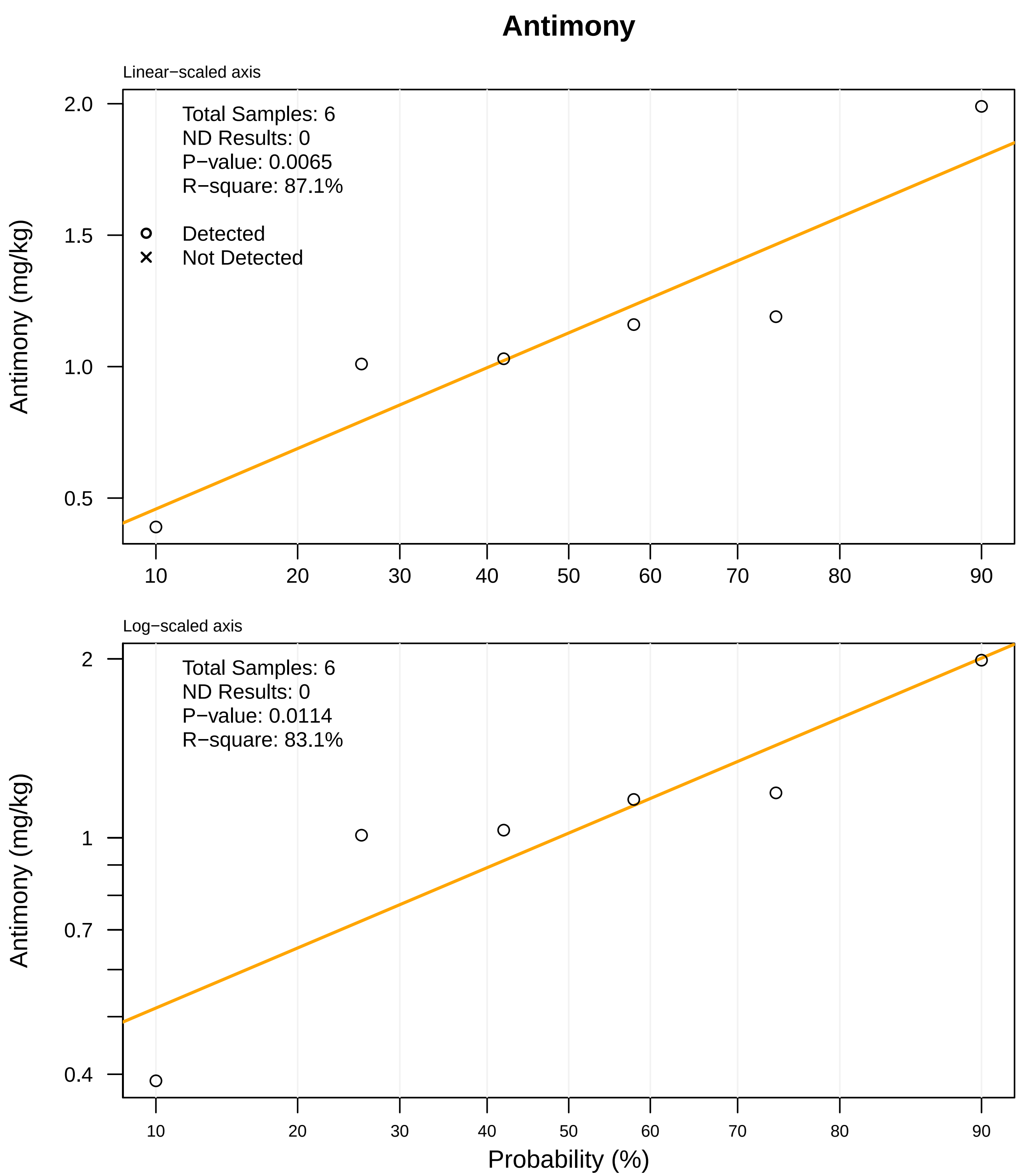

Figure C1−2. Boxplots of antimony concentrations by total metals methods

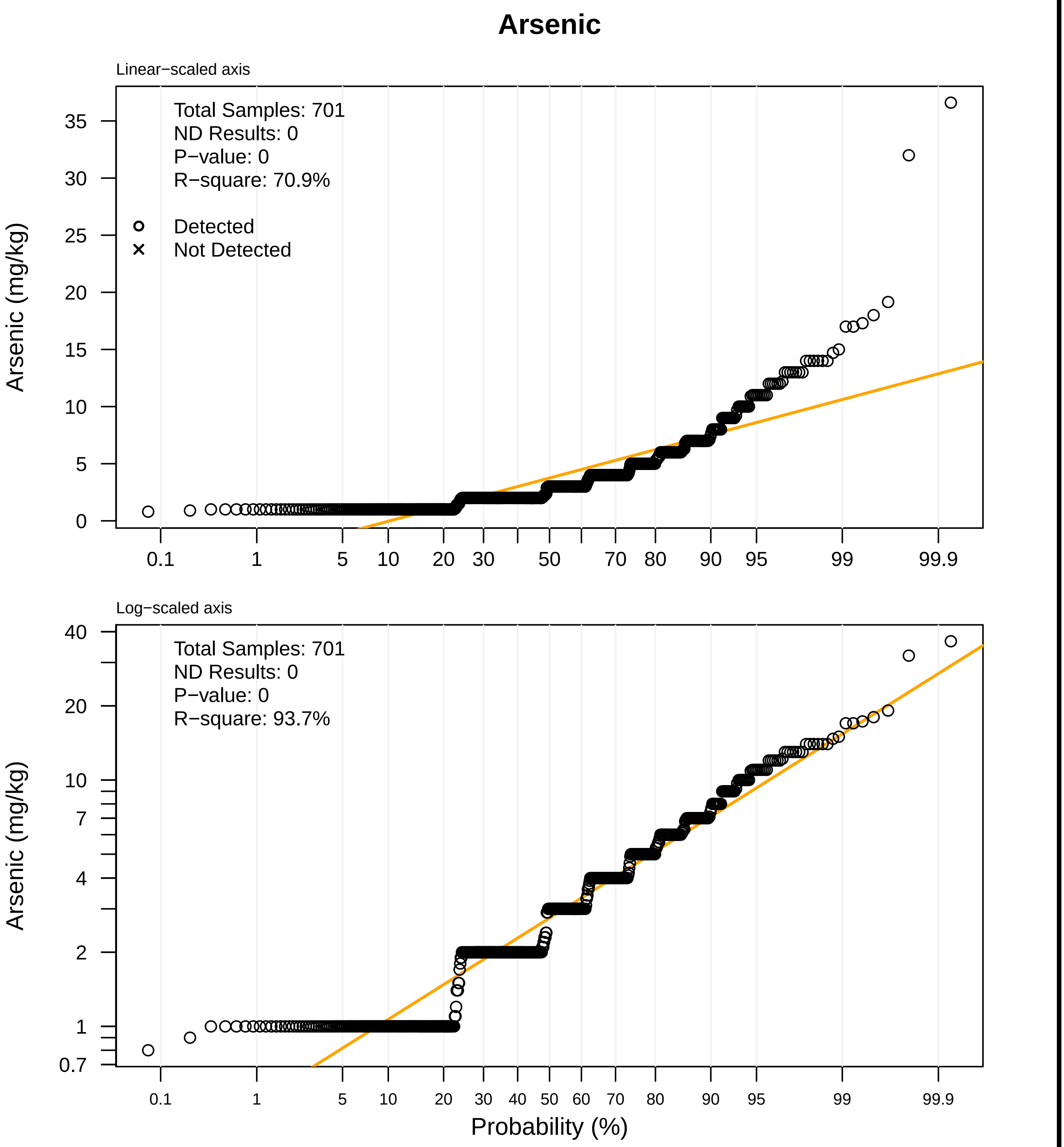

Figure C1−3. Boxplots of arsenic concentrations by total metals methods

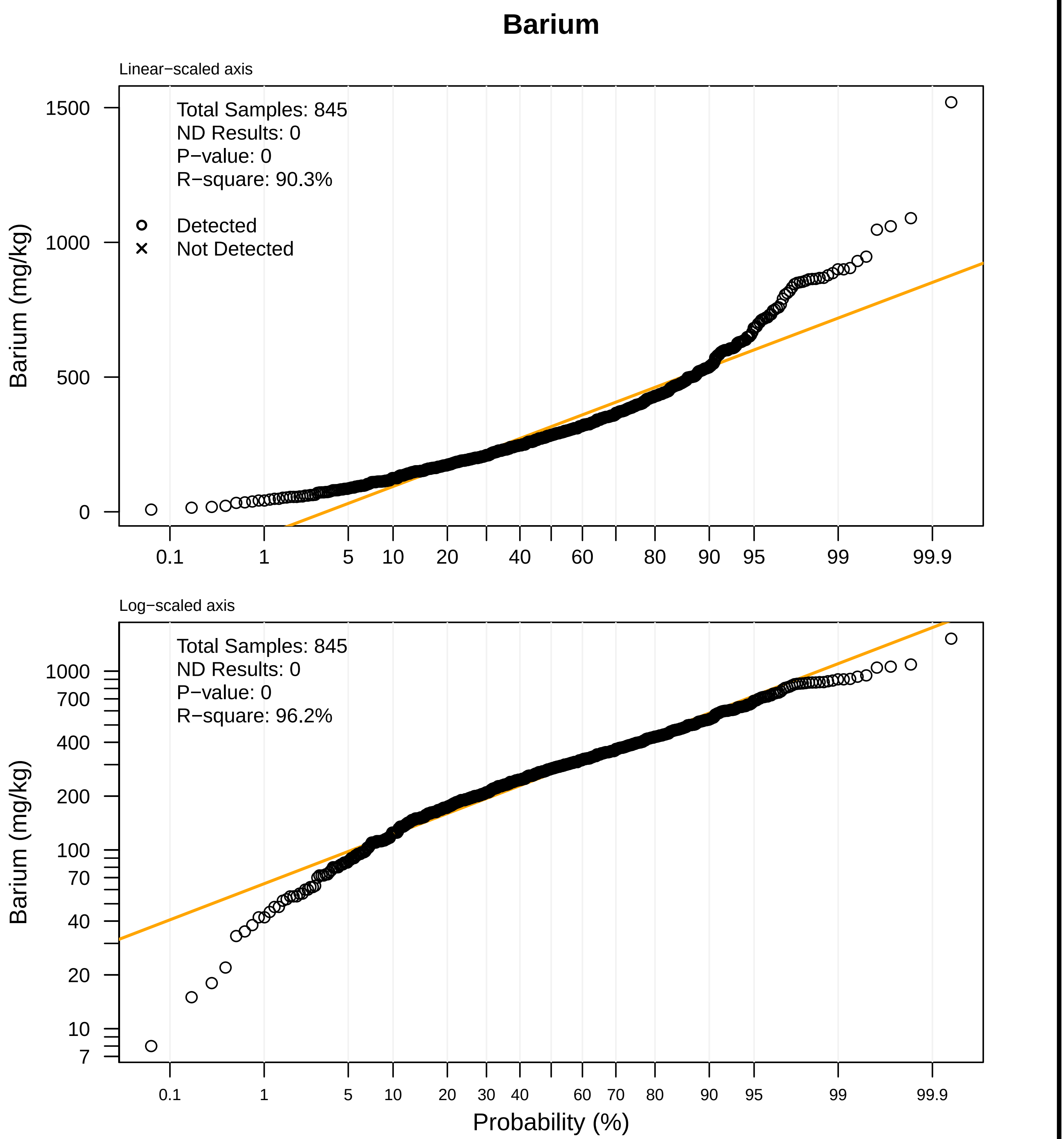

Figure C1−4. Boxplots of barium concentrations by total metals methods

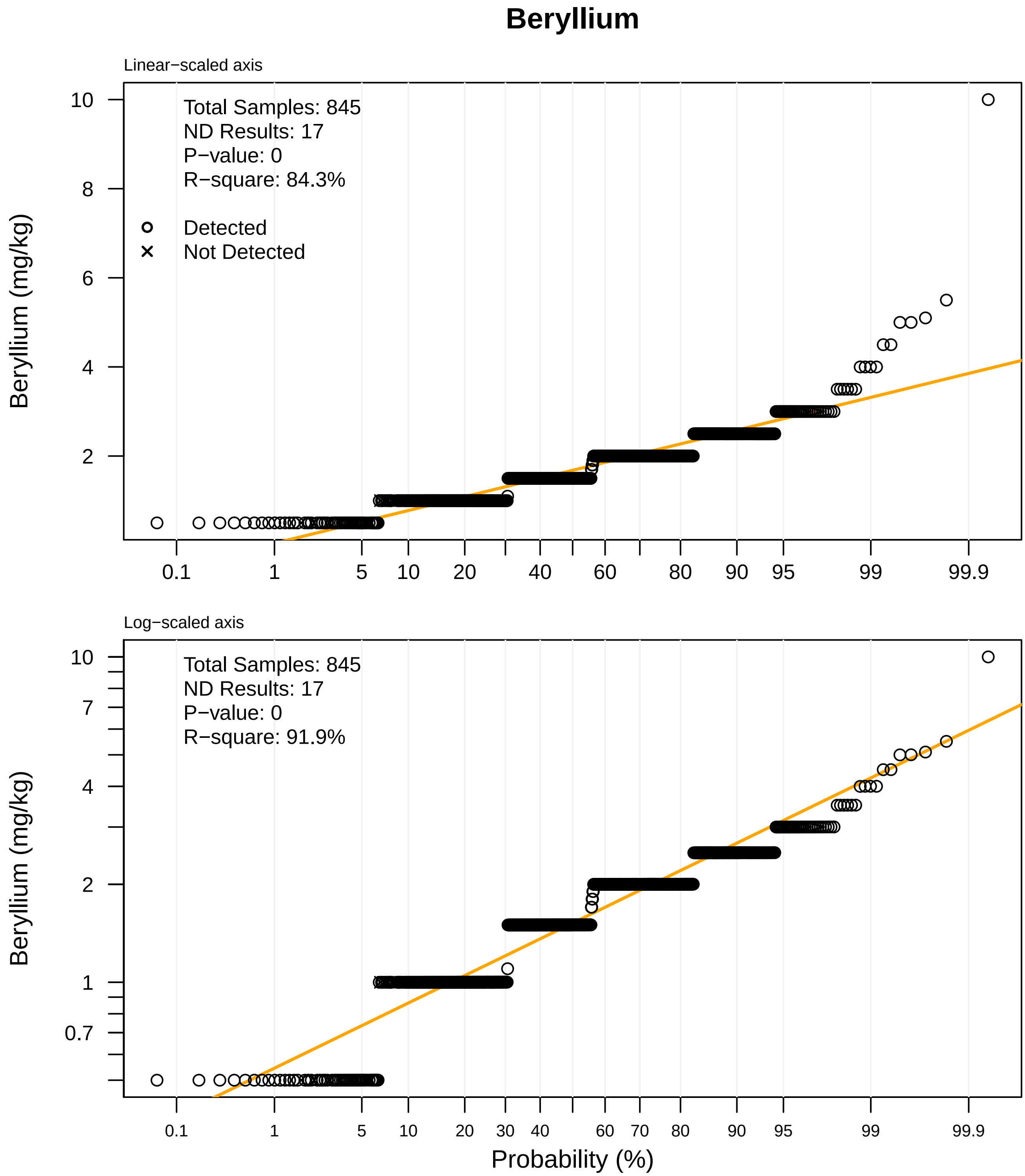

Figure C1−5. Boxplots of beryllium concentrations by total metals methods

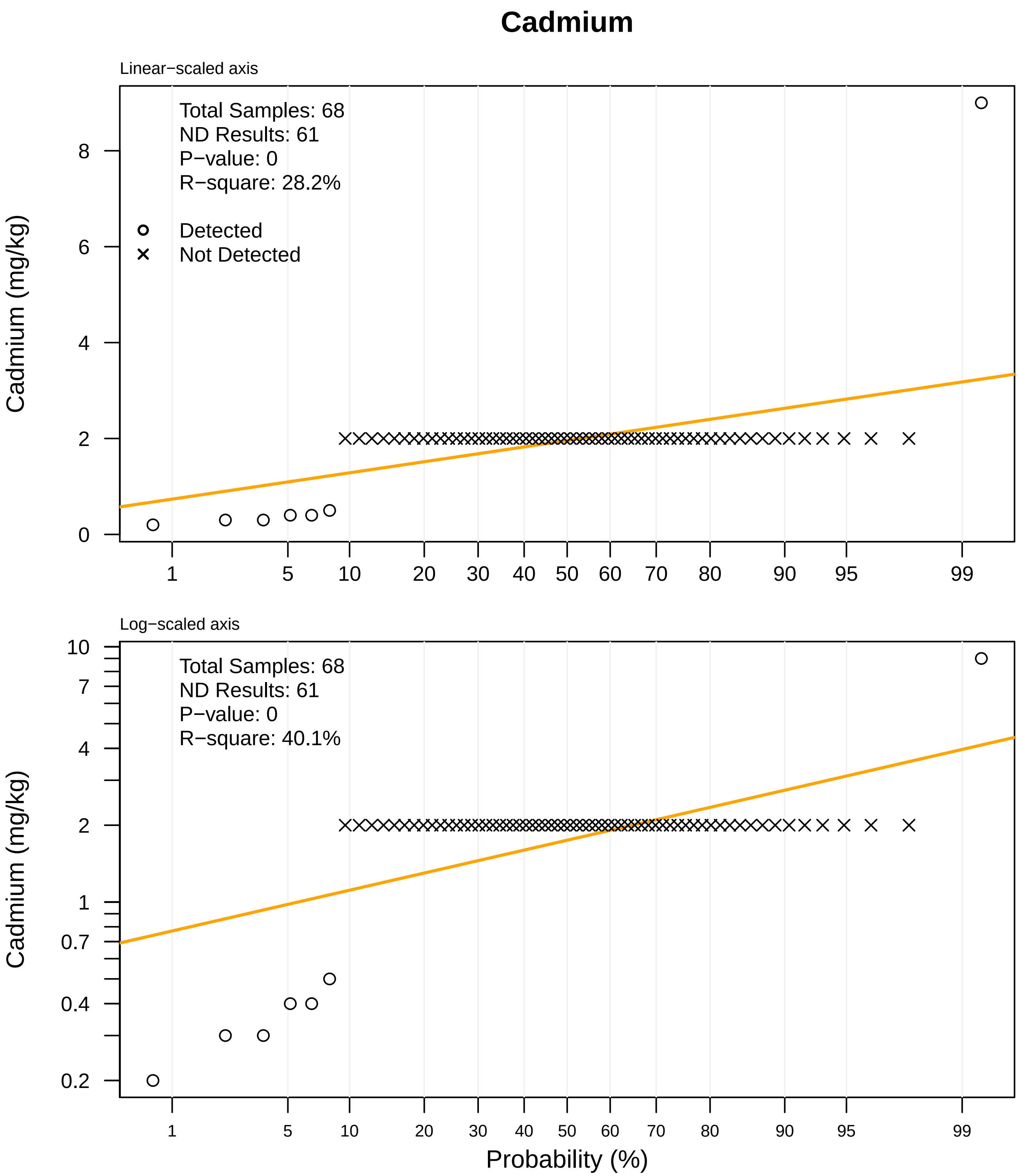

Figure C1−6. Boxplots of cadmium concentrations by total metals methods

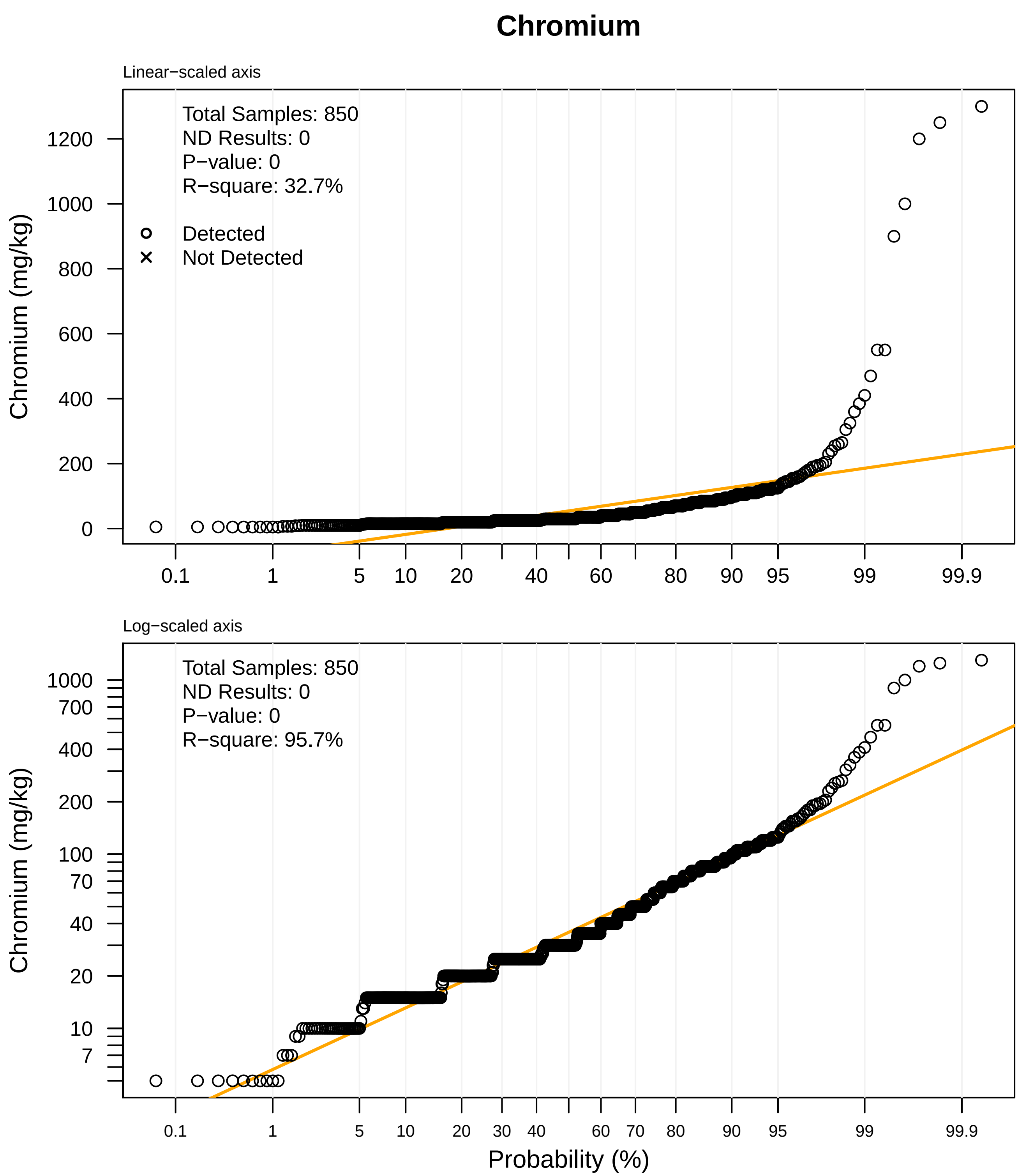

Figure C1−7. Boxplots of chromium concentrations by total metals methods

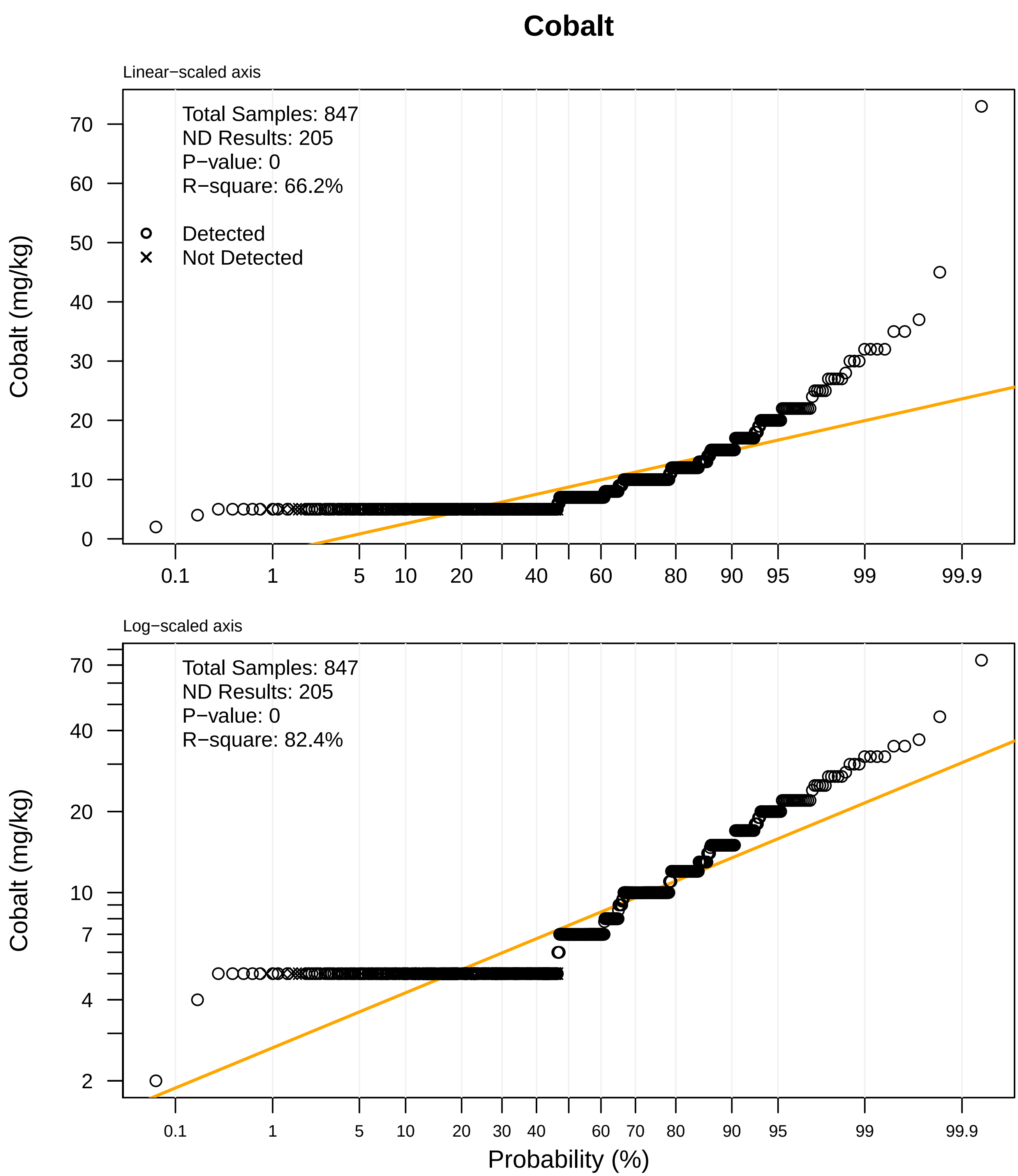

Figure C1−8. Boxplots of cobalt concentrations by total metals methods

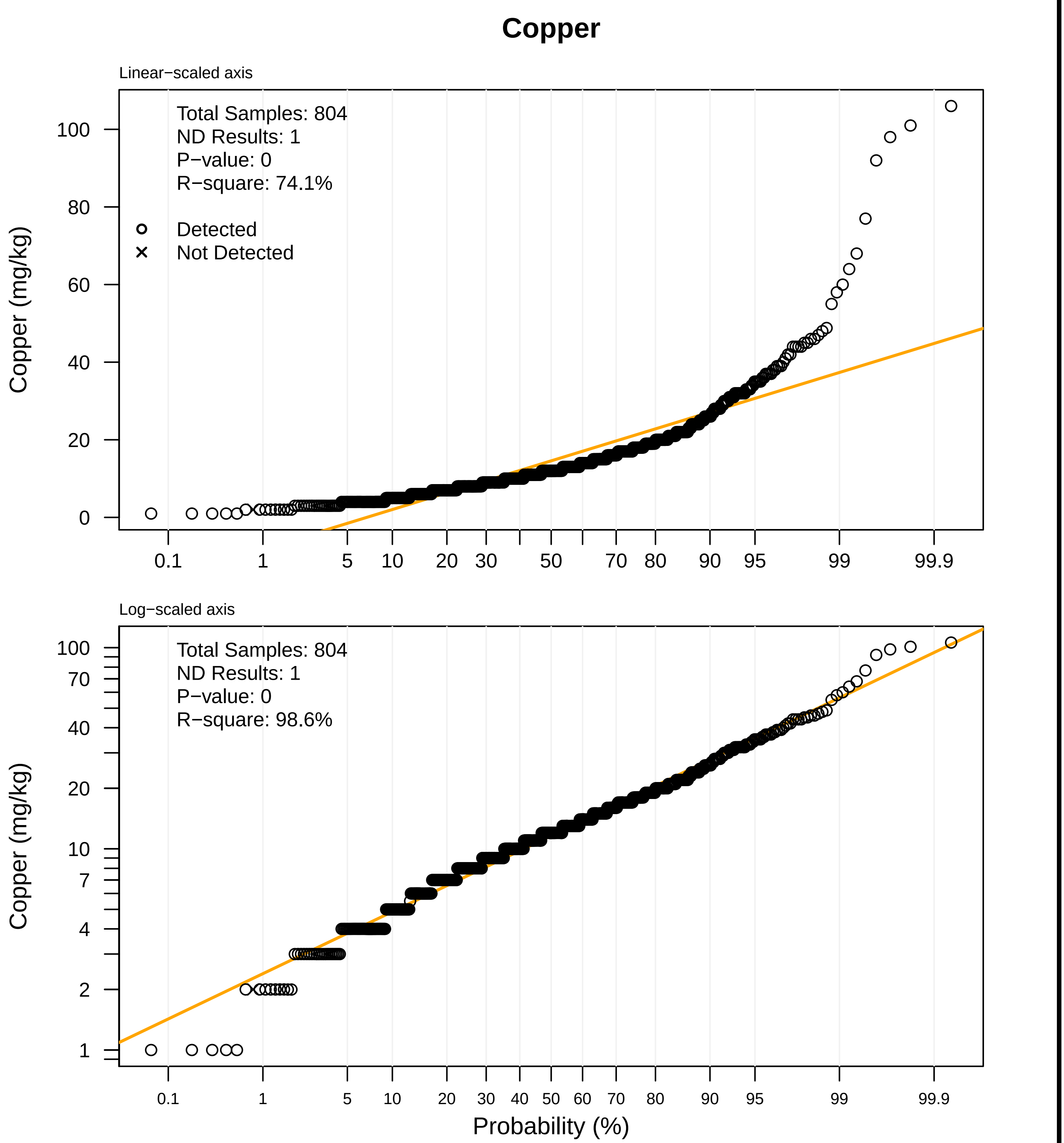

Figure C1−9. Boxplots of copper concentrations by total metals methods

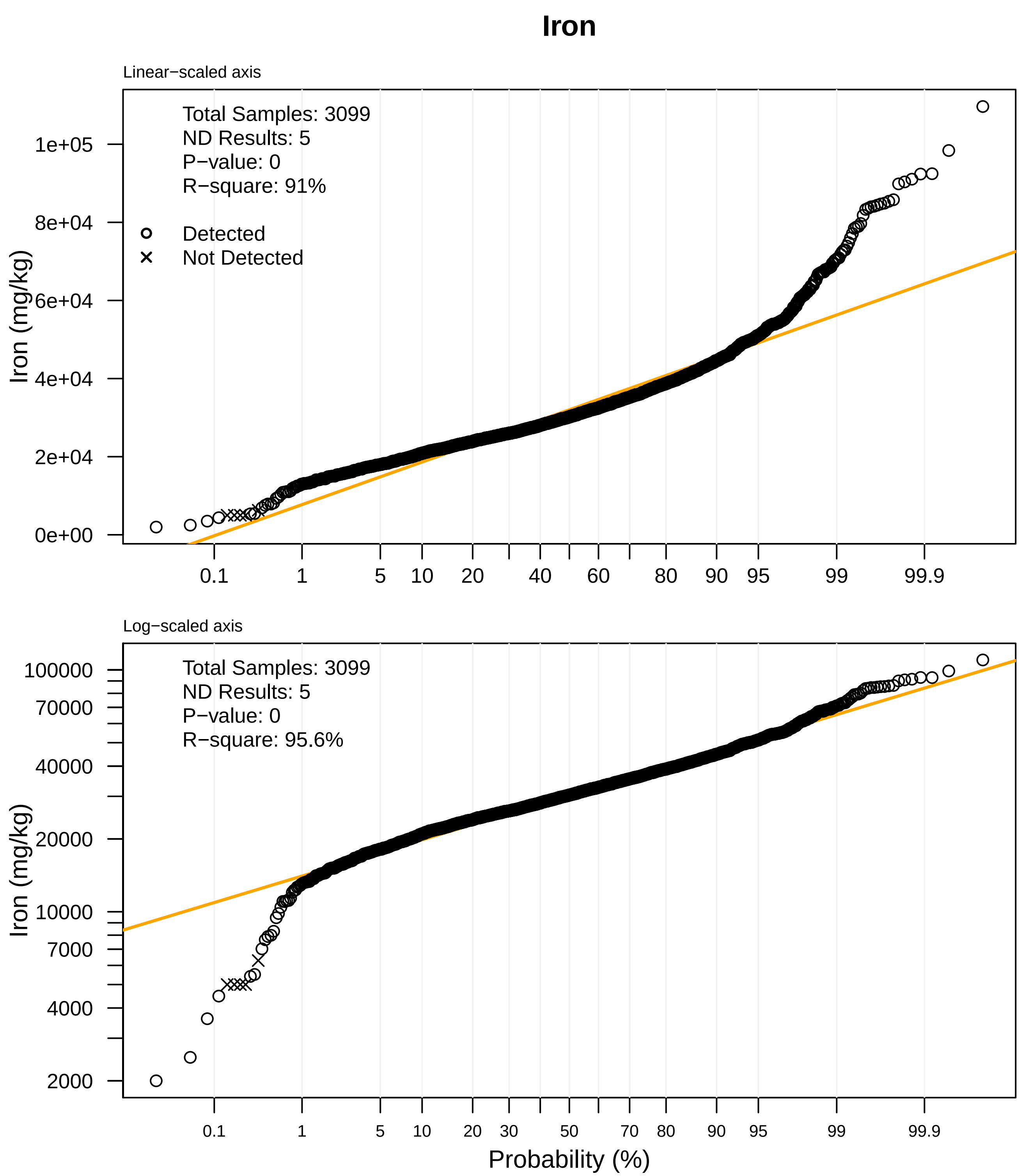

Figure C1−10. Boxplots of iron concentrations by total metals methods

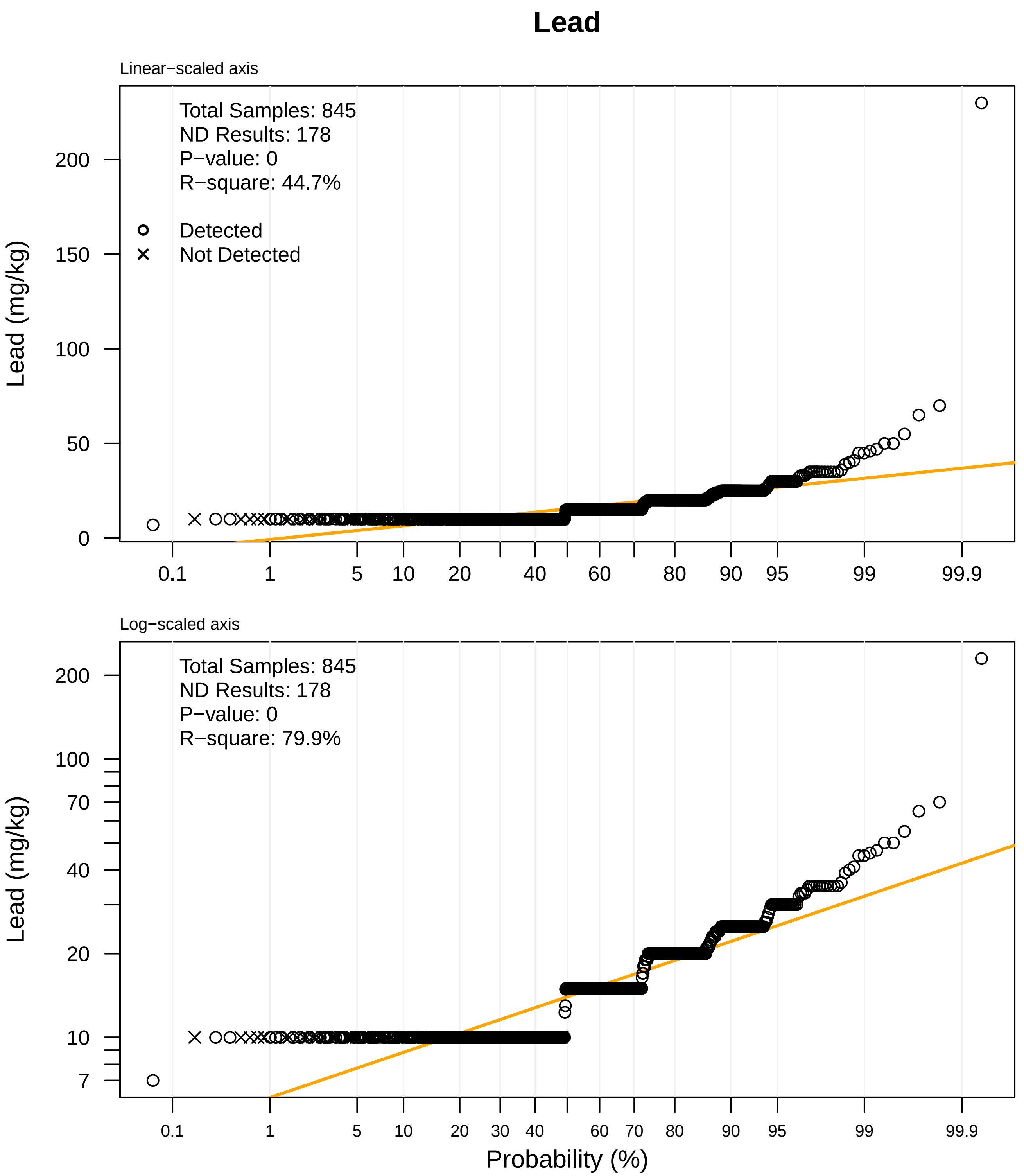

Figure C1−11. Boxplots of lead concentrations by total metals methods

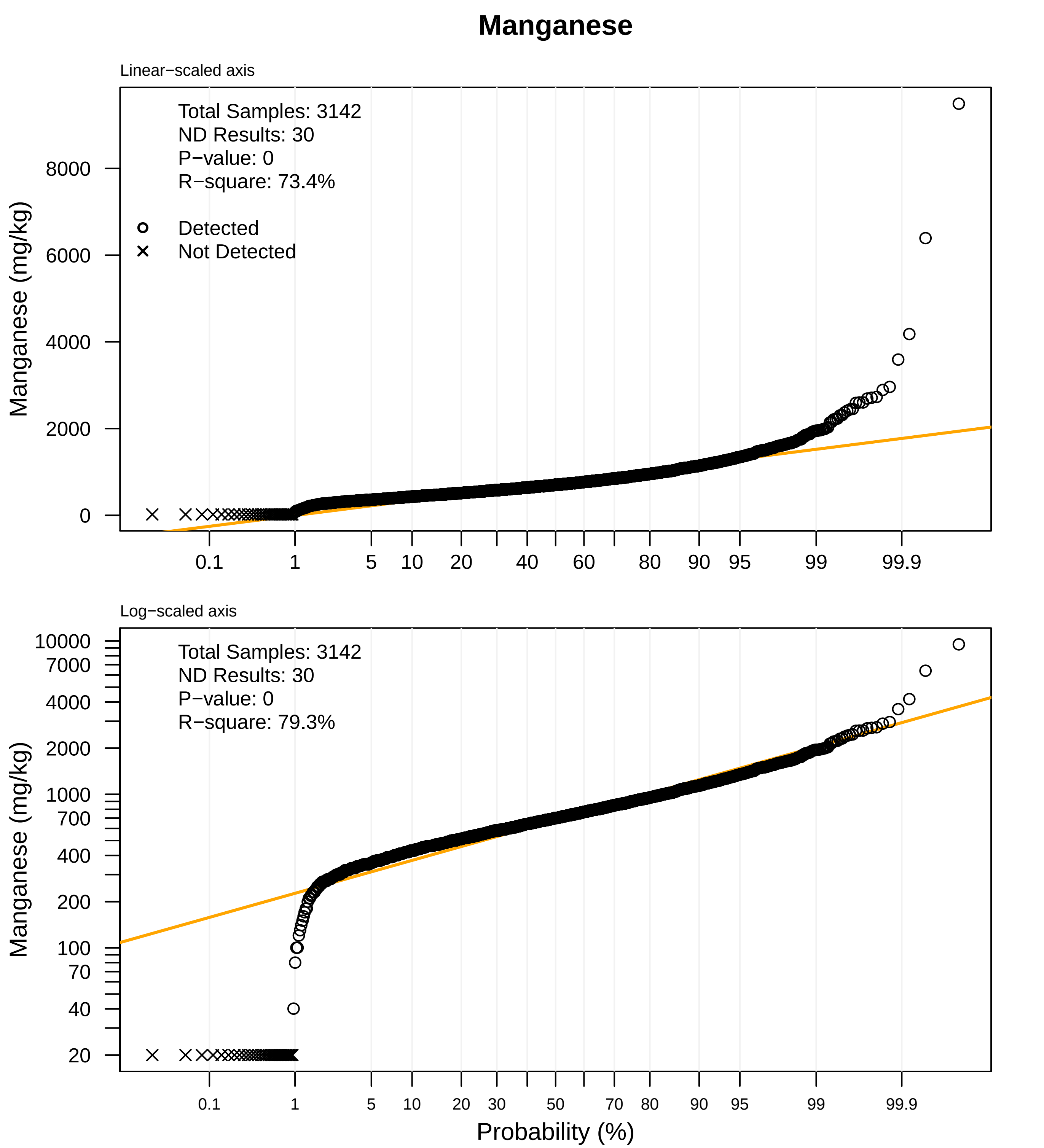

Figure C1−12. Boxplots of manganese concentrations by total metals methods

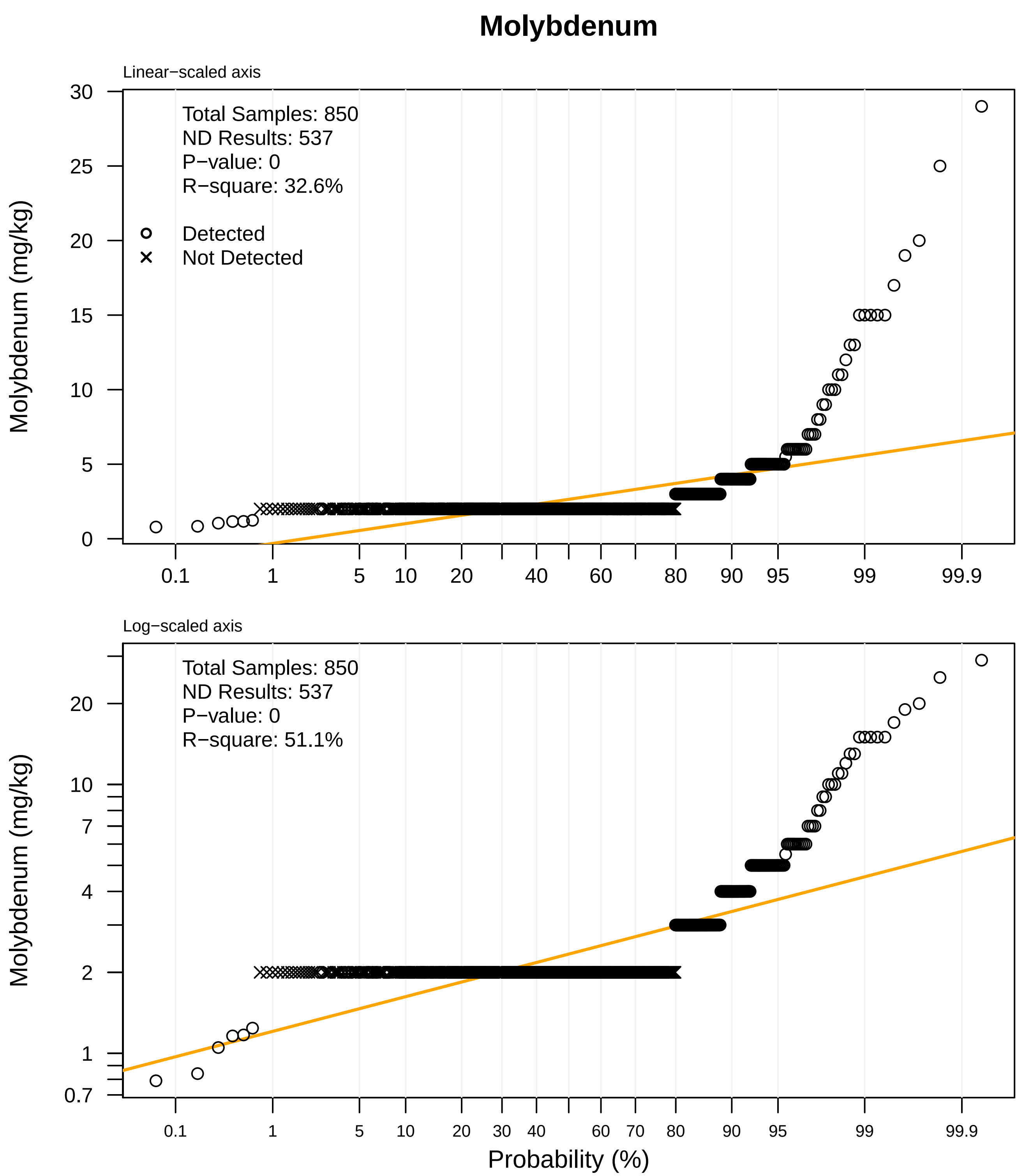

Figure C1−13. Boxplots of molybdenum concentrations by total metals methods

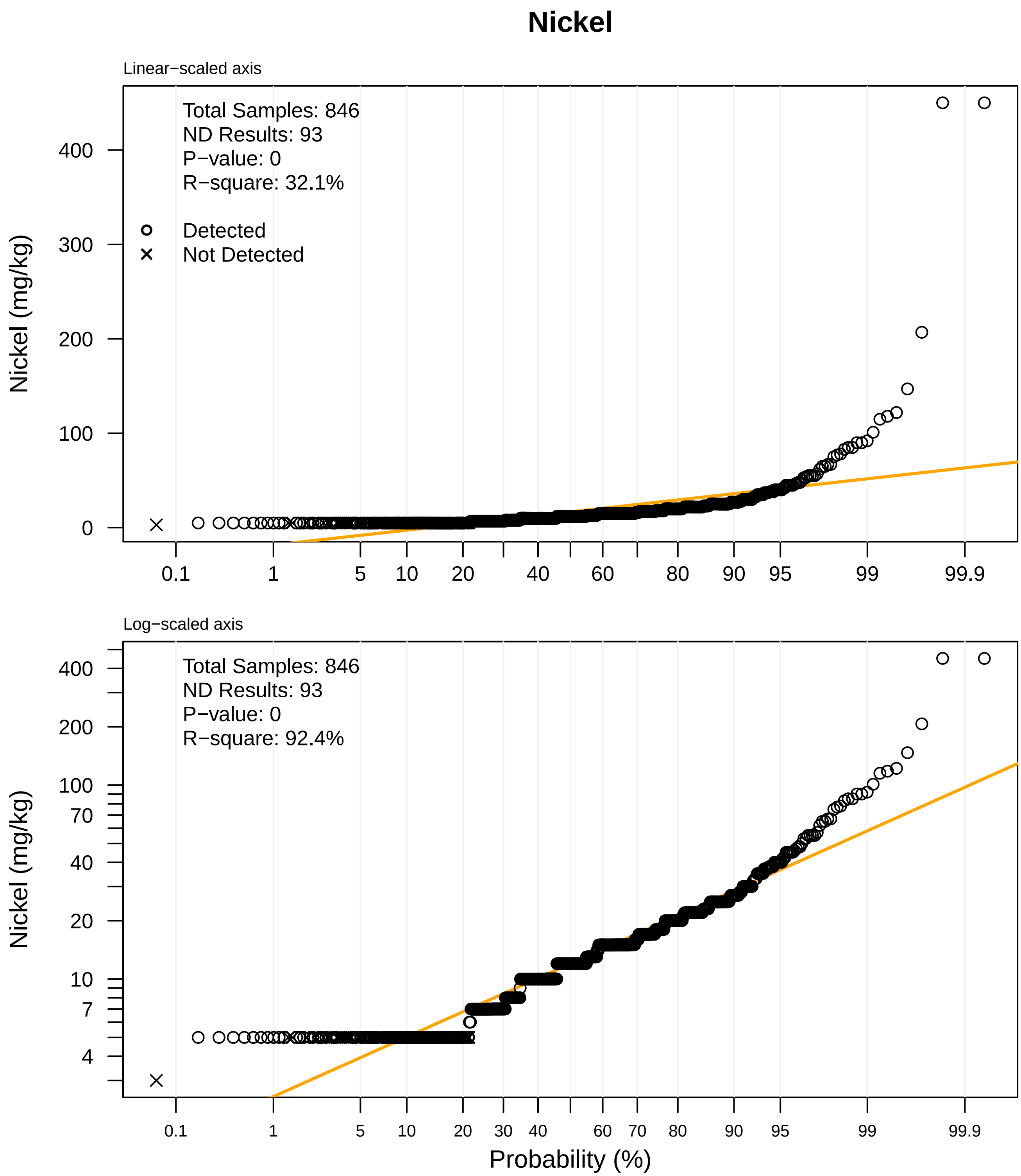

Figure C1−14. Boxplots of nickel concentrations by total metals methods

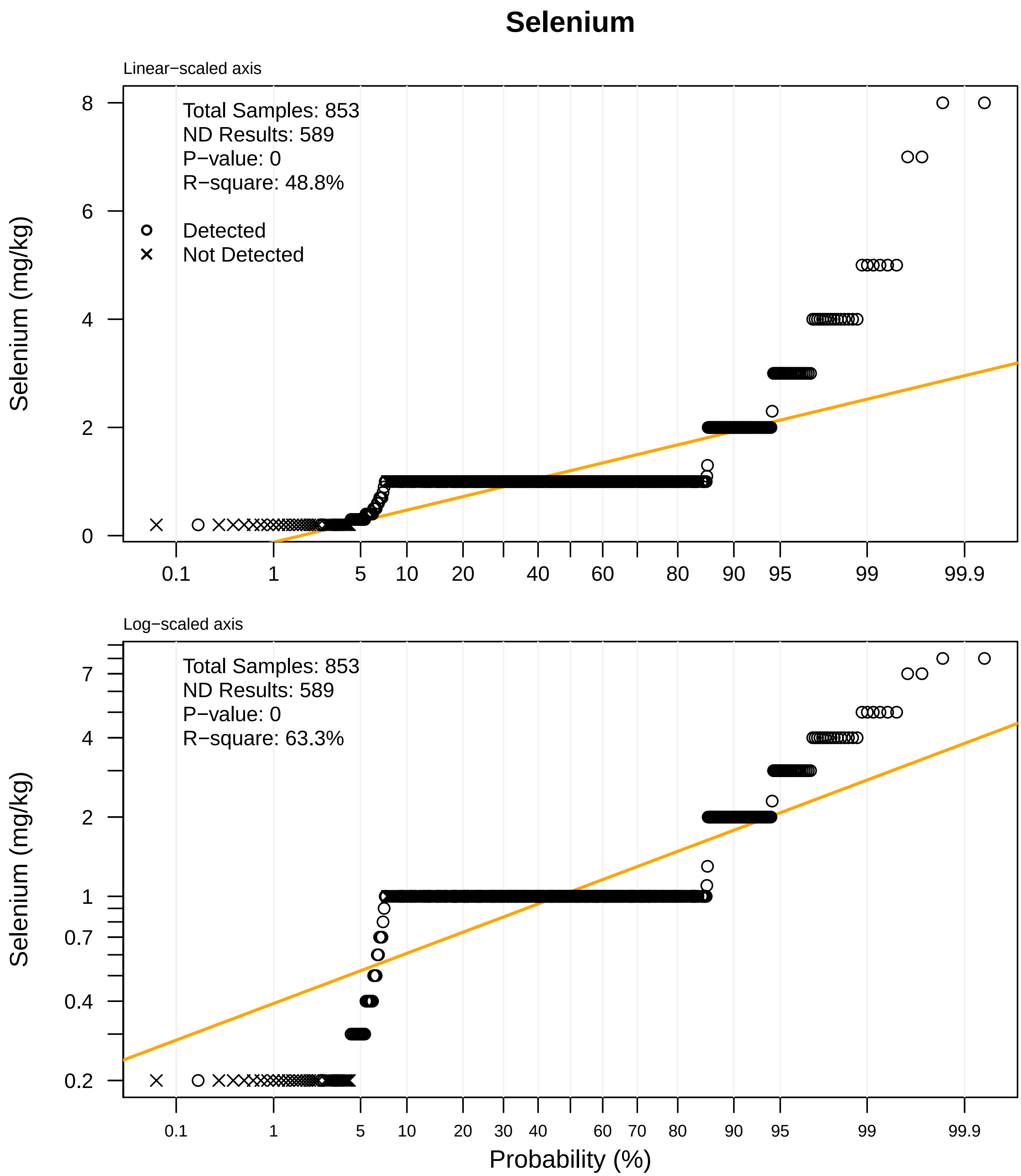

Figure C1−15. Boxplots of selenium concentrations by total metals methods

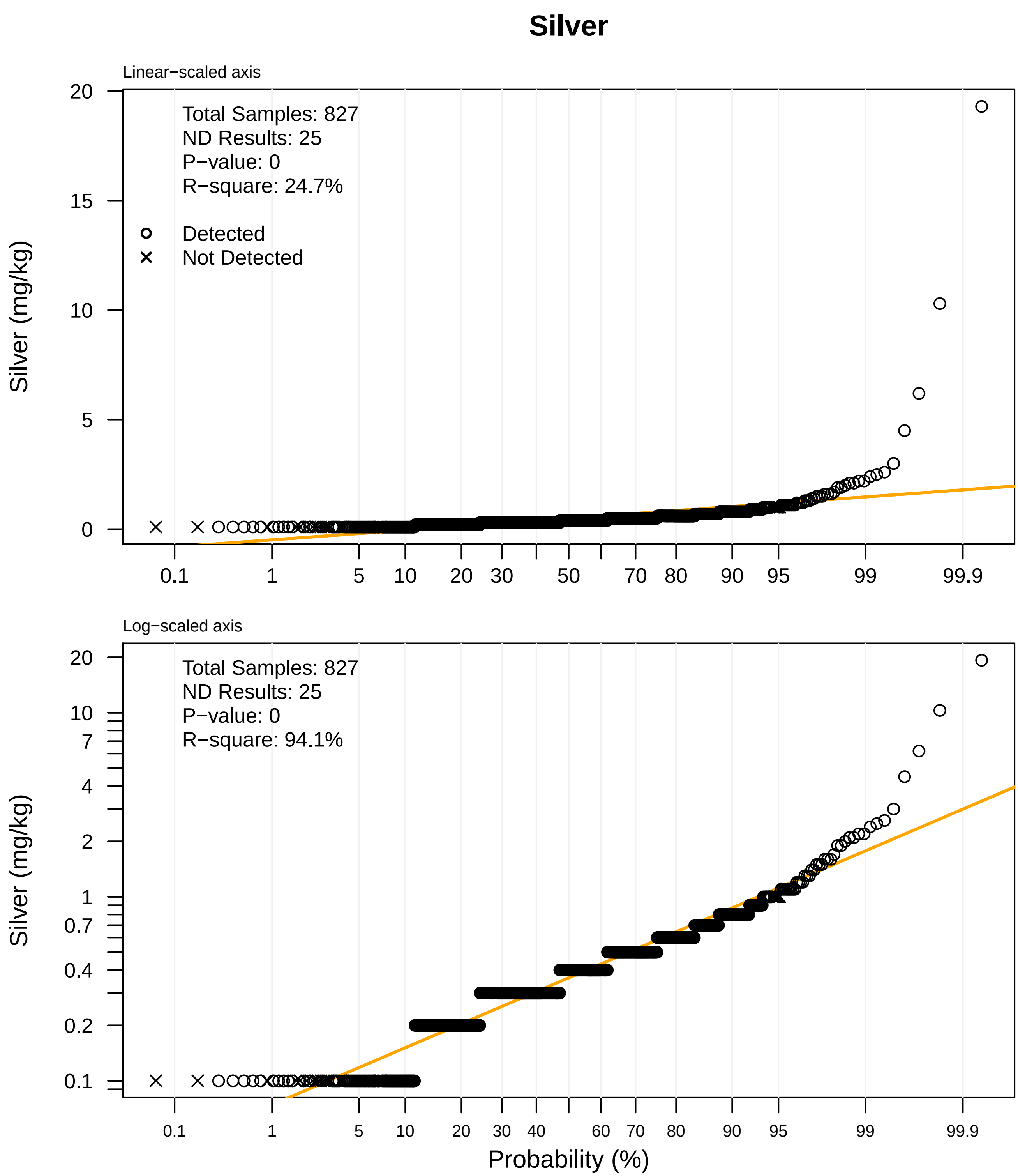

Figure C1−16. Boxplots of silver concentrations by total metals methods

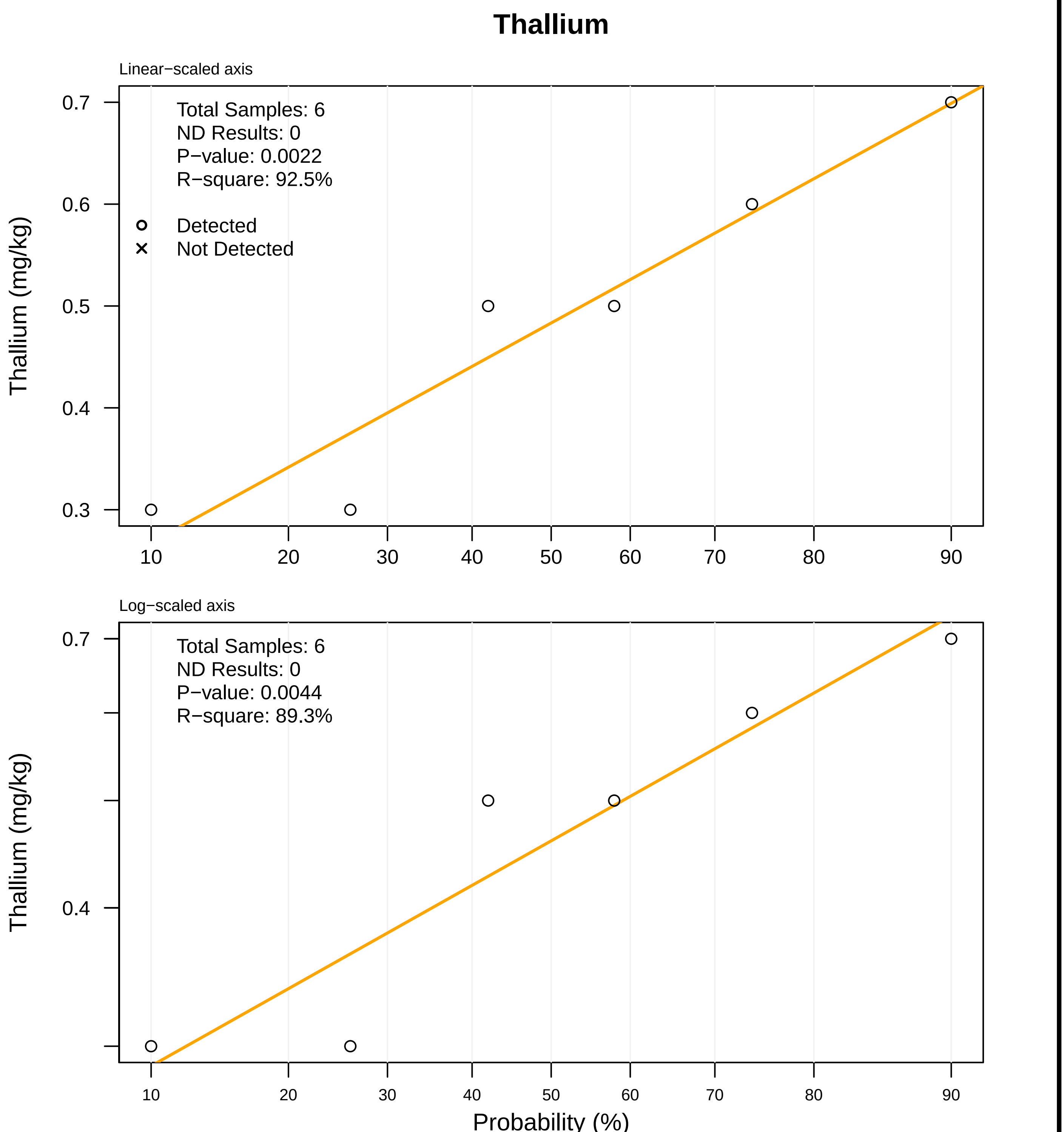

Figure C1−17. Boxplots of thallium concentrations by total metals methods

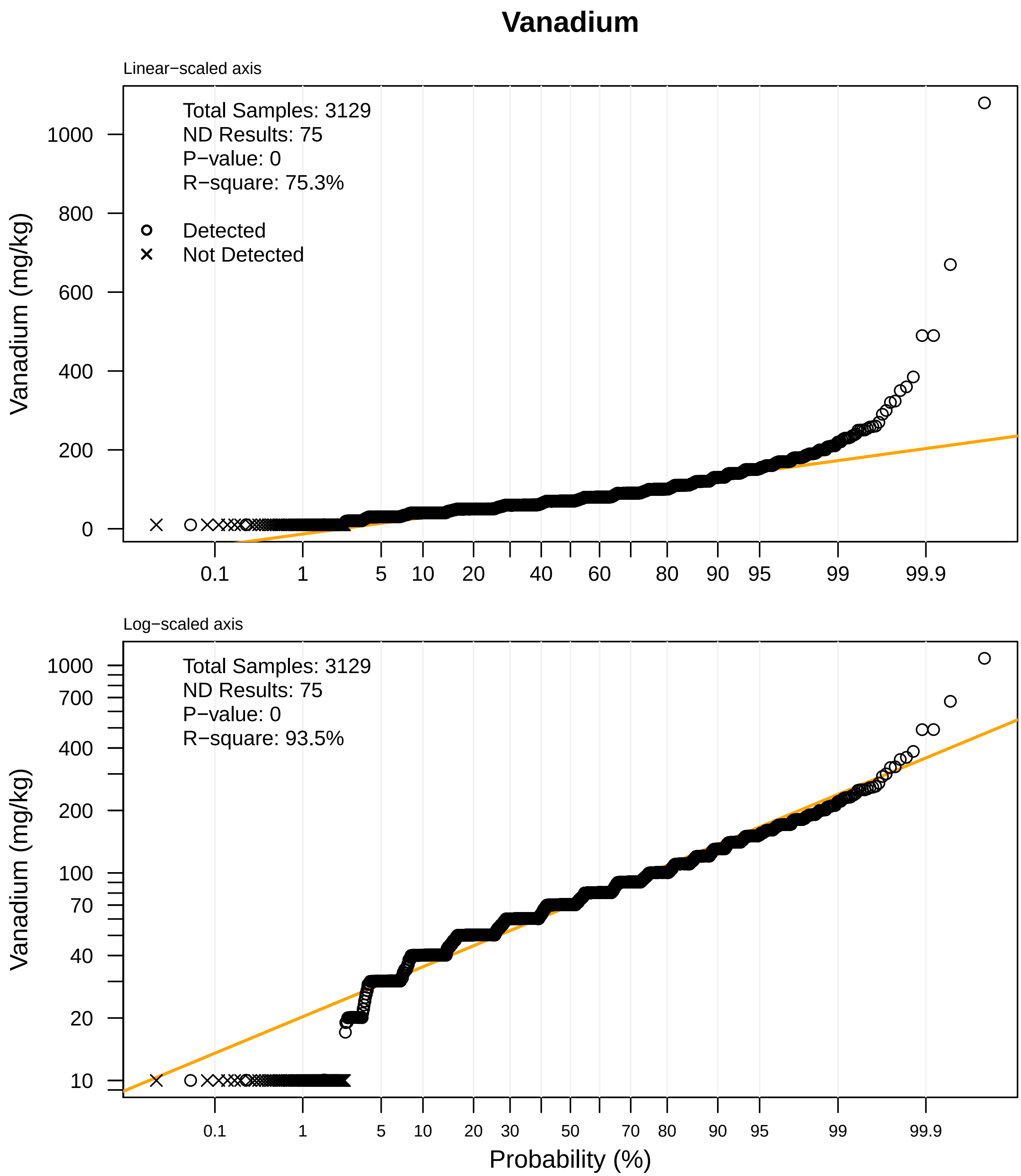

Figure C1−18. Boxplots of vanadium concentrations by total metals methods

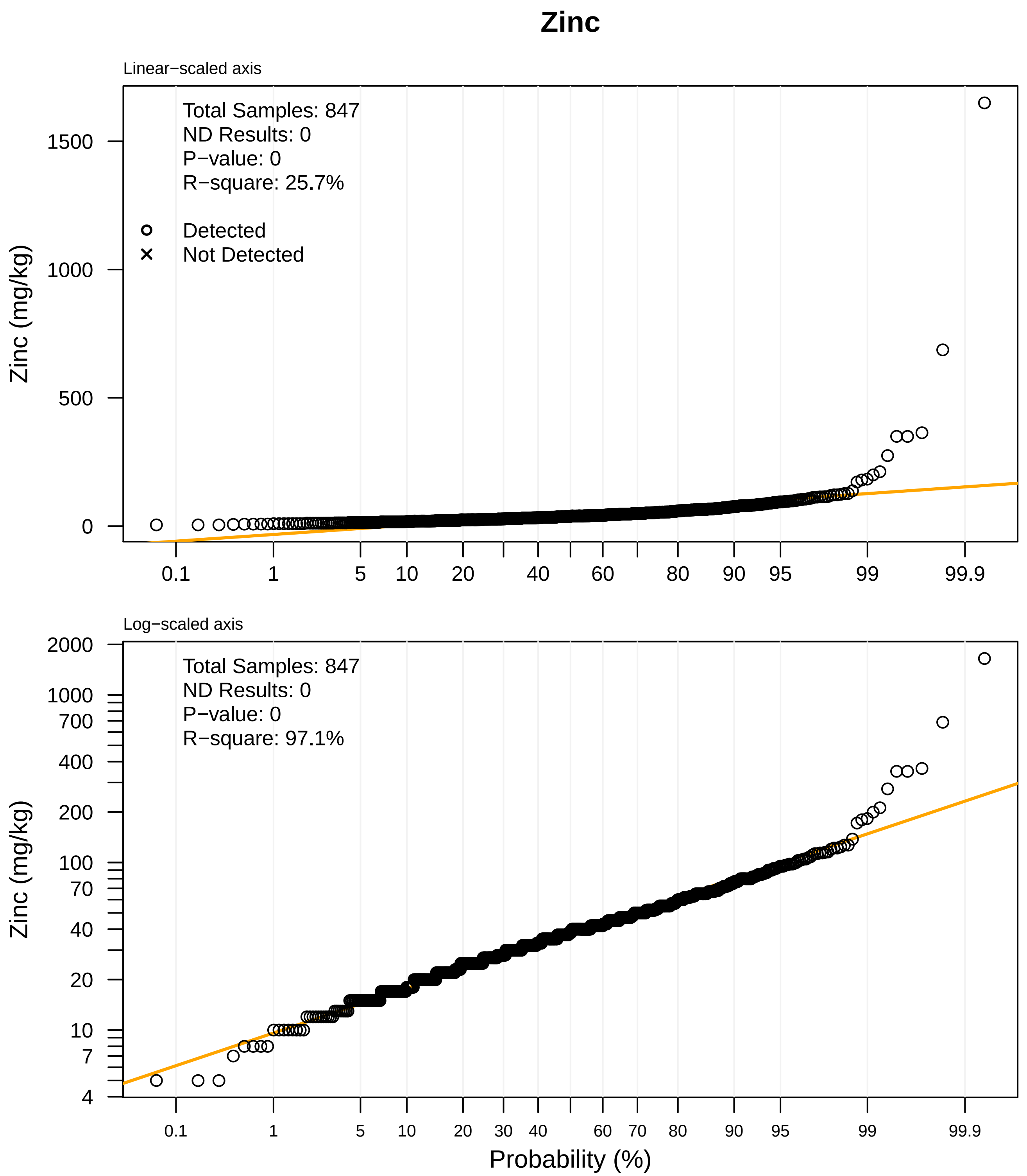

Figure C1−19. Boxplots of zinc concentrations by total metals methods

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, aluminum)

Total N	3148
Number NDs	38
Number Detects	3110
Mean of Detects	10.97
SD of Detects	0.218
Number of data	3110
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	10.97	0.218	5.545	3110	24.94	-4.3	-4.64	255.954578
2	10.98	0.195	8.216	3109	14.17	-4.3	-4.64	3699.67405
3	10.98	0.188	8.537	3108	12.95	-4.3	-4.64	5100.02132
4	10.98	0.183	8.81	3107	11.82	-4.3	-4.64	6700.91927
5	10.98	0.179	9.012	3106	10.97	-4.3	-4.64	8200.9067
6	10.98	0.176	9.091	3105	10.75	-4.3	-4.64	8875.05667
7	10.98	0.172	9.24	3104	10.09	-4.3	-4.64	10301.0386
8	10.98	0.17	9.401	3103	9.31	-4.3	-4.64	12100.4752
9	10.98	0.167	9.716	3102	7.558	-4.3	-4.64	16580.7888
10	10.98	0.166	9.729	3101	7.552	-4.3	-4.64	16797.7462

For 5% significance level, there are 10 Potential Outliers
5.545, 8.216, 8.537, 8.81, 9.012, 9.091, 9.24, 9.401, 9.716, 9.729

For 1% Significance Level, there are 10 Potential Outliers
5.545, 8.216, 8.537, 8.81, 9.012, 9.091, 9.24, 9.401, 9.716, 9.729

Outlier Tests for Selected Variables excluding nondetects

Dixon's Outlier Test for meas_value_update (total, antimony)

Total N = 6
Number NDs = 0
Number Detects = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698
Note: NDs excluded from Outlier Test

1. Data Value 1.99 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.500

For 10% significance level, 1.99 is an outlier.
For 5% significance level, 1.99 is not an outlier.
For 1% significance level, 1.99 is not an outlier.

2. Data Value 0.39 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.388

For 10% significance level, 0.39 is not an outlier.
For 5% significance level, 0.39 is not an outlier.
For 1% significance level, 0.39 is not an outlier.

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, arsenic)

Total N	701
Number NDs	0
Number Detects	701
Mean of Detects	1.013
SD of Detects	0.764
Number of data	701
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	1.013	0.763	3.6	1	3.39	-3.927	4.286	36.5982344
2	1.009	0.758	3.466	2	3.241	-3.927	4.286	32.0084522
3	1.006	0.753	2.952	3	2.586	-3.927	4.286	19.1442039
4	1.003	0.75	2.89	4	2.518	-3.926	4.286	17.9933096
5	1	0.747	2.851	5	2.478	-3.926	4.286	17.3050783
6	0.997	0.744	2.833	6	2.467	-3.925	4.286	16.9963735
7	0.995	0.741	2.833	7	2.48	-3.925	4.285	16.9963735
8	0.992	0.739	2.708	8	2.323	-3.925	4.285	14.999247
9	0.99	0.736	2.688	9	2.307	-3.924	4.285	14.702242
10	0.987	0.734	2.639	10	2.251	-3.924	4.284	13.9991974

For 5% significance level, there are 10 Potential Outliers
3.6, 3.466, 2.952, 2.89, 2.851, 2.833, 2.833, 2.708, 2.688, 2.639

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, barium)

Total N	845
Number NDs	0
Number Detects	845
Mean of Detects	5.587
SD of Detects	0.621
Number of data	845
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	5.587	0.621	2.079	845	5.653	-3.978	-4.331	7.99646845
2	5.591	0.609	2.708	844	4.731	-3.978	-4.331	14.999247
3	5.595	0.602	2.89	843	4.495	-3.977	-4.331	17.9933096
4	5.598	0.595	3.091	842	4.215	-3.977	-4.33	21.999066
5	5.601	0.589	3.497	841	3.575	-3.977	-4.33	33.0162545
6	5.603	0.585	3.555	840	3.504	-3.976	-4.33	34.98782
7	5.606	0.581	3.638	839	3.39	-3.976	-4.329	38.0157292
8	5.608	0.577	3.738	837	3.242	-3.976	-4.329	42.0138783
9	5.61	0.574	3.738	838	3.265	-3.975	-4.329	42.0138783
10	5.613	0.57	3.807	836	3.167	-3.975	-4.329	45.0151905

For 5% significance level, there are 10 Potential Outliers
2.079, 2.708, 2.89, 3.091, 3.497, 3.555, 3.638, 3.738, 3.738, 3.807

For 1% Significance Level, there are 10 Potential Outliers
2.079, 2.708, 2.89, 3.091, 3.497, 3.555, 3.638, 3.738, 3.738, 3.807

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, beryllium)

Total N	845
Number NDs	17
Number Detects	828
Mean of Detects	0.433
SD of Detects	0.453
Number of data	828
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	0.433	0.452	2.303	1	4.133	-3.972	-4.326	10.0041499
2	0.43	0.448	1.705	2	2.843	-3.972	-4.326	5.50138567
3	0.429	0.446	1.629	3	2.689	-3.972	-4.325	5.09877339
4	0.427	0.445	1.609	4	2.658	-3.971	-4.325	4.99781092
5	0.426	0.443	1.609	5	2.671	-3.971	-4.325	4.99781092
6	0.425	0.441	-0.693	780	2.532	-3.971	-4.324	0.5000736
7	0.426	0.44	-0.693	781	2.544	-3.971	-4.324	0.5000736
8	0.427	0.438	-0.693	782	2.556	-3.97	-4.324	0.5000736
9	0.429	0.437	-0.693	783	2.567	-3.97	-4.323	0.5000736
10	0.43	0.435	-0.693	784	2.579	-3.97	-4.323	0.5000736

For 5% significance level, there are 10 Potential Outliers
2.303, 1.705, 1.629, 1.609, 1.609, -0.693, -0.693, -0.693, -0.693, -0.693

For 1% Significance Level, there are 10 Potential Outliers
2.303, 1.705, 1.629, 1.609, 1.609, -0.693, -0.693, -0.693, -0.693, -0.693

Outlier Tests for Selected Variables excluding nondetects

Dixon's Outlier Test for LNmeas_value_update (total, cadmium)

Total N = 68
Number NDs = 61
Number Detects = 7
10% critical value: 0.434
5% critical value: 0.507
1% critical value: 0.637
Note: NDs excluded from Outlier Test

1. Data Value 2.19722457733622 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.759

For 10% significance level, 2.19722457733622 is an outlier.
For 5% significance level, 2.19722457733622 is an outlier.
For 1% significance level, 2.19722457733622 is an outlier.

2. Data Value -1.6094379124341 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.107

For 10% significance level, -1.6094379124341 is not an outlier.
For 5% significance level, -1.6094379124341 is not an outlier.
For 1% significance level, -1.6094379124341 is not an outlier.

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, chromium)

Total N	850
Number NDs	0
Number Detects	850
Mean of Detects	3.573
SD of Detects	0.797
Number of data	850
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	3.573	0.796	7.17	1	4.517	-3.979	-4.333	1299.8446
2	3.568	0.788	7.131	2	4.523	-3.979	-4.333	1250.12647
3	3.564	0.779	7.09	3	4.529	-3.979	-4.332	1199.9078
4	3.56	0.77	6.908	4	4.351	-3.979	-4.332	1000.24475
5	3.556	0.761	6.802	5	4.264	-3.978	-4.332	899.644783
6	3.552	0.753	6.31	6	3.66	-3.978	-4.331	550.044949
7	3.549	0.748	6.31	7	3.692	-3.978	-4.331	550.044949
8	3.546	0.742	6.153	8	3.512	-3.977	-4.331	470.12565
9	3.543	0.737	6.016	9	3.355	-3.977	-4.33	409.93557
10	3.54	0.733	5.953	10	3.294	-3.977	-4.33	384.906328

For 5% significance level, there are 10 Potential Outliers
7.17, 7.131, 7.09, 6.908, 6.802, 6.31, 6.31, 6.153, 6.016, 5.953

For 1% Significance Level, there are 10 Potential Outliers
7.17, 7.131, 7.09, 6.908, 6.802, 6.31, 6.31, 6.153, 6.016, 5.953

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, cobalt)

Total N	847
Number NDs	205
Number Detects	642
Mean of Detects	2.155
SD of Detects	0.502
Number of data	642
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.155	0.502	4.29	1	4.254	-3.903	4.27	72.9664685
2	2.151	0.496	3.807	2	3.339	-3.903	4.27	45.0151905
3	2.149	0.492	3.611	3	2.973	-3.902	4.27	37.0030374
4	2.147	0.489	0.693	642	2.974	-3.902	4.27	1.99970566
5	2.149	0.486	3.555	4	2.896	-3.901	4.27	34.98782
6	2.147	0.483	3.555	5	2.918	-3.901	4.269	34.98782
7	2.144	0.48	3.466	6	2.753	-3.9	4.268	32.0084522
8	2.142	0.477	3.466	7	2.772	-3.9	4.267	32.0084522
9	2.14	0.475	3.466	8	2.791	-3.9	4.266	32.0084522
10	2.138	0.472	3.466	9	2.81	-3.899	4.265	32.0084522

For 5% significance level, there are 10 Potential Outliers
4.29, 3.807, 3.611, 0.693, 3.555, 3.555, 3.466, 3.466, 3.466, 3.466

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, copper)

Total N	804
Number NDs	1
Number Detects	803
Mean of Detects	2.454
SD of Detects	0.681
Number of data	803
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.454	0.68	0	799	3.608	-3.964	-4.318	1
2	2.457	0.676	0	800	3.637	-3.964	-4.318	1
3	2.461	0.67	0	801	3.67	-3.964	-4.317	1
4	2.464	0.665	0	802	3.704	-3.963	-4.317	1
5	2.467	0.66	0	803	3.738	-3.963	-4.317	1
6	2.47	0.654	4.663	1	3.352	-3.963	-4.316	105.953466
7	2.467	0.65	4.615	2	3.304	-3.962	-4.316	100.987829
8	2.464	0.646	4.585	3	3.282	-3.962	-4.316	98.0031871
9	2.462	0.642	4.522	4	3.208	-3.962	-4.315	92.019453
10	2.459	0.638	4.344	5	2.952	-3.961	-4.315	77.014984

For 5% significance level, there are 10 Potential Outliers
0, 0, 0, 0, 0, 4.663, 4.615, 4.585, 4.522, 4.344

For 1% Significance Level, there are 10 Potential Outliers
0, 0, 0, 0, 0, 4.663, 4.615, 4.585, 4.522, 4.344

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, iron)

Total N	3099
Number NDs	5
Number Detects	3094
Mean of Detects	10.32
SD of Detects	0.331
Number of data	3094
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	10.32	0.331	7.601	3094	8.227	-4.299	-4.639	2000.19509
2	10.32	0.327	7.824	3093	7.637	-4.299	-4.639	2499.88498
3	10.32	0.324	8.189	3092	6.586	-4.299	-4.639	3601.11933
4	10.32	0.322	8.403	3091	5.968	-4.299	-4.639	4460.42798
5	10.32	0.32	8.594	3090	5.407	-4.299	-4.639	5399.16721
6	10.33	0.319	8.613	3089	5.376	-4.299	-4.639	5502.73214
7	10.33	0.317	8.854	3088	4.642	-4.299	-4.639	7002.3424
8	10.33	0.316	8.939	3087	4.387	-4.299	-4.639	7623.56967
9	10.33	0.315	8.975	3086	4.29	-4.299	-4.639	7903.01807
10	10.33	0.314	8.981	3085	4.282	-4.299	-4.639	7950.57872

For 5% significance level, there are 10 Potential Outliers
7.601, 7.824, 8.189, 8.403, 8.594, 8.613, 8.854, 8.939, 8.975, 8.981

For 1% Significance Level, there are 10 Potential Outliers
7.601, 7.824, 8.189, 8.403, 8.594, 8.613, 8.854, 8.939, 8.975, 8.981

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, lead)

Total N	845
Number NDs	178
Number Detects	667
Mean of Detects	2.727
SD of Detects	0.407
Number of data	667
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.727	0.406	5.438	1	6.673	-3.914	4.277	229.98176
2	2.723	0.393	4.248	2	3.881	-3.913	4.277	69.9653416
3	2.721	0.389	4.174	3	3.738	-3.913	4.277	64.9748323
4	2.719	0.385	4.007	4	3.347	-3.912	4.277	54.9816779
5	2.717	0.382	3.912	5	3.129	-3.912	4.277	49.9988497
6	2.715	0.379	3.912	6	3.155	-3.912	4.276	49.9988497
7	2.713	0.377	3.85	7	3.017	-3.911	4.275	46.9930632
8	2.712	0.375	3.829	8	2.983	-3.911	4.275	46.0164987
9	2.71	0.372	3.807	9	2.946	-3.91	4.274	45.0151905
10	2.708	0.37	3.807	10	2.968	-3.91	4.273	45.0151905

For 5% significance level, there are 10 Potential Outliers
5.438, 4.248, 4.174, 4.007, 3.912, 3.912, 3.85, 3.829, 3.807, 3.807

For 1% Significance Level, there is 1 Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, manganese)

Total N	3142
Number NDs	30
Number Detects	3112
Mean of Detects	6.557
SD of Detects	0.404
Number of data	3112
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	6.557	0.404	3.689	3112	7.097	-4.301	-4.64	40.0048221
2	6.558	0.401	9.158	1	6.484	-4.301	-4.64	9490.05797
3	6.557	0.398	8.763	2	5.536	-4.3	-4.64	6393.26262
4	6.557	0.396	4.382	3111	5.485	-4.3	-4.64	79.9978693
5	6.557	0.395	4.605	3109	4.948	-4.3	-4.64	99.9829828
6	6.558	0.393	4.605	3110	4.968	-4.3	-4.64	99.9829828
7	6.559	0.392	8.338	3	4.544	-4.3	-4.64	4179.72193
8	6.558	0.39	4.787	3108	4.536	-4.3	-4.64	119.941005
9	6.559	0.389	4.868	3107	4.346	-4.3	-4.64	130.060536
10	6.559	0.388	8.186	4	4.193	-4.3	-4.64	3590.33216

For 5% significance level, there are 10 Potential Outliers
3.689, 9.158, 8.763, 4.382, 4.605, 4.605, 8.338, 4.787, 4.868, 8.186

For 1% Significance Level, there are 10 Potential Outliers
3.689, 9.158, 8.763, 4.382, 4.605, 4.605, 8.338, 4.787, 4.868, 8.186

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, molybdenum)

Total N	850
Number NDs	537
Number Detects	313
Mean of Detects	1.118
SD of Detects	0.562
Number of data	313
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	1.118	0.561	3.367	1	4.007	3.732	4.102	28.9914222
2	1.111	0.548	3.219	2	3.844	3.732	4.102	25.0031046
3	1.104	0.536	2.996	3	3.529	3.731	4.101	20.0053552
4	1.098	0.526	2.944	4	3.51	3.731	4.101	18.9916612
5	1.092	0.516	2.833	5	3.373	3.73	4.1	16.9963735
6	1.087	0.507	2.708	6	3.196	3.729	4.1	14.999247
7	1.081	0.5	2.708	7	3.256	3.727	4.1	14.999247
8	1.076	0.492	2.708	8	3.319	3.726	4.1	14.999247
9	1.071	0.483	2.708	9	3.387	3.724	4.1	14.999247
10	1.065	0.475	2.708	10	3.458	3.723	4.1	14.999247

For 5% significance level, there are 2 Potential Outliers
3.367, 3.219

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, nickel)

Total N	846
Number NDs	93
Number Detects	753
Mean of Detects	2.594
SD of Detects	0.671
Number of data	753
Number of suspected outliers	10

NDs not included in the following:

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	2.594	0.671	6.109	1	5.242	-3.947	-4.301	449.888602
2	2.589	0.659	6.109	2	5.34	-3.947	-4.301	449.888602
3	2.585	0.647	5.333	3	4.248	-3.946	-4.3	207.058218
4	2.581	0.639	4.99	4	3.768	-3.946	-4.3	146.936423
5	2.578	0.634	4.804	5	3.513	-3.945	-4.3	121.997433
6	2.575	0.629	4.771	6	3.491	-3.945	-4.299	118.03722
7	2.572	0.624	4.745	7	3.481	-3.945	-4.299	115.007806
8	2.569	0.62	4.615	8	3.303	-3.944	-4.299	100.987829
9	2.566	0.615	4.522	9	3.178	-3.944	-4.298	92.019453
10	2.564	0.612	4.5	10	3.166	-3.944	-4.298	90.0171313

For 5% significance level, there are 10 Potential Outliers
6.109, 6.109, 5.333, 4.99, 4.804, 4.771, 4.745, 4.615, 4.522, 4.5

For 1% Significance Level, there are 10 Potential Outliers
6.109, 6.109, 5.333, 4.99, 4.804, 4.771, 4.745, 4.615, 4.522, 4.5

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, selenium)

Total N	853
Number NDs	589
Number Detects	264
Mean of Detects	0.331
SD of Detects	0.687
Number of data	264
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	0.331	0.686	-1.609	262	2.83	3.684	4.054	0.2000876
2	0.338	0.678	-1.609	263	2.874	3.684	4.054	0.2000876
3	0.346	0.668	-1.609	264	2.926	3.684	4.054	0.2000876
4	0.353	0.658	2.079	1	2.623	3.684	4.054	7.99646845
5	0.346	0.651	2.079	2	2.663	3.684	4.054	7.99646845
6	0.34	0.643	1.946	3	2.498	3.682	4.053	7.00062898
7	0.333	0.636	1.946	4	2.534	3.68	4.051	7.00062898
8	0.327	0.629	-1.204	252	2.432	3.678	4.05	0.29999184
9	0.333	0.623	-1.204	253	2.466	3.676	4.048	0.29999184
10	0.339	0.617	-1.204	254	2.501	3.674	4.047	0.29999184

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, silver)

Total N	827
Number NDs	25
Number Detects	802
Mean of Detects	-0.991
SD of Detects	0.68
Number of data	802
Number of suspected outliers	10

NDs not included in the following:

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	-0.991	0.68	2.96	1	5.811	-3.964	-4.318	19.2979718
2	-0.996	0.666	2.332	2	4.995	-3.964	-4.317	10.298518
3	-1	0.656	1.825	3	4.304	-3.963	-4.317	6.20279502
4	-1.004	0.649	1.504	4	3.864	-3.963	-4.317	4.49965173
5	-1.007	0.643	1.099	5	3.273	-3.963	-4.316	3.00116336
6	-1.01	0.639	0.956	6	3.074	-3.962	-4.316	2.60127055
7	-1.012	0.636	0.916	7	3.032	-3.962	-4.316	2.49927328
8	-1.014	0.633	0.875	8	2.987	-3.962	-4.315	2.39887529
9	-1.017	0.629	0.788	9	2.868	-3.961	-4.315	2.19899404
10	-1.019	0.627	0.788	10	2.885	-3.961	-4.315	2.19899404

For 5% significance level, there are 10 Potential Outliers
2.96, 2.332, 1.825, 1.504, 1.099, 0.956, 0.916, 0.875, 0.788, 0.788

For 1% Significance Level, there are 10 Potential Outliers
2.96, 2.332, 1.825, 1.504, 1.099, 0.956, 0.916, 0.875, 0.788, 0.788

Outlier Tests for Selected Variables excluding nondetects

Dixon's Outlier Test for meas_value_update (total, thallium)

Total N = 6
Number NDs = 0
Number Detects = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698
Note: NDs excluded from Outlier Test

1. Data Value 0.7 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.250

For 10% significance level, 0.7 is not an outlier.
For 5% significance level, 0.7 is not an outlier.
For 1% significance level, 0.7 is not an outlier.

2. Data Value 0.3 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.000

For 10% significance level, 0.3 is not an outlier.
For 5% significance level, 0.3 is not an outlier.
For 1% significance level, 0.3 is not an outlier.

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, vanadium)

Total N	3129
Number NDs	75
Number Detects	3054
Mean of Detects	4.291
SD of Detects	0.461
Number of data	3054
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	4.291	0.461	6.985	1	5.839	-4.296	-4.636	1080.30642
2	4.29	0.459	6.507	2	4.832	-4.296	-4.636	669.813959
3	4.289	0.457	2.303	3052	4.345	-4.296	-4.636	10.0041499
4	4.29	0.456	2.303	3053	4.359	-4.296	-4.636	10.0041499
5	4.291	0.455	2.303	3054	4.374	-4.296	-4.636	10.0041499
6	4.291	0.453	6.194	3	4.2	-4.296	-4.636	489.801399
7	4.291	0.452	6.194	4	4.212	-4.296	-4.636	489.801399
8	4.29	0.451	5.953	5	3.69	-4.296	-4.636	384.906328
9	4.289	0.45	5.883	6	3.544	-4.296	-4.636	358.884281
10	4.289	0.449	5.858	7	3.495	-4.296	-4.636	350.023397

For 5% significance level, there are 10 Potential Outliers
6.985, 6.507, 2.303, 2.303, 2.303, 6.194, 6.194, 5.953, 5.883, 5.858

For 1% Significance Level, there are 10 Potential Outliers
6.985, 6.507, 2.303, 2.303, 2.303, 6.194, 6.194, 5.953, 5.883, 5.858

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (total, zinc)

Total N	847
Number NDs	0
Number Detects	847
Mean of Detects	3.63
SD of Detects	0.597
Number of data	847
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	3.63	0.596	7.409	1	6.336	-3.979	-4.332	1650.77475
2	3.626	0.583	6.532	2	4.988	-3.978	-4.332	686.77038
3	3.622	0.574	5.897	3	3.96	-3.978	-4.331	363.943996
4	3.619	0.569	5.858	4	3.931	-3.978	-4.331	350.023397
5	3.617	0.564	5.858	5	3.97	-3.977	-4.331	350.023397
6	3.614	0.56	1.609	845	3.583	-3.977	-4.33	4.99781092
7	3.616	0.556	1.609	846	3.613	-3.977	-4.33	4.99781092
8	3.619	0.552	1.609	847	3.643	-3.976	-4.33	4.99781092
9	3.621	0.547	5.617	6	3.645	-3.976	-4.329	275.062955
10	3.619	0.543	5.357	7	3.198	-3.976	-4.329	212.087728

For 5% significance level, there are 10 Potential Outliers
7.409, 6.532, 5.897, 5.858, 5.858, 1.609, 1.609, 1.609, 5.617, 5.357

For 1% Significance Level, there are 10 Potential Outliers
7.409, 6.532, 5.897, 5.858, 5.858, 1.609, 1.609, 1.609, 5.617, 5.357

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, arsenic) - 2 outliers excluded

General Statistics			
Total Number of Observations	699	Number of Distinct Observations	63
Minimum	0.8	First Quartile	2
Second Largest	18	Median	3
Maximum	19.15	Third Quartile	5
Mean	3.661	SD	3.103
Coefficient of Variation	0.848	Skewness	1.914
Mean of logged Data	1.006	SD of logged Data	0.753
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.744	d2max (for USL)	3.785
Normal GOF Test			
Shapiro Wilk Test Statistic	0.776	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.2	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	9.072	90% Percentile (z)	7.638
95% UPL (t)	8.775	95% Percentile (z)	8.765
95% USL	15.4	99% Percentile (z)	10.88
Gamma GOF Test			
A-D Test Statistic	17.53	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.769	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.167	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0363	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.861	k star (bias corrected MLE)	1.854
Theta hat (MLE)	1.967	Theta star (bias corrected MLE)	1.975
nu hat (MLE)	2601	nu star (bias corrected)	2592
MLE Mean (bias corrected)	3.661	MLE Sd (bias corrected)	2.689
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	8.783	90% Percentile	7.249
95% Hawkins Wixley (HW) Approx. Gamma UPL	8.884	95% Percentile	8.896
95% WH Approx. Gamma UTL with 95% Coverage	9.249	99% Percentile	12.57
95% HW Approx. Gamma UTL with 95% Coverage	9.392		
95% WH USL	23.54	95% HW USL	26.43
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.914	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.139	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0338	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	10.16	90% Percentile (z)	7.173
95% UPL (t)	9.454	95% Percentile (z)	9.43
95% USL	47.21	99% Percentile (z)	15.75
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	673	95% UTL with 95% Coverage	12
Approx, f used to compute achieved CC	1.312	Approximate Actual Confidence Coefficient achieved by UTL	0.933
		Approximate Sample Size needed to achieve specified CC	716
95% Percentile Bootstrap UTL with 95% Coverage	12	95% BCA Bootstrap UTL with 95% Coverage	11.1
95% UPL	11	90% Percentile	7.02
90% Chebyshev UPL	12.98	95% Percentile	11
95% Chebyshev UPL	17.2	99% Percentile	14.01
95% USL	19.15		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, beryllium) - 1 outlier excluded

General Statistics

Total Number of Observations	844	Number of Missing Observations	0
Number of Distinct Observations	16		
Number of Detects	827	Number of Non-Detects	17
Number of Distinct Detects	16	Number of Distinct Non-Detects	2
Minimum Detect	0.5	Minimum Non-Detect	0.5
Maximum Detect	5.5	Maximum Non-Detect	1
Variance Detected	0.499	Percent Non-Detects	2.01%
Mean Detected	1.687	SD Detected	0.707
Mean of Detected Logged Data	0.43	SD of Detected Logged Data	0.448

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.903	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.154	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0311	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	1.663	KM SD	0.719
95% UTL95% Coverage	2.91	95% KM UPL (t)	2.847
90% KM Percentile (z)	2.584	95% KM Percentile (z)	2.845
99% KM Percentile (z)	3.335	95% KM USL	4.418

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	1.661	SD	0.722
95% UTL95% Coverage	2.914	95% UPL (t)	2.851
90% Percentile (z)	2.587	95% Percentile (z)	2.849
99% Percentile (z)	3.342	95% USL	4.43

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	21.82	Anderson-Darling GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.156	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0329	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	5.572	k star (bias corrected MLE)	5.552
Theta hat (MLE)	0.303	Theta star (bias corrected MLE)	0.304
nu hat (MLE)	9216	nu star (bias corrected)	9183
MLE Mean (bias corrected)	1.687		
MLE Sd (bias corrected)	0.716	95% Percentile of Chisquare (2kstar)	19.82

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.298	Mean	1.664
Maximum	5.5	Median	1.5
SD	0.718	CV	0.432
k hat (MLE)	5.141	k star (bias corrected MLE)	5.123
Theta hat (MLE)	0.324	Theta star (bias corrected MLE)	0.325
nu hat (MLE)	8678	nu star (bias corrected)	8648
MLE Mean (bias corrected)	1.664	MLE Sd (bias corrected)	0.735
95% Percentile of Chisquare (2kstar)	18.65	90% Percentile	2.648
95% Percentile	3.028	99% Percentile	3.83

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.122	3.175	95% Approx. Gamma UPL	3.026	3.072
95% Gamma USL	6.096	6.569			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	1.663	SD (KM)	0.719
Variance (KM)	0.517	SE of Mean (KM)	0.0248
k hat (KM)	5.352	k star (KM)	5.334
nu hat (KM)	9035	nu star (KM)	9004
theta hat (KM)	0.311	theta star (KM)	0.312
80% gamma percentile (KM)	2.219	90% gamma percentile (KM)	2.626
95% gamma percentile (KM)	2.996	99% gamma percentile (KM)	3.776

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	3.122	3.175	95% Approx. Gamma UPL	3.026	3.072
95% KM Gamma Percentile	3.023	3.068	95% Gamma USL	6.101	6.573

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.903	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.185	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0311	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	1.665	Mean in Log Scale	0.411
SD in Original Scale	0.717	SD in Log Scale	0.466
95% UTL95% Coverage	3.381	95% BCA UTL95% Coverage	3
95% Bootstrap (%) UTL95% Coverage	3	95% UPL (t)	3.247
90% Percentile (z)	2.738	95% Percentile (z)	3.243
99% Percentile (z)	4.454	95% USL	8.983

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	0.408	95% KM UTL (Lognormal)95% Coverage	3.402
KM SD of Logged Data	0.471	95% KM UPL (Lognormal)	3.265
95% KM Percentile Lognormal (z)	3.261	95% KM USL (Lognormal)	9.137

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	1.661	Mean in Log Scale	0.403
SD in Original Scale	0.722	SD in Log Scale	0.486
95% UTL95% Coverage	3.475	95% UPL (t)	3.332
90% Percentile (z)	2.789	95% Percentile (z)	3.327
99% Percentile (z)	4.633	95% USL	9.637

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	811	95% UTL with95% Coverage	3
Approx, f used to compute achieved CC	1.255	Approximate Actual Confidence Coefficient achieved by UTL	0.919
Approximate Sample Size needed to achieve specified CC	877	95% UPL	3
95% USL	5.5	95% KM Chebyshev UPL	4.798

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, cadmium) - 1 outlier excluded

General Statistics

Total Number of Observations	67	Number of Missing Observations	0
Number of Distinct Observations	5		
Number of Detects	6	Number of Non-Detects	61
Number of Distinct Detects	4	Number of Distinct Non-Detects	1
Minimum Detect	0.2	Minimum Non-Detect	2
Maximum Detect	0.5	Maximum Non-Detect	2
Variance Detected	0.011	Percent Non-Detects	91.04%
Mean Detected	0.35	SD Detected	0.105
Mean of Detected Logged Data	-1.091	SD of Detected Logged Data	0.321

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.994	d2max (for USL)	3.068

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.96	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.183	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.35	KM SD	0.0957
95% UTL95% Coverage	0.541	95% KM UPL (t)	0.511
90% KM Percentile (z)	0.473	95% KM Percentile (z)	0.507
99% KM Percentile (z)	0.573	95% KM USL	0.644

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.942	SD	0.189
95% UTL95% Coverage	1.319	95% UPL (t)	1.26
90% Percentile (z)	1.184	95% Percentile (z)	1.253
99% Percentile (z)	1.382	95% USL	1.522

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.295	Anderson-Darling GOF Test
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.218	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	12.45	k star (bias corrected MLE)	6.336
Theta hat (MLE)	0.0281	Theta star (bias corrected MLE)	0.0552
nu hat (MLE)	149.4	nu star (bias corrected)	76.04
MLE Mean (bias corrected)	0.35		
MLE Sd (bias corrected)	0.139	95% Percentile of Chisquare (2kstar)	21.93

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.117	Mean	0.354
Maximum	0.686	Median	0.344
SD	0.124	CV	0.35
k hat (MLE)	7.919	k star (bias corrected MLE)	7.575
Theta hat (MLE)	0.0448	Theta star (bias corrected MLE)	0.0468
nu hat (MLE)	1061	nu star (bias corrected)	1015
MLE Mean (bias corrected)	0.354	MLE Sd (bias corrected)	0.129
95% Percentile of Chisquare (2kstar)	25.19	90% Percentile	0.526
95% Percentile	0.589	99% Percentile	0.72

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.65	0.66	95% Approx. Gamma UPL	0.592	0.598
95% Gamma USL	0.876	0.908			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.35	SD (KM)	0.0957
Variance (KM)	0.00917	SE of Mean (KM)	0.0428
k hat (KM)	13.36	k star (KM)	12.78
nu hat (KM)	1791	nu star (KM)	1712
theta hat (KM)	0.0262	theta star (KM)	0.0274
80% gamma percentile (KM)	0.429	90% gamma percentile (KM)	0.48
95% gamma percentile (KM)	0.525	99% gamma percentile (KM)	0.617

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.574	0.58	95% Approx. Gamma UPL	0.532	0.536
95% KM Gamma Percentile	0.528	0.531	95% Gamma USL	0.736	0.754

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.941	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.207	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.36	Mean in Log Scale	-1.091
SD in Original Scale	0.136	SD in Log Scale	0.373
95% UTL95% Coverage	0.706	95% BCA UTL95% Coverage	0.688
95% Bootstrap (%) UTL95% Coverage	0.703	95% UPL (t)	0.629
90% Percentile (z)	0.542	95% Percentile (z)	0.62
99% Percentile (z)	0.8	95% USL	1.054

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.091	95% KM UTL (Lognormal)95% Coverage	0.602
KM SD of Logged Data	0.293	95% KM UPL (Lognormal)	0.549
95% KM Percentile Lognormal (z)	0.544	95% KM USL (Lognormal)	0.825

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.942	Mean in Log Scale	-0.0977
SD in Original Scale	0.189	SD in Log Scale	0.326
95% UTL95% Coverage	1.737	95% UPL (t)	1.568
90% Percentile (z)	1.377	95% Percentile (z)	1.55
99% Percentile (z)	1.936	95% USL	2.465

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	66	95% UTL with95% Coverage	2
Approx, f used to compute achieved CC	1.737	Approximate Actual Confidence Coefficient achieved by UTL	0.854
Approximate Sample Size needed to achieve specified CC	93	95% UPL	2
95% USL	2	95% KM Chebyshev UPL	0.77

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, chromium) - 5 outliers excluded

General Statistics

Total Number of Observations	845	Number of Distinct Observations	86
Minimum	5	First Quartile	20
Second Largest	550	Median	30
Maximum	550	Third Quartile	55
Mean	48.11	SD	52.84
Coefficient of Variation	1.098	Skewness	4.599
Mean of logged Data	3.552	SD of logged Data	0.753

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test

Shapiro Wilk Test Statistic	0.603	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.218	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	139.8	90% Percentile (z)	115.8
95% UPL (t)	135.2	95% Percentile (z)	135
95% USL	250.7	99% Percentile (z)	171

Gamma GOF Test

A-D Test Statistic	21.87	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.77	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.153	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0329	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.704	k star (bias corrected MLE)	1.699
Theta hat (MLE)	28.23	Theta star (bias corrected MLE)	28.32
nu hat (MLE)	2880	nu star (bias corrected)	2871
MLE Mean (bias corrected)	48.11	MLE Sd (bias corrected)	36.91

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	116.8	90% Percentile	97.26
95% Hawkins Wixley (HW) Approx. Gamma UPL	116.7	95% Percentile	120.3
95% WH Approx. Gamma UTL with 95% Coverage	122.6	99% Percentile	171.8
95% HW Approx. Gamma UTL with 95% Coverage	122.9		
95% WH USL	327.8	95% HW USL	362.5

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.964	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.104	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	128.9	90% Percentile (z)	91.63
95% UPL (t)	120.7	95% Percentile (z)	120.5
95% USL	627	99% Percentile (z)	201.4

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	812	95% UTL with 95% Coverage	140
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UTL	0.92
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	140	95% BCA Bootstrap UTL with 95% Coverage	120
95% UPL	123.5	90% Percentile	95
90% Chebyshev UPL	206.7	95% Percentile	120
95% Chebyshev UPL	278.6	99% Percentile	262.8
95% USL	550		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, cobalt) - 1 outlier excluded

General Statistics					
Total Number of Observations		846	Number of Missing Observations		0
Number of Distinct Observations		33			
Number of Detects		641	Number of Non-Detects		205
Number of Distinct Detects		33	Number of Distinct Non-Detects		1
Minimum Detect		2	Minimum Non-Detect		5
Maximum Detect		45	Maximum Non-Detect		5
Variance Detected		34.21	Percent Non-Detects		24.23%
Mean Detected		9.837	SD Detected		5.849
Mean of Detected Logged Data		2.151	SD of Detected Logged Data		0.496
Critical Values for Background Threshold Values (BTVs)					
Tolerance Factor K (For UTL)		1.734	d2max (for USL)		3.834
Normal GOF Test on Detects Only					
Shapiro Wilk Test Statistic		0.785	Normal GOF Test on Detected Observations Only		
5% Shapiro Wilk P Value		0	Data Not Normal at 5% Significance Level		
Lilliefors Test Statistic		0.207	Lilliefors GOF Test		
5% Lilliefors Critical Value		0.0353	Data Not Normal at 5% Significance Level		
Data Not Normal at 5% Significance Level					
Kaplan Meier (KM) Background Statistics Assuming Normal Distribution					
KM Mean		8.181	KM SD		5.891
95% UTL95% Coverage		18.4	95% KM UPL (t)		17.89
90% KM Percentile (z)		15.73	95% KM Percentile (z)		17.87
99% KM Percentile (z)		21.89	95% KM USL		30.77
DL/2 Substitution Background Statistics Assuming Normal Distribution					
Mean		8.059	SD		5.984
95% UTL95% Coverage		18.44	95% UPL (t)		17.92
90% Percentile (z)		15.73	95% Percentile (z)		17.9
99% Percentile (z)		21.98	95% USL		31
DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons					
Gamma GOF Tests on Detected Observations Only					
A-D Test Statistic		22.43	Anderson-Darling GOF Test		
5% A-D Critical Value		0.759	Data Not Gamma Distributed at 5% Significance Level		
K-S Test Statistic		0.163	Kolmogorov-Smirnov GOF		
5% K-S Critical Value		0.0373	Data Not Gamma Distributed at 5% Significance Level		
Data Not Gamma Distributed at 5% Significance Level					
Gamma Statistics on Detected Data Only					
k hat (MLE)		3.868	k star (bias corrected MLE)		3.85
Theta hat (MLE)		2.544	Theta star (bias corrected MLE)		2.555
nu hat (MLE)		4958	nu star (bias corrected)		4936
MLE Mean (bias corrected)		9.837			
MLE Sd (bias corrected)		5.013	95% Percentile of Chisquare (2kstar)		15.08
Gamma ROS Statistics using Imputed Non-Detects					
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs					
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)					
For such situations, GROS method may yield incorrect values of UCLs and BTVs					
This is especially true when the sample size is small.					
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates					
Minimum		0.01	Mean		7.676
Maximum		45	Median		7
SD		6.383	CV		0.831
k hat (MLE)		0.75	k star (bias corrected MLE)		0.748
Theta hat (MLE)		10.23	Theta star (bias corrected MLE)		10.26
nu hat (MLE)		1270	nu star (bias corrected)		1266
MLE Mean (bias corrected)		7.676	MLE Sd (bias corrected)		8.873
95% Percentile of Chisquare (2kstar)		4.974	90% Percentile		18.97
95% Percentile		25.51	99% Percentile		41.03
The following statistics are computed using Gamma ROS Statistics on Imputed Data					
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods					
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	25.6	30.09	95% Approx. Gamma UPL	24.08	27.98
95% Gamma USL	84.35	128.2			
Estimates of Gamma Parameters using KM Estimates					
Mean (KM)		8.181	SD (KM)		5.891
Variance (KM)		34.71	SE of Mean (KM)		0.266
k hat (KM)		1.928	k star (KM)		1.922
nu hat (KM)		3263	nu star (KM)		3252
theta hat (KM)		4.242	theta star (KM)		4.256
80% gamma percentile (KM)		12.3	90% gamma percentile (KM)		16.06
95% gamma percentile (KM)		19.65	99% gamma percentile (KM)		27.63
The following statistics are computed using gamma distribution and KM estimates					
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods					
	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	18.92	19.22	95% Approx. Gamma UPL	18.14	18.37
95% KM Gamma Percentile	18.11	18.35	95% Gamma USL	45.39	50.36
Lognormal GOF Test on Detected Observations Only					
Shapiro Wilk Approximate Test Statistic		0.903	Shapiro Wilk GOF Test		
5% Shapiro Wilk P Value		0	Data Not Lognormal at 5% Significance Level		
Lilliefors Test Statistic		0.158	Lilliefors GOF Test		
5% Lilliefors Critical Value		0.0353	Data Not Lognormal at 5% Significance Level		
Data Not Lognormal at 5% Significance Level					
Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects					
Mean in Original Scale		8.161	Mean in Log Scale		1.879
SD in Original Scale		5.905	SD in Log Scale		0.666
95% UTL95% Coverage		20.77	95% BCA UTL95% Coverage		20
95% Bootstrap (%) UTL95% Coverage		22	95% UPL (t)		19.6
90% Percentile (z)		15.36	95% Percentile (z)		19.57
99% Percentile (z)		30.8	95% USL		84.06

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.882	95% KM UTL (Lognormal)95% Coverage	20.8
KM SD of Logged Data	0.665	95% KM UPL (Lognormal)	19.63
95% KM Percentile Lognormal (z)	19.6	95% KM USL (Lognormal)	83.99

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	8.059	Mean in Log Scale	1.852
SD in Original Scale	5.984	SD in Log Scale	0.683
95% UTL95% Coverage	20.84	95% UPL (t)	19.64
90% Percentile (z)	15.29	95% Percentile (z)	19.6
99% Percentile (z)	31.22	95% USL	87.43

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	813	95% UTL with95% Coverage	22
Approx, f used to compute achieved CC	1.259	Approximate Actual Confidence Coefficient achieved by UTL	0.921
Approximate Sample Size needed to achieve specified CC	877	95% UPL	20
95% USL	45	95% KM Chebyshev UPL	33.87

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, lead) - 1 outlier excluded

General Statistics

Total Number of Observations	844	Number of Missing Observations	0
Number of Distinct Observations	40		
Number of Detects	666	Number of Non-Detects	178
Number of Distinct Detects	40	Number of Distinct Non-Detects	1
Minimum Detect	7	Minimum Non-Detect	10
Maximum Detect	70	Maximum Non-Detect	10
Variance Detected	58.94	Percent Non-Detects	21.09%
Mean Detected	16.56	SD Detected	7.677
Mean of Detected Logged Data	2.723	SD of Detected Logged Data	0.393

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.782	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.228	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0347	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	14.55	KM SD	7.852
95% UTL95% Coverage	28.16	95% KM UPL (t)	27.48
90% KM Percentile (z)	24.61	95% KM Percentile (z)	27.46
99% KM Percentile (z)	32.81	95% KM USL	44.65

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	14.12	SD	8.292
95% UTL95% Coverage	28.51	95% UPL (t)	27.79
90% Percentile (z)	24.75	95% Percentile (z)	27.76
99% Percentile (z)	33.41	95% USL	45.91

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	29.53	Anderson-Darling GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.202	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0366	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	6.128	k star (bias corrected MLE)	6.101
Theta hat (MLE)	2.703	Theta star (bias corrected MLE)	2.715
nu hat (MLE)	8162	nu star (bias corrected)	8127
MLE Mean (bias corrected)	16.56		
MLE Sd (bias corrected)	6.705	95% Percentile of Chisquare (2kstar)	21.3

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	13.86
Maximum	70	Median	15
SD	8.648	CV	0.624
k hat (MLE)	1.685	k star (bias corrected MLE)	1.68
Theta hat (MLE)	8.225	Theta star (bias corrected MLE)	8.25
nu hat (MLE)	2844	nu star (bias corrected)	2835
MLE Mean (bias corrected)	13.86	MLE Sd (bias corrected)	10.69
95% Percentile of Chisquare (2kstar)	8.429	90% Percentile	28.1
95% Percentile	34.77	99% Percentile	49.74

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	35.02	38.31	95% Approx. Gamma UPL	33.44	36.35
95% Gamma USL	89.75	114.8			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	14.55	SD (KM)	7.852
Variance (KM)	61.65	SE of Mean (KM)	0.27
k hat (KM)	3.431	k star (KM)	3.42
nu hat (KM)	5792	nu star (KM)	5773
theta hat (KM)	4.239	theta star (KM)	4.253
80% gamma percentile (KM)	20.43	90% gamma percentile (KM)	25.09
95% gamma percentile (KM)	29.42	99% gamma percentile (KM)	38.73

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	28.35	28.51	95% Approx. Gamma UPL	27.42	27.53
95% KM Gamma Percentile	27.39	27.5	95% Gamma USL	57.63	61.14

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.869	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.215	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0347	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	14.44	Mean in Log Scale	2.539
SD in Original Scale	7.982	SD in Log Scale	0.511
95% UTL95% Coverage	30.71	95% BCA UTL95% Coverage	30
95% Bootstrap (%) UTL95% Coverage	30	95% UPL (t)	29.38
90% Percentile (z)	24.37	95% Percentile (z)	29.34
99% Percentile (z)	41.55	95% USL	89.7

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.559	95% KM UTL (Lognormal)95% Coverage	29.28
KM SD of Logged Data	0.471	95% KM UPL (Lognormal)	28.11
95% KM Percentile Lognormal (z)	28.07	95% KM USL (Lognormal)	78.78

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	14.12	Mean in Log Scale	2.488
SD in Original Scale	8.292	SD in Log Scale	0.573
95% UTL95% Coverage	32.54	95% UPL (t)	30.96
90% Percentile (z)	25.1	95% Percentile (z)	30.91
99% Percentile (z)	45.69	95% USL	108.4

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	811	95% UTL with95% Coverage	30
Approx, f used to compute achieved CC	1.255	Approximate Actual Confidence Coefficient achieved by UTL	0.919
Approximate Sample Size needed to achieve specified CC	877	95% UPL	30
95% USL	70	95% KM Chebyshev UPL	48.79

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, nickel) - 2 outliers excluded

General Statistics

Total Number of Observations	844	Number of Missing Observations	0
Number of Distinct Observations	65		
Number of Detects	751	Number of Non-Detects	93
Number of Distinct Detects	64	Number of Distinct Non-Detects	2
Minimum Detect	5	Minimum Non-Detect	3
Maximum Detect	207	Maximum Non-Detect	5
Variance Detected	279.5	Percent Non-Detects	11.02%
Mean Detected	16.97	SD Detected	16.72
Mean of Detected Logged Data	2.585	SD of Detected Logged Data	0.647

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.601	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.237	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0326	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	15.43	KM SD	16.36
95% UTL95% Coverage	43.8	95% KM UPL (t)	42.38
90% KM Percentile (z)	36.39	95% KM Percentile (z)	42.33
99% KM Percentile (z)	53.48	95% KM USL	78.13

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	15.37	SD	16.41
95% UTL95% Coverage	43.83	95% UPL (t)	42.41
90% Percentile (z)	36.4	95% Percentile (z)	42.36
99% Percentile (z)	53.55	95% USL	78.28

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	18.52	Anderson-Darling GOF Test	
5% A-D Critical Value	0.766	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.136	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.035	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.178	k star (bias corrected MLE)	2.17
Theta hat (MLE)	7.791	Theta star (bias corrected MLE)	7.819
nu hat (MLE)	3271	nu star (bias corrected)	3260
MLE Mean (bias corrected)	16.97		
MLE Sd (bias corrected)	11.52	95% Percentile of Chisquare (2kstar)	10.03

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	15.1
Maximum	207	Median	12
SD	16.64	CV	1.102
k hat (MLE)	0.661	k star (bias corrected MLE)	0.659
Theta hat (MLE)	22.86	Theta star (bias corrected MLE)	22.91
nu hat (MLE)	1115	nu star (bias corrected)	1112
MLE Mean (bias corrected)	15.1	MLE Sd (bias corrected)	18.6
95% Percentile of Chisquare (2kstar)	4.585	90% Percentile	38.44
95% Percentile	52.53	99% Percentile	86.32

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	50.92	60.71	95% Approx. Gamma UPL	47.84	56.32
95% Gamma USL	171.1	267.5			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	15.43	SD (KM)	16.36
Variance (KM)	267.5	SE of Mean (KM)	0.563
k hat (KM)	0.89	k star (KM)	0.888
nu hat (KM)	1502	nu star (KM)	1498
theta hat (KM)	17.34	theta star (KM)	17.38
80% gamma percentile (KM)	25.06	90% gamma percentile (KM)	36.58
95% gamma percentile (KM)	48.22	99% gamma percentile (KM)	75.49

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	39.2	39.53	95% Approx. Gamma UPL	37.36	37.54
95% KM Gamma Percentile	37.3	37.48	95% Gamma USL	104.1	116.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.94	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0808	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0326	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	15.45	Mean in Log Scale	2.422
SD in Original Scale	16.35	SD in Log Scale	0.772
95% UTL95% Coverage	42.99	95% BCA UTL95% Coverage	45
95% Bootstrap (%) UTL95% Coverage	45	95% UPL (t)	40.2
90% Percentile (z)	30.31	95% Percentile (z)	40.11
99% Percentile (z)	67.88	95% USL	217.2

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	2.421	95% KM UTL (Lognormal)95% Coverage	42.58
KM SD of Logged Data	0.767	95% KM UPL (Lognormal)	39.83
95% KM Percentile Lognormal (z)	39.75	95% KM USL (Lognormal)	213

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	15.37	Mean in Log Scale	2.4
SD in Original Scale	16.41	SD in Log Scale	0.805
95% UTL95% Coverage	44.52	95% UPL (t)	41.52
90% Percentile (z)	30.92	95% Percentile (z)	41.42
99% Percentile (z)	71.69	95% USL	241.1

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	811	95% UTL with95% Coverage	45
Approx, f used to compute achieved CC	1.255	Approximate Actual Confidence Coefficient achieved by UTL	0.919
Approximate Sample Size needed to achieve specified CC	877	95% UPL	40
95% USL	207	95% KM Chebyshev UPL	86.77

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (total, silver) - 4 outliers excluded

General Statistics

Total Number of Observations	823	Number of Missing Observations	0
Number of Distinct Observations	25		
Number of Detects	798	Number of Non-Detects	25
Number of Distinct Detects	25	Number of Distinct Non-Detects	2
Minimum Detect	0.1	Minimum Non-Detect	0.1
Maximum Detect	3	Maximum Non-Detect	1
Variance Detected	0.112	Percent Non-Detects	3.04%
Mean Detected	0.449	SD Detected	0.335
Mean of Detected Logged Data	-1.007	SD of Detected Logged Data	0.643

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.736	d2max (for USL)	3.827

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.744	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.199	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0317	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.441	KM SD	0.334
95% UTL95% Coverage	1.02	95% KM UPL (t)	0.991
90% KM Percentile (z)	0.869	95% KM Percentile (z)	0.99
99% KM Percentile (z)	1.218	95% KM USL	1.719

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.44	SD	0.335
95% UTL95% Coverage	1.022	95% UPL (t)	0.993
90% Percentile (z)	0.87	95% Percentile (z)	0.992
99% Percentile (z)	1.22	95% USL	1.723

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	12.29	Anderson-Darling GOF Test	
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.12	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.0338	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.573	k star (bias corrected MLE)	2.564
Theta hat (MLE)	0.175	Theta star (bias corrected MLE)	0.175
nu hat (MLE)	4106	nu star (bias corrected)	4092
MLE Mean (bias corrected)	0.449		
MLE Sd (bias corrected)	0.281	95% Percentile of Chisquare (2kstar)	11.27

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.439
Maximum	3	Median	0.4
SD	0.337	CV	0.768
k hat (MLE)	2.026	k star (bias corrected MLE)	2.019
Theta hat (MLE)	0.217	Theta star (bias corrected MLE)	0.217
nu hat (MLE)	3334	nu star (bias corrected)	3323
MLE Mean (bias corrected)	0.439	MLE Sd (bias corrected)	0.309
95% Percentile of Chisquare (2kstar)	9.549	90% Percentile	0.851
95% Percentile	1.037	99% Percentile	1.45

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.068	1.111	95% Approx. Gamma UPL	1.021	1.057
95% Gamma USL	2.669	3.11			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.441	SD (KM)	0.334
Variance (KM)	0.112	SE of Mean (KM)	0.0117
k hat (KM)	1.741	k star (KM)	1.735
nu hat (KM)	2865	nu star (KM)	2856
theta hat (KM)	0.253	theta star (KM)	0.254
80% gamma percentile (KM)	0.671	90% gamma percentile (KM)	0.887
95% gamma percentile (KM)	1.094	99% gamma percentile (KM)	1.559

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.015	1.031	95% Approx. Gamma UPL	0.973	0.985
95% KM Gamma Percentile	0.971	0.984	95% Gamma USL	2.419	2.679

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.941	Shapiro Wilk GOF Test	
5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.152	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0317	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.44	Mean in Log Scale	-1.045
SD in Original Scale	0.335	SD in Log Scale	0.68
95% UTL95% Coverage	1.144	95% BCA UTL95% Coverage	1.1
95% Bootstrap (%) UTL95% Coverage	1.1	95% UPL (t)	1.078
90% Percentile (z)	0.841	95% Percentile (z)	1.076
99% Percentile (z)	1.71	95% USL	4.742

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-1.038	95% KM UTL (Lognormal)95% Coverage	1.122
KM SD of Logged Data	0.664	95% KM UPL (Lognormal)	1.058
95% KM Percentile Lognormal (z)	1.056	95% KM USL (Lognormal)	4.501

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.44	Mean in Log Scale	-1.051
SD in Original Scale	0.335	SD in Log Scale	0.701
95% UTL95% Coverage	1.181	95% UPL (t)	1.11
90% Percentile (z)	0.859	95% Percentile (z)	1.108
99% Percentile (z)	1.787	95% USL	5.116

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	791	95% UTL with95% Coverage	1.1
Approx, f used to compute achieved CC	1.262	Approximate Actual Confidence Coefficient achieved by UTL	0.921
Approximate Sample Size needed to achieve specified CC	854	95% UPL	1
95% USL	3	95% KM Chebyshev UPL	1.898

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, vanadium) - 2 outliers excluded

General Statistics

Total Number of Observations		3127	Number of Missing Observations	0
Number of Distinct Observations		190		
Number of Detects		3052	Number of Non-Detects	75
Number of Distinct Detects		190	Number of Distinct Non-Detects	1
Minimum Detect		10	Minimum Non-Detect	10
Maximum Detect		490	Maximum Non-Detect	10
Variance Detected		1617	Percent Non-Detects	2.40%
Mean Detected		80.96	SD Detected	40.21
Mean of Detected Logged Data		4.289	SD of Detected Logged Data	0.457

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)		1.691	d2max (for USL)	4.153

Normal GOF Test on Detects Only

Lilliefors Test Statistic		0.14	Lilliefors GOF Test	
5% Lilliefors Critical Value		0.0162	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean		79.26	KM SD	41.18
95% UTL95% Coverage		148.9	95% KM UPL (t)	147
90% KM Percentile (z)		132	95% KM Percentile (z)	147
99% KM Percentile (z)		175.1	95% KM USL	250.3

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean		79.14	SD	41.39
95% UTL95% Coverage		149.1	95% UPL (t)	147.3
90% Percentile (z)		132.2	95% Percentile (z)	147.2
99% Percentile (z)		175.4	95% USL	251.1

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic		17.17	Anderson-Darling GOF Test	
5% A-D Critical Value		0.758	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic		0.0809	Kolmogorov-Smirnov GOF	
5% K-S Critical Value		0.0182	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)		4.935	k star (bias corrected MLE)	4.931
Theta hat (MLE)		16.4	Theta star (bias corrected MLE)	16.42
nu hat (MLE)		30125	nu star (bias corrected)	30097
MLE Mean (bias corrected)		80.96		
MLE Sd (bias corrected)		36.46	95% Percentile of Chisquare (2kstar)	18.12

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum		0.01	Mean	79.32
Maximum		490	Median	70
SD		41.09	CV	0.518
k hat (MLE)		3.998	k star (bias corrected MLE)	3.995
Theta hat (MLE)		19.84	Theta star (bias corrected MLE)	19.86
nu hat (MLE)		25005	nu star (bias corrected)	24982
MLE Mean (bias corrected)		79.32	MLE Sd (bias corrected)	39.69
95% Percentile of Chisquare (2kstar)		15.49	90% Percentile	132.5
95% Percentile		153.8	99% Percentile	199.3

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	155.5	158.6	95% Approx. Gamma UPL	152.8	155.6
95% Gamma USL	361.5	400.2			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)		79.26	SD (KM)	41.18
Variance (KM)		1696	SE of Mean (KM)	0.737
k hat (KM)		3.705	k star (KM)	3.701
nu hat (KM)		23169	nu star (KM)	23148
theta hat (KM)		21.39	theta star (KM)	21.41
80% gamma percentile (KM)		110.3	90% gamma percentile (KM)	134.5
95% gamma percentile (KM)		156.9	99% gamma percentile (KM)	204.8

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	156.1	159.1	95% Approx. Gamma UPL	153.3	156
95% KM Gamma Percentile	153.2	156	95% Gamma USL	364.4	403.1

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic		0.0653	Lilliefors GOF Test	
5% Lilliefors Critical Value		0.0162	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale		79.57	Mean in Log Scale	4.261
SD in Original Scale		40.7	SD in Log Scale	0.486
95% UTL95% Coverage		161.2	95% BCA UTL95% Coverage	157
95% Bootstrap (%) UTL95% Coverage		160	95% UPL (t)	157.7
90% Percentile (z)		132.2	95% Percentile (z)	157.7
99% Percentile (z)		219.6	95% USL	533.4

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data		4.242	95% KM UTL (Lognormal)95% Coverage	174.5
KM SD of Logged Data		0.544	95% KM UPL (Lognormal)	170.3
95% KM Percentile Lognormal (z)		170.2	95% KM USL (Lognormal)	667

Background Statistics for Data Sets excluding outliers with Non-Detects

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	79.14	Mean in Log Scale	4.225
SD in Original Scale	41.39	SD in Log Scale	0.61
95% UTL95% Coverage	191.8	95% UPL (t)	186.6
90% Percentile (z)	149.4	95% Percentile (z)	186.5
99% Percentile (z)	282.7	95% USL	861.8

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	2991	95% UTL with95% Coverage	160
Approx, f used to compute achieved CC	1.149	Approximate Actual Confidence Coefficient achieved by UTL	0.951
Approximate Sample Size needed to achieve specified CC	3126	95% UPL	151.6
95% USL	490	95% KM Chebyshev UPL	258.8

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (total, zinc) - 2 outliers excluded

General Statistics			
Total Number of Observations	845	Number of Distinct Observations	102
Minimum	5	First Quartile	27
Second Largest	350	Median	38
Maximum	364	Third Quartile	53
Mean	44.4	SD	32.22
Coefficient of Variation	0.726	Skewness	4.484
Mean of logged Data	3.622	SD of logged Data	0.574
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	1.734	d2max (for USL)	3.834
Normal GOF Test			
Shapiro Wilk Test Statistic	0.696	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.156	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	100.3	90% Percentile (z)	85.69
95% UPL (t)	97.49	95% Percentile (z)	97.4
95% USL	167.9	99% Percentile (z)	119.4
Gamma GOF Test			
A-D Test Statistic	5.233	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.761	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0695	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.0326	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	3.076	k star (bias corrected MLE)	3.066
Theta hat (MLE)	14.44	Theta star (bias corrected MLE)	14.48
nu hat (MLE)	5199	nu star (bias corrected)	5181
MLE Mean (bias corrected)	44.4	MLE Sd (bias corrected)	25.36
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	91.63	90% Percentile	78.41
95% Hawkins Wixley (HW) Approx. Gamma UPL	92.19	95% Percentile	92.61
95% WH Approx. Gamma UTL with 95% Coverage	95.22	99% Percentile	123.4
95% HW Approx. Gamma UTL with 95% Coverage	96.01		
95% WH USL	212.8	95% HW USL	230
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.983	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.128	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0461	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.0308	Data Not Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	101.3	90% Percentile (z)	78.12
95% UPL (t)	96.4	95% Percentile (z)	96.25
95% USL	338.5	99% Percentile (z)	142.4
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	812	95% UTL with 95% Coverage	98
Approx, f used to compute achieved CC	1.257	Approximate Actual Confidence Coefficient achieved by UTL	0.92
		Approximate Sample Size needed to achieve specified CC	877
95% Percentile Bootstrap UTL with 95% Coverage	98	95% BCA Bootstrap UTL with 95% Coverage	98
95% UPL	93.7	90% Percentile	75
90% Chebyshev UPL	141.1	95% Percentile	92.8
95% Chebyshev UPL	184.9	99% Percentile	157
95% USL	364		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Attachment C-2

ProUCL Output and QQ-Plots for Partial Digestion Results

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, aluminum)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	49
Minimum	9110	First Quartile	14550
Second Largest	38200	Median	20100
Maximum	44100	Third Quartile	25625
Mean	20568	SD	7520
Coefficient of Variation	0.366	Skewness	0.8
Mean of logged Data	9.868	SD of logged Data	0.362
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.942	Normal GOF Test	
5% Shapiro Wilk P Value	0.0221	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.125	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	35976	90% Percentile (z)	30205
95% UPL (t)	33286	95% Percentile (z)	32937
95% USL	42918	99% Percentile (z)	38061
Gamma GOF Test			
A-D Test Statistic	0.445	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.751	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0962	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	7.98	k star (bias corrected MLE)	7.532
Theta hat (MLE)	2578	Theta star (bias corrected MLE)	2731
nu hat (MLE)	829.9	nu star (bias corrected)	783.4
MLE Mean (bias corrected)	20568	MLE Sd (bias corrected)	7494
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	34447	90% Percentile	30566
95% Hawkins Wixley (HW) Approx. Gamma UPL	34688	95% Percentile	34243
95% WH Approx. Gamma UTL with 95% Coverage	38293	99% Percentile	41875
95% HW Approx. Gamma UTL with 95% Coverage	38757		
95% WH USL	49516	95% HW USL	50910
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.974	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.502	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0931	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	40529	90% Percentile (z)	30692
95% UPL (t)	35603	95% Percentile (z)	35009
95% USL	56623	99% Percentile (z)	44811
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	38200
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTL	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	40855	95% BCA Bootstrap UTL with 95% Coverage	38200
95% UPL	34625	90% Percentile	29900
90% Chebyshev UPL	43343	95% Percentile	32425
95% Chebyshev UPL	53659	99% Percentile	41091
95% USL	44100		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (partial, antimony)

General Statistics			
Total Number of Observations	6	Number of Distinct Observations	6
Minimum	0.17	First Quartile	0.195
Second Largest	0.27	Median	0.235
Maximum	0.287	Third Quartile	0.268
Mean	0.231	SD	0.0475
Coefficient of Variation	0.206	Skewness	-0.147
Mean of logged Data	-1.483	SD of logged Data	0.212
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822
Normal GOF Test			
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.228	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.407	90% Percentile (z)	0.292
95% UPL (t)	0.335	95% Percentile (z)	0.309
95% USL	0.318	99% Percentile (z)	0.342
Gamma GOF Test			
A-D Test Statistic	0.356	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.697	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.256	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	27.43	k star (bias corrected MLE)	13.83
Theta hat (MLE)	0.00843	Theta star (bias corrected MLE)	0.0167
nu hat (MLE)	329.1	nu star (bias corrected)	165.9
MLE Mean (bias corrected)	0.231	MLE Sd (bias corrected)	0.0622
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.349	90% Percentile	0.313
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.352	95% Percentile	0.342
95% WH Approx. Gamma UTL with 95% Coverage	0.456	99% Percentile	0.4
95% HW Approx. Gamma UTL with 95% Coverage	0.465		
95% WH USL	0.327	95% HW USL	0.329
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.916	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.24	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.325	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	0.498	90% Percentile (z)	0.298
95% UPL (t)	0.36	95% Percentile (z)	0.321
95% USL	0.334	99% Percentile (z)	0.371
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	6	95% UTL with 95% Coverage	0.287
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UTI	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.287	95% BCA Bootstrap UTL with 95% Coverage	0.287
95% UPL	0.287	90% Percentile	0.278
90% Chebyshev UPL	0.385	95% Percentile	0.283
95% Chebyshev UPL	0.455	99% Percentile	0.286
95% USL	0.287		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, arsenic)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	45
Minimum	1.7	First Quartile	3.475
Second Largest	98.4	Median	5.44
Maximum	182	Third Quartile	10.48
Mean	14.84	SD	29.58
Coefficient of Variation	1.993	Skewness	4.351
Mean of logged Data	1.959	SD of logged Data	1.03
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.451	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.328	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	75.45	90% Percentile (z)	52.75
95% UPL (t)	64.87	95% Percentile (z)	63.49
95% USL	102.8	99% Percentile (z)	83.65
Gamma GOF Test			
A-D Test Statistic	4.276	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.79	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.258	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	0.803	k star (bias corrected MLE)	0.77
Theta hat (MLE)	18.47	Theta star (bias corrected MLE)	19.28
nu hat (MLE)	83.56	nu star (bias corrected)	80.07
MLE Mean (bias corrected)	14.84	MLE Sd (bias corrected)	16.92
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	44.65	90% Percentile	36.42
95% Hawkins Wixley (HW) Approx. Gamma UPL	43.06	95% Percentile	48.82
95% WH Approx. Gamma UTL with 95% Coverage	57.69	99% Percentile	78.17
95% HW Approx. Gamma UTL with 95% Coverage	56.84		
95% WH USL	102.5	95% HW USL	107.6
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.899	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	1.64E-04	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.161	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	58.52	90% Percentile (z)	26.55
95% UPL (t)	40.48	95% Percentile (z)	38.59
95% USL	151.4	99% Percentile (z)	77.85
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	98.4
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTL	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	136	95% BCA Bootstrap UTL with 95% Coverage	126.2
95% UPL	86.83	90% Percentile	21.34
90% Chebyshev UPL	104.4	95% Percentile	58.13
95% Chebyshev UPL	145	99% Percentile	139.4
95% USL	182		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, barium)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	43
Minimum	89.7	First Quartile	115.8
Second Largest	414	Median	161.5
Maximum	432	Third Quartile	201.3
Mean	182.5	SD	86.02
Coefficient of Variation	0.471	Skewness	1.371
Mean of logged Data	5.116	SD of logged Data	0.417
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.839	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.181	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	360.5	90% Percentile (z)	292.8
95% UPL (t)	328.4	95% Percentile (z)	324
95% USL	435.5	99% Percentile (z)	382.7
Gamma GOF Test			
A-D Test Statistic	1.244	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.124	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.632	k star (bias corrected MLE)	5.294
Theta hat (MLE)	32.41	Theta star (bias corrected MLE)	34.48
nu hat (MLE)	540.7	nu star (bias corrected)	508.2
MLE Mean (bias corrected)	182.5	MLE Sd (bias corrected)	79.34
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	331.6	90% Percentile	288.7
95% Hawkins Wixley (HW) Approx. Gamma UPL	332.8	95% Percentile	329.5
95% WH Approx. Gamma UTL with 95% Coverage	376.7	99% Percentile	415.6
95% HW Approx. Gamma UTL with 95% Coverage	380.4		
95% WH USL	497.7	95% HW USL	511.3
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.933	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0945	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	394.9	90% Percentile (z)	284.4
95% UPL (t)	338	95% Percentile (z)	330.9
95% USL	568.3	99% Percentile (z)	439.8
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Gamma Distribution at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	414
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTl	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	425.7	95% BCA Bootstrap UTL with 95% Coverage	414
95% UPL	388.8	90% Percentile	325.8
90% Chebyshev UPL	443.3	95% Percentile	352.4
95% Chebyshev UPL	561.4	99% Percentile	423.5
95% USL	432		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, beryllium)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	34
Minimum	0.34	First Quartile	0.765
Second Largest	2	Median	1
Maximum	3	Third Quartile	1.2
Mean	1.033	SD	0.482
Coefficient of Variation	0.467	Skewness	1.527
Mean of logged Data	-0.0671	SD of logged Data	0.455
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.901	Normal GOF Test	
5% Shapiro Wilk P Value	2.05E-04	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.156	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	2.021	90% Percentile (z)	1.651
95% UPL (t)	1.848	95% Percentile (z)	1.826
95% USL	2.466	99% Percentile (z)	2.154
Gamma GOF Test			
A-D Test Statistic	0.374	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0968	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.2	k star (bias corrected MLE)	4.913
Theta hat (MLE)	0.199	Theta star (bias corrected MLE)	0.21
nu hat (MLE)	540.8	nu star (bias corrected)	511
MLE Mean (bias corrected)	1.033	MLE Sd (bias corrected)	0.466
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	1.911	90% Percentile	1.656
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.931	95% Percentile	1.899
95% WH Approx. Gamma UTL with 95% Coverage	2.168	99% Percentile	2.411
95% HW Approx. Gamma UTL with 95% Coverage	2.206		
95% WH USL	2.935	95% HW USL	3.055
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.976	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.567	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0846	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	2.374	90% Percentile (z)	1.675
95% UPL (t)	2.018	95% Percentile (z)	1.975
95% USL	3.612	99% Percentile (z)	2.693
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	2
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTI	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	2.45	95% BCA Bootstrap UTL with 95% Coverage	2
95% UPL	1.87	90% Percentile	1.695
90% Chebyshev UPL	2.493	95% Percentile	1.8
95% Chebyshev UPL	3.155	99% Percentile	2.49
95% USL	3		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (partial, cadmium)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	34
Minimum	0.04	First Quartile	0.178
Second Largest	0.7	Median	0.23
Maximum	1	Third Quartile	0.305
Mean	0.268	SD	0.172
Coefficient of Variation	0.642	Skewness	2.209
Mean of logged Data	-1.478	SD of logged Data	0.577
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.794	Normal GOF Test	
5% Shapiro Wilk P Value	2.45E-09	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.192	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.621	90% Percentile (z)	0.489
95% UPL (t)	0.56	95% Percentile (z)	0.552
95% USL	0.781	99% Percentile (z)	0.669
Gamma GOF Test			
A-D Test Statistic	1.145	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.756	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.121	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.124	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	3.241	k star (bias corrected MLE)	3.067
Theta hat (MLE)	0.0828	Theta star (bias corrected MLE)	0.0875
nu hat (MLE)	337.1	nu star (bias corrected)	319
MLE Mean (bias corrected)	0.268	MLE Sd (bias corrected)	0.153
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.562	90% Percentile	0.474
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.568	95% Percentile	0.56
95% WH Approx. Gamma UTL with 95% Coverage	0.654	99% Percentile	0.745
95% HW Approx. Gamma UTL with 95% Coverage	0.668		
95% WH USL	0.938	95% HW USL	0.988
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.965	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.23	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.102	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	0.744	90% Percentile (z)	0.478
95% UPL (t)	0.605	95% Percentile (z)	0.589
95% USL	1.267	99% Percentile (z)	0.873
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Gamma Distribution at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	0.7
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTI	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	0.835	95% BCA Bootstrap UTL with 95% Coverage	0.807
95% UPL	0.668	90% Percentile	0.432
90% Chebyshev UPL	0.79	95% Percentile	0.628
95% Chebyshev UPL	1.027	99% Percentile	0.847
95% USL	1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (partial, chromium)

General Statistics

Total Number of Observations	52	Number of Distinct Observations	48
Minimum	7.2	First Quartile	11.7
Second Largest	26.6	Median	14.2
Maximum	41	Third Quartile	18.18
Mean	15.13	SD	5.397
Coefficient of Variation	0.357	Skewness	2.36
Mean of logged Data	2.667	SD of logged Data	0.308

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972

Normal GOF Test

Shapiro Wilk Test Statistic	0.831	Normal GOF Test
5% Shapiro Wilk P Value	1.05E-07	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.158	Lilliefors GOF Test
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	26.19	90% Percentile (z)	22.05
95% UPL (t)	24.26	95% Percentile (z)	24.01
95% USL	31.17	99% Percentile (z)	27.69

Gamma GOF Test

A-D Test Statistic	0.724	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.112	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	10.21	k star (bias corrected MLE)	9.636
Theta hat (MLE)	1.482	Theta star (bias corrected MLE)	1.57
nu hat (MLE)	1062	nu star (bias corrected)	1002
MLE Mean (bias corrected)	15.13	MLE Sd (bias corrected)	4.874

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	24.02	90% Percentile	21.62
95% Hawkins Wixley (HW) Approx. Gamma UPL	24.05	95% Percentile	23.94
95% WH Approx. Gamma UTL with 95% Coverage	26.42	99% Percentile	28.71
95% HW Approx. Gamma UTL with 95% Coverage	26.54		
95% WH USL	33.33	95% HW USL	33.85

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	0.332	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0894	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	27.05	90% Percentile (z)	21.36
95% UPL (t)	24.23	95% Percentile (z)	23.89
95% USL	35.95	99% Percentile (z)	29.46

Nonparametric Distribution Free Background Statistics
Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	51	95% UTL with 95% Coverage	26.6
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTI	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	33.08	95% BCA Bootstrap UTL with 95% Coverage	31.15
95% UPL	24.33	90% Percentile	19.87
90% Chebyshev UPL	31.48	95% Percentile	22.11
95% Chebyshev UPL	38.88	99% Percentile	33.66
95% USL	41		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, cobalt)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	36
Minimum	2.9	First Quartile	5.738
Second Largest	20.4	Median	6.75
Maximum	21.7	Third Quartile	7.8
Mean	7.926	SD	4.022
Coefficient of Variation	0.507	Skewness	2.175
Mean of logged Data	1.98	SD of logged Data	0.401
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.729	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.283	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	16.25	90% Percentile (z)	13.08
95% UPL (t)	14.74	95% Percentile (z)	14.54
95% USL	19.75	99% Percentile (z)	17.28
Gamma GOF Test			
A-D Test Statistic	2.673	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.23	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.712	k star (bias corrected MLE)	5.369
Theta hat (MLE)	1.388	Theta star (bias corrected MLE)	1.476
nu hat (MLE)	548.4	nu star (bias corrected)	515.4
MLE Mean (bias corrected)	7.926	MLE Sd (bias corrected)	3.421
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	14.31	90% Percentile	12.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	14.29	95% Percentile	14.26
95% WH Approx. Gamma UTL with 95% Coverage	16.24	99% Percentile	17.96
95% HW Approx. Gamma UTL with 95% Coverage	16.3		
95% WH USL	21.42	95% HW USL	21.82
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.198	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	16.6	90% Percentile (z)	12.11
95% UPL (t)	14.29	95% Percentile (z)	14.01
95% USL	23.55	99% Percentile (z)	18.41
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	20.4
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTl	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	21.25	95% BCA Bootstrap UTL with 95% Coverage	20.97
95% UPL	20.04	90% Percentile	12.02
90% Chebyshev UPL	20.12	95% Percentile	17.96
95% Chebyshev UPL	25.64	99% Percentile	21.09
95% USL	21.7		

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Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, copper)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	49
Minimum	7.735	First Quartile	13.28
Second Largest	40.2	Median	15.95
Maximum	46.9	Third Quartile	22.65
Mean	18.93	SD	9.025
Coefficient of Variation	0.477	Skewness	1.359
Mean of logged Data	2.846	SD of logged Data	0.43
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.859	Normal GOF Test	
5% Shapiro Wilk P Value	1.87E-06	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.217	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	37.43	90% Percentile (z)	30.5
95% UPL (t)	34.2	95% Percentile (z)	33.78
95% USL	45.76	99% Percentile (z)	39.93
Gamma GOF Test			
A-D Test Statistic	1.147	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.176	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.403	k star (bias corrected MLE)	5.104
Theta hat (MLE)	3.504	Theta star (bias corrected MLE)	3.709
nu hat (MLE)	561.9	nu star (bias corrected)	530.8
MLE Mean (bias corrected)	18.93	MLE Sd (bias corrected)	8.38
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	34.68	90% Percentile	30.15
95% Hawkins Wixley (HW) Approx. Gamma UPL	34.85	95% Percentile	34.49
95% WH Approx. Gamma UTL with 95% Coverage	39.28	99% Percentile	43.64
95% HW Approx. Gamma UTL with 95% Coverage	39.72		
95% WH USL	52.97	95% HW USL	54.61
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.124	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.149	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	41.51	90% Percentile (z)	29.85
95% UPL (t)	35.59	95% Percentile (z)	34.89
95% USL	61.71	99% Percentile (z)	46.76
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	40.2
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTL	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	43.22	95% BCA Bootstrap UTL with 95% Coverage	43.22
95% UPL	39.88	90% Percentile	32.18
90% Chebyshev UPL	46.27	95% Percentile	39.21
95% Chebyshev UPL	58.65	99% Percentile	43.48
95% USL	46.9		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, iron)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	45
Minimum	12400	First Quartile	16475
Second Largest	33250	Median	19200
Maximum	39800	Third Quartile	21175
Mean	19853	SD	5192
Coefficient of Variation	0.262	Skewness	1.681
Mean of logged Data	9.867	SD of logged Data	0.234
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.874	Normal GOF Test	
5% Shapiro Wilk P Value	1.03E-05	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.163	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	30491	90% Percentile (z)	26506
95% UPL (t)	28634	95% Percentile (z)	28392
95% USL	35284	99% Percentile (z)	31930
Gamma GOF Test			
A-D Test Statistic	0.862	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.749	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.126	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	17.64	k star (bias corrected MLE)	16.64
Theta hat (MLE)	1125	Theta star (bias corrected MLE)	1193
nu hat (MLE)	1835	nu star (bias corrected)	1730
MLE Mean (bias corrected)	19853	MLE Sd (bias corrected)	4868
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	28569	90% Percentile	26290
95% Hawkins Wixley (HW) Approx. Gamma UPL	28583	95% Percentile	28478
95% WH Approx. Gamma UTL with 95% Coverage	30800	99% Percentile	32893
95% HW Approx. Gamma UTL with 95% Coverage	30875		
95% WH USL	37087	95% HW USL	37426
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.959	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.132	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.109	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	31161	90% Percentile (z)	26039
95% UPL (t)	28659	95% Percentile (z)	28349
95% USL	38674	99% Percentile (z)	33249
Nonparametric Distribution Free Background Statistics			
Data appear Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	33250
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	36198	95% BCA Bootstrap UTL with 95% Coverage	36198
95% UPL	32308	90% Percentile	25755
90% Chebyshev UPL	35577	95% Percentile	30095
95% Chebyshev UPL	42699	99% Percentile	36460
95% USL	39800		

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and consists of observations collected from clean unimpacted locations.
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represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, lead)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	44
Minimum	7.7	First Quartile	12.1
Second Largest	24.4	Median	14.65
Maximum	24.6	Third Quartile	18.3
Mean	15.11	SD	4.529
Coefficient of Variation	0.3	Skewness	0.327
Mean of logged Data	2.67	SD of logged Data	0.309
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.954	Normal GOF Test	
5% Shapiro Wilk P Value	0.0808	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0986	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	24.39	90% Percentile (z)	20.91
95% UPL (t)	22.77	95% Percentile (z)	22.56
95% USL	28.57	99% Percentile (z)	25.64
Gamma GOF Test			
A-D Test Statistic	0.313	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0812	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	11.16	k star (bias corrected MLE)	10.52
Theta hat (MLE)	1.354	Theta star (bias corrected MLE)	1.435
nu hat (MLE)	1160	nu star (bias corrected)	1095
MLE Mean (bias corrected)	15.11	MLE Sd (bias corrected)	4.657
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	23.62	90% Percentile	21.3
95% Hawkins Wixley (HW) Approx. Gamma UPL	23.77	95% Percentile	23.49
95% WH Approx. Gamma UTL with 95% Coverage	25.89	99% Percentile	27.99
95% HW Approx. Gamma UTL with 95% Coverage	26.16		
95% WH USL	32.41	95% HW USL	33.16
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.961	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.165	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0924	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	27.16	90% Percentile (z)	21.44
95% UPL (t)	24.32	95% Percentile (z)	23.98
95% USL	36.11	99% Percentile (z)	29.59
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	24.4
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTl	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	24.49	95% BCA Bootstrap UTL with 95% Coverage	24.4
95% UPL	23.43	90% Percentile	22.01
90% Chebyshev UPL	28.82	95% Percentile	22.63
95% Chebyshev UPL	35.04	99% Percentile	24.5
95% USL	24.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, manganese)

General Statistics

Total Number of Observations	52	Number of Distinct Observations	50
Minimum	294.5	First Quartile	455.3
Second Largest	1230	Median	553.5
Maximum	1710	Third Quartile	725.3
Mean	621.4	SD	261.2
Coefficient of Variation	0.42	Skewness	1.82
Mean of logged Data	6.36	SD of logged Data	0.372

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972

Normal GOF Test

Shapiro Wilk Test Statistic	0.866	Normal GOF Test
5% Shapiro Wilk P Value	4.23E-06	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.136	Lilliefors GOF Test
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	1157	90% Percentile (z)	956.1
95% UPL (t)	1063	95% Percentile (z)	1051
95% USL	1398	99% Percentile (z)	1229

Gamma GOF Test

A-D Test Statistic	0.502	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0967	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	7.122	k star (bias corrected MLE)	6.724
Theta hat (MLE)	87.25	Theta star (bias corrected MLE)	92.41
nu hat (MLE)	740.7	nu star (bias corrected)	699.3
MLE Mean (bias corrected)	621.4	MLE Sd (bias corrected)	239.6

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	1066	90% Percentile	941.4
95% Hawkins Wixley (HW) Approx. Gamma UPL	1069	95% Percentile	1061
95% WH Approx. Gamma UTL with 95% Coverage	1191	99% Percentile	1310
95% HW Approx. Gamma UTL with 95% Coverage	1200		
95% WH USL	1558	95% HW USL	1594

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.978	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk P Value	0.633	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0729	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	1240	90% Percentile (z)	931.6
95% UPL (t)	1085	95% Percentile (z)	1066
95% USL	1748	99% Percentile (z)	1374

Nonparametric Distribution Free Background Statistics
Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	51	95% UTL with 95% Coverage	1230
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTI	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	1446	95% BCA Bootstrap UTL with 95% Coverage	1402
95% UPL	1178	90% Percentile	945.3
90% Chebyshev UPL	1413	95% Percentile	1046
95% Chebyshev UPL	1771	99% Percentile	1465
95% USL	1710		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, molybdenum)

General Statistics			
Total Number of Observations	48	Number of Distinct Observations	40
Minimum	0.25	First Quartile	0.424
Second Largest	3.5	Median	0.535
Maximum	8.9	Third Quartile	0.855
Mean	0.951	SD	1.362
Coefficient of Variation	1.432	Skewness	4.676
Mean of logged Data	-0.418	SD of logged Data	0.715
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
Normal GOF Test			
Shapiro Wilk Test Statistic	0.466	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.304	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	3.769	90% Percentile (z)	2.697
95% UPL (t)	3.26	95% Percentile (z)	3.191
95% USL	4.957	99% Percentile (z)	4.12
Gamma GOF Test			
A-D Test Statistic	4.13	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.767	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.229	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.13	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.504	k star (bias corrected MLE)	1.424
Theta hat (MLE)	0.632	Theta star (bias corrected MLE)	0.668
nu hat (MLE)	144.4	nu star (bias corrected)	136.7
MLE Mean (bias corrected)	0.951	MLE Sd (bias corrected)	0.797
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	2.432	90% Percentile	2.007
95% Hawkins Wixley (HW) Approx. Gamma UPL	2.363	95% Percentile	2.521
95% WH Approx. Gamma UTL with 95% Coverage	3.006	99% Percentile	3.685
95% HW Approx. Gamma UTL with 95% Coverage	2.955		
95% WH USL	4.685	95% HW USL	4.766
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.864	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.174	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	2.889	90% Percentile (z)	1.646
95% UPL (t)	2.212	95% Percentile (z)	2.134
95% USL	5.392	99% Percentile (z)	3.474
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	47	95% UTL with 95% Coverage	3.5
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTI	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	7.01	95% BCA Bootstrap UTL with 95% Coverage	6.87
95% UPL	3.32	90% Percentile	1.515
90% Chebyshev UPL	5.08	95% Percentile	3.03
95% Chebyshev UPL	6.95	99% Percentile	6.362
95% USL	8.9		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (partial, nickel)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	44
Minimum	5.6	First Quartile	9.8
Second Largest	35	Median	12.45
Maximum	43.4	Third Quartile	15.7
Mean	14.34	SD	7.484
Coefficient of Variation	0.522	Skewness	2.23
Mean of logged Data	2.568	SD of logged Data	0.415
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.75	Normal GOF Test	
5% Shapiro Wilk P Value	3.59E-11	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.238	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	29.68	90% Percentile (z)	23.94
95% UPL (t)	27	95% Percentile (z)	26.66
95% USL	36.59	99% Percentile (z)	31.76
Gamma GOF Test			
A-D Test Statistic	2.192	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.183	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	5.38	k star (bias corrected MLE)	5.082
Theta hat (MLE)	2.666	Theta star (bias corrected MLE)	2.822
nu hat (MLE)	559.5	nu star (bias corrected)	528.6
MLE Mean (bias corrected)	14.34	MLE Sd (bias corrected)	6.363
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	26.24	90% Percentile	22.86
95% Hawkins Wixley (HW) Approx. Gamma UPL	26.22	95% Percentile	26.16
95% WH Approx. Gamma UTL with 95% Coverage	29.71	99% Percentile	33.11
95% HW Approx. Gamma UTL with 95% Coverage	29.84		
95% WH USL	40.07	95% HW USL	40.95
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.924	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.0029	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.15	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	30.52	90% Percentile (z)	22.19
95% UPL (t)	26.31	95% Percentile (z)	25.8
95% USL	44.78	99% Percentile (z)	34.24
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	35
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTL	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	38.78	95% BCA Bootstrap UTL with 95% Coverage	38.78
95% UPL	34.48	90% Percentile	20.4
90% Chebyshev UPL	37.01	95% Percentile	33.71
95% Chebyshev UPL	47.28	99% Percentile	39.12
95% USL	43.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (partial, selenium)

General Statistics			
Total Number of Observations	6	Number of Missing Observations	0
Number of Distinct Observations	5		
Number of Detects	5	Number of Non-Detects	1
Number of Distinct Detects	4	Number of Distinct Non-Detects	1
Minimum Detect	0.08	Minimum Non-Detect	0.19
Maximum Detect	0.09	Maximum Non-Detect	0.19
Variance Detected	1.72E-05	Percent Non-Detects	16.67%
Mean Detected	0.0837	SD Detected	0.00415
Mean of Detected Logged Data	-2.482	SD of Detected Logged Data	0.049
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.895	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.212	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.343	Detected Data appear Normal at 5% Significance Level	
Detected Data appear Normal at 5% Significance Level			
Kaplan Meier (KM) Background Statistics Assuming Normal Distribution			
KM Mean	0.0837	KM SD	0.00371
95% UTL95% Coverage	0.0974	95% KM UPL (t)	0.0917
90% KM Percentile (z)	0.0884	95% KM Percentile (z)	0.0898
99% KM Percentile (z)	0.0923	95% KM USL	0.0904
DL/2 Substitution Background Statistics Assuming Normal Distribution			
Mean	0.0856	SD	0.00593
95% UTL95% Coverage	0.108	95% UPL (t)	0.0985
90% Percentile (z)	0.0932	95% Percentile (z)	0.0953
99% Percentile (z)	0.0994	95% USL	0.0964
DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons			
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	0.352	Anderson-Darling GOF Test	
5% A-D Critical Value	0.678	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.24	Kolmogorov-Smirnov GOF	
5% K-S Critical Value	0.357	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	516.6	k star (bias corrected MLE)	206.8
Theta hat (MLE)	1.62E-04	Theta star (bias corrected MLE)	4.05E-04
nu hat (MLE)	5166	nu star (bias corrected)	2068
MLE Mean (bias corrected)	0.0837		
MLE Sd (bias corrected)	0.00582	95% Percentile of Chisquare (2kstar)	462

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)
For such situations, GROS method may yield incorrect values of UCLs and BTVs
This is especially true when the sample size is small.
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.08	Mean	0.0837
Maximum	0.09	Median	0.0835
SD	0.00371	CV	0.0444
k hat (MLE)	619.9	k star (bias corrected MLE)	310.1
Theta hat (MLE)	1.35E-04	Theta star (bias corrected MLE)	2.70E-04
nu hat (MLE)	7439	nu star (bias corrected)	3721
MLE Mean (bias corrected)	0.0837	MLE Sd (bias corrected)	0.00475
95% Percentile of Chisquare (2kstar)	679.2	90% Percentile	0.0898
95% Percentile	0.0916	99% Percentile	0.0951

The following statistics are computed using Gamma ROS Statistics on Imputed Data
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.098	0.0981	95% Approx. Gamma UPL	0.0919	0.0919
95% Gamma USL	0.0905	0.0905			

Estimates of Gamma Parameters using KM Estimates			
Mean (KM)	0.0837	SD (KM)	0.00371
Variance (KM)	1.38E-05	SE of Mean (KM)	0.00186
k hat (KM)	508.1	k star (KM)	254.1
nu hat (KM)	6097	nu star (KM)	3050
theta hat (KM)	1.65E-04	theta star (KM)	3.29E-04
80% gamma percentile (KM)	0.088	90% gamma percentile (KM)	0.0905
95% gamma percentile (KM)	0.0925	99% gamma percentile (KM)	0.0964

The following statistics are computed using gamma distribution and KM estimates
Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.098	0.0981	95% Approx. Gamma UPL	0.0919	0.0919
95% KM Gamma Percentile	0.0898	0.0898	95% Gamma USL	0.0905	0.0905

Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.899	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level	

Background Statistics for Data Sets with Non-Detects

Lilliefors Test Statistic	0.215	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.343	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0837	Mean in Log Scale	-2.482
SD in Original Scale	0.00371	SD in Log Scale	0.0438
95% UTL95% Coverage	0.0983	95% BCA UTL95% Coverage	0.09
95% Bootstrap (%) UTL95% Coverage	0.09	95% UPL (t)	0.092
90% Percentile (z)	0.0884	95% Percentile (z)	0.0898
99% Percentile (z)	0.0926	95% USL	0.0905

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.482	95% KM UTL (Lognormal)95% Coverage	0.0983
KM SD of Logged Data	0.0438	95% KM UPL (Lognormal)	0.092
95% KM Percentile Lognormal (z)	0.0898	95% KM USL (Lognormal)	0.0905

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0856	Mean in Log Scale	-2.461
SD in Original Scale	0.00593	SD in Log Scale	0.0682
95% UTL95% Coverage	0.11	95% UPL (t)	0.0991
90% Percentile (z)	0.0932	95% Percentile (z)	0.0955
99% Percentile (z)	0.1	95% USL	0.0967

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	6	95% UTL with95% Coverage	0.19
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UTL	0.265
Approximate Sample Size needed to achieve specified CC	59	95% UPL	0.19
95% USL	0.19	95% KM Chebyshev UPL	0.101

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

meas_value_update (partial, silver)

General Statistics

Total Number of Observations	6	Number of Distinct Observations	6
Minimum	0.02	First Quartile	0.0313
Second Largest	0.0467	Median	0.0375
Maximum	0.05	Third Quartile	0.045
Mean	0.0369	SD	0.0111
Coefficient of Variation	0.3	Skewness	-0.449
Mean of logged Data	-3.342	SD of logged Data	0.336

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	3.708	d2max (for USL)	1.822

Normal GOF Test

Shapiro Wilk Test Statistic	0.971	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.788	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.143	Lilliefors GOF Test
5% Lilliefors Critical Value	0.325	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.078	90% Percentile (z)	0.0511
95% UPL (t)	0.0611	95% Percentile (z)	0.0552
95% USL	0.0571	99% Percentile (z)	0.0627

Gamma GOF Test

A-D Test Statistic	0.238	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.698	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.156	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	11.69	k star (bias corrected MLE)	5.956
Theta hat (MLE)	0.00316	Theta star (bias corrected MLE)	0.0062
nu hat (MLE)	140.3	nu star (bias corrected)	71.47
MLE Mean (bias corrected)	0.0369	MLE Sd (bias corrected)	0.0151

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0676	90% Percentile	0.0572
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0688	95% Percentile	0.0648
95% WH Approx. Gamma UTL with 95% Coverage	0.0985	99% Percentile	0.0809
95% HW Approx. Gamma UTL with 95% Coverage	0.103		
95% WH USL	0.0615	95% HW USL	0.0623

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.932	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.788	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.154	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.325	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.123	90% Percentile (z)	0.0544
95% UPL (t)	0.0735	95% Percentile (z)	0.0615
95% USL	0.0652	99% Percentile (z)	0.0773

Nonparametric Distribution Free Background Statistics
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	6	95% UTL with 95% Coverage	0.05
Approx, f used to compute achieved CC	0.316	Approximate Actual Confidence Coefficient achieved by UTL	0.265
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.05	95% BCA Bootstrap UTL with 95% Coverage	0.05
95% UPL	0.05	90% Percentile	0.0483
90% Chebyshev UPL	0.0728	95% Percentile	0.0492
95% Chebyshev UPL	0.0891	99% Percentile	0.0498
95% USL	0.05		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, thallium)

General Statistics

Total Number of Observations	48	Number of Distinct Observations	27
Minimum	0.09	First Quartile	0.2
Second Largest	0.47	Median	0.24
Maximum	0.68	Third Quartile	0.293
Mean	0.259	SD	0.109
Coefficient of Variation	0.42	Skewness	1.365
Mean of logged Data	-1.434	SD of logged Data	0.415

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941

Normal GOF Test

Shapiro Wilk Test Statistic	0.914	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.137	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	0.484	90% Percentile (z)	0.398
95% UPL (t)	0.443	95% Percentile (z)	0.438
95% USL	0.578	99% Percentile (z)	0.512

Gamma GOF Test

A-D Test Statistic	0.479	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.752	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.107	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	6.256	k star (bias corrected MLE)	5.879
Theta hat (MLE)	0.0414	Theta star (bias corrected MLE)	0.044
nu hat (MLE)	600.6	nu star (bias corrected)	564.4
MLE Mean (bias corrected)	0.259	MLE Sd (bias corrected)	0.107

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.459	90% Percentile	0.402
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.463	95% Percentile	0.456
95% WH Approx. Gamma UTL with 95% Coverage	0.518	99% Percentile	0.569
95% HW Approx. Gamma UTL with 95% Coverage	0.527		
95% WH USL	0.677	95% HW USL	0.701

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.97	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.128	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level	

Data appear Approximate Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	0.563	90% Percentile (z)	0.406
95% UPL (t)	0.482	95% Percentile (z)	0.472
95% USL	0.808	99% Percentile (z)	0.626

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	47	95% UTL with 95% Coverage	0.47
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTL	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	0.607	95% BCA Bootstrap UTL with 95% Coverage	0.593
95% UPL	0.452	90% Percentile	0.41
90% Chebyshev UPL	0.588	95% Percentile	0.427
95% Chebyshev UPL	0.738	99% Percentile	0.581
95% USL	0.68		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, vanadium)

General Statistics

Total Number of Observations	48	Number of Distinct Observations	45
Minimum	18.4	First Quartile	25.44
Second Largest	46.45	Median	27.9
Maximum	59.1	Third Quartile	33.5
Mean	30.26	SD	7.676
Coefficient of Variation	0.254	Skewness	1.477
Mean of logged Data	3.382	SD of logged Data	0.232

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941

Normal GOF Test

Shapiro Wilk Test Statistic	0.897	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.164	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	46.14	90% Percentile (z)	40.09
95% UPL (t)	43.27	95% Percentile (z)	42.88
95% USL	52.83	99% Percentile (z)	48.11

Gamma GOF Test

A-D Test Statistic	0.862	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.748	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.141	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	18.24	k star (bias corrected MLE)	17.11
Theta hat (MLE)	1.659	Theta star (bias corrected MLE)	1.768
nu hat (MLE)	1751	nu star (bias corrected)	1643
MLE Mean (bias corrected)	30.26	MLE Sd (bias corrected)	7.314

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	43.36	90% Percentile	39.93
95% Hawkins Wixley (HW) Approx. Gamma UPL	43.41	95% Percentile	43.21
95% WH Approx. Gamma UTL with 95% Coverage	46.85	99% Percentile	49.82
95% HW Approx. Gamma UTL with 95% Coverage	46.99		
95% WH USL	55.71	95% HW USL	56.24

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.968	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.127	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	47.53	90% Percentile (z)	39.61
95% UPL (t)	43.59	95% Percentile (z)	43.09
95% USL	58.18	99% Percentile (z)	50.46

Nonparametric Distribution Free Background Statistics
Data appear Lognormal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	47	95% UTL with 95% Coverage	46.45
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTI	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	54.67	95% BCA Bootstrap UTL with 95% Coverage	53.96
95% UPL	45.53	90% Percentile	40.59
90% Chebyshev UPL	53.52	95% Percentile	43.32
95% Chebyshev UPL	64.06	99% Percentile	53.15
95% USL	59.1		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects

meas_value_update (partial, zinc)

General Statistics			
Total Number of Observations	52	Number of Distinct Observations	51
Minimum	32.75	First Quartile	50.48
Second Largest	115	Median	58.8
Maximum	126	Third Quartile	72.4
Mean	64.45	SD	19.55
Coefficient of Variation	0.303	Skewness	1.155
Mean of logged Data	4.125	SD of logged Data	0.285
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.049	d2max (for USL)	2.972
Normal GOF Test			
Shapiro Wilk Test Statistic	0.92	Normal GOF Test	
5% Shapiro Wilk P Value	0.00168	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.138	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.122	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	104.5	90% Percentile (z)	89.51
95% UPL (t)	97.52	95% Percentile (z)	96.61
95% USL	122.6	99% Percentile (z)	109.9
Gamma GOF Test			
A-D Test Statistic	0.492	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.75	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.103	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.123	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	12.37	k star (bias corrected MLE)	11.67
Theta hat (MLE)	5.211	Theta star (bias corrected MLE)	5.524
nu hat (MLE)	1286	nu star (bias corrected)	1214
MLE Mean (bias corrected)	64.45	MLE Sd (bias corrected)	18.87
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	98.71	90% Percentile	89.51
95% Hawkins Wixley (HW) Approx. Gamma UPL	99	95% Percentile	98.3
95% WH Approx. Gamma UTL with 95% Coverage	107.8	99% Percentile	116.2
95% HW Approx. Gamma UTL with 95% Coverage	108.4		
95% WH USL	133.7	95% HW USL	135.8
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.983	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.813	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0854	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.122	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	110.8	90% Percentile (z)	89.08
95% UPL (t)	100.1	95% Percentile (z)	98.78
95% USL	144.1	99% Percentile (z)	119.9
Nonparametric Distribution Free Background Statistics			
Data appear Gamma Distributed at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	51	95% UTL with 95% Coverage	115
Approx, f used to compute achieved CC	1.342	Approximate Actual Confidence Coefficient achieved by UTI	0.741
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	120	95% BCA Bootstrap UTL with 95% Coverage	120
95% UPL	110.5	90% Percentile	89.69
90% Chebyshev UPL	123.7	95% Percentile	102.5
95% Chebyshev UPL	150.5	99% Percentile	120.4
95% USL	126		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

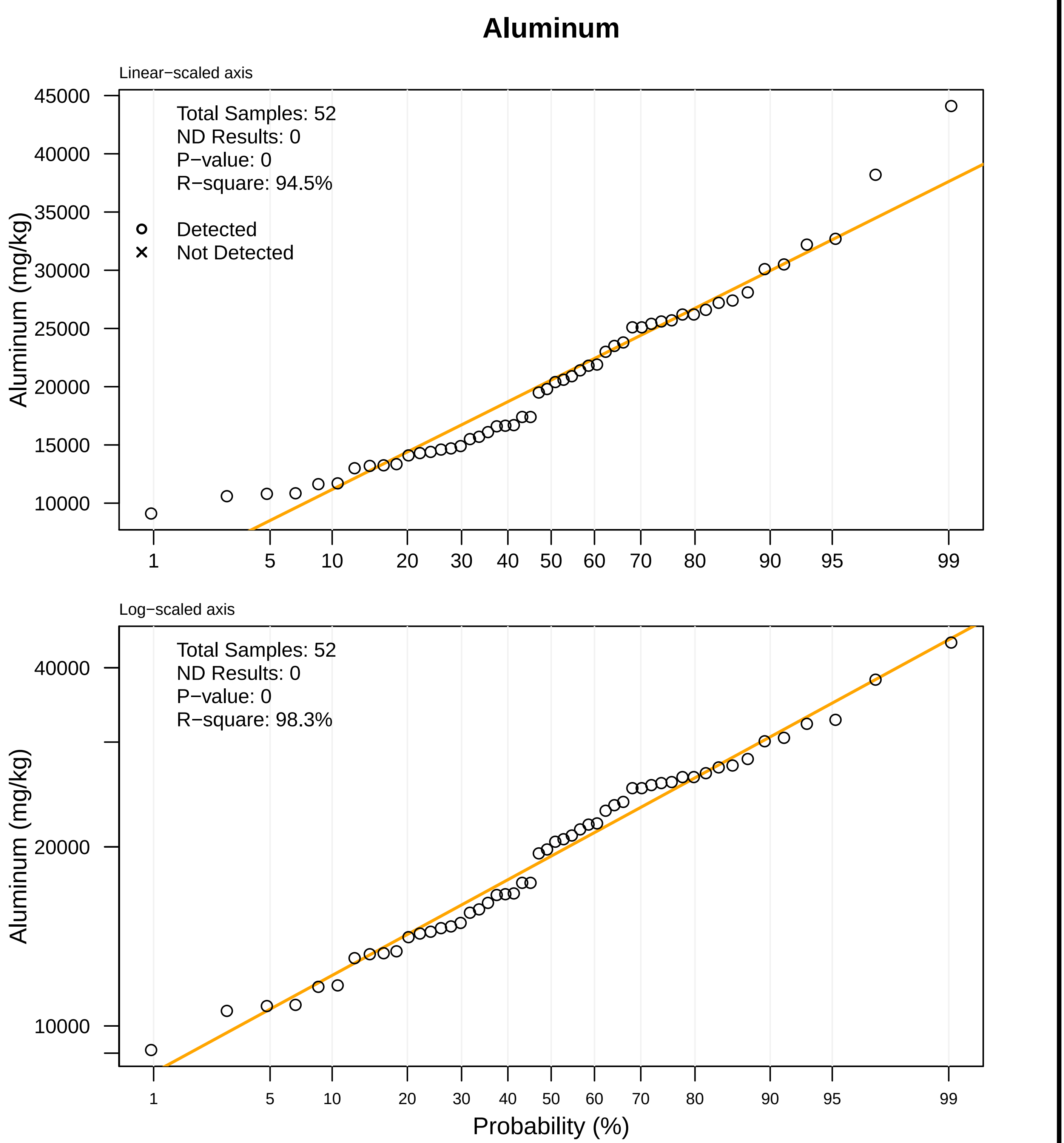

Figure C2−1. Boxplots of aluminum concentrations by partial digestion methods

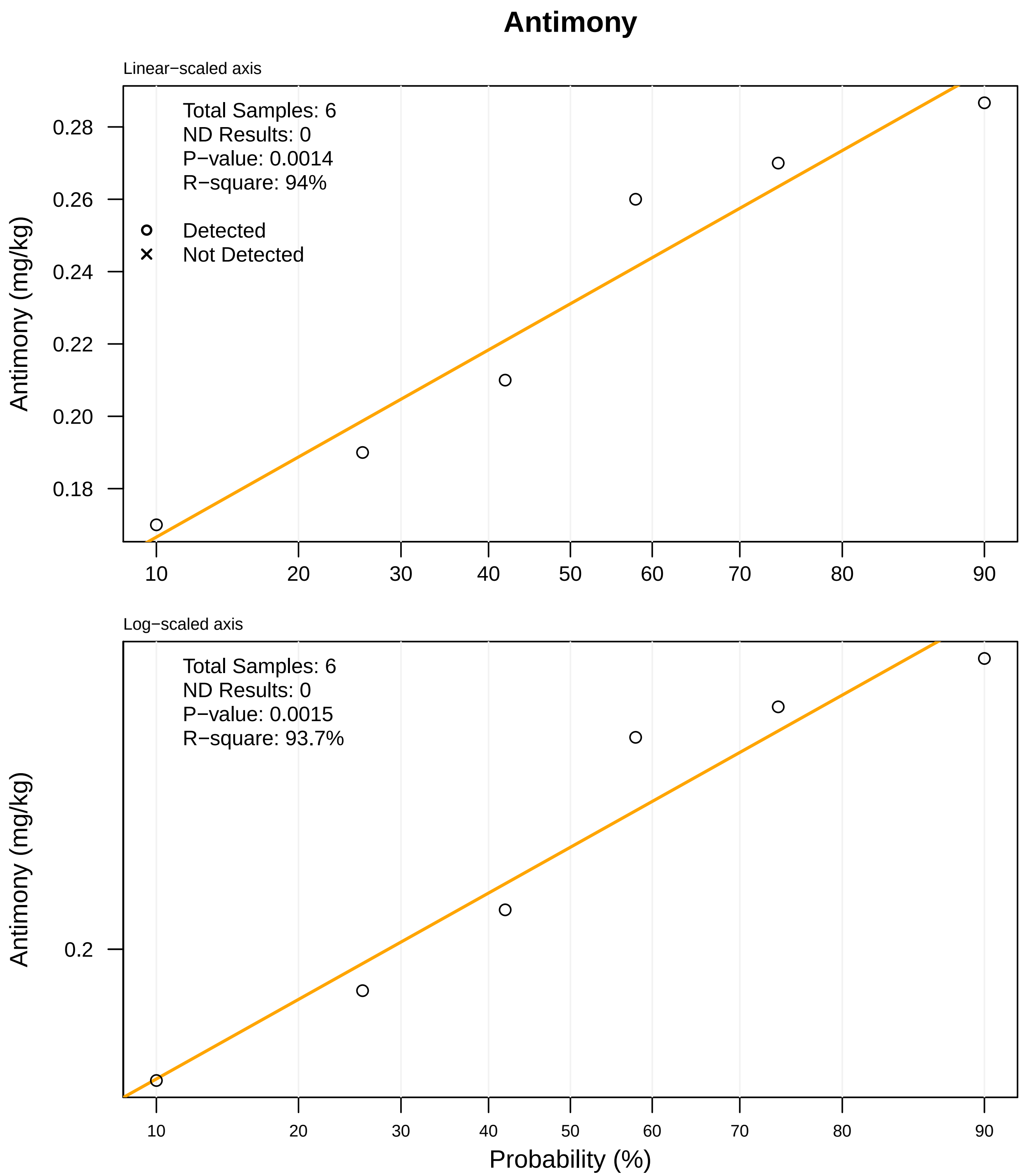

Figure C2−2. Boxplots of antimony concentrations by partial digestion methods

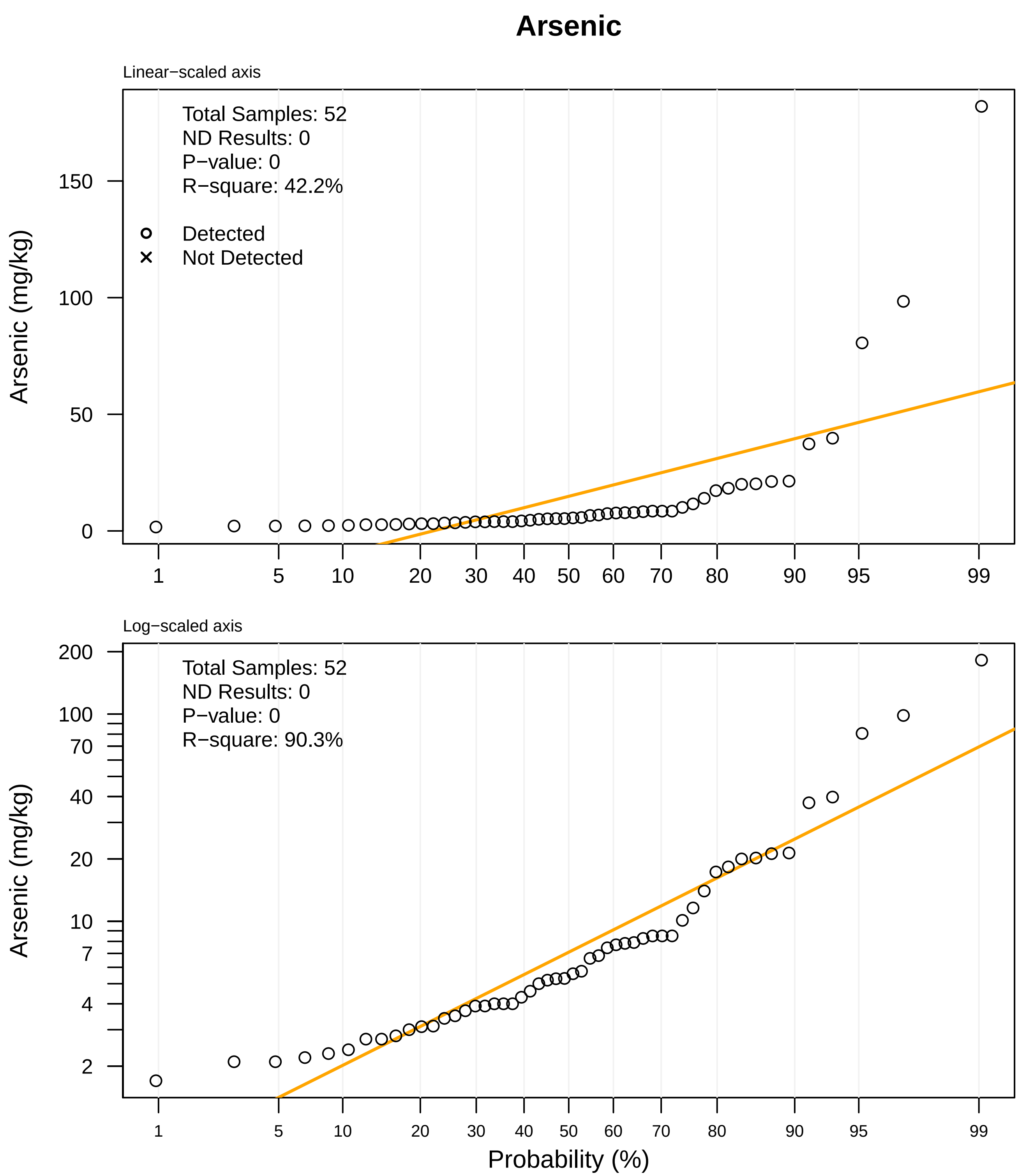

Figure C2−3. Boxplots of arsenic concentrations by partial digestion methods

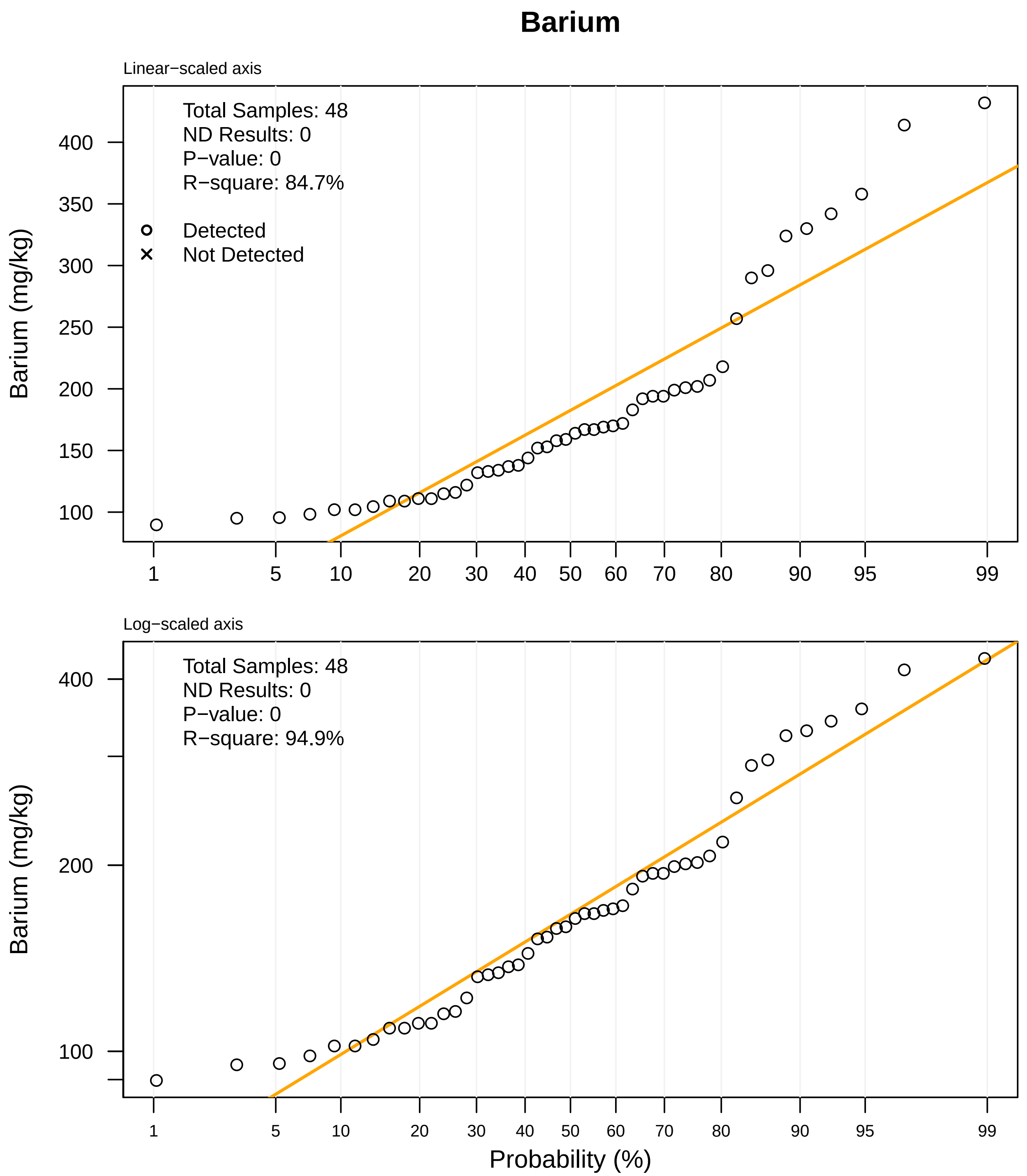

Figure C2−4. Boxplots of barium concentrations by partial digestion methods

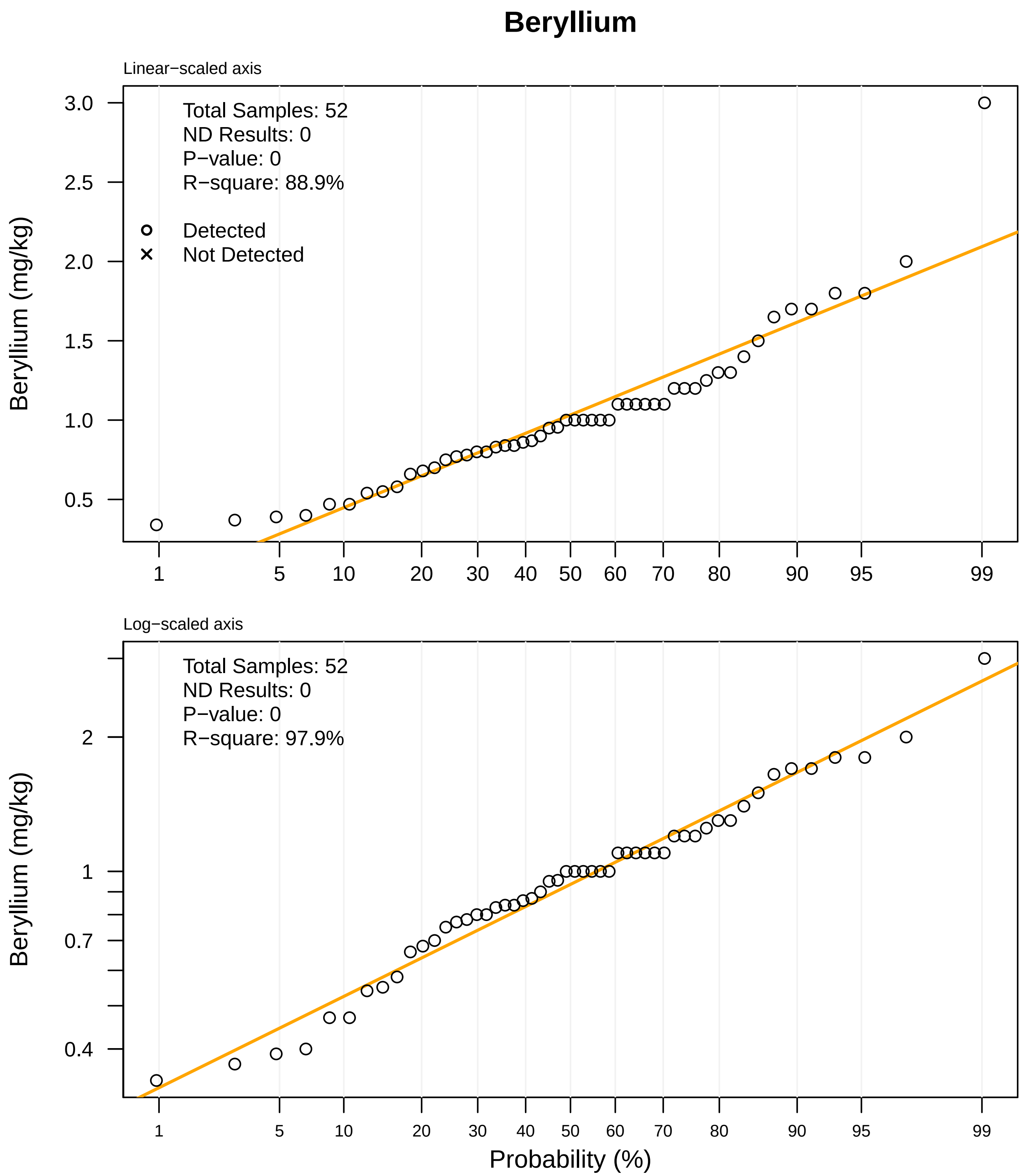

Figure C2−5. Boxplots of beryllium concentrations by partial digestion methods

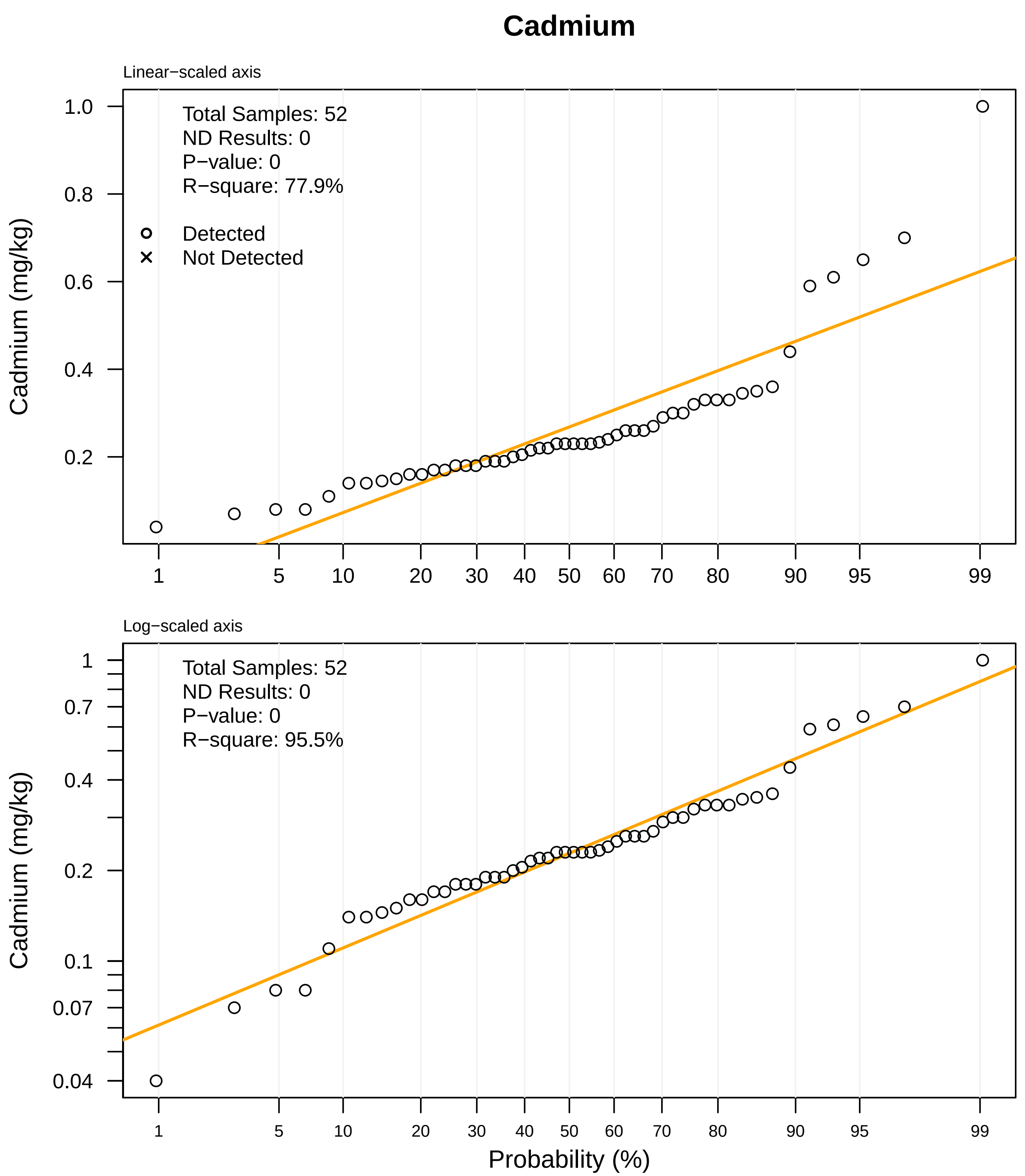

Figure C2−6. Boxplots of cadmium concentrations by partial digestion methods

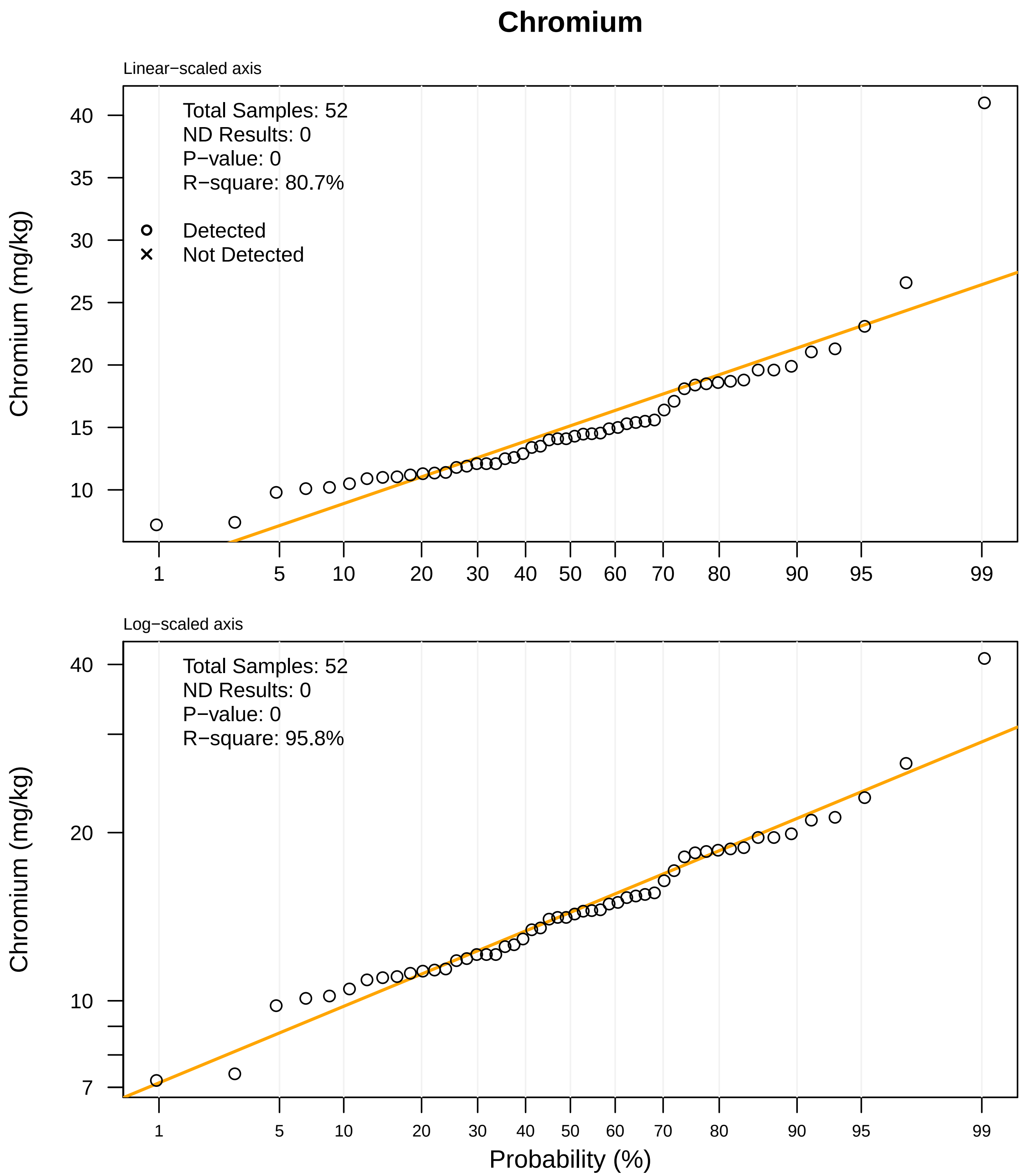

Figure C2−7. Boxplots of chromium concentrations by partial digestion methods

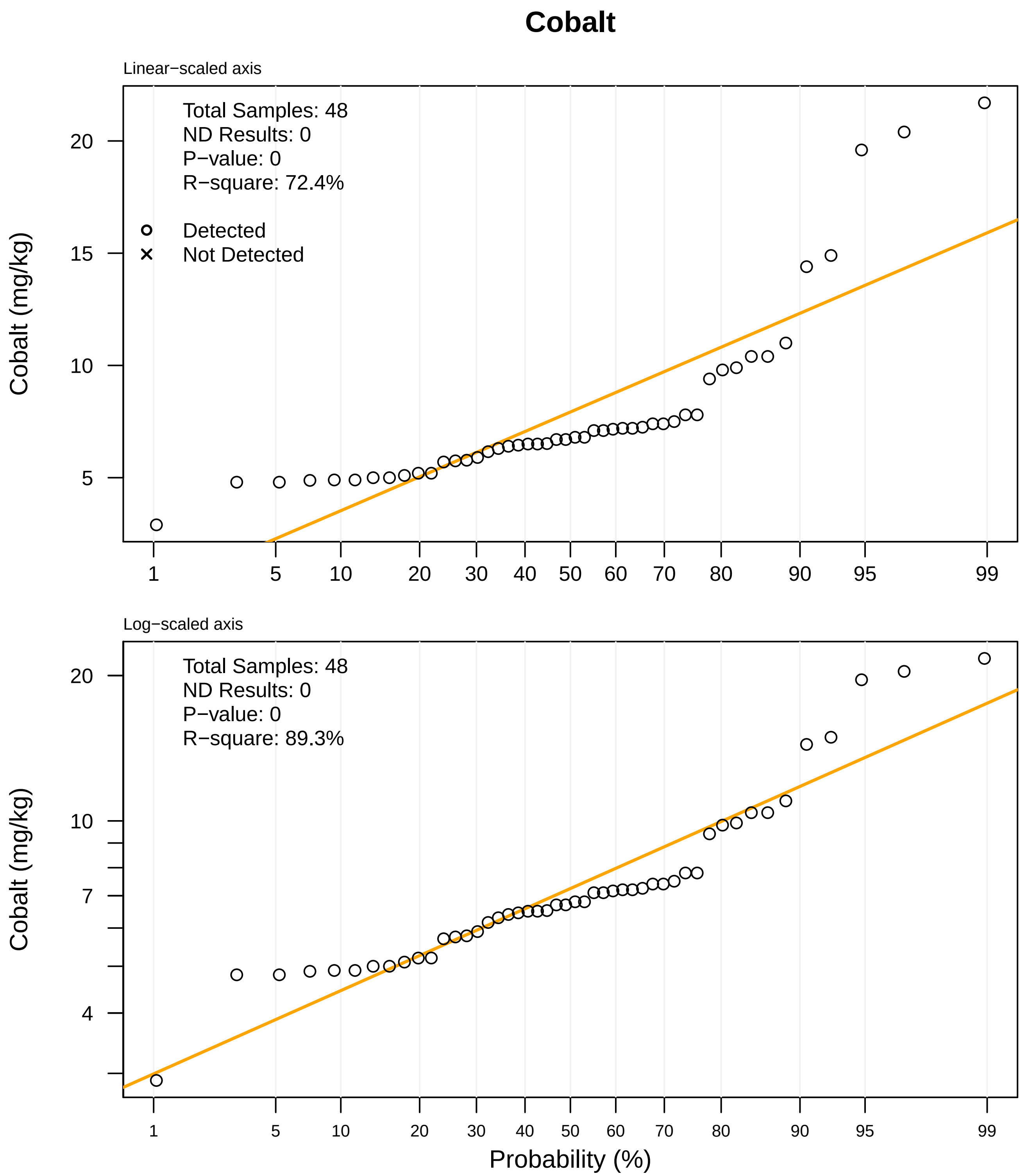

Figure C2−8. Boxplots of cobalt concentrations by partial digestion methods

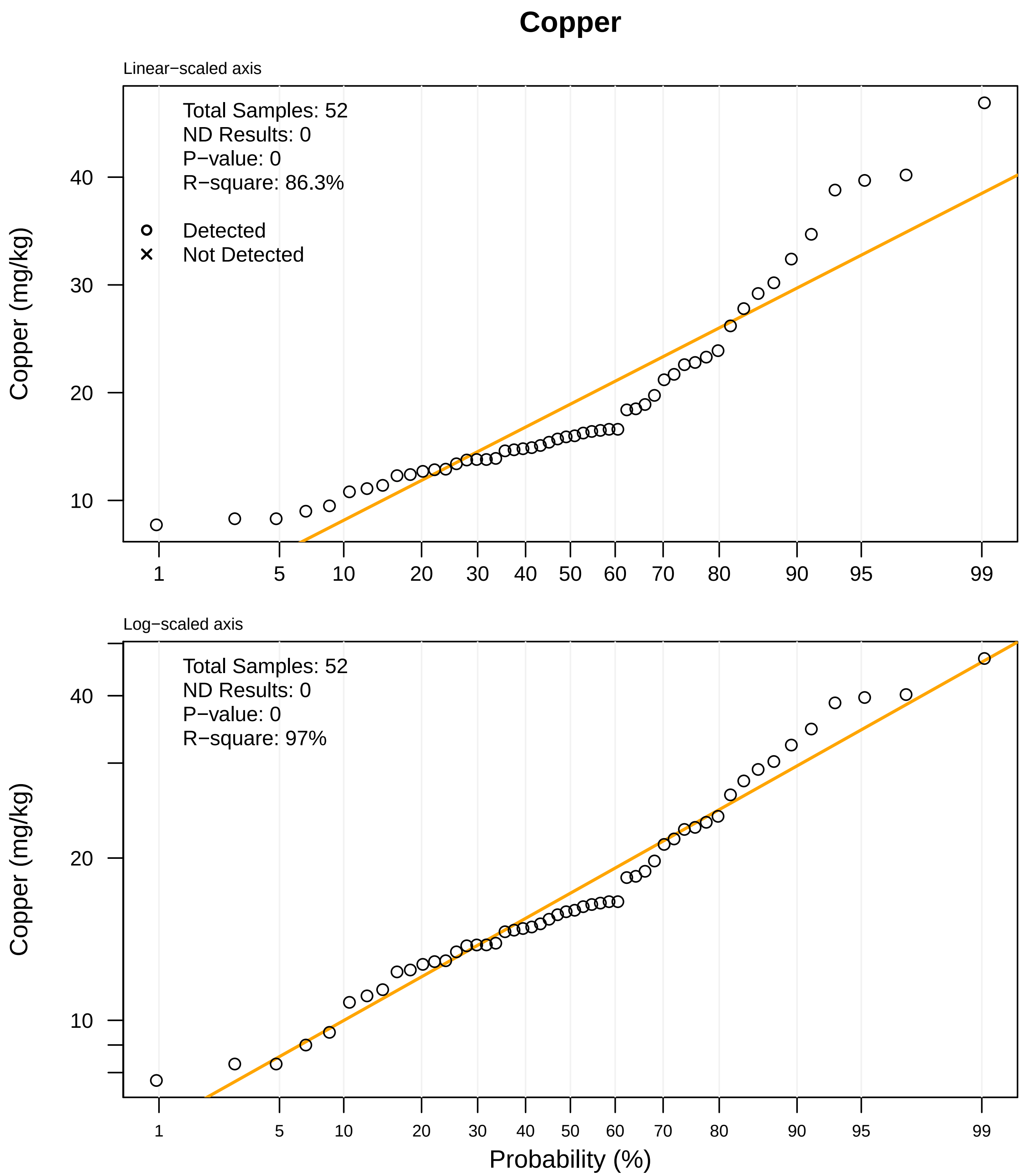

Figure C2−9. Boxplots of copper concentrations by partial digestion methods

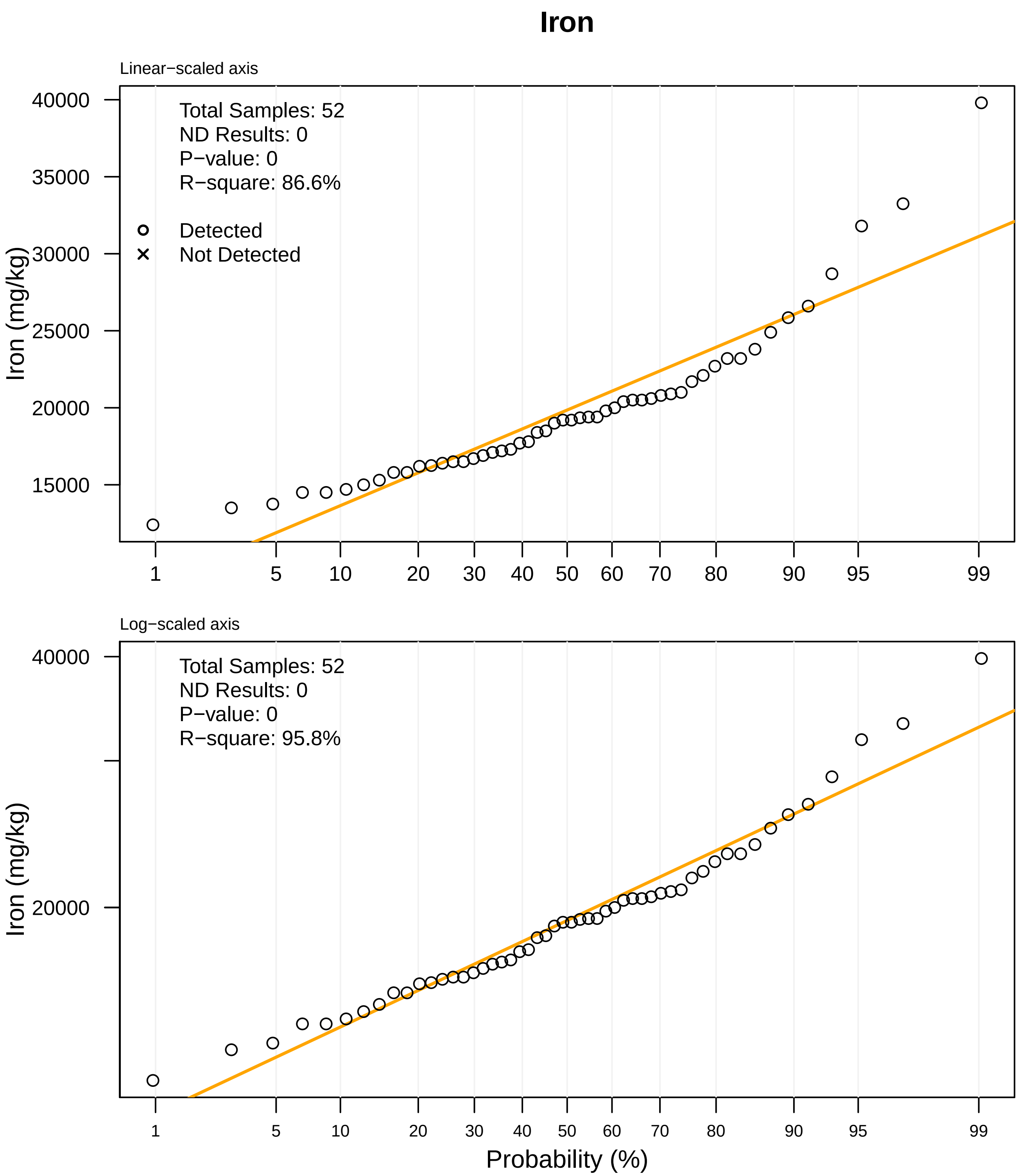

Figure C2−10. Boxplots of iron concentrations by partial digestion methods

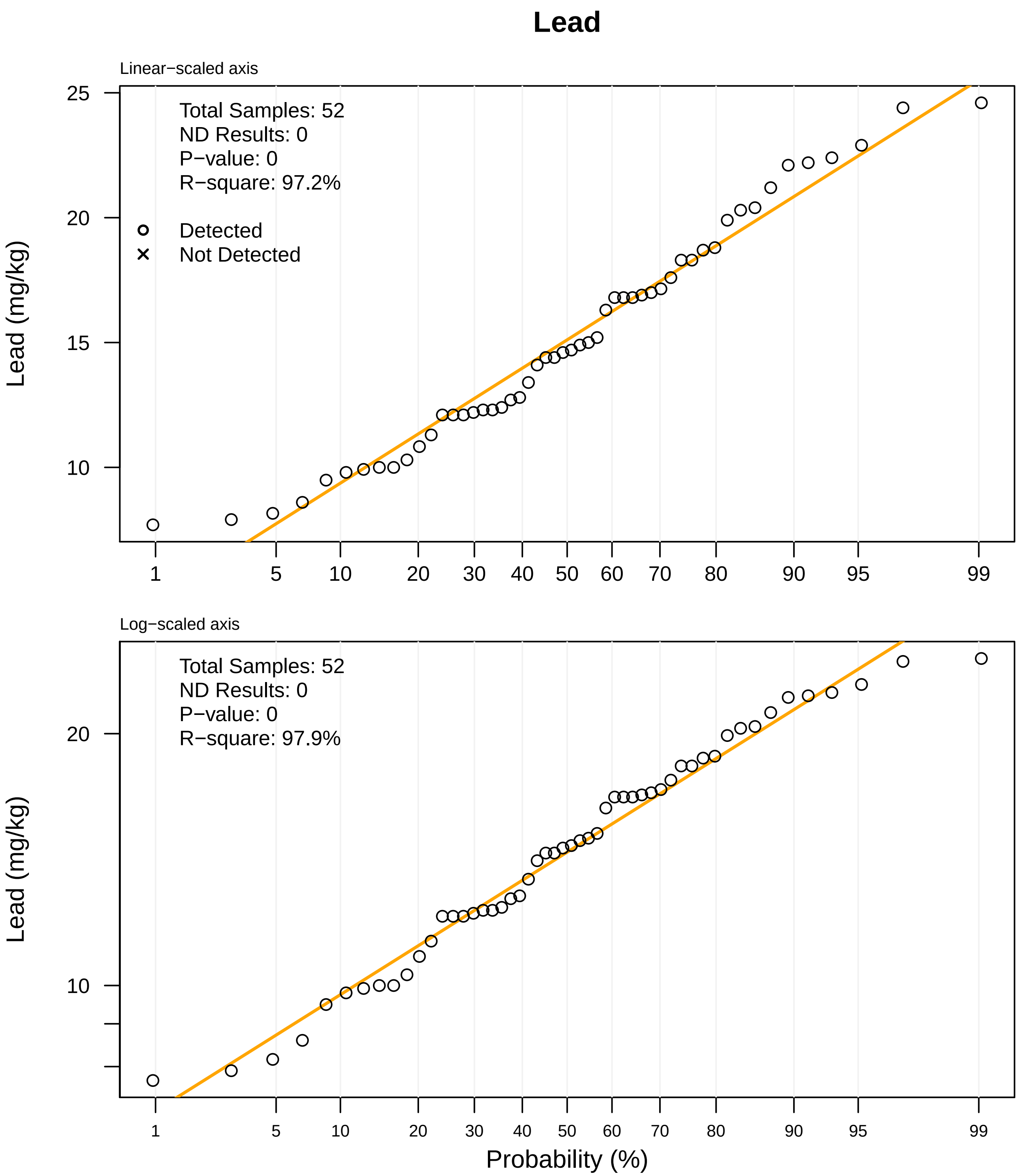

Figure C2−11. Boxplots of lead concentrations by partial digestion methods

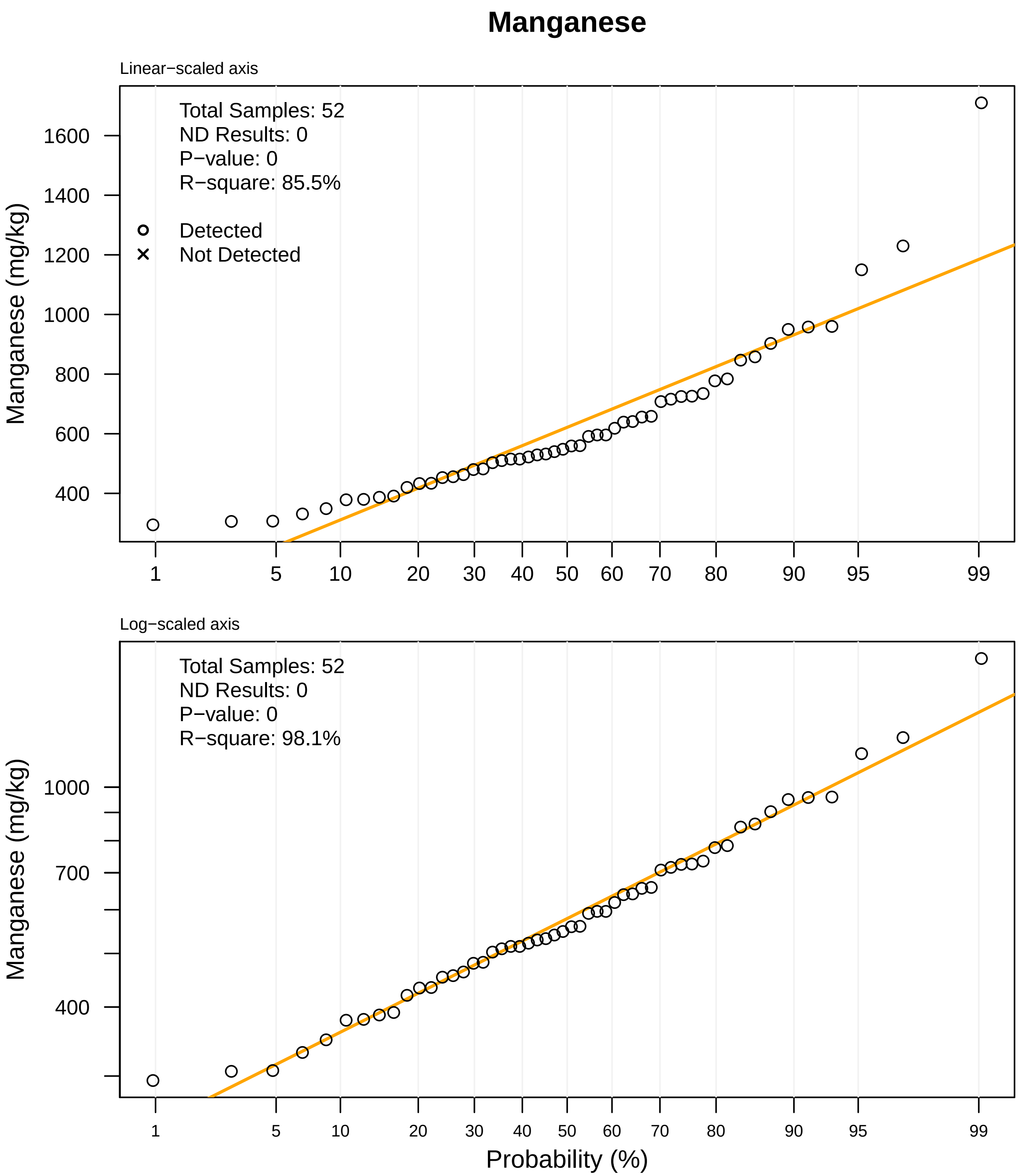

Figure C2−12. Boxplots of manganese concentrations by partial digestion methods

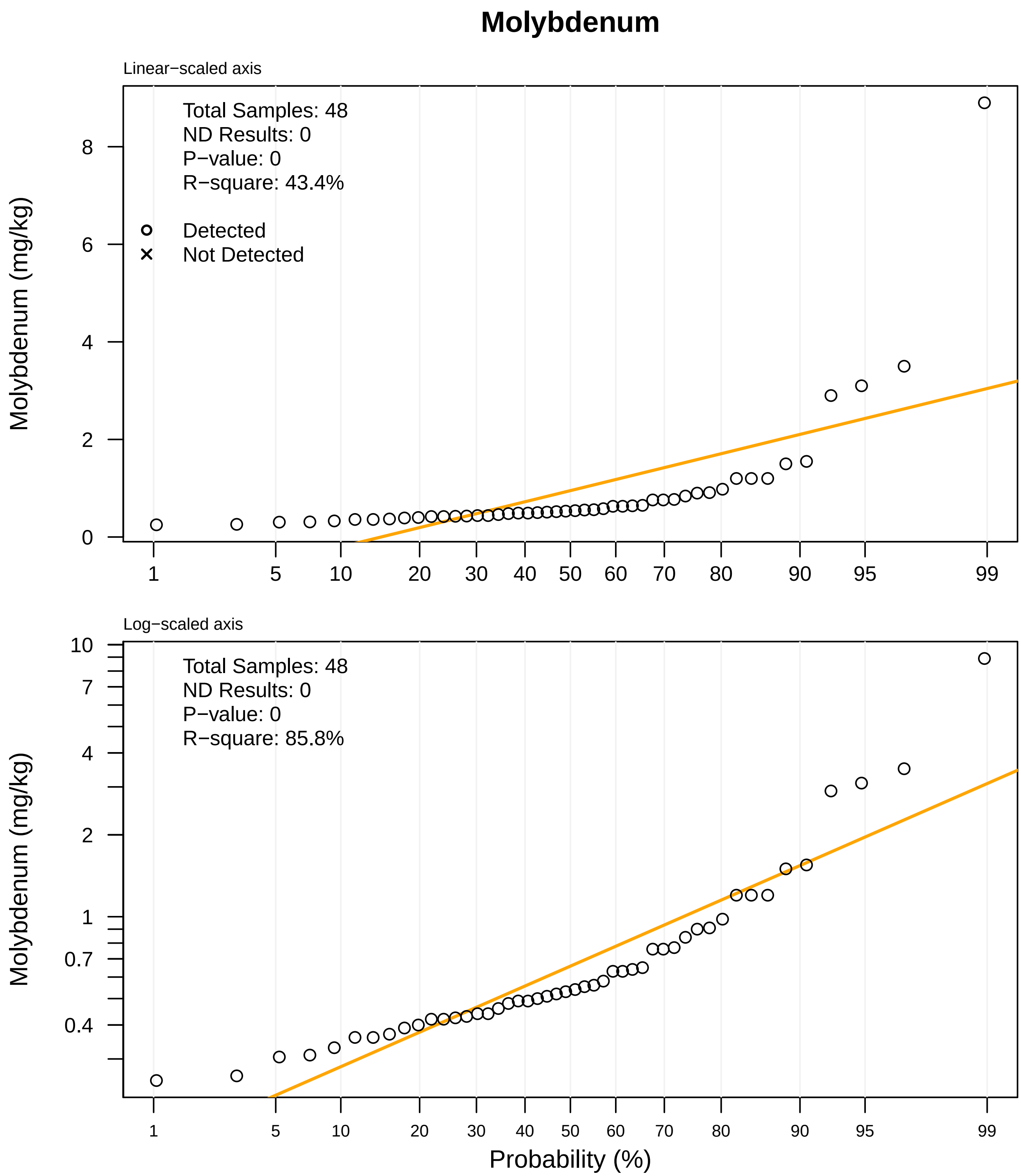

Figure C2−13. Boxplots of molybdenum concentrations by partial digestion methods

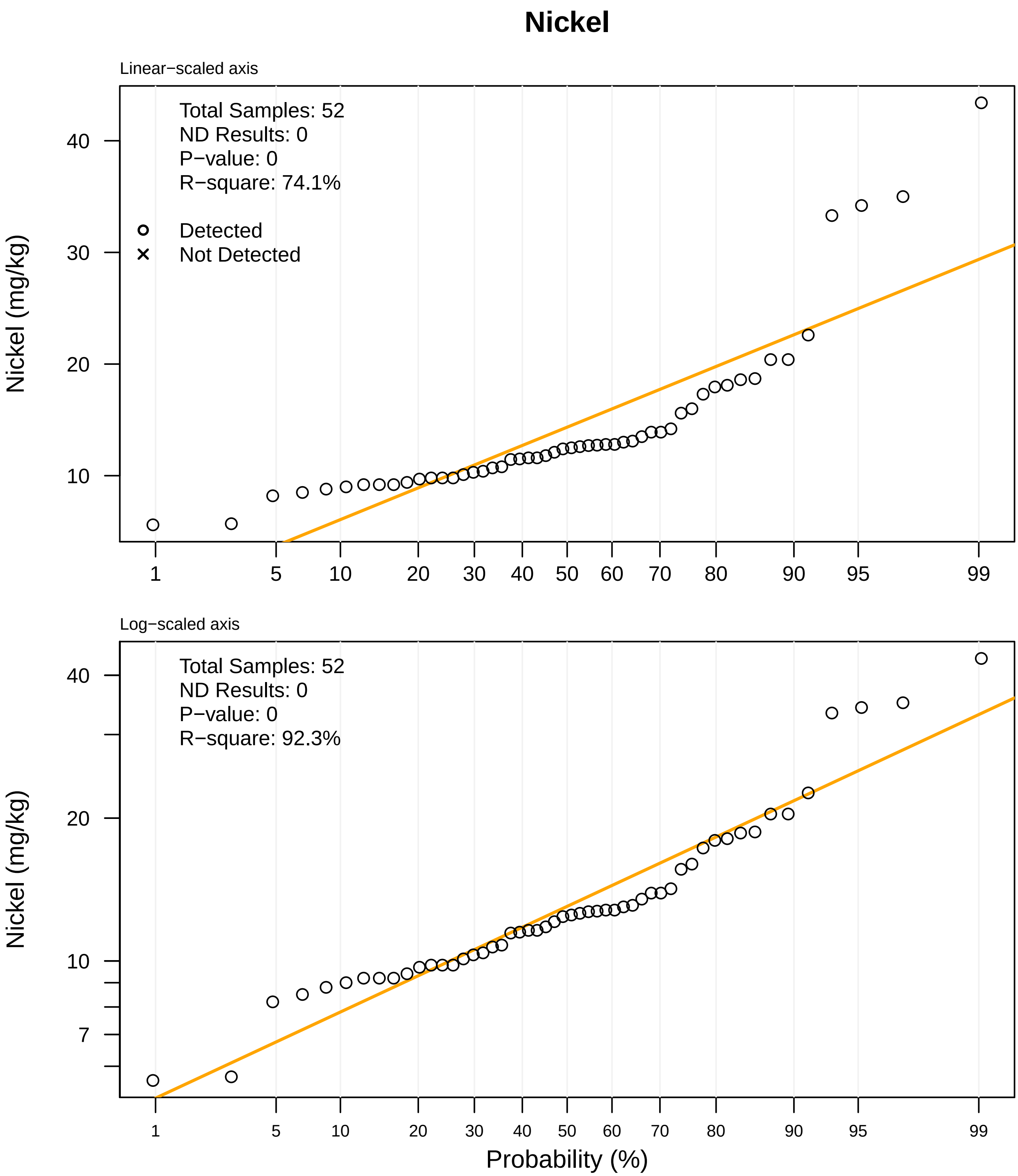

Figure C2−14. Boxplots of nickel concentrations by partial digestion methods

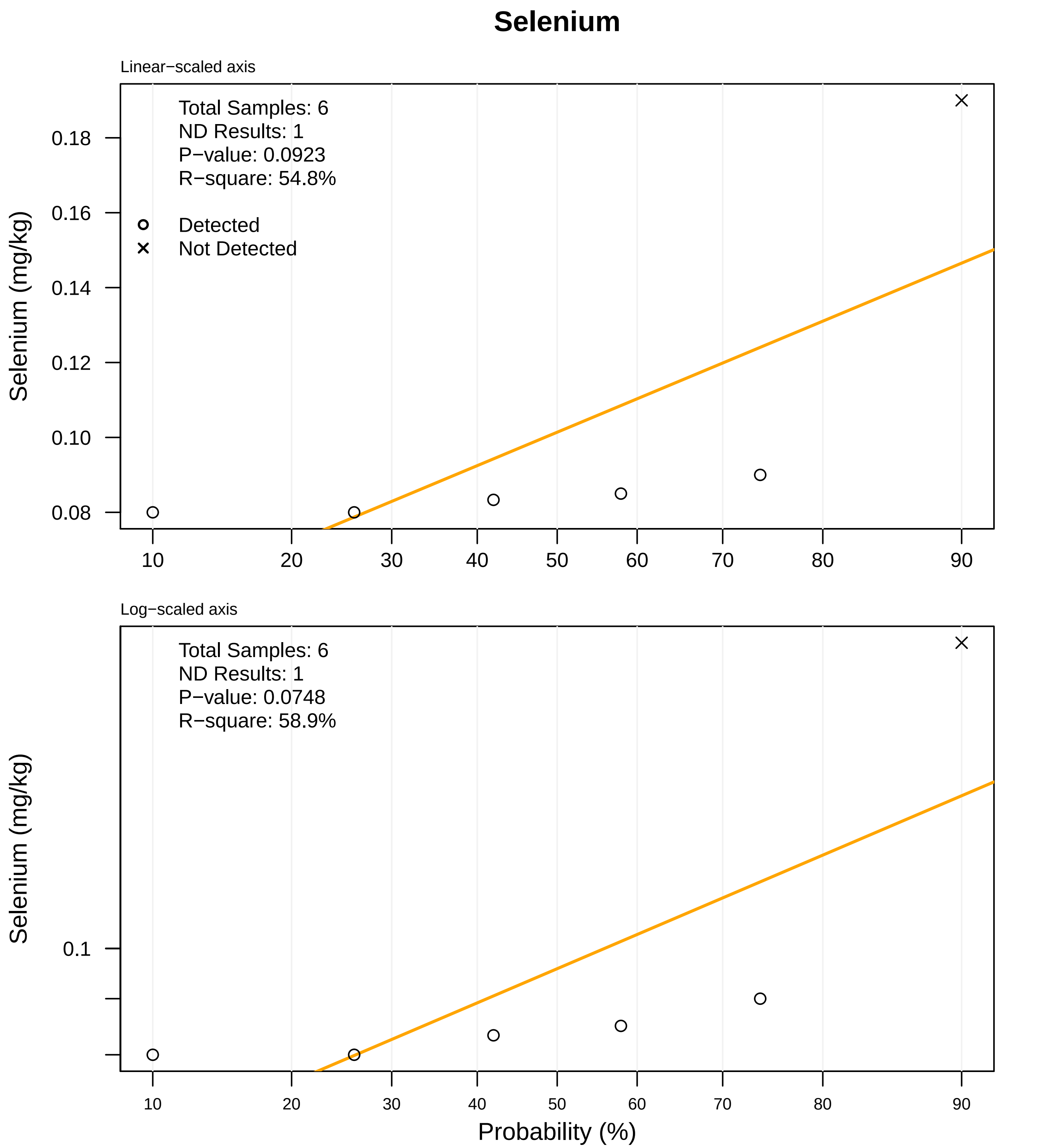

Figure C2−15. Boxplots of selenium concentrations by partial digestion methods

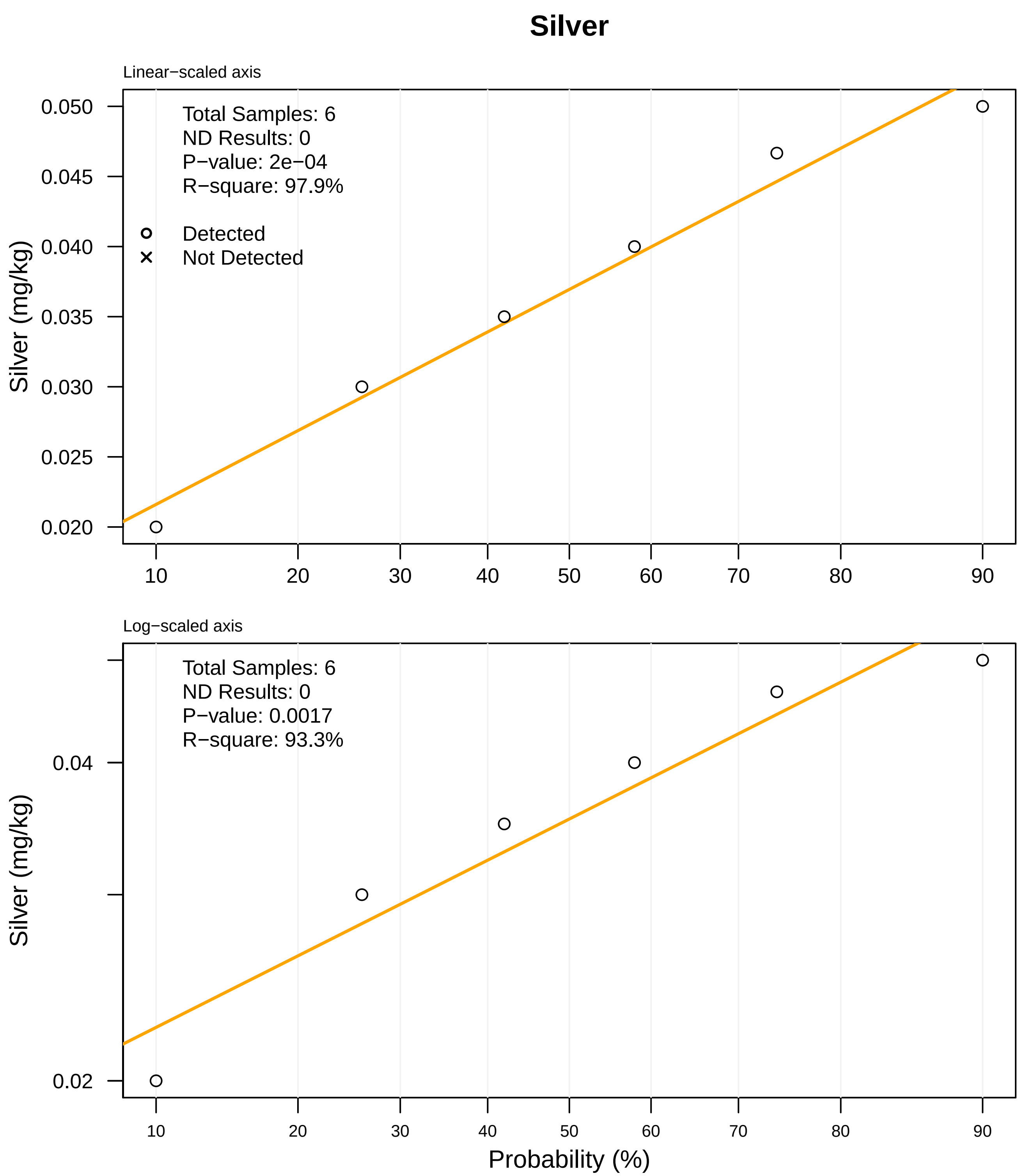

Figure C2−16. Boxplots of silver concentrations by partial digestion methods

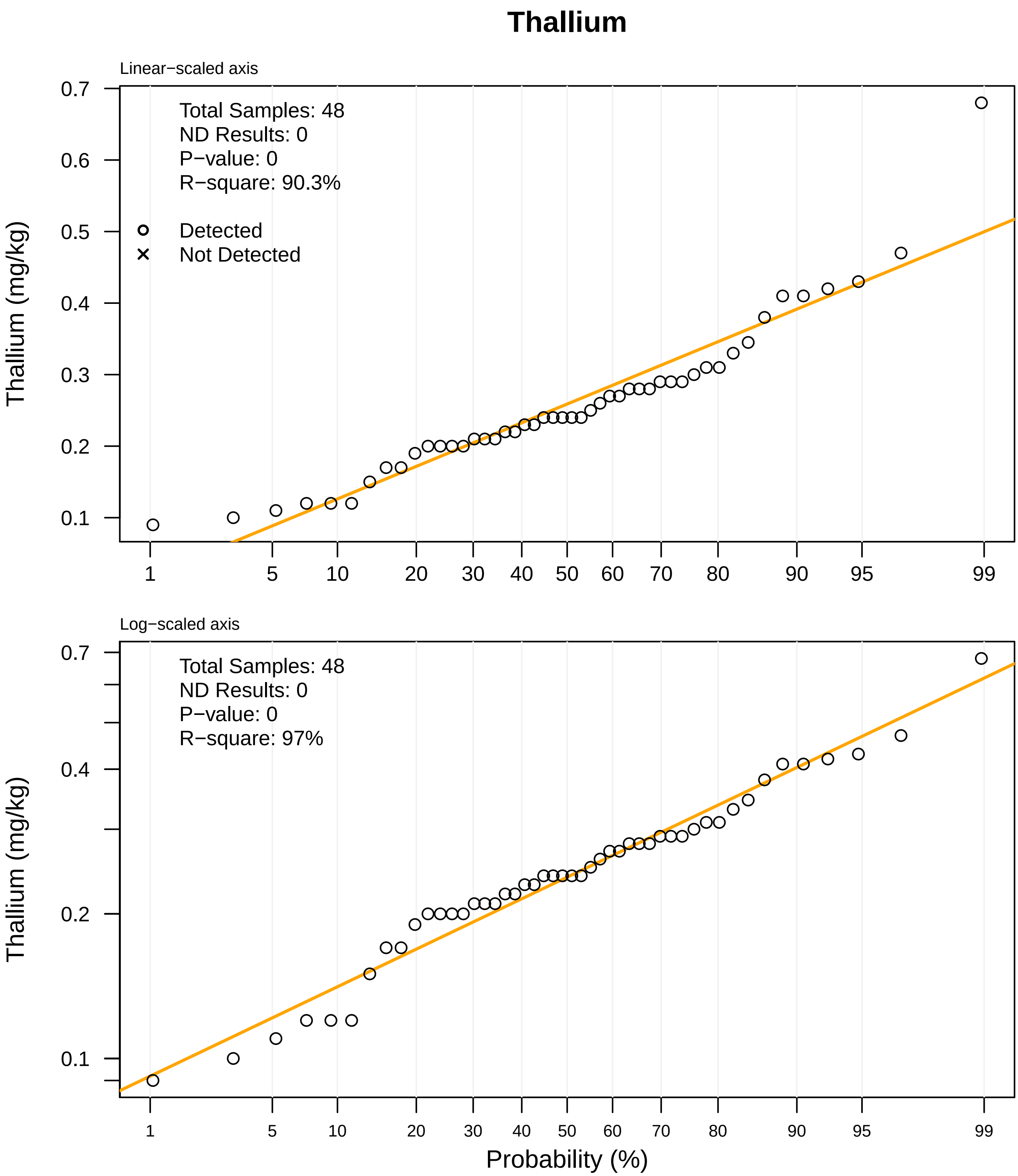

Figure C2−17. Boxplots of thallium concentrations by partial digestion methods

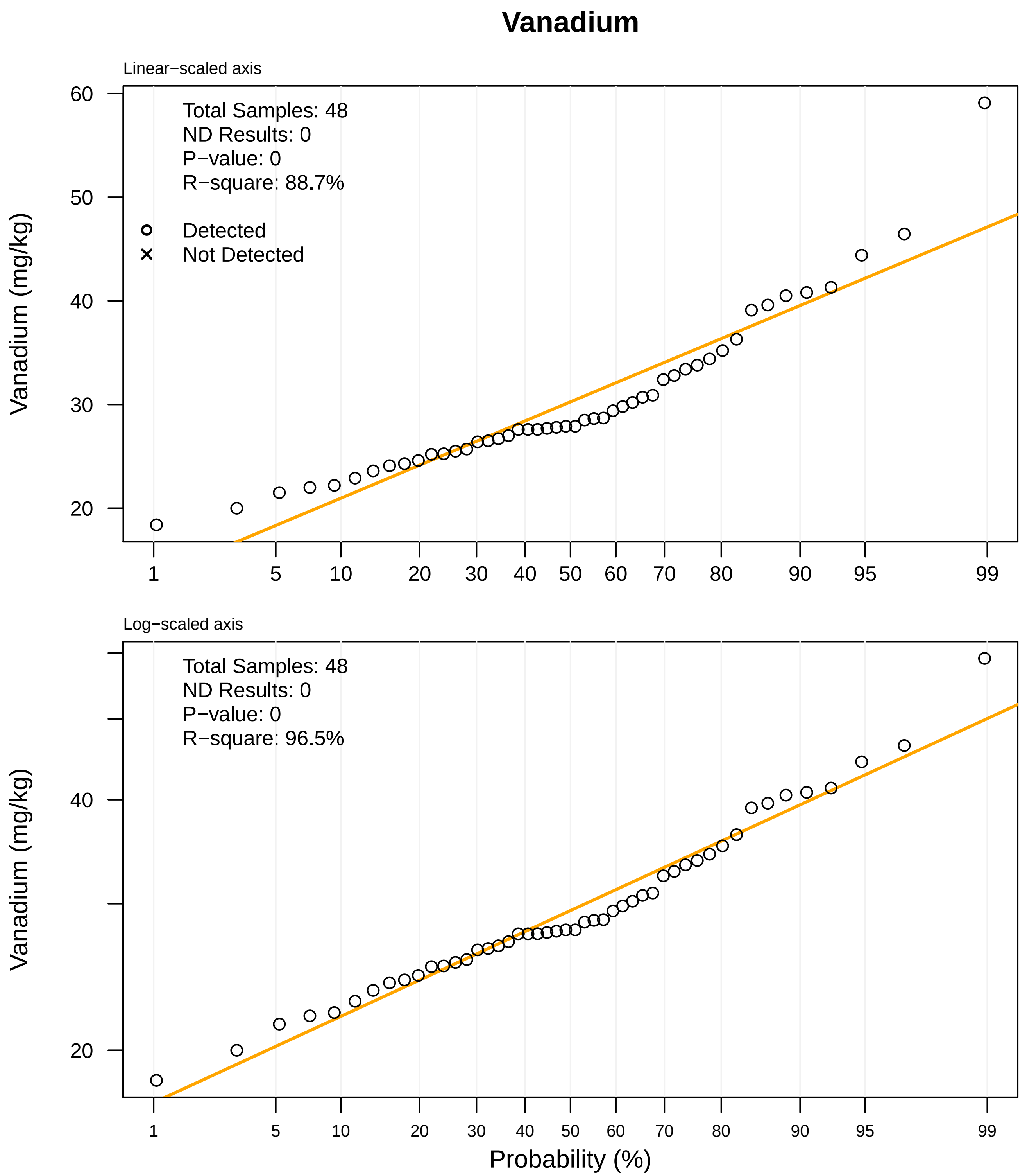

Figure C2−18. Boxplots of vanadium concentrations by partial digestion methods

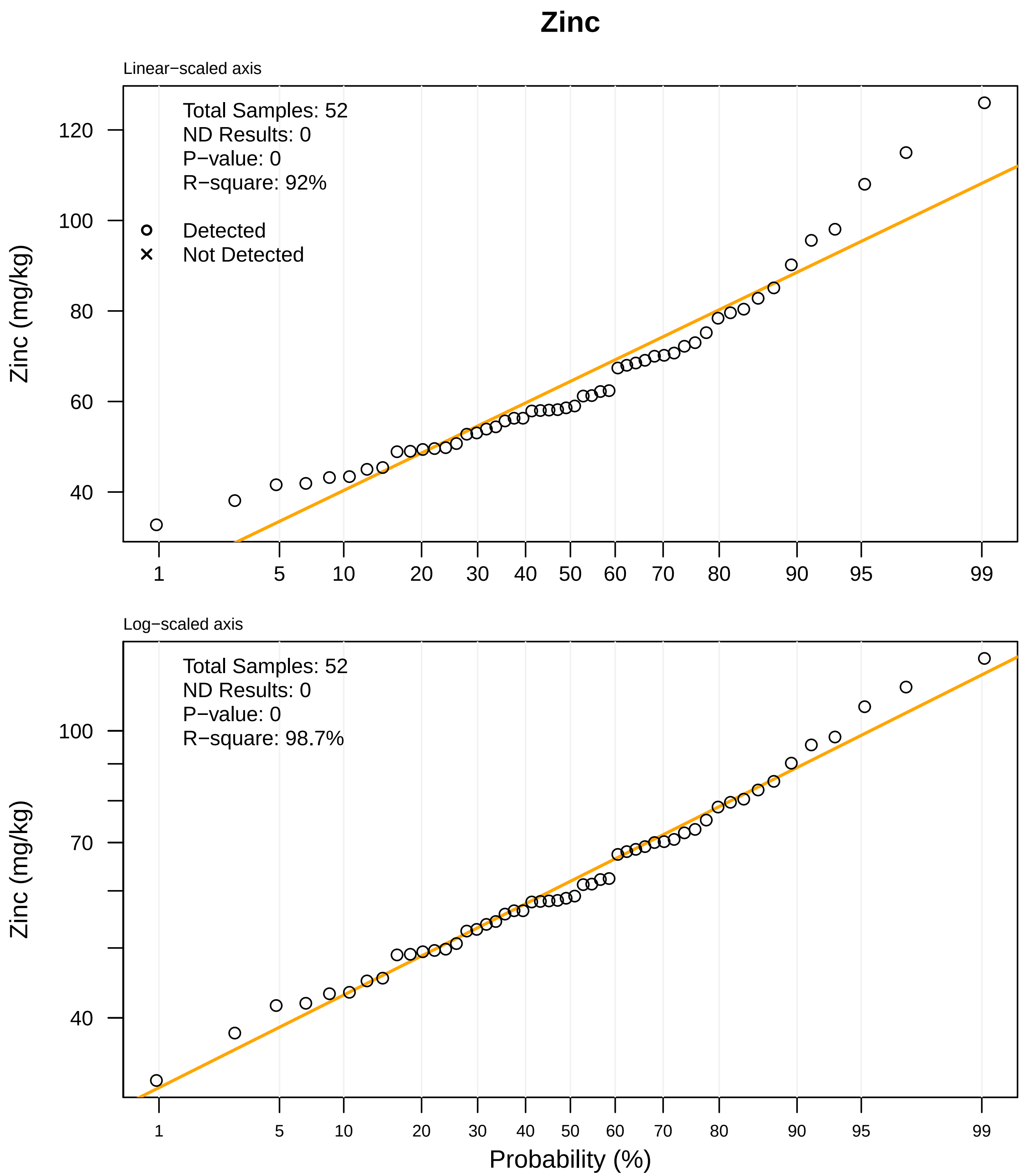

Figure C2−19. Boxplots of zinc concentrations by partial digestion methods

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, aluminum)

Mean	9.868
Standard Deviation	0.362
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	9.868	0.359	10.69	22	2.304	3.144	3.496	43914.51
2	9.851	0.346	9.117	52	2.12	3.134	3.486	9108.834
3	9.866	0.333	10.55	38	2.054	3.126	3.478	38177.44
4	9.852	0.322	9.269	51	1.814	3.116	3.476	10604.14
5	9.864	0.314	9.287	50	1.84	3.106	3.466	10796.75
6	9.876	0.305	9.292	47	1.916	3.098	3.455	10850.86
7	9.889	0.296	9.362	49	1.785	3.091	3.444	11637.64
8	9.901	0.288	9.367	15	1.854	3.083	3.432	11695.97
9	9.913	0.279	10.4	36	1.726	3.076	3.421	32859.63
10	9.902	0.272	10.38	23	1.754	3.068	3.41	32208.96

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Dixon's Outlier Test for meas_value_update (partial, antimony)

Number of Observations = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

1. Observation Value 0.286666667 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.143

For 10% significance level, 0.286666667 is not an outlier.
For 5% significance level, 0.286666667 is not an outlier.
For 1% significance level, 0.286666667 is not an outlier.

2. Observation Value 0.17 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.171

For 10% significance level, 0.17 is not an outlier.
For 5% significance level, 0.17 is not an outlier.
For 1% significance level, 0.17 is not an outlier.

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, arsenic)

Mean	1.959
Standard Deviation	1.03
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	1.959	1.02	5.204	31	3.182	3.144	3.496	181.9988
2	1.896	0.931	4.589	40	2.893	3.134	3.486	98.39598
3	1.842	0.857	4.389	38	2.975	3.126	3.478	80.55982
4	1.79	0.782	3.683	41	2.422	3.116	3.476	39.76551
5	1.75	0.739	3.619	30	2.529	3.106	3.466	37.30025
6	1.711	0.693	3.061	39	1.948	3.098	3.455	21.3489
7	1.681	0.671	3.054	12	2.047	3.091	3.444	21.19997
8	1.651	0.645	3.006	14	2.101	3.083	3.432	20.20641
9	1.62	0.618	2.996	15	2.226	3.076	3.421	20.00536
10	1.588	0.587	2.907	23	2.245	3.068	3.41	18.30181

For 5% Significance Level, there is 1 Potential Outlier
Potential outliers is: 5.204

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, barium)

Mean	5.116
Standard Deviation	0.417
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	5.116	0.413	6.068	22	2.308	3.11	3.46	431.8162
2	5.095	0.397	6.026	33	2.343	3.1	3.46	414.0555
3	5.075	0.376	5.881	27	2.141	3.09	3.45	358.1672
4	5.057	0.36	5.835	21	2.159	3.09	3.44	342.0647
5	5.04	0.344	5.799	16	2.208	3.08	3.43	329.9694
6	5.022	0.327	5.781	31	2.319	3.07	3.418	324.0831
7	5.004	0.309	5.69	36	2.224	3.06	3.406	295.8936
8	4.987	0.293	5.67	23	2.333	3.05	3.394	290.0345
9	4.97	0.275	5.549	30	2.106	3.04	3.382	256.9804
10	4.955	0.262	4.496	10	1.752	3.03	3.37	89.65778

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, beryllium)

Mean	-0.0671
Standard Deviation	0.455
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-0.0671	0.45	1.099	27	2.589	3.144	3.496	3.001163
2	-0.09	0.428	-1.079	52	2.31	3.134	3.486	0.339935
3	-0.0702	0.408	-0.994	51	2.264	3.126	3.478	0.370093
4	-0.0514	0.39	-0.942	50	2.284	3.116	3.476	0.389847
5	-0.0328	0.371	-0.916	47	2.379	3.106	3.466	0.400116
6	-0.014	0.352	-0.755	48	2.108	3.098	3.455	0.470011
7	0.00209	0.337	-0.755	49	2.244	3.091	3.444	0.470011
8	0.0189	0.321	0.693	38	2.1	3.083	3.432	1.999706
9	0.00359	0.308	-0.616	20	2.014	3.076	3.421	0.540101
10	0.018	0.296	-0.598	45	2.081	3.068	3.41	0.54991

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, cadmium)

Mean	-1.478
Standard Deviation	0.577
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-1.478	0.571	-3.219	42	3.048	3.144	3.496	0.039995
2	-1.444	0.527	0	44	2.74	3.134	3.486	1
3	-1.472	0.49	-2.659	17	2.424	3.126	3.478	0.070018
4	-1.448	0.463	-0.357	45	2.355	3.116	3.476	0.699772
5	-1.471	0.44	-2.526	39	2.398	3.106	3.466	0.079978
6	-1.448	0.416	-2.526	41	2.59	3.098	3.455	0.079978
7	-1.425	0.388	-0.431	31	2.563	3.091	3.444	0.649859
8	-1.447	0.362	-0.494	46	2.633	3.083	3.432	0.610181
9	-1.469	0.335	-0.528	36	2.807	3.076	3.421	0.589783
10	-1.491	0.306	-2.207	3	2.343	3.068	3.41	0.11003

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, chromium)

Mean	2.667
Standard Deviation	0.308
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.667	0.305	3.714	38	3.433	3.144	3.496	41.01755
2	2.646	0.273	1.974	19	2.466	3.134	3.486	7.199417
3	2.66	0.258	2.001	20	2.554	3.126	3.478	7.396449
4	2.673	0.242	3.281	36	2.51	3.116	3.476	26.60236
5	2.661	0.228	3.14	13	2.105	3.106	3.466	23.10387
6	2.65	0.219	3.059	40	1.866	3.098	3.455	21.30624
7	2.642	0.212	3.047	41	1.908	3.091	3.444	21.05209
8	2.633	0.206	2.991	35	1.74	3.083	3.432	19.90558
9	2.624	0.201	2.976	14	1.749	3.076	3.421	19.60922
10	2.616	0.196	2.976	31	1.837	3.068	3.41	19.60922

For 5% Significance Level, there is 1 Potential Outlier
Potential outliers is: 3.714

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, cobalt)

Mean	1.98
Standard Deviation	0.401
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	1.98	0.397	3.077	40	2.766	3.11	3.46	21.69323
2	1.957	0.371	3.016	31	2.855	3.1	3.46	20.40949
3	1.934	0.339	2.976	38	3.071	3.09	3.45	19.60922
4	1.911	0.304	1.065	20	2.781	3.09	3.44	2.900839
5	1.93	0.279	2.701	41	2.769	3.08	3.43	14.89462
6	1.912	0.255	2.667	36	2.963	3.07	3.418	14.39671
7	1.894	0.229	2.398	27	2.203	3.06	3.406	11.00115
8	1.882	0.217	2.342	13	2.12	3.05	3.394	10.40202
9	1.87	0.207	2.342	35	2.281	3.04	3.382	10.40202
10	1.858	0.195	2.293	23	2.232	3.03	3.37	9.904607

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, copper)

Mean	2.846
Standard Deviation	0.43
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.846	0.425	3.848	31	2.356	3.144	3.496	46.89917
2	2.826	0.41	3.694	38	2.119	3.134	3.486	40.20535
3	2.809	0.394	3.681	40	2.213	3.126	3.478	39.68606
4	2.791	0.378	3.658	16	2.298	3.116	3.476	38.7837
5	2.773	0.36	3.547	36	2.153	3.106	3.466	34.70903
6	2.756	0.345	3.478	41	2.095	3.098	3.455	32.39487
7	2.74	0.331	2.046	43	2.099	3.091	3.444	7.736892
8	2.756	0.318	3.408	44	2.053	3.083	3.432	30.20477
9	2.741	0.305	3.374	13	2.075	3.076	3.421	29.19507
10	2.726	0.292	2.116	19	2.086	3.068	3.41	8.297879

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, iron)

Mean	9.867
Standard Deviation	0.234
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	9.867	0.232	10.59	38	3.125	3.144	3.496	39735.49
2	9.853	0.212	10.41	40	2.629	3.134	3.486	33189.87
3	9.842	0.199	10.37	31	2.64	3.126	3.478	31888.48
4	9.831	0.186	10.26	36	2.331	3.116	3.476	28566.79
5	9.822	0.177	9.425	20	2.247	3.106	3.466	12394.4
6	9.831	0.168	10.19	27	2.124	3.098	3.455	26635.49
7	9.823	0.162	10.16	41	2.086	3.091	3.444	25848.3
8	9.816	0.155	10.12	14	1.98	3.083	3.432	24834.77
9	9.809	0.15	9.51	52	1.993	3.076	3.421	13493.99
10	9.816	0.144	9.529	43	1.991	3.068	3.41	13752.83

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, lead)

Mean	2.67
Standard Deviation	0.309
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.67	0.306	2.041	39	2.057	3.144	3.496	7.698304
2	2.682	0.298	2.068	52	2.057	3.134	3.486	7.908989
3	2.694	0.288	2.099	51	2.065	3.126	3.478	8.158008
4	2.706	0.278	2.152	35	1.996	3.116	3.476	8.602045
5	2.718	0.269	3.203	31	1.805	3.106	3.466	24.60624
6	2.708	0.262	3.195	18	1.86	3.098	3.455	24.41017
7	2.697	0.254	2.25	47	1.757	3.091	3.444	9.487736
8	2.707	0.248	2.282	43	1.712	3.083	3.432	9.796253
9	2.717	0.242	2.295	42	1.743	3.076	3.421	9.924436
10	2.726	0.236	2.303	29	1.796	3.068	3.41	10.00415

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, manganese)

Mean	6.36
Standard Deviation	0.372
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	6.36	0.368	7.444	27	2.942	3.144	3.496	1709.575
2	6.339	0.342	7.115	37	2.266	3.134	3.486	1230.284
3	6.323	0.327	7.048	21	2.213	3.126	3.478	1150.555
4	6.309	0.313	5.685	39	1.989	3.116	3.476	294.4178
5	6.322	0.303	5.724	51	1.973	3.106	3.466	306.127
6	6.334	0.293	5.727	52	2.073	3.098	3.455	307.0467
7	6.347	0.282	5.802	4	1.935	3.091	3.444	330.9608
8	6.36	0.273	6.867	32	1.861	3.083	3.432	960.064
9	6.348	0.264	6.865	19	1.955	3.076	3.421	958.1458
10	6.336	0.255	6.856	43	2.04	3.068	3.41	949.5612

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, molybdenum)

Mean	-0.418
Standard Deviation	0.715
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-0.418	0.708	2.186	40	3.68	3.11	3.46	8.899544
2	-0.474	0.61	1.253	18	2.831	3.1	3.46	3.50083
3	-0.511	0.559	1.131	31	2.938	3.09	3.45	3.098754
4	-0.548	0.507	1.065	30	3.181	3.09	3.44	2.900839
5	-0.584	0.448	0.438	8	2.281	3.08	3.43	1.549605
6	-0.608	0.425	0.405	27	2.387	3.07	3.418	1.499303
7	-0.632	0.399	0.182	2	2.042	3.06	3.406	1.199614
8	-0.652	0.382	0.182	19	2.183	3.05	3.394	1.199614
9	-0.673	0.363	0.182	36	2.358	3.04	3.382	1.199614
10	-0.695	0.339	-1.386	42	2.036	3.03	3.37	0.250074

For 5% significance level, there are 4 Potential Outliers
Potential outliers are:
2.186, 1.253, 1.131, 1.065

For 1% Significance Level, there is 1 Potential Outlier
Potential outliers is: 2.186

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, nickel)

Mean	2.568
Standard Deviation	0.415
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	2.568	0.411	3.77	31	2.925	3.144	3.496	43.38006
2	2.544	0.383	3.555	40	2.644	3.134	3.486	34.98782
3	2.524	0.358	3.532	38	2.818	3.126	3.478	34.19228
4	2.503	0.33	3.506	36	3.035	3.116	3.476	33.31474
5	2.482	0.299	1.723	19	2.538	3.106	3.466	5.601307
6	2.498	0.281	1.74	20	2.701	3.098	3.455	5.697343
7	2.515	0.26	3.118	22	2.322	3.091	3.444	22.60113
8	2.502	0.246	3.016	23	2.089	3.083	3.432	20.40949
9	2.49	0.236	3.016	35	2.229	3.076	3.421	20.40949
10	2.478	0.224	2.929	13	2.012	3.068	3.41	18.70891

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Dixon's Outlier Test for LNmeas_value_update (partial, selenium)

Number of Observations = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

	back-transform
1. Observation Value -1.66073120682165 is a Potential Outlier (Upper Tail)?	0.19

Test Statistic: 0.864

For 10% significance level, -1.66073120682165 is an outlier.
For 5% significance level, -1.66073120682165 is an outlier.
For 1% significance level, -1.66073120682165 is an outlier.

	back-transform
2. Observation Value -2.52572864430826 is a Potential Outlier (Lower Tail)?	12.5

Test Statistic: 0.000

For 10% significance level, -2.52572864430826 is not an outlier.
For 5% significance level, -2.52572864430826 is not an outlier.
For 1% significance level, -2.52572864430826 is not an outlier.

Outlier Tests for Selected Uncensored Variables

Dixon's Outlier Test for meas_value_update (partial, silver)

Number of Observations = 6
10% critical value: 0.482
5% critical value: 0.56
1% critical value: 0.698

1. Observation Value 0.05 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.111

For 10% significance level, 0.05 is not an outlier.
For 5% significance level, 0.05 is not an outlier.
For 1% significance level, 0.05 is not an outlier.

2. Observation Value 0.02 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.333

For 10% significance level, 0.02 is not an outlier.
For 5% significance level, 0.02 is not an outlier.
For 1% significance level, 0.02 is not an outlier.

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, thallium)

Mean	-1.434
Standard Deviation	0.415
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	-1.434	0.411	-0.386	38	2.551	3.11	3.46	0.679771
2	-1.456	0.389	-2.408	48	2.445	3.1	3.46	0.089995
3	-1.435	0.367	-2.303	47	2.366	3.09	3.45	0.099959
4	-1.416	0.346	-2.207	43	2.284	3.09	3.44	0.11003
5	-1.398	0.329	-2.12	44	2.199	3.08	3.43	0.120032
6	-1.381	0.313	-2.12	45	2.364	3.07	3.418	0.120032
7	-1.363	0.294	-2.12	46	2.573	3.06	3.406	0.120032
8	-1.345	0.272	-0.755	31	2.169	3.05	3.394	0.470011
9	-1.36	0.258	-1.897	15	2.08	3.04	3.382	0.150018
10	-1.346	0.246	-0.844	40	2.037	3.03	3.37	0.429987

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, vanadium)

Mean	3.382
Standard Deviation	0.232
Number of data	48
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	3.382	0.229	4.079	38	3.04	3.11	3.46	59.08635
2	3.367	0.21	3.838	41	2.244	3.1	3.46	46.43252
3	3.357	0.2	2.912	48	2.223	3.09	3.45	18.39355
4	3.367	0.191	3.793	36	2.237	3.09	3.44	44.38937
5	3.357	0.181	3.721	27	2.006	3.08	3.43	41.30568
6	3.349	0.174	3.709	40	2.064	3.07	3.418	40.81297
7	3.34	0.167	3.701	17	2.161	3.06	3.406	40.48777
8	3.331	0.159	3.679	31	2.186	3.05	3.394	39.60677
9	3.323	0.151	3.666	13	2.277	3.04	3.382	39.09521
10	3.314	0.142	2.996	20	2.24	3.03	3.37	20.00536

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Outlier Tests for Selected Uncensored Variables

Rosner's Outlier Test for LNmeas_value_update (partial, zinc)

Mean	4.125
Standard Deviation	0.285
Number of data	52
Number of suspected outliers	10

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	Back-transform
1	4.125	0.282	4.836	36	2.525	3.144	3.496	125.9645
2	4.111	0.269	4.745	20	2.359	3.134	3.486	115.0078
3	4.098	0.256	3.489	39	2.384	3.126	3.478	32.75318
4	4.111	0.243	4.682	33	2.356	3.116	3.476	107.9858
5	4.099	0.23	4.585	11	2.114	3.106	3.466	98.00319
6	4.089	0.221	4.56	27	2.133	3.098	3.455	95.58348
7	4.078	0.212	3.64	41	2.067	3.091	3.444	38.09184
8	4.088	0.204	4.502	5	2.033	3.083	3.432	90.19735
9	4.079	0.196	4.444	21	1.865	3.076	3.421	85.11472
10	4.07	0.19	4.416	7	1.825	3.068	3.41	82.76456

For 5% Significance Level, there is no Potential Outlier

For 1% Significance Level, there is no Potential Outlier

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, arsenic) - 1 outlier excluded

General Statistics			
Total Number of Observations	51	Number of Distinct Observations	44
Minimum	1.7	First Quartile	3.45
Second Largest	80.6	Median	5.3
Maximum	98.4	Third Quartile	9.3
Mean	11.56	SD	17.96
Coefficient of Variation	1.553	Skewness	3.634
Mean of logged Data	1.896	SD of logged Data	0.931
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965
Normal GOF Test			
Shapiro Wilk Test Statistic	0.528	Normal GOF Test	
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.313	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	48.45	90% Percentile (z)	34.58
95% UPL (t)	41.96	95% Percentile (z)	41.11
95% USL	64.81	99% Percentile (z)	53.35
Gamma GOF Test			
A-D Test Statistic	3.128	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.779	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.23	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.04	k star (bias corrected MLE)	0.992
Theta hat (MLE)	11.12	Theta star (bias corrected MLE)	11.66
nu hat (MLE)	106.1	nu star (bias corrected)	101.2
MLE Mean (bias corrected)	11.56	MLE Sd (bias corrected)	11.61
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	33.22	90% Percentile	26.68
95% Hawkins Wixley (HW) Approx. Gamma UPL	32.64	95% Percentile	34.74
95% WH Approx. Gamma UTL with 95% Coverage	42.06	99% Percentile	53.47
95% HW Approx. Gamma UTL with 95% Coverage	42.13		
95% WH USL	71.02	95% HW USL	75.17
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.00155	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.142	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	45.05	90% Percentile (z)	21.95
95% UPL (t)	32.18	95% Percentile (z)	30.79
95% USL	105.2	99% Percentile (z)	58.07
Nonparametric Distribution Free Background Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	50	95% UTL with 95% Coverage	80.6
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by UTL	0.731
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	89.5	95% BCA Bootstrap UTL with 95% Coverage	80.6
95% UPL	56.09	90% Percentile	21.2
90% Chebyshev UPL	65.97	95% Percentile	38.53
95% Chebyshev UPL	90.62	99% Percentile	89.5
95% USL	98.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, arsenic) - 5 outliers excluded

General Statistics			
Total Number of Observations	47	Number of Distinct Observations	40
Minimum	1.7	First Quartile	3.26
Second Largest	21.2	Median	5.2
Maximum	21.35	Third Quartile	8.38
Mean	7.101	SD	5.575
Coefficient of Variation	0.785	Skewness	1.502
Mean of logged Data	1.711	SD of logged Data	0.693
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.074	d2max (for USL)	2.933
Normal GOF Test			
Shapiro Wilk Test Statistic	0.778	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.946	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.209	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.128	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	18.66	90% Percentile (z)	14.25
95% UPL (t)	16.56	95% Percentile (z)	16.27
95% USL	23.45	99% Percentile (z)	20.07
Gamma GOF Test			
A-D Test Statistic	1.335	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.761	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.128	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.131	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data follow Appr. Gamma Distribution at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	2.154	k star (bias corrected MLE)	2.031
Theta hat (MLE)	3.296	Theta star (bias corrected MLE)	3.497
nu hat (MLE)	202.5	nu star (bias corrected)	190.9
MLE Mean (bias corrected)	7.101	MLE Sd (bias corrected)	4.983
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	16.87	90% Percentile	13.76
95% Hawkins Wixley (HW) Approx. Gamma UPL	17.04	95% Percentile	16.76
95% WH Approx. Gamma UTL with 95% Coverage	20.37	99% Percentile	23.41
95% HW Approx. Gamma UTL with 95% Coverage	20.87		
95% WH USL	30.07	95% HW USL	31.97
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.942	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.946	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.106	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.128	Data appear Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	23.29	90% Percentile (z)	13.45
95% UPL (t)	17.93	95% Percentile (z)	17.3
95% USL	42.23	99% Percentile (z)	27.74
Nonparametric Distribution Free Background Statistics			
Data appear Approximate Gamma Distribution at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	46	95% UTL with 95% Coverage	21.2
Approx, f used to compute achieved CC	1.211	Approximate Actual Confidence Coefficient achieved by UTL	0.688
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	21.31	95% BCA Bootstrap UTL with 95% Coverage	21.2
95% UPL	20.8	90% Percentile	17.7
90% Chebyshev UPL	24	95% Percentile	20.14
95% Chebyshev UPL	31.66	99% Percentile	21.28
95% USL	21.35		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, chromium) - 1 outlier excluded

General Statistics

Total Number of Observations	51	Number of Distinct Observations	47
Minimum	7.2	First Quartile	11.6
Second Largest	23.1	Median	14.1
Maximum	26.6	Third Quartile	17.6
Mean	14.62	SD	4.008
Coefficient of Variation	0.274	Skewness	0.682
Mean of logged Data	2.646	SD of logged Data	0.273

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.054	d2max (for USL)	2.965

Normal GOF Test

Shapiro Wilk Test Statistic	0.959	Normal GOF Test	
5% Shapiro Wilk P Value	0.13	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.11	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	22.85	90% Percentile (z)	19.76
95% UPL (t)	21.41	95% Percentile (z)	21.22
95% USL	26.51	99% Percentile (z)	23.95

Gamma GOF Test

A-D Test Statistic	0.385	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.749	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0773	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.124	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	13.98	k star (bias corrected MLE)	13.18
Theta hat (MLE)	1.046	Theta star (bias corrected MLE)	1.11
nu hat (MLE)	1426	nu star (bias corrected)	1344
MLE Mean (bias corrected)	14.62	MLE Sd (bias corrected)	4.029

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	21.91	90% Percentile	19.96
95% Hawkins Wixley (HW) Approx. Gamma UPL	22.01	95% Percentile	21.82
95% WH Approx. Gamma UTL with 95% Coverage	23.84	99% Percentile	25.59
95% HW Approx. Gamma UTL with 95% Coverage	24.02		
95% WH USL	29.17	95% HW USL	29.69

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.98	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk P Value	0.73	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0748	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.123	Data appear Lognormal at 5% Significance Level	

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	24.69	90% Percentile (z)	20
95% UPL (t)	22.37	95% Percentile (z)	22.08
95% USL	31.65	99% Percentile (z)	26.59

Nonparametric Distribution Free Background Statistics
Data appear Normal at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	50	95% UTL with 95% Coverage	23.1
Approx, f used to compute achieved CC	1.316	Approximate Actual Confidence Coefficient achieved by UTL	0.731
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	24.85	95% BCA Bootstrap UTL with 95% Coverage	23.95
95% UPL	22.02	90% Percentile	19.6
90% Chebyshev UPL	26.76	95% Percentile	21.18
95% Chebyshev UPL	32.26	99% Percentile	24.85
95% USL	26.6		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, molybdenum) - 4 outliers excluded

General Statistics			
Total Number of Observations	44	Number of Distinct Observations	36
Minimum	0.25	First Quartile	0.42
Second Largest	1.5	Median	0.515
Maximum	1.55	Third Quartile	0.76
Mean	0.619	SD	0.315
Coefficient of Variation	0.508	Skewness	1.47
Mean of logged Data	-0.584	SD of logged Data	0.448
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.091	d2max (for USL)	2.906
Normal GOF Test			
Shapiro Wilk Test Statistic	0.84	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.944	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.188	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.132	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	1.277	90% Percentile (z)	1.022
95% UPL (t)	1.154	95% Percentile (z)	1.137
95% USL	1.533	99% Percentile (z)	1.351
Gamma GOF Test			
A-D Test Statistic	1.034	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.14	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.134	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	4.923	k star (bias corrected MLE)	4.602
Theta hat (MLE)	0.126	Theta star (bias corrected MLE)	0.135
nu hat (MLE)	433.2	nu star (bias corrected)	405
MLE Mean (bias corrected)	0.619	MLE Sd (bias corrected)	0.289
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	1.166	90% Percentile	1.006
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.171	95% Percentile	1.157
95% WH Approx. Gamma UTL with 95% Coverage	1.342	99% Percentile	1.479
95% HW Approx. Gamma UTL with 95% Coverage	1.358		
95% WH USL	1.766	95% HW USL	1.819
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.944	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.11	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.132	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	1.424	90% Percentile (z)	0.99
95% UPL (t)	1.195	95% Percentile (z)	1.166
95% USL	2.052	99% Percentile (z)	1.582
Nonparametric Distribution Free Background Statistics			
Data appear Lognormal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	44	95% UTL with 95% Coverage	1.55
Approx, f used to compute achieved CC	2.316	Approximate Actual Confidence Coefficient achieved by UTL	0.895
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.543	95% BCA Bootstrap UTL with 95% Coverage	1.2
95% UPL	1.425	90% Percentile	1.134
90% Chebyshev UPL	1.574	95% Percentile	1.2
95% Chebyshev UPL	2.006	99% Percentile	1.529
95% USL	1.55		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Data Sets with Non-Detects - Outliers Excluded

meas_value_update (partial, selenium) - 1 outlier excluded

General Statistics			
Total Number of Observations	5	Number of Distinct Observations	4
Minimum	0.08	First Quartile	0.08
Second Largest	0.085	Median	0.0833
Maximum	0.09	Third Quartile	0.085
Mean	0.0837	SD	0.00415
Coefficient of Variation	0.0496	Skewness	0.92
Mean of logged Data	-2.482	SD of logged Data	0.049
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	4.203	d2max (for USL)	1.671
Normal GOF Test			
Shapiro Wilk Test Statistic	0.895	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.762	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.212	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.343	Data appear Normal at 5% Significance Level	
Data appear Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	0.101	90% Percentile (z)	0.089
95% UPL (t)	0.0934	95% Percentile (z)	0.0905
95% USL	0.0906	99% Percentile (z)	0.0933
Gamma GOF Test			
A-D Test Statistic	0.352	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.678	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.24	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.357	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	516.6	k star (bias corrected MLE)	206.8
Theta hat (MLE)	1.62E-04	Theta star (bias corrected MLE)	4.05E-04
nu hat (MLE)	5166	nu star (bias corrected)	2068
MLE Mean (bias corrected)	0.0837	MLE Sd (bias corrected)	0.00582
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	0.0936	90% Percentile	0.0912
95% Hawkins Wixley (HW) Approx. Gamma UPL	0.0936	95% Percentile	0.0935
95% WH Approx. Gamma UTL with 95% Coverage	0.102	99% Percentile	0.0978
95% HW Approx. Gamma UTL with 95% Coverage	0.102		
95% WH USL	0.0907	95% HW USL	0.0907
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.899	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.762	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.215	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.343	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			
Background Statistics assuming Lognormal Distribution			
95% UTL with 95% Coverage	0.103	90% Percentile (z)	0.089
95% UPL (t)	0.0937	95% Percentile (z)	0.0906
95% USL	0.0907	99% Percentile (z)	0.0937
Nonparametric Distribution Free Background Statistics			
Data appear Normal at 5% Significance Level			
Nonparametric Upper Limits for Background Threshold Values			
Order of Statistic, r	5	95% UTL with 95% Coverage	0.09
Approx, f used to compute achieved CC	0.263	Approximate Actual Confidence Coefficient achieved by UTL	0.226
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	0.09	95% BCA Bootstrap UTL with 95% Coverage	0.09
95% UPL	0.09	90% Percentile	0.088
90% Chebyshev UPL	0.0973	95% Percentile	0.089
95% Chebyshev UPL	0.103	99% Percentile	0.0898
95% USL	0.09		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Attachment C-3

ProUCL Output and QQ-Plots for Mercury Results

Background Statistics for all samples in Data Sets with Non-Detects

meas_value_update (mercury)

General Statistics

Total Number of Observations	104	Number of Missing Observations	0
Number of Distinct Observations	22		
Number of Detects	79	Number of Non-Detects	25
Number of Distinct Detects	22	Number of Distinct Non-Detects	2
Minimum Detect	0.007	Minimum Non-Detect	0.02
Maximum Detect	2.81	Maximum Non-Detect	0.06
Variance Detected	0.0977	Percent Non-Detects	24.04%
Mean Detected	0.081	SD Detected	0.313
Mean of Detected Logged Data	-3.266	SD of Detected Logged Data	0.875

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.917	d2max (for USL)	3.223

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.179	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.412	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0998	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0638	KM SD	0.272
95% UTL95% Coverage	0.586	95% KM UPL (t)	0.518
90% KM Percentile (z)	0.413	95% KM Percentile (z)	0.512
99% KM Percentile (z)	0.698	95% KM USL	0.942

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0641	SD	0.274
95% UTL95% Coverage	0.589	95% UPL (t)	0.521
90% Percentile (z)	0.415	95% Percentile (z)	0.514
99% Percentile (z)	0.701	95% USL	0.946

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	7.758	Anderson-Darling GOF Test
5% A-D Critical Value	0.791	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.234	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.104	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.79	k star (bias corrected MLE)	0.768
Theta hat (MLE)	0.103	Theta star (bias corrected MLE)	0.105
nu hat (MLE)	124.8	nu star (bias corrected)	121.4
MLE Mean (bias corrected)	0.081		
MLE Sd (bias corrected)	0.0924	95% Percentile of Chisquare (2kstar)	5.057

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.007	Mean	0.0639
Maximum	2.81	Median	0.03
SD	0.274	CV	4.282
k hat (MLE)	0.718	k star (bias corrected MLE)	0.704
Theta hat (MLE)	0.089	Theta star (bias corrected MLE)	0.0908
nu hat (MLE)	149.4	nu star (bias corrected)	146.5
MLE Mean (bias corrected)	0.0639	MLE Sd (bias corrected)	0.0762
95% Percentile of Chisquare (2kstar)	4.783	90% Percentile	0.16
95% Percentile	0.217	99% Percentile	0.353

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.203	0.186	95% Approx. Gamma UPL	0.169	0.153
95% Gamma USL	0.455	0.446			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0638	SD (KM)	0.272
Variance (KM)	0.0742	SE of Mean (KM)	0.0269
k hat (KM)	0.0549	k star (KM)	0.0597
nu hat (KM)	11.42	nu star (KM)	12.42
theta hat (KM)	1.163	theta star (KM)	1.069
80% gamma percentile (KM)	0.0152	90% gamma percentile (KM)	0.12
95% gamma percentile (KM)	0.357	99% gamma percentile (KM)	1.29

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.202	0.186	95% Approx. Gamma UPL	0.168	0.154
95% KM Gamma Percentile	0.165	0.151	95% Gamma USL	0.456	0.449

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.912	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	9.41E-06	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.126	Lilliefors GOF Test
5% Lilliefors Critical Value	0.0998	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics for all samples in Data Sets with Non-Detects

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.064	Mean in Log Scale	-3.603
SD in Original Scale	0.274	SD in Log Scale	0.999
95% UTL95% Coverage	0.185	95% BCA UTL95% Coverage	0.12
95% Bootstrap (%) UTL95% Coverage	0.137	95% UPL (t)	0.144
90% Percentile (z)	0.0979	95% Percentile (z)	0.141
99% Percentile (z)	0.278	95% USL	0.681

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.607	95% KM UTL (Lognormal)95% Coverage	0.176
KM SD of Logged Data	0.976	95% KM UPL (Lognormal)	0.138
95% KM Percentile Lognormal (z)	0.135	95% KM USL (Lognormal)	0.631

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0641	Mean in Log Scale	-3.578
SD in Original Scale	0.274	SD in Log Scale	0.949
95% UTL95% Coverage	0.172	95% UPL (t)	0.136
90% Percentile (z)	0.0943	95% Percentile (z)	0.133
99% Percentile (z)	0.254	95% USL	0.595

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	102	95% UTL with95% Coverage	0.14
Approx, f used to compute achieved CC	1.789	Approximate Actual Confidence Coefficient achieved by UT	0.897
Approximate Sample Size needed to achieve specified CC	124	95% UPL	0.118
95% USL	2.81	95% KM Chebyshev UPL	1.257

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

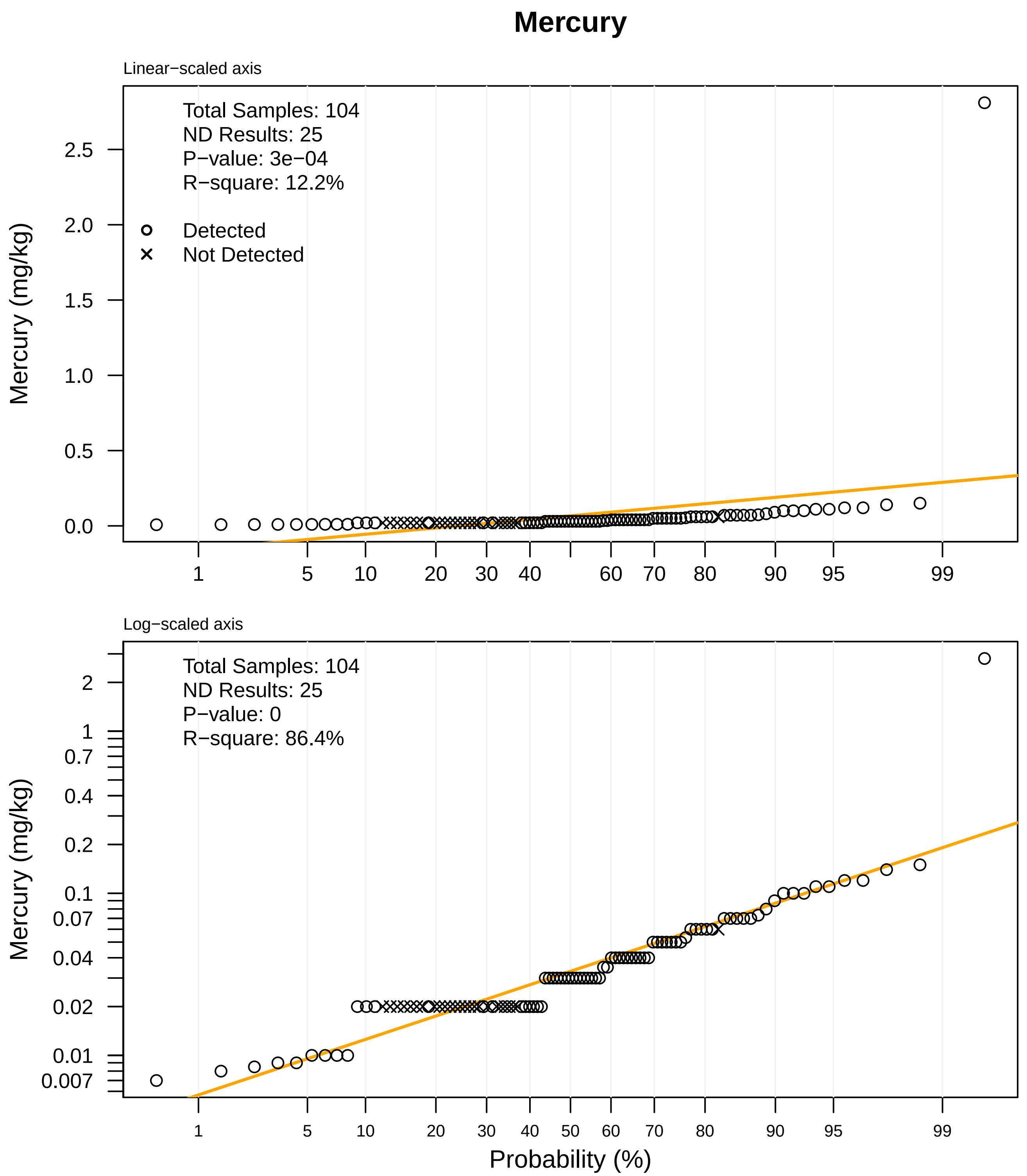

Figure C3−1. Boxplots of mercury concentrations

Outlier Tests for Selected Variables excluding nondetects

Rosner's Outlier Test for 10 Outliers in LNmeas_value_update (mercury)

Total N	104
Number NDs	25
Number Detects	79
Mean of Detects	-3.266
SD of Detects	0.875
Number of data	79
Number of suspected outliers	10
NDs not included in the following:	

#	Mean	sd	Potential outlier	Obs. Number	Test value	Critical value (5%)	Critical value (1%)	exp(outlier)
1	-3.266	0.87	1.033	1	4.945	3.305	3.665	2.80948165
2	-3.321	0.73	-4.962	79	2.248	3.295	3.665	0.00699892
3	-3.3	0.71	-4.828	78	2.153	3.295	3.655	0.00800251
4	-3.28	0.692	-4.768	77	2.15	3.285	3.654	0.00849736
5	-3.26	0.675	-4.711	75	2.15	3.285	3.645	0.00899578
6	-3.241	0.657	-4.711	76	2.236	3.279	3.641	0.00899578
7	-3.22	0.638	-4.605	71	2.169	3.273	3.637	0.0100017
8	-3.201	0.621	-4.605	72	2.26	3.267	3.632	0.0100017
9	-3.181	0.602	-4.605	73	2.363	3.261	3.628	0.0100017
10	-3.161	0.582	-4.605	74	2.482	3.255	3.624	0.0100017

For 5% Significance Level, there is 1 Potential Outlier
Therefore, Observation 1.033 is a Potential Statistical Outlier

For 1% Significance Level, there is 1 Potential Outlier

Background Statistics for Data Sets excluding outliers with Non-Detects

meas_value_update (mercury) - 1 outlier excluded

General Statistics

Total Number of Observations	103	Number of Missing Observations	0
Number of Distinct Observations	21		
Number of Detects	78	Number of Non-Detects	25
Number of Distinct Detects	21	Number of Distinct Non-Detects	2
Minimum Detect	0.007	Minimum Non-Detect	0.02
Maximum Detect	0.15	Maximum Non-Detect	0.06
Variance Detected	0.00104	Percent Non-Detects	24.27%
Mean Detected	0.046	SD Detected	0.0323
Mean of Detected Logged Data	-3.321	SD of Detected Logged Data	0.73

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	1.919	d2max (for USL)	3.22

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.867	Normal GOF Test on Detected Observations Only
5% Shapiro Wilk P Value	1.91E-09	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.189	Lilliefors GOF Test
5% Lilliefors Critical Value	0.1	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.0372	KM SD	0.032
95% UTL95% Coverage	0.0987	95% KM UPL (t)	0.0906
90% KM Percentile (z)	0.0782	95% KM Percentile (z)	0.0899
99% KM Percentile (z)	0.112	95% KM USL	0.14

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.0375	SD	0.0319
95% UTL95% Coverage	0.0988	95% UPL (t)	0.0907
90% Percentile (z)	0.0784	95% Percentile (z)	0.09
99% Percentile (z)	0.112	95% USL	0.14

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.794	Anderson-Darling GOF Test
5% A-D Critical Value	0.762	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.105	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.102	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.215	k star (bias corrected MLE)	2.139
Theta hat (MLE)	0.0208	Theta star (bias corrected MLE)	0.0215
nu hat (MLE)	345.6	nu star (bias corrected)	333.6
MLE Mean (bias corrected)	0.046		
MLE Sd (bias corrected)	0.0315	95% Percentile of Chisquare (2kstar)	9.934

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.007	Mean	0.0375
Maximum	0.15	Median	0.03
SD	0.0318	CV	0.848
k hat (MLE)	1.667	k star (bias corrected MLE)	1.625
Theta hat (MLE)	0.0225	Theta star (bias corrected MLE)	0.0231
nu hat (MLE)	343.4	nu star (bias corrected)	334.7
MLE Mean (bias corrected)	0.0375	MLE Sd (bias corrected)	0.0294
95% Percentile of Chisquare (2kstar)	8.243	90% Percentile	0.0767
95% Percentile	0.0952	99% Percentile	0.137

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.109	0.113	95% Approx. Gamma UPL	0.0949	0.0968
95% Gamma USL	0.206	0.229			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.0372	SD (KM)	0.032
Variance (KM)	0.00103	SE of Mean (KM)	0.00318
k hat (KM)	1.346	k star (KM)	1.313
nu hat (KM)	277.3	nu star (KM)	270.5
theta hat (KM)	0.0276	theta star (KM)	0.0283
80% gamma percentile (KM)	0.0583	90% gamma percentile (KM)	0.08
95% gamma percentile (KM)	0.101	99% gamma percentile (KM)	0.15

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	0.111	0.115	95% Approx. Gamma UPL	0.0961	0.0983
95% KM Gamma Percentile	0.0948	0.0969	95% Gamma USL	0.213	0.238

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Approximate Test Statistic	0.953	Shapiro Wilk GOF Test
5% Shapiro Wilk P Value	0.0164	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.131	Lilliefors GOF Test
5% Lilliefors Critical Value	0.1	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	0.0376	Mean in Log Scale	-3.617
SD in Original Scale	0.0318	SD in Log Scale	0.849
95% UTL95% Coverage	0.137	95% BCA UTL95% Coverage	0.12
95% Bootstrap (%) UTL95% Coverage	0.12	95% UPL (t)	0.111
90% Percentile (z)	0.0797	95% Percentile (z)	0.108
99% Percentile (z)	0.193	95% USL	0.413

Background Statistics for Data Sets excluding outliers with Non-Detects

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-3.652	95% KM UTL (Lognormal)95% Coverage	0.137
KM SD of Logged Data	0.866	95% KM UPL (Lognormal)	0.11
95% KM Percentile Lognormal (z)	0.108	95% KM USL (Lognormal)	0.422

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.0375	Mean in Log Scale	-3.622
SD in Original Scale	0.0319	SD in Log Scale	0.836
95% UTL95% Coverage	0.133	95% UPL (t)	0.108
90% Percentile (z)	0.078	95% Percentile (z)	0.106
99% Percentile (z)	0.187	95% USL	0.394

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics
Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	101	95% UTL with95% Coverage	0.12
Approx, f used to compute achieved CC	1.772	Approximate Actual Confidence Coefficient achieved by UTL	0.894
Approximate Sample Size needed to achieve specified CC	124	95% UPL	0.11
95% USL	0.15	95% KM Chebyshev UPL	0.178

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20.
Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers
and consists of observations collected from clean unimpacted locations.
The use of USL tends to provide a balance between false positives and false negatives provided the data
represents a background data set and when many onsite observations need to be compared with the BTV.

Attachment C-4

ProUCL Input Data

Table C4-1. ProUCL input of metal and metalloid concentrations by total metals methods for screened background samples

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	24239	68800	1			6.3	1	650	1	2	1	2	0	51	1	10	1	17	1	25100	1
geochem-fu53[c]	24253	56600	1			2.1	1	393	1	2	1	2	0	23	1	6	1	23	1	21500	1
geochem-fu53[c]	24273	60100	1			2	1	637	1	2	1	2	0	18	1	7	1	19	1	28600	1
geochem-fu53[c]	24382	57100	1			10.9	1	1520	1	2	1	9	1	64	1	8	1	44	1	24400	1
geochem-fu53[c]	24499	67900	1			5.3	1	711	1	2	1	2	0	30	1	14	1	18	1	35700	1
geochem-fu53[c]	24693	43350	1			4.1	1	592	1	1	1	2	0	37	1	11	1	29	1	30600	1
geochem-fu53[c]	24749	10300	1			1.5	1	95	1	1	0	2	0	7	1	2	1	16	1	7900	1
geochem-fu53[c]	24762	69830	1			36.6	1	436	1	2	1	2	0	35	1	19	1	55	1	49300	1
geochem-fu53[c]	24778	74250	1			1.2	1	533	1	3	1	2	0	7	1	5	1	4	1	34000	1
geochem-fu53[c]	24812	65550	1			2.1	1	448	1	2	1	2	0	21	1	5	1	9	1	29600	1
geochem-fu53[c]	24830	66850	1			3.9	1	600	1	1	1	2	0	45	1	12	1	12	1	28000	1
geochem-fu53[c]	24879	79400	1			6.3	1	594	1	2	1	2	0	28	1	13	1	14	1	30800	1
geochem-fu53[c]	25111	70550	1			5.6	1	632	1	2	1	2	0	23	1	9	1	14	1	29100	1
geochem-fu53[c]	25275	70590	1			2.3	1	531	1	4	1	2	0	58	1	10	1	12	1	24200	1
geochem-fu53[c]	25424	75350	1			12.2	1	582	1	3	1	2	0	45	1	18	1	34	1	38000	1
geochem-fu53[c]	25519	69590	1			1.7	1	481	1	5	1	2	0	13	1	5	1	3	1	14400	1
geochem-fu53[c]	24287-R1	59745	1			2.9	1	607.5	1	2	1	2	0	49	1	13	1	5.5	1	67400	1
geochem-fu53[c]	DSOK234S1	74090	1			4.9	1	722	1	2	1	2	0	30	1	10	1	16	1	29500	1
geochem-fu53[c]	DSOM230S1	73590	1			3.7	1	868	1	2	1	2	0	29	1	9	1	16	1	24400	1
geochem-fu53[c]	DSOM232S1	71010	1			2	1	852	1	2	1	2	0	18	1	7	1	11	1	19400	1
geochem-fu53[c]	DSOP089S1-R1	72435	1			2.9	1	864.5	1	1	1	2	0	40	1	9.5	1	18.5	1	28650	1
geochem-fu53[c]	DSOR183S1	35260	1			5.4	1	292	1	1	0	2	0	16	1	8	1	7	1	24800	1
geochem-fu53[c]	DSOS095S1	70840	1			6.1	1	609	1	1	1	2	0	34	1	12	1	17	1	35800	1
geochem-fu53[c]	ONAA013S1	76450	1			2.1	1	525	1	1	0	2	0	97	1	19	1	1	1	58600	1
geochem-fu53[c]	ONAA034S1	73040	1			2.3	1	858	1	1	1	2	0	27	1	9	1	8	1	29800	1
geochem-fu53[c]	ONAB016S1	77990	1			3.1	1	931	1	1	0	2	0	19	1	14	1	2	1	44600	1
geochem-fu53[c]	ONAC025S1	59350	1			2.9	1	721	1	1	1	2	0	62	1	9	1	4	1	32400	1
geochem-fu53[c]	ONAC037S1	65620	1			1.4	1	812	1	1	1	2	0	30	1	6	1	24	1	20000	1
geochem-fu53[c]	ONAD022S1	59680	1			14.7	1	617	1	1	1	2	0	27	1	8	1	33	1	23200	1
geochem-fu53[c]	ONAE010S1	74750	1			3.3	1	688	1	2	1	2	0	44	1	9	1	27	1	33500	1
geochem-fu53[c]	ONAF038S1	70950	1			2.3	1	1060	1	2	1	2	0	89	1	10	1	4	1	34100	1
geochem-fu53[c]	ONAH007S1	77830	1			9.2	1	756	1	2	1	2	0	81	1	13	1	36	1	35900	1
geochem-fu53[c]	ONBA037S1	71780	1			3.4	1	806	1	1	0	2	0	29	1	9	1	6	1	29500	1
geochem-fu53[c]	ONBB022S1-R1	64160	1			19.15	1	886	1	1	0	2	0	40	1	12	1	45	1	31550	1
geochem-fu53[c]	ONBC001S1	64020	1			1.4	1	607	1	1	0	2	0	11	1	8	1	34	1	22500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	24239	47	1	718	1	2	0	28	1	0.5	1					64	1	364	1
geochem-fu53[c]	24253	27	1	421	1	2	0	16	1	1	1					53	1	49	1
geochem-fu53[c]	24273	19	1	617	1	2	0	17	1	2.3	1					89	1	56	1
geochem-fu53[c]	24382	46	1	446	1	6	1	101	1	2	1					385	1	687	1
geochem-fu53[c]	24499	22	1	1130	1	2	0	21	1	0.6	1					106	1	63	1
geochem-fu53[c]	24693	23	1	825	1	2	0	24	1	0.4	1					70	1	63	1
geochem-fu53[c]	24749	18	1	287	1	3	1	6	1	0.3	1					19	1	31	1
geochem-fu53[c]	24762	13	1	788	1	2	0	27	1	0.7	1					147	1	66	1
geochem-fu53[c]	24778	35	1	531	1	2	0	8	1	0.2	0					111	1	44	1
geochem-fu53[c]	24812	33	1	720	1	2	0	12	1	0.4	1					63	1	68	1
geochem-fu53[c]	24830	39	1	491	1	2	0	27	1	0.2	1					71	1	100	1
geochem-fu53[c]	24879	24	1	568	1	2	0	21	1	0.2	0					80	1	62	1
geochem-fu53[c]	25111	33	1	4180	1	2	0	16	1	0.4	1					57	1	58	1
geochem-fu53[c]	25275	26	1	831	1	2	0	22	1	0.3	1					53	1	61	1
geochem-fu53[c]	25424	33	1	892	1	2	0	53	1	0.7	1					75	1	114	1
geochem-fu53[c]	25519	29	1	811	1	2	0	9	1	0.2	0					29	1	39	1
geochem-fu53[c]	24287-R1	19.5	1	767	1	7	1	21.5	1	0.7	1					225	1	65.5	1
geochem-fu53[c]	DSOK234S1	34	1	964	1	5	1	15	1	0.2	0					77	1	94	1
geochem-fu53[c]	DSOM230S1	23	1	652	1	5	1	23	1	0.2	0					59	1	79	1
geochem-fu53[c]	DSOM232S1	24	1	485	1	6	1	18	1	0.2	0					49	1	57	1
geochem-fu53[c]	DSOP089S1-R1	21	1	747	1	5.5	1	22.5	1	0.2	0					73.5	1	96.5	1
geochem-fu53[c]	DSOR183S1	7	1	416	1	2	0	16	1	0.2	0					81	1	55	1
geochem-fu53[c]	DSOS095S1	24	1	591	1	4	1	17	1	0.2	0					95	1	80	1
geochem-fu53[c]	ONAA013S1	20	1	914	1	7	1	16	1	0.3	1					208	1	56	1
geochem-fu53[c]	ONAA034S1	20	1	985	1	6	1	16	1	0.2	0					81	1	86	1
geochem-fu53[c]	ONAB016S1	18	1	778	1	5	1	19	1	0.2	0					143	1	42	1
geochem-fu53[c]	ONAC025S1	18	1	703	1	3	1	16	1	0.2	0					107	1	42	1
geochem-fu53[c]	ONAC037S1	19	1	479	1	4	1	17	1	0.3	1					59	1	37	1
geochem-fu53[c]	ONAD022S1	24	1	566	1	6	1	14	1	0.3	1					63	1	59	1
geochem-fu53[c]	ONAE010S1	28	1	590	1	5	1	20	1	0.2	0					101	1	77	1
geochem-fu53[c]	ONAF038S1	25	1	543	1	6	1	22	1	0.2	0					109	1	49	1
geochem-fu53[c]	ONAH007S1	23	1	742	1	4	1	78	1	0.4	1					101	1	84	1
geochem-fu53[c]	ONBA037S1	18	1	499	1	5	1	14	1	0.2	0					103	1	45	1
geochem-fu53[c]	ONBB022S1-R1	24.5	1	771.5	1	11	1	32.5	1	0.9	1					118	1	115.5	1
geochem-fu53[c]	ONBC001S1	17	1	403	1	4	1	19	1	1.3	1					67	1	54	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	ONBC014S1	73480	1			0.9	1	651	1	1	0	2	0	29	1	9	1	1	1	38700	1
geochem-fu53[c]	ONBD011S1	69080	1			1.1	1	684	1	2	1	2	0	15	1	7	1	11	1	21500	1
geochem-fu53[c]	ONBD025S1	69850	1			2.4	1	759	1	2	1	2	0	15	1	7	1	9	1	21000	1
geochem-fu53[c]	ONBD033S1	74360	1			0.8	1	850	1	2	1	2	0	14	1	6	1	1	1	20600	1
geochem-fu53[c]	ONBE028S1	72660	1			1.5	1	791	1	2	1	2	0	21	1	5	1	13	1	18900	1
geochem-fu53[c]	ONBG025S1	61440	1			1.9	1	603	1	2	1	2	0	27	1	7	1	6	1	20400	1
geochem-fu53[c]	ONCA015S1	59290	1			1.8	1	410	1	1	0	2	0	9	1	6	1	22	1	18800	1
geochem-fu53[c]	ONCB014S1	71230	1			2.2	1	629	1	1	1	2	0	42	1	8	1	1	1	52800	1
geochem-fu53[c]	ONCB031S1	73150	1			7.7	1	751	1	1	1	2	0	31	1	10	1	21	1	30400	1
geochem-fu53[c]	ONCC016S1	72160	1			1.4	1	731	1	1	1	2	0	26	1	6	1	14	1	25300	1
geochem-fu53[c]	ONCD018S1	70240	1			1.9	1	717	1	1	1	2	0	26	1	8	1	18	1	25700	1
geochem-fu53[c]	ONCF034S1	71940	1			3.6	1	833	1	2	1	2	0	85	1	11	1	1	1	43100	1
geochem-fu53[c]	ONCG008S1	71390	1			4.2	1	770	1	2	1	2	0	31	1	11	1	31	1	28400	1
geochem-fu53[c]	ONCH030S1	51480	1			3.8	1	1090	1	1	0	2	0	66	1	10	1	9	1	28900	1
geochem-fu53[c]	ONCH034S1	57260	1			6.8	1	733	1	1	1	2	0	88	1	15	1	24	1	35900	1
geochem-fu53[c]	ONDA014S1	91470	1			2.4	1	820	1	1	0	2	0	13	1	4	1	7	1	27500	1
geochem-fu53[c]	ONDB011S1	69960	1			3	1	667	1	1	1	2	0	27	1	8	1	10	1	24900	1
geochem-fu53[c]	ONDE011S1	73260	1			3.6	1	905	1	2	1	2	0	7	1	7	1	9	1	20800	1
geochem-fu53[c]	ONDF032S1	72710	1			1.1	1	854	1	1	1	2	0	47	1	14	1	4	1	34900	1
geochem-fu53[c]	ONDG016S1	60450	1			2.2	1	715	1	1	1	2	0	25	1	11	1	9	1	31600	1
geochem-fu53[c]	RZAG009S1	68640	1			5.3	1	657	1	1	1	2	0	25	1	12	1	16	1	32700	1
geochem-fu53[c]	RZBG020S1	63750	1			4.4	1	527	1	1	1	2	0	24	1	9	1	12	1	32100	1
geochem-fu53[c]	SKAA017S1	67650	1			7.4	1	606	1	2	1	2	0	29	1	8	1	30	1	27200	1
geochem-fu53[c]	SKAA037S1	81510	1			5.5	1	508	1	10	1	2	0	26	1	15	1	42	1	41800	1
geochem-fu53[c]	SKAB017S1	76400	1			7.1	1	550	1	1	1	2	0	25	1	24	1	18	1	60700	1
geochem-fu53[c]	SKAC013S1	58740	1			4.6	1	579	1	2	1	2	0	31	1	12	1	11	1	26400	1
geochem-fu53[c]	SKBB009S1	60610	1			5.6	1	626	1	1	1	2	0	26	1	14	1	14	1	40000	1
NURE Seds[e]	DSOK001S1	63600	1																	26900	1
NURE Seds[e]	DSOK002S1	72600	1																	21900	1
NURE Seds[e]	DSOK003S1	28500	1																	14100	1
NURE Seds[e]	DSOK007S1	59900	1																	37900	1
NURE Seds[e]	DSOK010S1	51200	1																	27300	1
NURE Seds[e]	DSOK012S1	49700	1																	33200	1
NURE Seds[e]	DSOK013S1	56900	1																	35000	1
NURE Seds[e]	DSOK015S1	55900	1																	33200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	ONBC014S1	17	1	611	1	5	1	8	1	0.2	0					127	1	39	1
geochem-fu53[c]	ONBD011S1	20	1	608	1	3	1	17	1	0.4	1					63	1	42	1
geochem-fu53[c]	ONBD025S1	25	1	655	1	7	1	3	0	0.2	0					54	1	59	1
geochem-fu53[c]	ONBD033S1	19	1	437	1	2	1	10	1	0.2	0					60	1	33	1
geochem-fu53[c]	ONBE028S1	36	1	348	1	4	1	10	1	0.5	1					57	1	96	1
geochem-fu53[c]	ONBG025S1	35	1	662	1	4	1	13	1	0.2	0					48	1	41	1
geochem-fu53[c]	ONCA015S1	15	1	296	1	5	1	6	1	0.6	1					59	1	54	1
geochem-fu53[c]	ONCB014S1	32	1	840	1	5	1	15	1	0.2	0					162	1	67	1
geochem-fu53[c]	ONCB031S1	41	1	657	1	4	1	22	1	0.2	1					89	1	90	1
geochem-fu53[c]	ONCC016S1	19	1	388	1	4	1	12	1	0.3	1					60	1	44	1
geochem-fu53[c]	ONCD018S1	20	1	354	1	5	1	13	1	0.3	1					60	1	68	1
geochem-fu53[c]	ONCF034S1	26	1	880	1	7	1	18	1	0.2	1					157	1	80	1
geochem-fu53[c]	ONCG008S1	20	1	604	1	5	1	26	1	0.5	1					68	1	114	1
geochem-fu53[c]	ONCH030S1	21	1	428	1	6	1	24	1	0.8	1					143	1	85	1
geochem-fu53[c]	ONCH034S1	25	1	532	1	4	1	46	1	1.1	1					118	1	113	1
geochem-fu53[c]	ONDA014S1	30	1	789	1	6	1	6	1	0.3	1					63	1	90	1
geochem-fu53[c]	ONDB011S1	19	1	499	1	5	1	14	1	0.2	0					69	1	48	1
geochem-fu53[c]	ONDE011S1	24	1	392	1	5	1	16	1	0.2	0					62	1	55	1
geochem-fu53[c]	ONDF032S1	20	1	800	1	5	1	22	1	0.2	0					104	1	64	1
geochem-fu53[c]	ONDG016S1	21	1	458	1	5	1	16	1	2	1					109	1	68	1
geochem-fu53[c]	RZAG009S1	21	1	595	1	4	1	12	1	0.2	0					90	1	71	1
geochem-fu53[c]	RZBG020S1	22	1	414	1	4	1	15	1	0.2	0					104	1	87	1
geochem-fu53[c]	SKAA017S1	25	1	484	1	6	1	20	1	0.3	1					66	1	57	1
geochem-fu53[c]	SKAA037S1	30	1	1270	1	5	1	12	1	0.2	0					110	1	172	1
geochem-fu53[c]	SKAB017S1	23	1	1110	1	5	1	15	1	0.2	0					156	1	124	1
geochem-fu53[c]	SKAC013S1	23	1	555	1	5	1	17	1	0.2	0					81	1	58	1
geochem-fu53[c]	SKBB009S1	25	1	1750	1	5	1	12	1	0.2	0					114	1	86	1
NURE Seds[e]	DSOK001S1			490	1											130	1		
NURE Seds[e]	DSOK002S1			510	1											60	1		
NURE Seds[e]	DSOK003S1			380	1											40	1		
NURE Seds[e]	DSOK007S1			1530	1											100	1		
NURE Seds[e]	DSOK010S1			600	1											70	1		
NURE Seds[e]	DSOK012S1			1580	1											70	1		
NURE Seds[e]	DSOK013S1			740	1											70	1		
NURE Seds[e]	DSOK015S1			680	1											200	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK016S1	45600	1																	35900	1
NURE Seds[e]	DSOK017S1	52500	1																	29800	1
NURE Seds[e]	DSOK019S1	53300	1																	34700	1
NURE Seds[e]	DSOK020S1	51600	1																	35600	1
NURE Seds[e]	DSOK022S1	51100	1																	23300	1
NURE Seds[e]	DSOK023S1	51500	1																	35900	1
NURE Seds[e]	DSOK024S1	49800	1																	30800	1
NURE Seds[e]	DSOK025S1	46400	1																	45800	1
NURE Seds[e]	DSOK026S1	53500	1																	24900	1
NURE Seds[e]	DSOK027S1	50800	1																	35900	1
NURE Seds[e]	DSOK028S1	55800	1																	30200	1
NURE Seds[e]	DSOK029S1	53200	1																	29600	1
NURE Seds[e]	DSOK030S1	50100	1																	23200	1
NURE Seds[e]	DSOK031S1	54500	1																	21600	1
NURE Seds[e]	DSOK035S1	55300	1																	34000	1
NURE Seds[e]	DSOK036S1	54900	1																	32800	1
NURE Seds[e]	DSOK037S1	41200	1																	20600	1
NURE Seds[e]	DSOK038S1	40800	1																	20200	1
NURE Seds[e]	DSOK039S1	44400	1																	25800	1
NURE Seds[e]	DSOK040S1	59800	1																	33200	1
NURE Seds[e]	DSOK041S1	53600	1																	29100	1
NURE Seds[e]	DSOK042S1	52000	1																	37700	1
NURE Seds[e]	DSOK044S1	54500	1																	28100	1
NURE Seds[e]	DSOK045S1	54200	1																	26600	1
NURE Seds[e]	DSOK046S1	53500	1																	51000	1
NURE Seds[e]	DSOK047S1	54600	1																	29800	1
NURE Seds[e]	DSOK053S1	51800	1																	31200	1
NURE Seds[e]	DSOK054S1	46900	1																	32300	1
NURE Seds[e]	DSOK055S1	46400	1																	28900	1
NURE Seds[e]	DSOK057S1	59700	1																	26900	1
NURE Seds[e]	DSOK058S1	55300	1																	30500	1
NURE Seds[e]	DSOK059S1	51800	1																	25500	1
NURE Seds[e]	DSOK060S1	56400	1																	33000	1
NURE Seds[e]	DSOK061S1	53600	1																	40600	1
NURE Seds[e]	DSOK062S1	33300	1																	22800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK016S1			520	1											90	1		
NURE Seds[e]	DSOK017S1			480	1											80	1		
NURE Seds[e]	DSOK019S1			620	1											130	1		
NURE Seds[e]	DSOK020S1			550	1											120	1		
NURE Seds[e]	DSOK022S1			580	1											80	1		
NURE Seds[e]	DSOK023S1			460	1											90	1		
NURE Seds[e]	DSOK024S1			360	1											80	1		
NURE Seds[e]	DSOK025S1			770	1											120	1		
NURE Seds[e]	DSOK026S1			970	1											70	1		
NURE Seds[e]	DSOK027S1			590	1											100	1		
NURE Seds[e]	DSOK028S1			690	1											70	1		
NURE Seds[e]	DSOK029S1			630	1											100	1		
NURE Seds[e]	DSOK030S1			1570	1											10	0		
NURE Seds[e]	DSOK031S1			590	1											70	1		
NURE Seds[e]	DSOK035S1			920	1											70	1		
NURE Seds[e]	DSOK036S1			700	1											80	1		
NURE Seds[e]	DSOK037S1			470	1											50	1		
NURE Seds[e]	DSOK038S1			590	1											70	1		
NURE Seds[e]	DSOK039S1			740	1											60	1		
NURE Seds[e]	DSOK040S1			780	1											110	1		
NURE Seds[e]	DSOK041S1			540	1											80	1		
NURE Seds[e]	DSOK042S1			750	1											80	1		
NURE Seds[e]	DSOK044S1			630	1											90	1		
NURE Seds[e]	DSOK045S1			470	1											60	1		
NURE Seds[e]	DSOK046S1			1100	1											130	1		
NURE Seds[e]	DSOK047S1			640	1											70	1		
NURE Seds[e]	DSOK053S1			640	1											70	1		
NURE Seds[e]	DSOK054S1			660	1											60	1		
NURE Seds[e]	DSOK055S1			820	1											70	1		
NURE Seds[e]	DSOK057S1			720	1											80	1		
NURE Seds[e]	DSOK058S1			670	1											70	1		
NURE Seds[e]	DSOK059S1			460	1											110	1		
NURE Seds[e]	DSOK060S1			930	1											100	1		
NURE Seds[e]	DSOK061S1			630	1											80	1		
NURE Seds[e]	DSOK062S1			600	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK063S1	66500	1																	30900	1
NURE Seds[e]	DSOK064S1	51300	1																	27900	1
NURE Seds[e]	DSOK065S1	39700	1																	20900	1
NURE Seds[e]	DSOK066S1	49600	1																	31300	1
NURE Seds[e]	DSOK070S1	33600	1																	20000	1
NURE Seds[e]	DSOK071S1	53000	1																	30800	1
NURE Seds[e]	DSOK073S1	48600	1																	27900	1
NURE Seds[e]	DSOK074S1	51500	1																	33900	1
NURE Seds[e]	DSOK075S1	44600	1																	56800	1
NURE Seds[e]	DSOK076S1	51600	1																	26400	1
NURE Seds[e]	DSOK077S1	44100	1																	24100	1
NURE Seds[e]	DSOK078S1	59400	1																	33800	1
NURE Seds[e]	DSOK079S1	52500	1																	33500	1
NURE Seds[e]	DSOK080S1	47700	1																	33700	1
NURE Seds[e]	DSOK082S1	54800	1																	26400	1
NURE Seds[e]	DSOK083S1	51500	1																	29400	1
NURE Seds[e]	DSOK084S1	52700	1																	29100	1
NURE Seds[e]	DSOK085S1	57700	1																	27500	1
NURE Seds[e]	DSOK087S1	54000	1																	34900	1
NURE Seds[e]	DSOK088S1	40300	1																	27000	1
NURE Seds[e]	DSOK089S1	58000	1																	32400	1
NURE Seds[e]	DSOK090S1	30500	1																	13000	1
NURE Seds[e]	DSOK091S1	50300	1																	21800	1
NURE Seds[e]	DSOK093S1	39900	1																	35100	1
NURE Seds[e]	DSOK094S1	64700	1																	44100	1
NURE Seds[e]	DSOK097S1	59000	1																	32900	1
NURE Seds[e]	DSOK098S1	60300	1																	40100	1
NURE Seds[e]	DSOK099S1	60800	1																	25700	1
NURE Seds[e]	DSOK100S1	53600	1																	24300	1
NURE Seds[e]	DSOK101S1	53800	1																	27700	1
NURE Seds[e]	DSOK102S1	59900	1																	26600	1
NURE Seds[e]	DSOK103S1	52500	1																	22800	1
NURE Seds[e]	DSOK104S1	58800	1																	28600	1
NURE Seds[e]	DSOK107S1	45700	1																	14800	1
NURE Seds[e]	DSOK108S1	19700	1																	13300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK063S1			1120	1											60	1		
NURE Seds[e]	DSOK064S1			370	1											50	1		
NURE Seds[e]	DSOK065S1			500	1											80	1		
NURE Seds[e]	DSOK066S1			640	1											140	1		
NURE Seds[e]	DSOK070S1			390	1											100	1		
NURE Seds[e]	DSOK071S1			830	1											170	1		
NURE Seds[e]	DSOK073S1			710	1											200	1		
NURE Seds[e]	DSOK074S1			550	1											120	1		
NURE Seds[e]	DSOK075S1			680	1											150	1		
NURE Seds[e]	DSOK076S1			410	1											250	1		
NURE Seds[e]	DSOK077S1			460	1											180	1		
NURE Seds[e]	DSOK078S1			1090	1											90	1		
NURE Seds[e]	DSOK079S1			940	1											70	1		
NURE Seds[e]	DSOK080S1			610	1											100	1		
NURE Seds[e]	DSOK082S1			760	1											100	1		
NURE Seds[e]	DSOK083S1			430	1											300	1		
NURE Seds[e]	DSOK084S1			400	1											490	1		
NURE Seds[e]	DSOK085S1			400	1											200	1		
NURE Seds[e]	DSOK087S1			580	1											130	1		
NURE Seds[e]	DSOK088S1			510	1											80	1		
NURE Seds[e]	DSOK089S1			860	1											100	1		
NURE Seds[e]	DSOK090S1			520	1											40	1		
NURE Seds[e]	DSOK091S1			570	1											120	1		
NURE Seds[e]	DSOK093S1			760	1											100	1		
NURE Seds[e]	DSOK094S1			820	1											60	1		
NURE Seds[e]	DSOK097S1			1990	1											60	1		
NURE Seds[e]	DSOK098S1			1150	1											80	1		
NURE Seds[e]	DSOK099S1			1080	1											70	1		
NURE Seds[e]	DSOK100S1			1020	1											60	1		
NURE Seds[e]	DSOK101S1			1160	1											50	1		
NURE Seds[e]	DSOK102S1			1040	1											50	1		
NURE Seds[e]	DSOK103S1			1460	1											60	1		
NURE Seds[e]	DSOK104S1			1490	1											70	1		
NURE Seds[e]	DSOK107S1			280	1											40	1		
NURE Seds[e]	DSOK108S1			330	1											10	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK109S1	63800	1																	24500	1
NURE Seds[e]	DSOK110S1	57100	1																	27000	1
NURE Seds[e]	DSOK111S1	51500	1																	31800	1
NURE Seds[e]	DSOK112S1	55900	1																	22500	1
NURE Seds[e]	DSOK114S1	61400	1																	31600	1
NURE Seds[e]	DSOK115S1	45400	1																	27700	1
NURE Seds[e]	DSOK116S1	52800	1																	28000	1
NURE Seds[e]	DSOK117S1	56700	1																	24800	1
NURE Seds[e]	DSOK118S1	52300	1																	30300	1
NURE Seds[e]	DSOK119S1	22600	1																	14300	1
NURE Seds[e]	DSOK120S1	60300	1																	23800	1
NURE Seds[e]	DSOK122S1	43400	1																	36200	1
NURE Seds[e]	DSOK123S1	60700	1																	28000	1
NURE Seds[e]	DSOK124S1	57200	1																	27700	1
NURE Seds[e]	DSOK125S1	58200	1																	35800	1
NURE Seds[e]	DSOK126S1	43300	1																	24400	1
NURE Seds[e]	DSOK127S1	66500	1																	37800	1
NURE Seds[e]	DSOK128S1	46800	1																	34200	1
NURE Seds[e]	DSOK129S1	59900	1																	31100	1
NURE Seds[e]	DSOK130S1	60400	1																	26900	1
NURE Seds[e]	DSOK134S1	57300	1																	30800	1
NURE Seds[e]	DSOK137S1	53000	1																	24100	1
NURE Seds[e]	DSOK138S1	56200	1																	26400	1
NURE Seds[e]	DSOK139S1	49700	1																	23500	1
NURE Seds[e]	DSOK141S1	49600	1																	25800	1
NURE Seds[e]	DSOK142S1	55400	1																	32400	1
NURE Seds[e]	DSOK143S1	31500	1																	20100	1
NURE Seds[e]	DSOK145S1	52500	1																	23300	1
NURE Seds[e]	DSOK147S1	51000	1																	17400	1
NURE Seds[e]	DSOK148S1	53000	1																	28000	1
NURE Seds[e]	DSOK152S1	39500	1																	31100	1
NURE Seds[e]	DSOK154S1	56300	1																		
NURE Seds[e]	DSOK156S1	65200	1																	30600	1
NURE Seds[e]	DSOK157S1	51700	1																	28800	1
NURE Seds[e]	DSOK158S1	49200	1																	24800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK109S1			1160	1											60	1		
NURE Seds[e]	DSOK110S1			430	1											40	1		
NURE Seds[e]	DSOK111S1			470	1											50	1		
NURE Seds[e]	DSOK112S1			650	1											90	1		
NURE Seds[e]	DSOK114S1			640	1											140	1		
NURE Seds[e]	DSOK115S1			510	1											50	1		
NURE Seds[e]	DSOK116S1			610	1											100	1		
NURE Seds[e]	DSOK117S1			460	1											90	1		
NURE Seds[e]	DSOK118S1			550	1											150	1		
NURE Seds[e]	DSOK119S1			230	1											30	1		
NURE Seds[e]	DSOK120S1			610	1											60	1		
NURE Seds[e]	DSOK122S1			440	1											100	1		
NURE Seds[e]	DSOK123S1			720	1											60	1		
NURE Seds[e]	DSOK124S1			820	1											60	1		
NURE Seds[e]	DSOK125S1			1090	1											80	1		
NURE Seds[e]	DSOK126S1			870	1											90	1		
NURE Seds[e]	DSOK127S1			1300	1											90	1		
NURE Seds[e]	DSOK128S1			750	1											80	1		
NURE Seds[e]	DSOK129S1			1030	1											70	1		
NURE Seds[e]	DSOK130S1			970	1											60	1		
NURE Seds[e]	DSOK134S1			910	1											70	1		
NURE Seds[e]	DSOK137S1			490	1											70	1		
NURE Seds[e]	DSOK138S1			580	1											60	1		
NURE Seds[e]	DSOK139S1			550	1											60	1		
NURE Seds[e]	DSOK141S1			690	1											60	1		
NURE Seds[e]	DSOK142S1			750	1											100	1		
NURE Seds[e]	DSOK143S1			500	1											40	1		
NURE Seds[e]	DSOK145S1			620	1											50	1		
NURE Seds[e]	DSOK147S1			530	1											50	1		
NURE Seds[e]	DSOK148S1			540	1											90	1		
NURE Seds[e]	DSOK152S1			1020	1											70	1		
NURE Seds[e]	DSOK154S1			670	1											60	1		
NURE Seds[e]	DSOK156S1			870	1											70	1		
NURE Seds[e]	DSOK157S1			600	1											50	1		
NURE Seds[e]	DSOK158S1			690	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK159S1	53800	1																	24800	1
NURE Seds[e]	DSOK160S1	61200	1																	28900	1
NURE Seds[e]	DSOK163S1	59300	1																	33500	1
NURE Seds[e]	DSOK165S1	54800	1																	28000	1
NURE Seds[e]	DSOK166S1	50600	1																	28100	1
NURE Seds[e]	DSOK167S1	52700	1																	22800	1
NURE Seds[e]	DSOK168S1	61200	1																	30900	1
NURE Seds[e]	DSOK169S1	60600	1																	21400	1
NURE Seds[e]	DSOK170S1	38000	1																	37000	1
NURE Seds[e]	DSOK171S1	52400	1																	24500	1
NURE Seds[e]	DSOK173S1	62200	1																	21400	1
NURE Seds[e]	DSOK177S1	52700	1																	20500	1
NURE Seds[e]	DSOK178S1	55700	1																	24300	1
NURE Seds[e]	DSOK179S1	62600	1																	29700	1
NURE Seds[e]	DSOK180S1	56900	1																	25600	1
NURE Seds[e]	DSOK181S1	60100	1																	14900	1
NURE Seds[e]	DSOK183S1	57600	1																	35600	1
NURE Seds[e]	DSOK184S1	63700	1																	30200	1
NURE Seds[e]	DSOK185S1	56800	1																	22000	1
NURE Seds[e]	DSOK186S1	51000	1																	43000	1
NURE Seds[e]	DSOK187S1	58800	1																	26100	1
NURE Seds[e]	DSOK190S1	54300	1																	23100	1
NURE Seds[e]	DSOK191S1	54100	1																	36400	1
NURE Seds[e]	DSOK192S1	53500	1																	29700	1
NURE Seds[e]	DSOK194S1	500	0																		
NURE Seds[e]	DSOK195S1	44400	1																	21200	1
NURE Seds[e]	DSOK196S1	53900	1																	32300	1
NURE Seds[e]	DSOK197S1	50700	1																	32200	1
NURE Seds[e]	DSOK198S1	40100	1																	19900	1
NURE Seds[e]	DSOK199S1	53000	1																	25800	1
NURE Seds[e]	DSOK200S1	63700	1																	14400	1
NURE Seds[e]	DSOK201S1	66500	1																	29200	1
NURE Seds[e]	DSOK202S1	53700	1																	46700	1
NURE Seds[e]	DSOK203S1	31900	1																	11100	1
NURE Seds[e]	DSOK204S1	62700	1																	26700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK159S1			480	1											60	1		
NURE Seds[e]	DSOK160S1			680	1											90	1		
NURE Seds[e]	DSOK163S1			1010	1											70	1		
NURE Seds[e]	DSOK165S1			1970	1											30	1		
NURE Seds[e]	DSOK166S1			710	1											50	1		
NURE Seds[e]	DSOK167S1			440	1											50	1		
NURE Seds[e]	DSOK168S1			760	1											80	1		
NURE Seds[e]	DSOK169S1			480	1											60	1		
NURE Seds[e]	DSOK170S1			960	1											80	1		
NURE Seds[e]	DSOK171S1			1020	1											60	1		
NURE Seds[e]	DSOK173S1			740	1											80	1		
NURE Seds[e]	DSOK177S1			670	1											60	1		
NURE Seds[e]	DSOK178S1			560	1											50	1		
NURE Seds[e]	DSOK179S1			1100	1											90	1		
NURE Seds[e]	DSOK180S1			560	1											60	1		
NURE Seds[e]	DSOK181S1			390	1											40	1		
NURE Seds[e]	DSOK183S1			1120	1											120	1		
NURE Seds[e]	DSOK184S1			870	1											80	1		
NURE Seds[e]	DSOK185S1			580	1											40	1		
NURE Seds[e]	DSOK186S1			790	1											490	1		
NURE Seds[e]	DSOK187S1			610	1											150	1		
NURE Seds[e]	DSOK190S1			560	1											140	1		
NURE Seds[e]	DSOK191S1			780	1											230	1		
NURE Seds[e]	DSOK192S1			570	1											90	1		
NURE Seds[e]	DSOK194S1			20	0														
NURE Seds[e]	DSOK195S1			550	1											40	1		
NURE Seds[e]	DSOK196S1			1230	1											70	1		
NURE Seds[e]	DSOK197S1			960	1											90	1		
NURE Seds[e]	DSOK198S1			750	1											60	1		
NURE Seds[e]	DSOK199S1			950	1											50	1		
NURE Seds[e]	DSOK200S1			430	1											40	1		
NURE Seds[e]	DSOK201S1			590	1											60	1		
NURE Seds[e]	DSOK202S1			980	1											130	1		
NURE Seds[e]	DSOK203S1			400	1											30	1		
NURE Seds[e]	DSOK204S1			670	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK205S1	51100	1																	24400	1
NURE Seds[e]	DSOK206S1	57600	1																	21200	1
NURE Seds[e]	DSOK208S1	60400	1																	24600	1
NURE Seds[e]	DSOK209S1	53000	1																	23400	1
NURE Seds[e]	DSOK210S1	52100	1																	26200	1
NURE Seds[e]	DSOK211S1	47500	1																	25500	1
NURE Seds[e]	DSOK213S1	61000	1																	29100	1
NURE Seds[e]	DSOK214S1	63600	1																	27400	1
NURE Seds[e]	DSOK215S1	54200	1																	22000	1
NURE Seds[e]	DSOK216S1	70700	1																	30100	1
NURE Seds[e]	DSOK218S1	58100	1																	28600	1
NURE Seds[e]	DSOK219S1	59600	1																	30300	1
NURE Seds[e]	DSOK220S1	52400	1																	17900	1
NURE Seds[e]	DSOK221S1	62100	1																	23500	1
NURE Seds[e]	DSOK222S1	43400	1																	31400	1
NURE Seds[e]	DSOK223S1	46900	1																	29600	1
NURE Seds[e]	DSOK225S1	44600	1																	32100	1
NURE Seds[e]	DSOK226S1	45700	1																	27200	1
NURE Seds[e]	DSOK227S1	54200	1																	35900	1
NURE Seds[e]	DSOK229S1	54000	1																	28300	1
NURE Seds[e]	DSOK230S1	51900	1																	32100	1
NURE Seds[e]	DSOK231S1	68600	1																	61400	1
NURE Seds[e]	DSOK232S1	57500	1																	34800	1
NURE Seds[e]	DSOK233S1	39500	1																	22500	1
NURE Seds[e]	DSOK235S1	55100	1																	27500	1
NURE Seds[e]	DSOK236S1	72000	1																	30800	1
NURE Seds[e]	DSOK237S1	55400	1																	25700	1
NURE Seds[e]	DSOK238S1	56600	1																	29400	1
NURE Seds[e]	DSOK239S1	60200	1																	27100	1
NURE Seds[e]	DSOK240S1	61500	1																	19100	1
NURE Seds[e]	DSOK241S1	57200	1																	28100	1
NURE Seds[e]	DSOK242S1	60100	1																	21100	1
NURE Seds[e]	DSOK245S1	57400	1																	26100	1
NURE Seds[e]	DSOK246S1	57200	1																	50100	1
NURE Seds[e]	DSOK247S1	48000	1																	28400	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK205S1			790	1											60	1		
NURE Seds[e]	DSOK206S1			580	1											60	1		
NURE Seds[e]	DSOK208S1			550	1											50	1		
NURE Seds[e]	DSOK209S1			580	1											40	1		
NURE Seds[e]	DSOK210S1			750	1											50	1		
NURE Seds[e]	DSOK211S1			720	1											60	1		
NURE Seds[e]	DSOK213S1			640	1											60	1		
NURE Seds[e]	DSOK214S1			2220	1											10	0		
NURE Seds[e]	DSOK215S1			820	1											80	1		
NURE Seds[e]	DSOK216S1			1010	1											40	1		
NURE Seds[e]	DSOK218S1			810	1											70	1		
NURE Seds[e]	DSOK219S1			1120	1											80	1		
NURE Seds[e]	DSOK220S1			270	1											30	1		
NURE Seds[e]	DSOK221S1			1140	1											50	1		
NURE Seds[e]	DSOK222S1			340	1											1080	1		
NURE Seds[e]	DSOK223S1			600	1											100	1		
NURE Seds[e]	DSOK225S1			630	1											170	1		
NURE Seds[e]	DSOK226S1			540	1											80	1		
NURE Seds[e]	DSOK227S1			630	1											80	1		
NURE Seds[e]	DSOK229S1			610	1											80	1		
NURE Seds[e]	DSOK230S1			450	1											670	1		
NURE Seds[e]	DSOK231S1			2960	1											100	1		
NURE Seds[e]	DSOK232S1			910	1											190	1		
NURE Seds[e]	DSOK233S1			480	1											60	1		
NURE Seds[e]	DSOK235S1			760	1											50	1		
NURE Seds[e]	DSOK236S1			860	1											80	1		
NURE Seds[e]	DSOK237S1			1810	1											80	1		
NURE Seds[e]	DSOK238S1			980	1											80	1		
NURE Seds[e]	DSOK239S1			1010	1											60	1		
NURE Seds[e]	DSOK240S1			930	1											50	1		
NURE Seds[e]	DSOK241S1			890	1											70	1		
NURE Seds[e]	DSOK242S1			470	1											100	1		
NURE Seds[e]	DSOK245S1			710	1											60	1		
NURE Seds[e]	DSOK246S1			1150	1											140	1		
NURE Seds[e]	DSOK247S1			590	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK249S1	74000	1																	15900	1
NURE Seds[e]	DSOK250S1	63400	1																	26900	1
NURE Seds[e]	DSOK251S1	51100	1																	24800	1
NURE Seds[e]	DSOK252S1	60700	1																	23300	1
NURE Seds[e]	DSOK253S1	54400	1																	25600	1
NURE Seds[e]	DSOK255S1	53500	1																	34200	1
NURE Seds[e]	DSOK256S1	47400	1																	25500	1
NURE Seds[e]	DSOK257S1	59100	1																	29000	1
NURE Seds[e]	DSOK258S1	64800	1																	46600	1
NURE Seds[e]	DSOK259S1	48100	1																	23200	1
NURE Seds[e]	DSOK261S1	54900	1																	29100	1
NURE Seds[e]	DSOK262S1	43000	1																	37100	1
NURE Seds[e]	DSOK266S1	54800	1																	26100	1
NURE Seds[e]	DSOK273S1	59600	1																	34000	1
NURE Seds[e]	DSOK275S1	60400	1																	22000	1
NURE Seds[e]	DSOK276S1	58300	1																	23300	1
NURE Seds[e]	DSOK278S1	51200	1																	30800	1
NURE Seds[e]	DSOK279S1	48000	1																	27100	1
NURE Seds[e]	DSOK281S1	57900	1																	31800	1
NURE Seds[e]	DSOK282S1	54000	1																	32800	1
NURE Seds[e]	DSOK296S1	49000	1																	39100	1
NURE Seds[e]	DSOK297S1	47700	1																	49400	1
NURE Seds[e]	DSOK298S1	53300	1																	36500	1
NURE Seds[e]	DSOK299S1	45300	1																	33100	1
NURE Seds[e]	DSOK300S1	60700	1																	33200	1
NURE Seds[e]	DSOK308S1	58100	1																	33500	1
NURE Seds[e]	DSOK311S1	68700	1																	29200	1
NURE Seds[e]	DSOK314S1	46600	1																	31500	1
NURE Seds[e]	DSOK318S1	65900	1																	45900	1
NURE Seds[e]	DSOK319S1	53400	1																	32700	1
NURE Seds[e]	DSOK320S1	29900	1																	13700	1
NURE Seds[e]	DSOK321S1	48000	1																	19600	1
NURE Seds[e]	DSOK328S1	67600	1																	30500	1
NURE Seds[e]	DSOK329S1	53400	1																	30600	1
NURE Seds[e]	DSOK330S1	55100	1																	36500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK249S1			400	1											40	1		
NURE Seds[e]	DSOK250S1			690	1											70	1		
NURE Seds[e]	DSOK251S1			640	1											40	1		
NURE Seds[e]	DSOK252S1			640	1											40	1		
NURE Seds[e]	DSOK253S1			620	1											60	1		
NURE Seds[e]	DSOK255S1			830	1											70	1		
NURE Seds[e]	DSOK256S1			2890	1											70	1		
NURE Seds[e]	DSOK257S1			1170	1											60	1		
NURE Seds[e]	DSOK258S1			1300	1											160	1		
NURE Seds[e]	DSOK259S1			690	1											70	1		
NURE Seds[e]	DSOK261S1			530	1											70	1		
NURE Seds[e]	DSOK262S1			660	1											150	1		
NURE Seds[e]	DSOK266S1			690	1											90	1		
NURE Seds[e]	DSOK273S1			590	1											90	1		
NURE Seds[e]	DSOK275S1			580	1											90	1		
NURE Seds[e]	DSOK276S1			550	1											70	1		
NURE Seds[e]	DSOK278S1			590	1											90	1		
NURE Seds[e]	DSOK279S1			660	1											80	1		
NURE Seds[e]	DSOK281S1			850	1											70	1		
NURE Seds[e]	DSOK282S1			910	1											120	1		
NURE Seds[e]	DSOK296S1			960	1											140	1		
NURE Seds[e]	DSOK297S1			690	1											100	1		
NURE Seds[e]	DSOK298S1			1190	1											110	1		
NURE Seds[e]	DSOK299S1			760	1											80	1		
NURE Seds[e]	DSOK300S1			730	1											100	1		
NURE Seds[e]	DSOK308S1			1300	1											100	1		
NURE Seds[e]	DSOK311S1			610	1											90	1		
NURE Seds[e]	DSOK314S1			1850	1											50	1		
NURE Seds[e]	DSOK318S1			780	1											190	1		
NURE Seds[e]	DSOK319S1			990	1											190	1		
NURE Seds[e]	DSOK320S1			330	1											30	1		
NURE Seds[e]	DSOK321S1			680	1											40	1		
NURE Seds[e]	DSOK328S1			930	1											90	1		
NURE Seds[e]	DSOK329S1			480	1											70	1		
NURE Seds[e]	DSOK330S1			1140	1											130	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK331S1	49700	1																	27800	1
NURE Seds[e]	DSOK333S1	62600	1																	27800	1
NURE Seds[e]	DSOK335S1	56400	1																	27300	1
NURE Seds[e]	DSOK336S1	59700	1																	32300	1
NURE Seds[e]	DSOK338S1	57700	1																	45900	1
NURE Seds[e]	DSOK339S1	58200	1																	45600	1
NURE Seds[e]	DSOK341S1	64200	1																	31500	1
NURE Seds[e]	DSOK342S1	60700	1																	32400	1
NURE Seds[e]	DSOK344S1	58800	1																	30700	1
NURE Seds[e]	DSOK346S1	61400	1																	33700	1
NURE Seds[e]	DSOK347S1	63700	1																	33200	1
NURE Seds[e]	DSOK348S1	52400	1																	22100	1
NURE Seds[e]	DSOK349S1	48300	1																	23700	1
NURE Seds[e]	DSOK350S1	48600	1																	34800	1
NURE Seds[e]	DSOK351S1	48700	1																	19600	1
NURE Seds[e]	DSOK352S1	500	0																	34200	1
NURE Seds[e]	DSOK353S1	53600	1																	29000	1
NURE Seds[e]	DSOK356S1	54000	1																	24400	1
NURE Seds[e]	DSOK357S1	61100	1																	33400	1
NURE Seds[e]	DSOK358S1	58000	1																	25100	1
NURE Seds[e]	DSOK359S1	60200	1																	27300	1
NURE Seds[e]	DSOK360S1	65400	1																	28100	1
NURE Seds[e]	DSOK363S1	71500	1																	25100	1
NURE Seds[e]	DSOK365S1	51800	1																	26600	1
NURE Seds[e]	DSOK367S1	64100	1																	27400	1
NURE Seds[e]	DSOK378S1	49700	1																	22300	1
NURE Seds[e]	DSOK379S1	40800	1																	32200	1
NURE Seds[e]	DSOK383S1	35800	1																	20300	1
NURE Seds[e]	DSOK384S1	43100	1																	21700	1
NURE Seds[e]	DSOK385S1	43200	1																	23300	1
NURE Seds[e]	DSOK386S1	54900	1																	18900	1
NURE Seds[e]	DSOK391S1	500	0																	16200	1
NURE Seds[e]	DSOK392S1	58800	1																	27800	1
NURE Seds[e]	DSOK393S1	65200	1																	23900	1
NURE Seds[e]	DSOK395S1	37300	1																	22400	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK331S1			840	1											80	1		
NURE Seds[e]	DSOK333S1			780	1											80	1		
NURE Seds[e]	DSOK335S1			1000	1											80	1		
NURE Seds[e]	DSOK336S1			690	1											90	1		
NURE Seds[e]	DSOK338S1			1190	1											160	1		
NURE Seds[e]	DSOK339S1			970	1											140	1		
NURE Seds[e]	DSOK341S1			900	1											110	1		
NURE Seds[e]	DSOK342S1			930	1											70	1		
NURE Seds[e]	DSOK344S1			680	1											70	1		
NURE Seds[e]	DSOK346S1			770	1											150	1		
NURE Seds[e]	DSOK347S1			680	1											80	1		
NURE Seds[e]	DSOK348S1			620	1											60	1		
NURE Seds[e]	DSOK349S1			1100	1											80	1		
NURE Seds[e]	DSOK350S1			700	1											90	1		
NURE Seds[e]	DSOK351S1			430	1											70	1		
NURE Seds[e]	DSOK352S1			20	0											10	0		
NURE Seds[e]	DSOK353S1			920	1											90	1		
NURE Seds[e]	DSOK356S1			610	1											50	1		
NURE Seds[e]	DSOK357S1			2210	1											90	1		
NURE Seds[e]	DSOK358S1			1120	1											80	1		
NURE Seds[e]	DSOK359S1			810	1											60	1		
NURE Seds[e]	DSOK360S1			470	1											50	1		
NURE Seds[e]	DSOK363S1			630	1											70	1		
NURE Seds[e]	DSOK365S1			1620	1											70	1		
NURE Seds[e]	DSOK367S1			600	1											80	1		
NURE Seds[e]	DSOK378S1			650	1											50	1		
NURE Seds[e]	DSOK379S1			1080	1											90	1		
NURE Seds[e]	DSOK383S1			640	1											70	1		
NURE Seds[e]	DSOK384S1			470	1											60	1		
NURE Seds[e]	DSOK385S1			500	1											50	1		
NURE Seds[e]	DSOK386S1			440	1											50	1		
NURE Seds[e]	DSOK391S1			20	0											10	0		
NURE Seds[e]	DSOK392S1			1400	1											50	1		
NURE Seds[e]	DSOK393S1			750	1											40	1		
NURE Seds[e]	DSOK395S1			1370	1											40	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK397S1	48100	1																	20300	1
NURE Seds[e]	DSOK398S1	52500	1																	21900	1
NURE Seds[e]	DSOK401S1	49700	1																	24000	1
NURE Seds[e]	DSOK403S1	52300	1																	28800	1
NURE Seds[e]	DSOK409S1	55700	1																	25100	1
NURE Seds[e]	DSOK410S1	46000	1																	16500	1
NURE Seds[e]	DSOK412S1	39800	1																	18300	1
NURE Seds[e]	DSOK414S1	51200	1																	26500	1
NURE Seds[e]	DSOK418S1	61500	1																	22400	1
NURE Seds[e]	DSOK419S1	53500	1																	23200	1
NURE Seds[e]	DSOK421S1	31900	1																	18300	1
NURE Seds[e]	DSOK422S1	52400	1																	19400	1
NURE Seds[e]	DSOK426S1	55100	1																	24600	1
NURE Seds[e]	DSOK428S1	61600	1																	19600	1
NURE Seds[e]	DSOK429S1	58800	1																	25000	1
NURE Seds[e]	DSOK431S1	59900	1																	27300	1
NURE Seds[e]	DSOK432S1	43300	1																	24000	1
NURE Seds[e]	DSOK433S1	65700	1																	30100	1
NURE Seds[e]	DSOK434S1	59800	1																	25900	1
NURE Seds[e]	DSOK435S1	66900	1																	30400	1
NURE Seds[e]	DSOK436S1	63700	1																	22500	1
NURE Seds[e]	DSOK437S1	54200	1																	28900	1
NURE Seds[e]	DSOK438S1	58800	1																	15400	1
NURE Seds[e]	DSOK440S1	55100	1																	23000	1
NURE Seds[e]	DSOK441S1	63600	1																	30400	1
NURE Seds[e]	DSOK442S1	55100	1																	29100	1
NURE Seds[e]	DSOK443S1	67800	1																	16900	1
NURE Seds[e]	DSOK444S1	63600	1																	24000	1
NURE Seds[e]	DSOK445S1	72700	1																	26800	1
NURE Seds[e]	DSOK446S1	52100	1																	23800	1
NURE Seds[e]	DSOK447S1	52000	1																	15700	1
NURE Seds[e]	DSOK449S1	67100	1																	25500	1
NURE Seds[e]	DSOK450S1	57300	1																	13200	1
NURE Seds[e]	DSOK451S1	54400	1																	24900	1
NURE Seds[e]	DSOK454S1	50300	1																	35200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK397S1			430	1											40	1		
NURE Seds[e]	DSOK398S1			730	1											40	1		
NURE Seds[e]	DSOK401S1			490	1											40	1		
NURE Seds[e]	DSOK403S1			590	1											70	1		
NURE Seds[e]	DSOK409S1			510	1											40	1		
NURE Seds[e]	DSOK410S1			550	1											30	1		
NURE Seds[e]	DSOK412S1			540	1											60	1		
NURE Seds[e]	DSOK414S1			880	1											50	1		
NURE Seds[e]	DSOK418S1			860	1											50	1		
NURE Seds[e]	DSOK419S1			930	1											70	1		
NURE Seds[e]	DSOK421S1			460	1											30	1		
NURE Seds[e]	DSOK422S1			760	1											30	1		
NURE Seds[e]	DSOK426S1			620	1											50	1		
NURE Seds[e]	DSOK428S1			510	1											40	1		
NURE Seds[e]	DSOK429S1			980	1											60	1		
NURE Seds[e]	DSOK431S1			820	1											50	1		
NURE Seds[e]	DSOK432S1			580	1											40	1		
NURE Seds[e]	DSOK433S1			860	1											60	1		
NURE Seds[e]	DSOK434S1			460	1											60	1		
NURE Seds[e]	DSOK435S1			670	1											70	1		
NURE Seds[e]	DSOK436S1			570	1											60	1		
NURE Seds[e]	DSOK437S1			980	1											50	1		
NURE Seds[e]	DSOK438S1			460	1											40	1		
NURE Seds[e]	DSOK440S1			450	1											50	1		
NURE Seds[e]	DSOK441S1			1030	1											70	1		
NURE Seds[e]	DSOK442S1			810	1											50	1		
NURE Seds[e]	DSOK443S1			540	1											40	1		
NURE Seds[e]	DSOK444S1			660	1											50	1		
NURE Seds[e]	DSOK445S1			1070	1											70	1		
NURE Seds[e]	DSOK446S1			440	1											70	1		
NURE Seds[e]	DSOK447S1			430	1											50	1		
NURE Seds[e]	DSOK449S1			430	1											50	1		
NURE Seds[e]	DSOK450S1			620	1											40	1		
NURE Seds[e]	DSOK451S1			550	1											60	1		
NURE Seds[e]	DSOK454S1			920	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK455S1	50400	1																	34300	1
NURE Seds[e]	DSOK456S1	53900	1																	28200	1
NURE Seds[e]	DSOK457S1	66200	1																	27600	1
NURE Seds[e]	DSOK458S1	67400	1																	31200	1
NURE Seds[e]	DSOK459S1	65500	1																	28600	1
NURE Seds[e]	DSOK460S1	82100	1																	23900	1
NURE Seds[e]	DSOK461S1	62800	1																	26100	1
NURE Seds[e]	DSOK463S1	54400	1																	25100	1
NURE Seds[e]	DSOL001S1	61100	1																	31000	1
NURE Seds[e]	DSOL003S1	56600	1																		
NURE Seds[e]	DSOL004S1	45700	1																	30000	1
NURE Seds[e]	DSOL005S1	48000	1																		
NURE Seds[e]	DSOL006S1	50500	1																	25000	1
NURE Seds[e]	DSOL008S1	59300	1																	64900	1
NURE Seds[e]	DSOL009S1	52900	1																		
NURE Seds[e]	DSOL011S1	46200	1																	27800	1
NURE Seds[e]	DSOL012S1	38500	1																	15700	1
NURE Seds[e]	DSOL013S1	45000	1																	18100	1
NURE Seds[e]	DSOL014S1	59600	1																	19200	1
NURE Seds[e]	DSOL016S1	60800	1																	27800	1
NURE Seds[e]	DSOL017S1	64600	1																	29600	1
NURE Seds[e]	DSOL018S1	59200	1																	38900	1
NURE Seds[e]	DSOL019S1	58200	1																	31200	1
NURE Seds[e]	DSOL022S1	58600	1																	39100	1
NURE Seds[e]	DSOL023S1	60500	1																	2000	1
NURE Seds[e]	DSOL025S1	59600	1																	29300	1
NURE Seds[e]	DSOL027S1	54500	1																	26000	1
NURE Seds[e]	DSOL028S1	61700	1																	21400	1
NURE Seds[e]	DSOL029S1	3700	1																	2500	1
NURE Seds[e]	DSOL031S1	58900	1																	24400	1
NURE Seds[e]	DSOL032S1	41600	1																	18200	1
NURE Seds[e]	DSOL033S1	66100	1																	29700	1
NURE Seds[e]	DSOL034S1	62800	1																	20500	1
NURE Seds[e]	DSOL035S1	58800	1																	26700	1
NURE Seds[e]	DSOL036S1	72700	1																	30500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOK455S1			780	1											80	1		
NURE Seds[e]	DSOK456S1			1500	1											70	1		
NURE Seds[e]	DSOK457S1			940	1											40	1		
NURE Seds[e]	DSOK458S1			580	1											50	1		
NURE Seds[e]	DSOK459S1			1050	1											60	1		
NURE Seds[e]	DSOK460S1			1070	1											60	1		
NURE Seds[e]	DSOK461S1			730	1											60	1		
NURE Seds[e]	DSOK463S1			560	1											60	1		
NURE Seds[e]	DSOL001S1			650	1											60	1		
NURE Seds[e]	DSOL003S1			1650	1											70	1		
NURE Seds[e]	DSOL004S1			530	1											70	1		
NURE Seds[e]	DSOL005S1			510	1											70	1		
NURE Seds[e]	DSOL006S1			920	1											60	1		
NURE Seds[e]	DSOL008S1			880	1											170	1		
NURE Seds[e]	DSOL009S1			450	1											60	1		
NURE Seds[e]	DSOL011S1			930	1											70	1		
NURE Seds[e]	DSOL012S1			640	1											40	1		
NURE Seds[e]	DSOL013S1			490	1											30	1		
NURE Seds[e]	DSOL014S1			530	1											60	1		
NURE Seds[e]	DSOL016S1			670	1											70	1		
NURE Seds[e]	DSOL017S1			1080	1											80	1		
NURE Seds[e]	DSOL018S1			750	1											110	1		
NURE Seds[e]	DSOL019S1			750	1											100	1		
NURE Seds[e]	DSOL022S1			770	1											60	1		
NURE Seds[e]	DSOL023S1			700	1											100	1		
NURE Seds[e]	DSOL025S1			960	1											50	1		
NURE Seds[e]	DSOL027S1			520	1											70	1		
NURE Seds[e]	DSOL028S1			610	1											30	1		
NURE Seds[e]	DSOL029S1			80	1											10	0		
NURE Seds[e]	DSOL031S1			940	1											70	1		
NURE Seds[e]	DSOL032S1			410	1											40	1		
NURE Seds[e]	DSOL033S1			850	1											50	1		
NURE Seds[e]	DSOL034S1			510	1											30	1		
NURE Seds[e]	DSOL035S1			350	1											40	1		
NURE Seds[e]	DSOL036S1			300	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL039S1	66800	1																	30500	1
NURE Seds[e]	DSOL040S1	61800	1																	24400	1
NURE Seds[e]	DSOL041S1	65000	1																	25400	1
NURE Seds[e]	DSOL042S1	61800	1																	25600	1
NURE Seds[e]	DSOL043S1	62400	1																	21000	1
NURE Seds[e]	DSOL044S1	60100	1																	23500	1
NURE Seds[e]	DSOL045S1	61600	1																	30800	1
NURE Seds[e]	DSOL046S1	54200	1																	44800	1
NURE Seds[e]	DSOL048S1	67200	1																	37600	1
NURE Seds[e]	DSOL049S1	65600	1																	26100	1
NURE Seds[e]	DSOL050S1	54000	1																	36000	1
NURE Seds[e]	DSOL052S1	61500	1																	28900	1
NURE Seds[e]	DSOL053S1	60500	1																	25700	1
NURE Seds[e]	DSOL054S1	61600	1																	23800	1
NURE Seds[e]	DSOL057S1	57000	1																		
NURE Seds[e]	DSOL058S1	56200	1																	29300	1
NURE Seds[e]	DSOL059S1	5100	1																		
NURE Seds[e]	DSOL060S1	64100	1																	37600	1
NURE Seds[e]	DSOL061S1	52000	1																	21600	1
NURE Seds[e]	DSOL062S1	54600	1																	22900	1
NURE Seds[e]	DSOL063S1	61300	1																	35600	1
NURE Seds[e]	DSOL064S1	61900	1																	34100	1
NURE Seds[e]	DSOL066S1	59300	1																		
NURE Seds[e]	DSOL067S1	52600	1																		
NURE Seds[e]	DSOL068S1	50700	1																	22700	1
NURE Seds[e]	DSOL069S1	52900	1																	34100	1
NURE Seds[e]	DSOL071S1	55800	1																	45600	1
NURE Seds[e]	DSOL073S1	61700	1																	34200	1
NURE Seds[e]	DSOL074S1	61700	1																	29500	1
NURE Seds[e]	DSOL075S1	57000	1																	45000	1
NURE Seds[e]	DSOL076S1	65700	1																	33100	1
NURE Seds[e]	DSOL077S1	58100	1																	27500	1
NURE Seds[e]	DSOL078S1	59500	1																	23100	1
NURE Seds[e]	DSOL079S1	62200	1																		
NURE Seds[e]	DSOL080S1	63000	1																	31900	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL039S1			570	1											60	1		
NURE Seds[e]	DSOL040S1			870	1											50	1		
NURE Seds[e]	DSOL041S1			360	1											40	1		
NURE Seds[e]	DSOL042S1			580	1											40	1		
NURE Seds[e]	DSOL043S1			500	1											50	1		
NURE Seds[e]	DSOL044S1			510	1											50	1		
NURE Seds[e]	DSOL045S1			600	1											60	1		
NURE Seds[e]	DSOL046S1			730	1											90	1		
NURE Seds[e]	DSOL048S1			630	1											70	1		
NURE Seds[e]	DSOL049S1			540	1											60	1		
NURE Seds[e]	DSOL050S1			650	1											80	1		
NURE Seds[e]	DSOL052S1			780	1											80	1		
NURE Seds[e]	DSOL053S1			540	1											60	1		
NURE Seds[e]	DSOL054S1			950	1											60	1		
NURE Seds[e]	DSOL057S1			430	1											50	1		
NURE Seds[e]	DSOL058S1			860	1											80	1		
NURE Seds[e]	DSOL059S1			750	1											10	0		
NURE Seds[e]	DSOL060S1			970	1											100	1		
NURE Seds[e]	DSOL061S1			290	1											40	1		
NURE Seds[e]	DSOL062S1			370	1											40	1		
NURE Seds[e]	DSOL063S1			670	1											70	1		
NURE Seds[e]	DSOL064S1			960	1											60	1		
NURE Seds[e]	DSOL066S1			640	1											100	1		
NURE Seds[e]	DSOL067S1			600	1											90	1		
NURE Seds[e]	DSOL068S1			460	1											50	1		
NURE Seds[e]	DSOL069S1			620	1											60	1		
NURE Seds[e]	DSOL071S1			730	1											110	1		
NURE Seds[e]	DSOL073S1			600	1											80	1		
NURE Seds[e]	DSOL074S1			1090	1											120	1		
NURE Seds[e]	DSOL075S1			880	1											150	1		
NURE Seds[e]	DSOL076S1			800	1											100	1		
NURE Seds[e]	DSOL077S1			550	1											70	1		
NURE Seds[e]	DSOL078S1			900	1											70	1		
NURE Seds[e]	DSOL079S1			790	1											80	1		
NURE Seds[e]	DSOL080S1			630	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL081S1	55500	1																	37600	1
NURE Seds[e]	DSOL082S1	58600	1																	46500	1
NURE Seds[e]	DSOL084S1	57300	1																	32000	1
NURE Seds[e]	DSOL085S1	58000	1																	35900	1
NURE Seds[e]	DSOL088S1	65900	1																	43600	1
NURE Seds[e]	DSOL090S1	50000	1																	51200	1
NURE Seds[e]	DSOL091S1	61300	1																	59300	1
NURE Seds[e]	DSOL092S1	58000	1																	35100	1
NURE Seds[e]	DSOL093S1	60700	1																	38800	1
NURE Seds[e]	DSOL094S1	53400	1																	28400	1
NURE Seds[e]	DSOL095S1	48800	1																	41200	1
NURE Seds[e]	DSOL096S1	57900	1																	33000	1
NURE Seds[e]	DSOL098S1	53400	1																	28400	1
NURE Seds[e]	DSOL099S1	60200	1																	26300	1
NURE Seds[e]	DSOL100S1	57700	1																	26700	1
NURE Seds[e]	DSOL101S1	50300	1																	26200	1
NURE Seds[e]	DSOL102S1	40500	1																	21100	1
NURE Seds[e]	DSOL103S1	68500	1																	25700	1
NURE Seds[e]	DSOL104S1	48200	1																	25600	1
NURE Seds[e]	DSOL105S1	66400	1																	29100	1
NURE Seds[e]	DSOL106S1	58900	1																	22200	1
NURE Seds[e]	DSOL107S1	58600	1																	23500	1
NURE Seds[e]	DSOL108S1	58500	1																	25000	1
NURE Seds[e]	DSOL109S1	61200	1																	27500	1
NURE Seds[e]	DSOL110S1	19700	1																	14100	1
NURE Seds[e]	DSOL111S1	61600	1																	28900	1
NURE Seds[e]	DSOL112S1	69000	1																	25300	1
NURE Seds[e]	DSOL113S1	63200	1																	26200	1
NURE Seds[e]	DSOL114S1	63800	1																	33100	1
NURE Seds[e]	DSOL115S1	62200	1																	38000	1
NURE Seds[e]	DSOL117S1	50500	1																	46100	1
NURE Seds[e]	DSOL118S1	40300	1																	23100	1
NURE Seds[e]	DSOL119S1	56700	1																	39800	1
NURE Seds[e]	DSOL120S1	37900	1																	27100	1
NURE Seds[e]	DSOL121S1	61900	1																	35800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL081S1			790	1											90	1		
NURE Seds[e]	DSOL082S1			840	1											120	1		
NURE Seds[e]	DSOL084S1			790	1											100	1		
NURE Seds[e]	DSOL085S1			830	1											90	1		
NURE Seds[e]	DSOL088S1			1590	1											110	1		
NURE Seds[e]	DSOL090S1			840	1											120	1		
NURE Seds[e]	DSOL091S1			1090	1											120	1		
NURE Seds[e]	DSOL092S1			980	1											80	1		
NURE Seds[e]	DSOL093S1			1080	1											90	1		
NURE Seds[e]	DSOL094S1			1500	1											60	1		
NURE Seds[e]	DSOL095S1			1210	1											130	1		
NURE Seds[e]	DSOL096S1			970	1											90	1		
NURE Seds[e]	DSOL098S1			500	1											50	1		
NURE Seds[e]	DSOL099S1			660	1											60	1		
NURE Seds[e]	DSOL100S1			820	1											70	1		
NURE Seds[e]	DSOL101S1			550	1											40	1		
NURE Seds[e]	DSOL102S1			440	1											40	1		
NURE Seds[e]	DSOL103S1			420	1											50	1		
NURE Seds[e]	DSOL104S1			590	1											80	1		
NURE Seds[e]	DSOL105S1			770	1											70	1		
NURE Seds[e]	DSOL106S1			770	1											50	1		
NURE Seds[e]	DSOL107S1			510	1											60	1		
NURE Seds[e]	DSOL108S1			950	1											80	1		
NURE Seds[e]	DSOL109S1			480	1											80	1		
NURE Seds[e]	DSOL110S1			470	1											20	1		
NURE Seds[e]	DSOL111S1			840	1											40	1		
NURE Seds[e]	DSOL112S1			790	1											50	1		
NURE Seds[e]	DSOL113S1			610	1											60	1		
NURE Seds[e]	DSOL114S1			1160	1											80	1		
NURE Seds[e]	DSOL115S1			3590	1											80	1		
NURE Seds[e]	DSOL117S1			810	1											140	1		
NURE Seds[e]	DSOL118S1			340	1											50	1		
NURE Seds[e]	DSOL119S1			720	1											100	1		
NURE Seds[e]	DSOL120S1			520	1											50	1		
NURE Seds[e]	DSOL121S1			960	1											130	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL122S1	58500	1																	28600	1
NURE Seds[e]	DSOL123S1	60900	1																	30600	1
NURE Seds[e]	DSOL124S1	62600	1																	43200	1
NURE Seds[e]	DSOL125S1	44500	1																	31000	1
NURE Seds[e]	DSOL126S1	56600	1																	41900	1
NURE Seds[e]	DSOL127S1	57500	1																	25500	1
NURE Seds[e]	DSOL128S1	53700	1																	28800	1
NURE Seds[e]	DSOL129S1	54600	1																	29800	1
NURE Seds[e]	DSOL130S1	55600	1																	26800	1
NURE Seds[e]	DSOL131S1	62100	1																	34100	1
NURE Seds[e]	DSOL132S1	56900	1																	24200	1
NURE Seds[e]	DSOL133S1	56300	1																	26900	1
NURE Seds[e]	DSOL147S1	32000	1																	15400	1
NURE Seds[e]	DSOL151S1	51000	1																	31300	1
NURE Seds[e]	DSOL156S1	64800	1																	46200	1
NURE Seds[e]	DSOL159S1	43400	1																	21100	1
NURE Seds[e]	DSOL160S1	64300	1																	40800	1
NURE Seds[e]	DSOL161S1	61800	1																	41400	1
NURE Seds[e]	DSOL163S1	60000	1																	37100	1
NURE Seds[e]	DSOL165S1	53000	1																	30400	1
NURE Seds[e]	DSOL168S1	58200	1																	31200	1
NURE Seds[e]	DSOL169S1	66300	1																	36900	1
NURE Seds[e]	DSOL170S1	55400	1																	31300	1
NURE Seds[e]	DSOL172S1	64500	1																	30800	1
NURE Seds[e]	DSOL180S1	47000	1																		
NURE Seds[e]	DSOL181S1	29000	1																		
NURE Seds[e]	DSOL182S1	53400	1																	29600	1
NURE Seds[e]	DSOL192S1	58700	1																		
NURE Seds[e]	DSOL195S1	65800	1																	41100	1
NURE Seds[e]	DSOL196S1	69500	1																	43000	1
NURE Seds[e]	DSOL197S1	57600	1																	37500	1
NURE Seds[e]	DSOL203S1	57800	1																	44300	1
NURE Seds[e]	DSOL207S1	62100	1																	41500	1
NURE Seds[e]	DSOL208S1	58700	1																	35400	1
NURE Seds[e]	DSOL209S1	59000	1																	52100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL122S1			1010	1											60	1		
NURE Seds[e]	DSOL123S1			590	1											70	1		
NURE Seds[e]	DSOL124S1			1080	1											120	1		
NURE Seds[e]	DSOL125S1			2690	1											70	1		
NURE Seds[e]	DSOL126S1			2310	1											70	1		
NURE Seds[e]	DSOL127S1			920	1											60	1		
NURE Seds[e]	DSOL128S1			1470	1											60	1		
NURE Seds[e]	DSOL129S1			2140	1											70	1		
NURE Seds[e]	DSOL130S1			1250	1											50	1		
NURE Seds[e]	DSOL131S1			1350	1											70	1		
NURE Seds[e]	DSOL132S1			990	1											60	1		
NURE Seds[e]	DSOL133S1			1130	1											50	1		
NURE Seds[e]	DSOL147S1			430	1											30	1		
NURE Seds[e]	DSOL151S1			790	1											80	1		
NURE Seds[e]	DSOL156S1			980	1											160	1		
NURE Seds[e]	DSOL159S1			460	1											40	1		
NURE Seds[e]	DSOL160S1			1500	1											130	1		
NURE Seds[e]	DSOL161S1			1120	1											110	1		
NURE Seds[e]	DSOL163S1			680	1											140	1		
NURE Seds[e]	DSOL165S1			730	1											130	1		
NURE Seds[e]	DSOL168S1			580	1											50	1		
NURE Seds[e]	DSOL169S1			780	1											90	1		
NURE Seds[e]	DSOL170S1			1190	1											80	1		
NURE Seds[e]	DSOL172S1			850	1											80	1		
NURE Seds[e]	DSOL180S1			720	1											90	1		
NURE Seds[e]	DSOL181S1			1250	1											70	1		
NURE Seds[e]	DSOL182S1			690	1											80	1		
NURE Seds[e]	DSOL192S1			1690	1											100	1		
NURE Seds[e]	DSOL195S1			740	1											100	1		
NURE Seds[e]	DSOL196S1			970	1											140	1		
NURE Seds[e]	DSOL197S1			650	1											90	1		
NURE Seds[e]	DSOL203S1			940	1											80	1		
NURE Seds[e]	DSOL207S1			1130	1											100	1		
NURE Seds[e]	DSOL208S1			940	1											110	1		
NURE Seds[e]	DSOL209S1			900	1											170	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL212S1	62900	1																	35600	1
NURE Seds[e]	DSOL213S1	56000	1																	30300	1
NURE Seds[e]	DSOL215S1	58900	1																	45100	1
NURE Seds[e]	DSOL217S1	64100	1																	44200	1
NURE Seds[e]	DSOL218S1	62500	1																		
NURE Seds[e]	DSOL220S1	57500	1																		
NURE Seds[e]	DSOL221S1	61400	1																		
NURE Seds[e]	DSOL224S1	46700	1																	31700	1
NURE Seds[e]	DSOL225S1	64100	1																	38800	1
NURE Seds[e]	DSOL226S1	62000	1																	32900	1
NURE Seds[e]	DSOL227S1	76300	1																	39300	1
NURE Seds[e]	DSOL228S1	59700	1																	40900	1
NURE Seds[e]	DSOL229S1	72200	1																	34500	1
NURE Seds[e]	DSOL230S1	61200	1																	27200	1
NURE Seds[e]	DSOL233S1	64800	1																	37300	1
NURE Seds[e]	DSOL235S1	63800	1																	45300	1
NURE Seds[e]	DSOL236S1	60200	1																	35200	1
NURE Seds[e]	DSOL237S1	61500	1																	30500	1
NURE Seds[e]	DSOL238S1	50700	1																	35200	1
NURE Seds[e]	DSOL239S1	68000	1																	40400	1
NURE Seds[e]	DSOL241S1	60800	1																	41000	1
NURE Seds[e]	DSOL242S1	63800	1																	36600	1
NURE Seds[e]	DSOL243S1	64200	1																	40700	1
NURE Seds[e]	DSOL244S1	60900	1																	32800	1
NURE Seds[e]	DSOL245S1	57200	1																	39200	1
NURE Seds[e]	DSOL246S1	55400	1																	27500	1
NURE Seds[e]	DSOL247S1	62400	1																	24900	1
NURE Seds[e]	DSOL249S1	60600	1																	28600	1
NURE Seds[e]	DSOL250S1	54900	1																	33700	1
NURE Seds[e]	DSOL251S1	82400	1																	35800	1
NURE Seds[e]	DSOL252S1	40000	1																	17600	1
NURE Seds[e]	DSOL253S1	68700	1																	29900	1
NURE Seds[e]	DSOL254S1	50700	1																	33500	1
NURE Seds[e]	DSOL255S1	77000	1																	39700	1
NURE Seds[e]	DSOL257S1	77000	1																	39200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL212S1			550	1											130	1		
NURE Seds[e]	DSOL213S1			940	1											80	1		
NURE Seds[e]	DSOL215S1			710	1											140	1		
NURE Seds[e]	DSOL217S1			690	1											110	1		
NURE Seds[e]	DSOL218S1			780	1											120	1		
NURE Seds[e]	DSOL220S1			650	1											120	1		
NURE Seds[e]	DSOL221S1			810	1											150	1		
NURE Seds[e]	DSOL224S1			650	1											120	1		
NURE Seds[e]	DSOL225S1			990	1											110	1		
NURE Seds[e]	DSOL226S1			630	1											70	1		
NURE Seds[e]	DSOL227S1			460	1											90	1		
NURE Seds[e]	DSOL228S1			600	1											120	1		
NURE Seds[e]	DSOL229S1			770	1											100	1		
NURE Seds[e]	DSOL230S1			740	1											70	1		
NURE Seds[e]	DSOL233S1			630	1											120	1		
NURE Seds[e]	DSOL235S1			1670	1											130	1		
NURE Seds[e]	DSOL236S1			940	1											90	1		
NURE Seds[e]	DSOL237S1			1200	1											100	1		
NURE Seds[e]	DSOL238S1			620	1											90	1		
NURE Seds[e]	DSOL239S1			640	1											120	1		
NURE Seds[e]	DSOL241S1			960	1											160	1		
NURE Seds[e]	DSOL242S1			1000	1											120	1		
NURE Seds[e]	DSOL243S1			920	1											90	1		
NURE Seds[e]	DSOL244S1			720	1											150	1		
NURE Seds[e]	DSOL245S1			590	1											210	1		
NURE Seds[e]	DSOL246S1			770	1											120	1		
NURE Seds[e]	DSOL247S1			730	1											150	1		
NURE Seds[e]	DSOL249S1			810	1											120	1		
NURE Seds[e]	DSOL250S1			550	1											180	1		
NURE Seds[e]	DSOL251S1			940	1											150	1		
NURE Seds[e]	DSOL252S1			380	1											60	1		
NURE Seds[e]	DSOL253S1			960	1											70	1		
NURE Seds[e]	DSOL254S1			1000	1											60	1		
NURE Seds[e]	DSOL255S1			1060	1											140	1		
NURE Seds[e]	DSOL257S1			1650	1											120	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL258S1	78900	1																	40300	1
NURE Seds[e]	DSOL259S1	65000	1																	39200	1
NURE Seds[e]	DSOL260S1	73800	1																	44600	1
NURE Seds[e]	DSOL262S1	63600	1																	62200	1
NURE Seds[e]	DSOL264S1	53200	1																	58300	1
NURE Seds[e]	DSOL265S1	57600	1																	32000	1
NURE Seds[e]	DSOL266S1	59300	1																	41500	1
NURE Seds[e]	DSOL267S1	61000	1																	39500	1
NURE Seds[e]	DSOL268S1	64200	1																	30500	1
NURE Seds[e]	DSOL269S1	61600	1																	27600	1
NURE Seds[e]	DSOL271S1	65900	1																	38900	1
NURE Seds[e]	DSOL272S1	69000	1																	32200	1
NURE Seds[e]	DSOL273S1	62900	1																	42700	1
NURE Seds[e]	DSOL274S1	60100	1																	23700	1
NURE Seds[e]	DSOL275S1	63800	1																	37000	1
NURE Seds[e]	DSOL276S1	63000	1																	38400	1
NURE Seds[e]	DSOL277S1	59800	1																	32900	1
NURE Seds[e]	DSOL278S1	56300	1																	26300	1
NURE Seds[e]	DSOL279S1	40000	1																	23300	1
NURE Seds[e]	DSOL280S1	58500	1																	32800	1
NURE Seds[e]	DSOL281S1	63200	1																	48900	1
NURE Seds[e]	DSOL285S1	63000	1																	33300	1
NURE Seds[e]	DSOL287S1	62600	1																	44300	1
NURE Seds[e]	DSOL289S1	80900	1																	29800	1
NURE Seds[e]	DSOL290S1	69300	1																	26300	1
NURE Seds[e]	DSOL291S1	64700	1																	34900	1
NURE Seds[e]	DSOL292S1	60200	1																	29500	1
NURE Seds[e]	DSOL294S1	58600	1																	30600	1
NURE Seds[e]	DSOL298S1	64500	1																	28200	1
NURE Seds[e]	DSOL299S1	46300	1																	33500	1
NURE Seds[e]	DSOL300S1	60600	1																	24700	1
NURE Seds[e]	DSOL301S1	42900	1																	31800	1
NURE Seds[e]	DSOL303S1	54900	1																	32300	1
NURE Seds[e]	DSOL305S1	56800	1																	31600	1
NURE Seds[e]	DSOL306S1	58100	1																	29800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL258S1			1090	1											100	1		
NURE Seds[e]	DSOL259S1			670	1											80	1		
NURE Seds[e]	DSOL260S1			1080	1											130	1		
NURE Seds[e]	DSOL262S1			1180	1											230	1		
NURE Seds[e]	DSOL264S1			890	1											200	1		
NURE Seds[e]	DSOL265S1			500	1											80	1		
NURE Seds[e]	DSOL266S1			540	1											90	1		
NURE Seds[e]	DSOL267S1			1160	1											120	1		
NURE Seds[e]	DSOL268S1			730	1											80	1		
NURE Seds[e]	DSOL269S1			590	1											90	1		
NURE Seds[e]	DSOL271S1			1220	1											90	1		
NURE Seds[e]	DSOL272S1			1390	1											80	1		
NURE Seds[e]	DSOL273S1			790	1											150	1		
NURE Seds[e]	DSOL274S1			740	1											60	1		
NURE Seds[e]	DSOL275S1			920	1											90	1		
NURE Seds[e]	DSOL276S1			620	1											90	1		
NURE Seds[e]	DSOL277S1			790	1											100	1		
NURE Seds[e]	DSOL278S1			670	1											70	1		
NURE Seds[e]	DSOL279S1			570	1											80	1		
NURE Seds[e]	DSOL280S1			1010	1											80	1		
NURE Seds[e]	DSOL281S1			860	1											100	1		
NURE Seds[e]	DSOL285S1			760	1											70	1		
NURE Seds[e]	DSOL287S1			800	1											120	1		
NURE Seds[e]	DSOL289S1			790	1											80	1		
NURE Seds[e]	DSOL290S1			840	1											60	1		
NURE Seds[e]	DSOL291S1			640	1											90	1		
NURE Seds[e]	DSOL292S1			530	1											70	1		
NURE Seds[e]	DSOL294S1			730	1											70	1		
NURE Seds[e]	DSOL298S1			620	1											70	1		
NURE Seds[e]	DSOL299S1			730	1											90	1		
NURE Seds[e]	DSOL300S1			640	1											60	1		
NURE Seds[e]	DSOL301S1			620	1											80	1		
NURE Seds[e]	DSOL303S1			1000	1											60	1		
NURE Seds[e]	DSOL305S1			710	1											70	1		
NURE Seds[e]	DSOL306S1			840	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL307S1	66300	1																	35100	1
NURE Seds[e]	DSOL309S1	66400	1																	34900	1
NURE Seds[e]	DSOL310S1	66400	1																	35900	1
NURE Seds[e]	DSOL311S1	59900	1																	31200	1
NURE Seds[e]	DSOL312S1	56500	1																	34800	1
NURE Seds[e]	DSOL316S1	60100	1																	32000	1
NURE Seds[e]	DSOL317S1	65400	1																	32100	1
NURE Seds[e]	DSOL318S1	64200	1																	33500	1
NURE Seds[e]	DSOL319S1	61200	1																	27100	1
NURE Seds[e]	DSOL320S1	61800	1																	27800	1
NURE Seds[e]	DSOL323S1	63100	1																	34100	1
NURE Seds[e]	DSOL324S1	53700	1																	36500	1
NURE Seds[e]	DSOL325S1	59400	1																	70300	1
NURE Seds[e]	DSOL326S1	58900	1																	32200	1
NURE Seds[e]	DSOL327S1	61100	1																	39800	1
NURE Seds[e]	DSOL328S1	47800	1																	26400	1
NURE Seds[e]	DSOL329S1	89500	1																	22700	1
NURE Seds[e]	DSOL331S1	64700	1																	34500	1
NURE Seds[e]	DSOL333S1	63100	1																	38900	1
NURE Seds[e]	DSOL336S1	74500	1																	50100	1
NURE Seds[e]	DSOL337S1	62600	1																	32400	1
NURE Seds[e]	DSOL338S1	75300	1																	44300	1
NURE Seds[e]	DSOL339S1	62700	1																	44600	1
NURE Seds[e]	DSOL340S1	6700	1																	5400	1
NURE Seds[e]	DSOL341S1	66100	1																	26100	1
NURE Seds[e]	DSOL342S1	61700	1																	31600	1
NURE Seds[e]	DSOL343S1	68000	1																	31700	1
NURE Seds[e]	DSOL344S1	43800	1																	20200	1
NURE Seds[e]	DSOL345S1	62300	1																	25600	1
NURE Seds[e]	DSOL347S1	73100	1																	30700	1
NURE Seds[e]	DSOL348S1	60100	1																	21800	1
NURE Seds[e]	DSOL349S1	68000	1																	32100	1
NURE Seds[e]	DSOL352S1	64200	1																	30500	1
NURE Seds[e]	DSOL353S1	65700	1																	44600	1
NURE Seds[e]	DSOL354S1	53300	1																	25700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL307S1			730	1											130	1		
NURE Seds[e]	DSOL309S1			1400	1											110	1		
NURE Seds[e]	DSOL310S1			1210	1											90	1		
NURE Seds[e]	DSOL311S1			970	1											80	1		
NURE Seds[e]	DSOL312S1			580	1											100	1		
NURE Seds[e]	DSOL316S1			960	1											70	1		
NURE Seds[e]	DSOL317S1			690	1											60	1		
NURE Seds[e]	DSOL318S1			1280	1											70	1		
NURE Seds[e]	DSOL319S1			840	1											80	1		
NURE Seds[e]	DSOL320S1			850	1											90	1		
NURE Seds[e]	DSOL323S1			1030	1											90	1		
NURE Seds[e]	DSOL324S1			1090	1											60	1		
NURE Seds[e]	DSOL325S1			1260	1											270	1		
NURE Seds[e]	DSOL326S1			880	1											80	1		
NURE Seds[e]	DSOL327S1			1130	1											100	1		
NURE Seds[e]	DSOL328S1			780	1											50	1		
NURE Seds[e]	DSOL329S1			580	1											80	1		
NURE Seds[e]	DSOL331S1			640	1											90	1		
NURE Seds[e]	DSOL333S1			1110	1											120	1		
NURE Seds[e]	DSOL336S1			1100	1											150	1		
NURE Seds[e]	DSOL337S1			880	1											100	1		
NURE Seds[e]	DSOL338S1			1130	1											130	1		
NURE Seds[e]	DSOL339S1			840	1											110	1		
NURE Seds[e]	DSOL340S1			100	1											10	1		
NURE Seds[e]	DSOL341S1			690	1											80	1		
NURE Seds[e]	DSOL342S1			660	1											80	1		
NURE Seds[e]	DSOL343S1			800	1											80	1		
NURE Seds[e]	DSOL344S1			480	1											50	1		
NURE Seds[e]	DSOL345S1			610	1											70	1		
NURE Seds[e]	DSOL347S1			1380	1											110	1		
NURE Seds[e]	DSOL348S1			540	1											60	1		
NURE Seds[e]	DSOL349S1			640	1											70	1		
NURE Seds[e]	DSOL352S1			640	1											80	1		
NURE Seds[e]	DSOL353S1			1210	1											140	1		
NURE Seds[e]	DSOL354S1			710	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL356S1	48800	1																	37600	1
NURE Seds[e]	DSOL359S1	74100	1																	41100	1
NURE Seds[e]	DSOL360S1	60400	1																	45100	1
NURE Seds[e]	DSOL362S1	80600	1																	35500	1
NURE Seds[e]	DSOL363S1	12100	1																	5500	1
NURE Seds[e]	DSOL364S1	26300	1																	11000	1
NURE Seds[e]	DSOL365S1	57600	1																	28200	1
NURE Seds[e]	DSOL366S1	64200	1																	30800	1
NURE Seds[e]	DSOL368S1	64200	1																	31800	1
NURE Seds[e]	DSOL370S1	65400	1																	37000	1
NURE Seds[e]	DSOL372S1	62000	1																	29100	1
NURE Seds[e]	DSOL373S1	63100	1																	32800	1
NURE Seds[e]	DSOL374S1	28300	1																	19200	1
NURE Seds[e]	DSOL375S1	56800	1																	29100	1
NURE Seds[e]	DSOL377S1	69700	1																	31300	1
NURE Seds[e]	DSOL378S1	63900	1																	41400	1
NURE Seds[e]	DSOL379S1	66900	1																	32500	1
NURE Seds[e]	DSOL380S1	65300	1																	43300	1
NURE Seds[e]	DSOL381S1	36100	1																	36500	1
NURE Seds[e]	DSOL386S1	67300	1																	35600	1
NURE Seds[e]	DSOL387S1	63000	1																	38100	1
NURE Seds[e]	DSOL389S1	56600	1																	36100	1
NURE Seds[e]	DSOL391S1	61900	1																	37300	1
NURE Seds[e]	DSOL392S1	55300	1																	24500	1
NURE Seds[e]	DSOL393S1	61100	1																	24400	1
NURE Seds[e]	DSOL394S1	59300	1																	31900	1
NURE Seds[e]	DSOL395S1	63800	1																	34400	1
NURE Seds[e]	DSOL396S1	58000	1																	34900	1
NURE Seds[e]	DSOL398S1	63500	1																	31200	1
NURE Seds[e]	DSOL402S1	66300	1																	38200	1
NURE Seds[e]	DSOL404S1	59100	1																	40300	1
NURE Seds[e]	DSOL405S1	67100	1																	40200	1
NURE Seds[e]	DSOL406S1	65200	1																	34200	1
NURE Seds[e]	DSOL407S1	67900	1																	30400	1
NURE Seds[e]	DSOL409S1	80600	1																	42200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL356S1			900	1											100	1		
NURE Seds[e]	DSOL359S1			890	1											130	1		
NURE Seds[e]	DSOL360S1			710	1											110	1		
NURE Seds[e]	DSOL362S1			760	1											110	1		
NURE Seds[e]	DSOL363S1			130	1											20	1		
NURE Seds[e]	DSOL364S1			280	1											30	1		
NURE Seds[e]	DSOL365S1			700	1											60	1		
NURE Seds[e]	DSOL366S1			1270	1											80	1		
NURE Seds[e]	DSOL368S1			700	1											110	1		
NURE Seds[e]	DSOL370S1			710	1											120	1		
NURE Seds[e]	DSOL372S1			720	1											70	1		
NURE Seds[e]	DSOL373S1			610	1											70	1		
NURE Seds[e]	DSOL374S1			430	1											60	1		
NURE Seds[e]	DSOL375S1			840	1											80	1		
NURE Seds[e]	DSOL377S1			690	1											80	1		
NURE Seds[e]	DSOL378S1			750	1											100	1		
NURE Seds[e]	DSOL379S1			860	1											70	1		
NURE Seds[e]	DSOL380S1			1870	1											110	1		
NURE Seds[e]	DSOL381S1			600	1											100	1		
NURE Seds[e]	DSOL386S1			700	1											90	1		
NURE Seds[e]	DSOL387S1			1060	1											100	1		
NURE Seds[e]	DSOL389S1			640	1											90	1		
NURE Seds[e]	DSOL391S1			700	1											80	1		
NURE Seds[e]	DSOL392S1			970	1											60	1		
NURE Seds[e]	DSOL393S1			510	1											50	1		
NURE Seds[e]	DSOL394S1			1330	1											90	1		
NURE Seds[e]	DSOL395S1			680	1											120	1		
NURE Seds[e]	DSOL396S1			720	1											110	1		
NURE Seds[e]	DSOL398S1			610	1											60	1		
NURE Seds[e]	DSOL402S1			1020	1											100	1		
NURE Seds[e]	DSOL404S1			20	0											50	1		
NURE Seds[e]	DSOL405S1			710	1											80	1		
NURE Seds[e]	DSOL406S1			840	1											140	1		
NURE Seds[e]	DSOL407S1			710	1											100	1		
NURE Seds[e]	DSOL409S1			980	1											150	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL410S1	73300	1																	50500	1
NURE Seds[e]	DSOL412S1	62300	1																	27200	1
NURE Seds[e]	DSOL413S1	58400	1																	47200	1
NURE Seds[e]	DSOL414S1	61800	1																	53200	1
NURE Seds[e]	DSOL415S1	58600	1																	36500	1
NURE Seds[e]	DSOL416S1	64800	1																	50800	1
NURE Seds[e]	DSOL417S1	68400	1																	39500	1
NURE Seds[e]	DSOL418S1	65700	1																	40900	1
NURE Seds[e]	DSOL419S1	61100	1																	54000	1
NURE Seds[e]	DSOL420S1	78200	1																	41200	1
NURE Seds[e]	DSOL421S1	61600	1																	38700	1
NURE Seds[e]	DSOL422S1	59100	1																	27000	1
NURE Seds[e]	DSOL423S1	67700	1																	42100	1
NURE Seds[e]	DSOL424S1	62300	1																	43500	1
NURE Seds[e]	DSOL426S1	63200	1																	38400	1
NURE Seds[e]	DSOL427S1	63700	1																	31500	1
NURE Seds[e]	DSOL429S1	71500	1																	41200	1
NURE Seds[e]	DSOL430S1	72500	1																	48900	1
NURE Seds[e]	DSOL432S1	68500	1																		
NURE Seds[e]	DSOL433S1	62000	1																		
NURE Seds[e]	DSOL434S1	73300	1																		
NURE Seds[e]	DSOL435S1	68600	1																	38300	1
NURE Seds[e]	DSOL436S1	55000	1																	29100	1
NURE Seds[e]	DSOL438S1	59100	1																	39600	1
NURE Seds[e]	DSOL439S1	64200	1																	43800	1
NURE Seds[e]	DSOL440S1	65200	1																	23600	1
NURE Seds[e]	DSOL442S1	60300	1																	24100	1
NURE Seds[e]	DSOL443S1	54600	1																	29100	1
NURE Seds[e]	DSOL444S1	65900	1																	38300	1
NURE Seds[e]	DSOL445S1	61800	1																	57500	1
NURE Seds[e]	DSOL446S1	67900	1																	42100	1
NURE Seds[e]	DSOL448S1	67900	1																	57200	1
NURE Seds[e]	DSOL449S1	52800	1																	25900	1
NURE Seds[e]	DSOL450S1	59400	1																	49900	1
NURE Seds[e]	DSOL451S1	69900	1																	37600	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL410S1			1240	1											140	1		
NURE Seds[e]	DSOL412S1			800	1											80	1		
NURE Seds[e]	DSOL413S1			850	1											150	1		
NURE Seds[e]	DSOL414S1			1200	1											190	1		
NURE Seds[e]	DSOL415S1			570	1											150	1		
NURE Seds[e]	DSOL416S1			840	1											220	1		
NURE Seds[e]	DSOL417S1			490	1											90	1		
NURE Seds[e]	DSOL418S1			660	1											140	1		
NURE Seds[e]	DSOL419S1			800	1											150	1		
NURE Seds[e]	DSOL420S1			600	1											100	1		
NURE Seds[e]	DSOL421S1			720	1											90	1		
NURE Seds[e]	DSOL422S1			690	1											60	1		
NURE Seds[e]	DSOL423S1			890	1											180	1		
NURE Seds[e]	DSOL424S1			1550	1											100	1		
NURE Seds[e]	DSOL426S1			1110	1											130	1		
NURE Seds[e]	DSOL427S1			920	1											100	1		
NURE Seds[e]	DSOL429S1			550	1											90	1		
NURE Seds[e]	DSOL430S1			1130	1											120	1		
NURE Seds[e]	DSOL432S1			1250	1											100	1		
NURE Seds[e]	DSOL433S1			540	1											60	1		
NURE Seds[e]	DSOL434S1			1420	1											90	1		
NURE Seds[e]	DSOL435S1			810	1											120	1		
NURE Seds[e]	DSOL436S1			1410	1											80	1		
NURE Seds[e]	DSOL438S1			1410	1											120	1		
NURE Seds[e]	DSOL439S1			680	1											90	1		
NURE Seds[e]	DSOL440S1			1130	1											100	1		
NURE Seds[e]	DSOL442S1			1500	1											90	1		
NURE Seds[e]	DSOL443S1			1750	1											60	1		
NURE Seds[e]	DSOL444S1			1510	1											100	1		
NURE Seds[e]	DSOL445S1			920	1											180	1		
NURE Seds[e]	DSOL446S1			2440	1											120	1		
NURE Seds[e]	DSOL448S1			770	1											170	1		
NURE Seds[e]	DSOL449S1			450	1											40	1		
NURE Seds[e]	DSOL450S1			9490	1											170	1		
NURE Seds[e]	DSOL451S1			800	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL452S1	62500	1																	37000	1
NURE Seds[e]	DSOL453S1	66800	1																	34700	1
NURE Seds[e]	DSOL454S1	68300	1																	27200	1
NURE Seds[e]	DSOL457S1	64200	1																	30900	1
NURE Seds[e]	DSOL460S1	85000	1																	26500	1
NURE Seds[e]	DSOL461S1	66900	1																	30600	1
NURE Seds[e]	DSOL464S1	64600	1																	33300	1
NURE Seds[e]	DSOL467S1	23400	1																	14100	1
NURE Seds[e]	DSOL468S1	66400	1																	41500	1
NURE Seds[e]	DSOL469S1	77400	1																	15100	1
NURE Seds[e]	DSOL470S1	64400	1																	32000	1
NURE Seds[e]	DSOL471S1	64500	1																	40000	1
NURE Seds[e]	DSOL472S1	63700	1																	54900	1
NURE Seds[e]	DSOL473S1	65100	1																	72900	1
NURE Seds[e]	DSOL474S1	67100	1																	38300	1
NURE Seds[e]	DSOL475S1	65200	1																	39400	1
NURE Seds[e]	DSOL476S1	67100	1																		
NURE Seds[e]	DSOL477S1	66100	1																	38500	1
NURE Seds[e]	DSOL478S1	66200	1																	36600	1
NURE Seds[e]	DSOL479S1	64300	1																	31800	1
NURE Seds[e]	DSOL480S1	63600	1																	56100	1
NURE Seds[e]	DSOL482S1	63500	1																	42000	1
NURE Seds[e]	DSOL484S1	69300	1																	41300	1
NURE Seds[e]	DSOL485S1	58500	1																	39700	1
NURE Seds[e]	DSOL486S1	30100	1																	17500	1
NURE Seds[e]	DSOL487S1	66800	1																	49200	1
NURE Seds[e]	DSOL488S1	76300	1																	53200	1
NURE Seds[e]	DSOL489S1	64100	1																	40500	1
NURE Seds[e]	DSOL490S1	52200	1																	73000	1
NURE Seds[e]	DSOL491S1	63700	1																		
NURE Seds[e]	DSOL492S1	66800	1																	30700	1
NURE Seds[e]	DSOL493S1	57100	1																		
NURE Seds[e]	DSOL497S1	63900	1																	39000	1
NURE Seds[e]	DSOM002S1	62100	1																		
NURE Seds[e]	DSOM003S1	61400	1																	32300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOL452S1			850	1											130	1		
NURE Seds[e]	DSOL453S1			670	1											90	1		
NURE Seds[e]	DSOL454S1			620	1											60	1		
NURE Seds[e]	DSOL457S1			1060	1											120	1		
NURE Seds[e]	DSOL460S1			710	1											60	1		
NURE Seds[e]	DSOL461S1			620	1											70	1		
NURE Seds[e]	DSOL464S1			500	1											140	1		
NURE Seds[e]	DSOL467S1			910	1											30	1		
NURE Seds[e]	DSOL468S1			1190	1											110	1		
NURE Seds[e]	DSOL469S1			860	1											40	1		
NURE Seds[e]	DSOL470S1			1120	1											110	1		
NURE Seds[e]	DSOL471S1			900	1											100	1		
NURE Seds[e]	DSOL472S1			1200	1											180	1		
NURE Seds[e]	DSOL473S1			1160	1											200	1		
NURE Seds[e]	DSOL474S1			1020	1											110	1		
NURE Seds[e]	DSOL475S1			1200	1											100	1		
NURE Seds[e]	DSOL476S1			1030	1											120	1		
NURE Seds[e]	DSOL477S1			1660	1											100	1		
NURE Seds[e]	DSOL478S1			840	1											130	1		
NURE Seds[e]	DSOL479S1			740	1											80	1		
NURE Seds[e]	DSOL480S1			820	1											120	1		
NURE Seds[e]	DSOL482S1			680	1											130	1		
NURE Seds[e]	DSOL484S1			940	1											90	1		
NURE Seds[e]	DSOL485S1			820	1											80	1		
NURE Seds[e]	DSOL486S1			790	1											50	1		
NURE Seds[e]	DSOL487S1			870	1											110	1		
NURE Seds[e]	DSOL488S1			830	1											160	1		
NURE Seds[e]	DSOL489S1			760	1											140	1		
NURE Seds[e]	DSOL490S1			850	1											160	1		
NURE Seds[e]	DSOL491S1			780	1											60	1		
NURE Seds[e]	DSOL492S1			760	1											80	1		
NURE Seds[e]	DSOL493S1			1520	1											140	1		
NURE Seds[e]	DSOL497S1			550	1											100	1		
NURE Seds[e]	DSOM002S1			490	1											70	1		
NURE Seds[e]	DSOM003S1			730	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM009S1	71100	1																	19600	1
NURE Seds[e]	DSOM011S1	66400	1																	22600	1
NURE Seds[e]	DSOM012S1	81500	1																	26100	1
NURE Seds[e]	DSOM014S1	70900	1																	32800	1
NURE Seds[e]	DSOM015S1	76900	1																	34300	1
NURE Seds[e]	DSOM016S1	60100	1																	21900	1
NURE Seds[e]	DSOM017S1	64700	1																	16900	1
NURE Seds[e]	DSOM018S1	70900	1																	21000	1
NURE Seds[e]	DSOM021S1	69700	1																	28100	1
NURE Seds[e]	DSOM023S1	65400	1																	27000	1
NURE Seds[e]	DSOM025S1	77900	1																	24400	1
NURE Seds[e]	DSOM026S1	66600	1																	25500	1
NURE Seds[e]	DSOM027S1	67200	1																	18300	1
NURE Seds[e]	DSOM028S1	63000	1																	19800	1
NURE Seds[e]	DSOM029S1	75400	1																	20400	1
NURE Seds[e]	DSOM030S1	78400	1																	30500	1
NURE Seds[e]	DSOM031S1	73000	1																	32900	1
NURE Seds[e]	DSOM033S1	67700	1																	21700	1
NURE Seds[e]	DSOM034S1	59800	1																	22200	1
NURE Seds[e]	DSOM035S1	62000	1																	22200	1
NURE Seds[e]	DSOM036S1	57300	1																	24100	1
NURE Seds[e]	DSOM037S1	58200	1																	24700	1
NURE Seds[e]	DSOM038S1	60900	1																	21700	1
NURE Seds[e]	DSOM039S1	64300	1																	26600	1
NURE Seds[e]	DSOM040S1	57700	1																	19300	1
NURE Seds[e]	DSOM041S1	69700	1																	38200	1
NURE Seds[e]	DSOM042S1	69700	1																	19500	1
NURE Seds[e]	DSOM043S1	69300	1																	26900	1
NURE Seds[e]	DSOM044S1	63100	1																	15300	1
NURE Seds[e]	DSOM045S1	70800	1																	24500	1
NURE Seds[e]	DSOM049S1	66600	1																	27600	1
NURE Seds[e]	DSOM050S1	66900	1																	31500	1
NURE Seds[e]	DSOM051S1	63200	1																	41800	1
NURE Seds[e]	DSOM052S1	66100	1																	29800	1
NURE Seds[e]	DSOM055S1	69900	1																	28900	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM009S1			410	1											40	1		
NURE Seds[e]	DSOM011S1			620	1											50	1		
NURE Seds[e]	DSOM012S1			650	1											50	1		
NURE Seds[e]	DSOM014S1			840	1											70	1		
NURE Seds[e]	DSOM015S1			560	1											70	1		
NURE Seds[e]	DSOM016S1			1180	1											50	1		
NURE Seds[e]	DSOM017S1			580	1											50	1		
NURE Seds[e]	DSOM018S1			370	1											30	1		
NURE Seds[e]	DSOM021S1			370	1											70	1		
NURE Seds[e]	DSOM023S1			720	1											60	1		
NURE Seds[e]	DSOM025S1			670	1											50	1		
NURE Seds[e]	DSOM026S1			840	1											70	1		
NURE Seds[e]	DSOM027S1			650	1											40	1		
NURE Seds[e]	DSOM028S1			910	1											50	1		
NURE Seds[e]	DSOM029S1			470	1											50	1		
NURE Seds[e]	DSOM030S1			720	1											50	1		
NURE Seds[e]	DSOM031S1			480	1											70	1		
NURE Seds[e]	DSOM033S1			460	1											40	1		
NURE Seds[e]	DSOM034S1			1860	1											30	1		
NURE Seds[e]	DSOM035S1			470	1											30	1		
NURE Seds[e]	DSOM036S1			1060	1											40	1		
NURE Seds[e]	DSOM037S1			680	1											30	1		
NURE Seds[e]	DSOM038S1			630	1											50	1		
NURE Seds[e]	DSOM039S1			550	1											50	1		
NURE Seds[e]	DSOM040S1			800	1											50	1		
NURE Seds[e]	DSOM041S1			750	1											80	1		
NURE Seds[e]	DSOM042S1			410	1											40	1		
NURE Seds[e]	DSOM043S1			550	1											70	1		
NURE Seds[e]	DSOM044S1			320	1											30	1		
NURE Seds[e]	DSOM045S1			690	1											60	1		
NURE Seds[e]	DSOM049S1			580	1											80	1		
NURE Seds[e]	DSOM050S1			600	1											100	1		
NURE Seds[e]	DSOM051S1			700	1											90	1		
NURE Seds[e]	DSOM052S1			650	1											90	1		
NURE Seds[e]	DSOM055S1			580	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM056S1	66300	1																	27800	1
NURE Seds[e]	DSOM057S1	59900	1																	21300	1
NURE Seds[e]	DSOM058S1	57800	1																	28100	1
NURE Seds[e]	DSOM059S1	60700	1																	31500	1
NURE Seds[e]	DSOM060S1	55900	1																	26900	1
NURE Seds[e]	DSOM061S1	67200	1																	29200	1
NURE Seds[e]	DSOM062S1	64000	1																	40000	1
NURE Seds[e]	DSOM064S1	70100	1																	38900	1
NURE Seds[e]	DSOM066S1	65900	1																	23200	1
NURE Seds[e]	DSOM067S1	69700	1																	22800	1
NURE Seds[e]	DSOM068S1	62000	1																	39600	1
NURE Seds[e]	DSOM069S1	63000	1																	35500	1
NURE Seds[e]	DSOM071S1	69700	1																	19400	1
NURE Seds[e]	DSOM072S1	67900	1																	35700	1
NURE Seds[e]	DSOM073S1	73100	1																	24400	1
NURE Seds[e]	DSOM074S1	70300	1																	14400	1
NURE Seds[e]	DSOM076S1	67600	1																	23600	1
NURE Seds[e]	DSOM077S1	70600	1																	42600	1
NURE Seds[e]	DSOM078S1	62300	1																	23000	1
NURE Seds[e]	DSOM080S1	63900	1																	23000	1
NURE Seds[e]	DSOM086S1	68700	1																	13600	1
NURE Seds[e]	DSOM087S1	69200	1																	19000	1
NURE Seds[e]	DSOM089S1	64300	1																	22000	1
NURE Seds[e]	DSOM090S1	67000	1																	23900	1
NURE Seds[e]	DSOM091S1	64500	1																	23500	1
NURE Seds[e]	DSOM092S1	66900	1																	26000	1
NURE Seds[e]	DSOM093S1	60400	1																	23300	1
NURE Seds[e]	DSOM094S1	55700	1																	22300	1
NURE Seds[e]	DSOM095S1	61000	1																	26200	1
NURE Seds[e]	DSOM096S1	57900	1																	27700	1
NURE Seds[e]	DSOM097S1	63000	1																	29100	1
NURE Seds[e]	DSOM098S1	58000	1																	34800	1
NURE Seds[e]	DSOM100S1	70200	1																	89900	1
NURE Seds[e]	DSOM101S1	59500	1																	19400	1
NURE Seds[e]	DSOM102S1	77300	1																	22300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM056S1			850	1											60	1		
NURE Seds[e]	DSOM057S1			580	1											60	1		
NURE Seds[e]	DSOM058S1			670	1											70	1		
NURE Seds[e]	DSOM059S1			1490	1											90	1		
NURE Seds[e]	DSOM060S1			920	1											50	1		
NURE Seds[e]	DSOM061S1			940	1											80	1		
NURE Seds[e]	DSOM062S1			1900	1											70	1		
NURE Seds[e]	DSOM064S1			700	1											130	1		
NURE Seds[e]	DSOM066S1			910	1											60	1		
NURE Seds[e]	DSOM067S1			480	1											50	1		
NURE Seds[e]	DSOM068S1			1250	1											140	1		
NURE Seds[e]	DSOM069S1			1270	1											80	1		
NURE Seds[e]	DSOM071S1			420	1											50	1		
NURE Seds[e]	DSOM072S1			950	1											60	1		
NURE Seds[e]	DSOM073S1			500	1											60	1		
NURE Seds[e]	DSOM074S1			420	1											50	1		
NURE Seds[e]	DSOM076S1			580	1											60	1		
NURE Seds[e]	DSOM077S1			800	1											80	1		
NURE Seds[e]	DSOM078S1			1160	1											50	1		
NURE Seds[e]	DSOM080S1			610	1											60	1		
NURE Seds[e]	DSOM086S1			290	1											60	1		
NURE Seds[e]	DSOM087S1			310	1											40	1		
NURE Seds[e]	DSOM089S1			440	1											50	1		
NURE Seds[e]	DSOM090S1			430	1											70	1		
NURE Seds[e]	DSOM091S1			430	1											60	1		
NURE Seds[e]	DSOM092S1			700	1											70	1		
NURE Seds[e]	DSOM093S1			930	1											70	1		
NURE Seds[e]	DSOM094S1			670	1											80	1		
NURE Seds[e]	DSOM095S1			430	1											50	1		
NURE Seds[e]	DSOM096S1			740	1											90	1		
NURE Seds[e]	DSOM097S1			830	1											60	1		
NURE Seds[e]	DSOM098S1			970	1											60	1		
NURE Seds[e]	DSOM100S1			2600	1											10	0		
NURE Seds[e]	DSOM101S1			280	1											50	1		
NURE Seds[e]	DSOM102S1			700	1											30	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM103S1	63500	1																	24500	1
NURE Seds[e]	DSOM104S1	61700	1																	32300	1
NURE Seds[e]	DSOM105S1	62700	1																	23200	1
NURE Seds[e]	DSOM107S1	59000	1																	36900	1
NURE Seds[e]	DSOM108S1	60200	1																	24400	1
NURE Seds[e]	DSOM109S1	71800	1																	31400	1
NURE Seds[e]	DSOM110S1	68100	1																	25100	1
NURE Seds[e]	DSOM111S1	61600	1																	24300	1
NURE Seds[e]	DSOM112S1	65900	1																	22100	1
NURE Seds[e]	DSOM114S1	59700	1																	19400	1
NURE Seds[e]	DSOM115S1	73500	1																	20400	1
NURE Seds[e]	DSOM118S1	66800	1																	21800	1
NURE Seds[e]	DSOM119S1	72600	1																	30900	1
NURE Seds[e]	DSOM121S1	63900	1																	20800	1
NURE Seds[e]	DSOM123S1	73400	1																	29900	1
NURE Seds[e]	DSOM129S1	60100	1																	16900	1
NURE Seds[e]	DSOM130S1	66600	1																	25000	1
NURE Seds[e]	DSOM131S1	63700	1																	21900	1
NURE Seds[e]	DSOM133S1	72300	1																	30700	1
NURE Seds[e]	DSOM134S1	73500	1																	20800	1
NURE Seds[e]	DSOM135S1	70300	1																	28800	1
NURE Seds[e]	DSOM137S1	69300	1																	19400	1
NURE Seds[e]	DSOM138S1	77900	1																	24200	1
NURE Seds[e]	DSOM140S1	66400	1																	22500	1
NURE Seds[e]	DSOM141S1	69100	1																	25300	1
NURE Seds[e]	DSOM143S1	69100	1																	25700	1
NURE Seds[e]	DSOM145S1	66500	1																	31300	1
NURE Seds[e]	DSOM147S1	62900	1																	19800	1
NURE Seds[e]	DSOM148S1	81300	1																	21800	1
NURE Seds[e]	DSOM150S1	72100	1																	24800	1
NURE Seds[e]	DSOM151S1	70900	1																	33600	1
NURE Seds[e]	DSOM152S1	75200	1																	24900	1
NURE Seds[e]	DSOM154S1	64800	1																	37100	1
NURE Seds[e]	DSOM155S1	64500	1																		
NURE Seds[e]	DSOM159S1	62600	1																	28500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM103S1			1020	1											50	1		
NURE Seds[e]	DSOM104S1			570	1											70	1		
NURE Seds[e]	DSOM105S1			510	1											60	1		
NURE Seds[e]	DSOM107S1			900	1											80	1		
NURE Seds[e]	DSOM108S1			730	1											70	1		
NURE Seds[e]	DSOM109S1			920	1											60	1		
NURE Seds[e]	DSOM110S1			1070	1											60	1		
NURE Seds[e]	DSOM111S1			970	1											50	1		
NURE Seds[e]	DSOM112S1			1230	1											80	1		
NURE Seds[e]	DSOM114S1			450	1											40	1		
NURE Seds[e]	DSOM115S1			460	1											40	1		
NURE Seds[e]	DSOM118S1			390	1											70	1		
NURE Seds[e]	DSOM119S1			620	1											80	1		
NURE Seds[e]	DSOM121S1			740	1											70	1		
NURE Seds[e]	DSOM123S1			850	1											80	1		
NURE Seds[e]	DSOM129S1			530	1											40	1		
NURE Seds[e]	DSOM130S1			370	1											50	1		
NURE Seds[e]	DSOM131S1			800	1											60	1		
NURE Seds[e]	DSOM133S1			630	1											60	1		
NURE Seds[e]	DSOM134S1			650	1											80	1		
NURE Seds[e]	DSOM135S1			570	1											70	1		
NURE Seds[e]	DSOM137S1			490	1											50	1		
NURE Seds[e]	DSOM138S1			390	1											50	1		
NURE Seds[e]	DSOM140S1			1220	1											60	1		
NURE Seds[e]	DSOM141S1			790	1											50	1		
NURE Seds[e]	DSOM143S1			850	1											60	1		
NURE Seds[e]	DSOM145S1			1000	1											60	1		
NURE Seds[e]	DSOM147S1			680	1											70	1		
NURE Seds[e]	DSOM148S1			560	1											50	1		
NURE Seds[e]	DSOM150S1			640	1											60	1		
NURE Seds[e]	DSOM151S1			1500	1											70	1		
NURE Seds[e]	DSOM152S1			910	1											50	1		
NURE Seds[e]	DSOM154S1			550	1											70	1		
NURE Seds[e]	DSOM155S1			650	1											60	1		
NURE Seds[e]	DSOM159S1			980	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM161S1	60400	1																	27400	1
NURE Seds[e]	DSOM162S1	60500	1																	24400	1
NURE Seds[e]	DSOM164S1	58100	1																	18900	1
NURE Seds[e]	DSOM165S1	63200	1																	34100	1
NURE Seds[e]	DSOM166S1	51400	1																	109700	1
NURE Seds[e]	DSOM168S1	63100	1																	27700	1
NURE Seds[e]	DSOM169S1	64200	1																		
NURE Seds[e]	DSOM170S1	58600	1																		
NURE Seds[e]	DSOM171S1	61200	1																		
NURE Seds[e]	DSOM172S1	56400	1																		
NURE Seds[e]	DSOM173S1	500	0																		
NURE Seds[e]	DSOM174S1	60200	1																	27400	1
NURE Seds[e]	DSOM175S1	59700	1																	32000	1
NURE Seds[e]	DSOM176S1	70200	1																	28400	1
NURE Seds[e]	DSOM177S1	71300	1																	20200	1
NURE Seds[e]	DSOM178S1	90000	1																	39700	1
NURE Seds[e]	DSOM179S1	63000	1																	32100	1
NURE Seds[e]	DSOM180S1	55900	1																	32100	1
NURE Seds[e]	DSOM181S1	68300	1																	36000	1
NURE Seds[e]	DSOM182S1	61700	1																	26300	1
NURE Seds[e]	DSOM183S1	70200	1																	32200	1
NURE Seds[e]	DSOM184S1	66900	1																	23900	1
NURE Seds[e]	DSOM186S1	65900	1																	23300	1
NURE Seds[e]	DSOM187S1	64000	1																	26500	1
NURE Seds[e]	DSOM188S1	64400	1																	26100	1
NURE Seds[e]	DSOM189S1	76500	1																	43200	1
NURE Seds[e]	DSOM190S1	77000	1																	29400	1
NURE Seds[e]	DSOM191S1	57900	1																	23500	1
NURE Seds[e]	DSOM192S1	63500	1																	30000	1
NURE Seds[e]	DSOM193S1	65900	1																	23500	1
NURE Seds[e]	DSOM194S1	69500	1																	24700	1
NURE Seds[e]	DSOM195S1	70100	1																	27700	1
NURE Seds[e]	DSOM196S1	58700	1																	30100	1
NURE Seds[e]	DSOM198S1	53300	1																	28500	1
NURE Seds[e]	DSOM199S1	57900	1																	36000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM161S1			1000	1											50	1		
NURE Seds[e]	DSOM162S1			990	1											70	1		
NURE Seds[e]	DSOM164S1			520	1											50	1		
NURE Seds[e]	DSOM165S1			1080	1											90	1		
NURE Seds[e]	DSOM166S1			590	1											170	1		
NURE Seds[e]	DSOM168S1			730	1											80	1		
NURE Seds[e]	DSOM169S1			930	1											60	1		
NURE Seds[e]	DSOM170S1			840	1											100	1		
NURE Seds[e]	DSOM171S1			500	1											60	1		
NURE Seds[e]	DSOM172S1			1260	1											60	1		
NURE Seds[e]	DSOM173S1			20	0														
NURE Seds[e]	DSOM174S1			1800	1											60	1		
NURE Seds[e]	DSOM175S1			790	1											90	1		
NURE Seds[e]	DSOM176S1			530	1											50	1		
NURE Seds[e]	DSOM177S1			420	1											50	1		
NURE Seds[e]	DSOM178S1			720	1											90	1		
NURE Seds[e]	DSOM179S1			570	1											90	1		
NURE Seds[e]	DSOM180S1			1150	1											90	1		
NURE Seds[e]	DSOM181S1			1690	1											90	1		
NURE Seds[e]	DSOM182S1			780	1											50	1		
NURE Seds[e]	DSOM183S1			650	1											80	1		
NURE Seds[e]	DSOM184S1			800	1											50	1		
NURE Seds[e]	DSOM186S1			1220	1											60	1		
NURE Seds[e]	DSOM187S1			1310	1											40	1		
NURE Seds[e]	DSOM188S1			2300	1											50	1		
NURE Seds[e]	DSOM189S1			750	1											110	1		
NURE Seds[e]	DSOM190S1			1100	1											70	1		
NURE Seds[e]	DSOM191S1			1090	1											60	1		
NURE Seds[e]	DSOM192S1			1370	1											70	1		
NURE Seds[e]	DSOM193S1			650	1											60	1		
NURE Seds[e]	DSOM194S1			540	1											50	1		
NURE Seds[e]	DSOM195S1			570	1											50	1		
NURE Seds[e]	DSOM196S1			700	1											60	1		
NURE Seds[e]	DSOM198S1			540	1											70	1		
NURE Seds[e]	DSOM199S1			770	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM201S1	70600	1																	34800	1
NURE Seds[e]	DSOM202S1	67100	1																	32300	1
NURE Seds[e]	DSOM204S1	69300	1																		
NURE Seds[e]	DSOM205S1	76100	1																	23300	1
NURE Seds[e]	DSOM206S1	85600	1																	26700	1
NURE Seds[e]	DSOM207S1	75400	1																	16800	1
NURE Seds[e]	DSOM208S1	64700	1																	20200	1
NURE Seds[e]	DSOM209S1	66400	1																	26500	1
NURE Seds[e]	DSOM210S1	74300	1																	31800	1
NURE Seds[e]	DSOM211S1	74100	1																	43100	1
NURE Seds[e]	DSOM212S1	70800	1																	36300	1
NURE Seds[e]	DSOM213S1	66200	1																	32600	1
NURE Seds[e]	DSOM214S1	68200	1																	19200	1
NURE Seds[e]	DSOM215S1	69100	1																	29800	1
NURE Seds[e]	DSOM216S1	65500	1																	15000	1
NURE Seds[e]	DSOM218S1	62700	1																	23500	1
NURE Seds[e]	DSOM219S1	67400	1																	18600	1
NURE Seds[e]	DSOM220S1	62200	1																	25900	1
NURE Seds[e]	DSOM221S1	59600	1																	20900	1
NURE Seds[e]	DSOM222S1	67700	1																	24900	1
NURE Seds[e]	DSOM223S1	84500	1																	34500	1
NURE Seds[e]	DSOM226S1	60900	1																	25900	1
NURE Seds[e]	DSOM227S1	63200	1																	27600	1
NURE Seds[e]	DSOM228S1	61200	1																	23800	1
NURE Seds[e]	DSOM229S1	55000	1																	20900	1
NURE Seds[e]	DSOM231S1	62100	1																	35800	1
NURE Seds[e]	DSOM233S1	55900	1																	27200	1
NURE Seds[e]	DSOM234S1	58800	1																	24300	1
NURE Seds[e]	DSOM236S1	59200	1																	27700	1
NURE Seds[e]	DSOM237S1	57500	1																	20100	1
NURE Seds[e]	DSOM238S1	57700	1																	23800	1
NURE Seds[e]	DSOM239S1	54200	1																	20000	1
NURE Seds[e]	DSOM240S1	60700	1																	32100	1
NURE Seds[e]	DSOM241S1	59100	1																	21800	1
NURE Seds[e]	DSOM242S1	63200	1																	38000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM201S1			460	1											90	1		
NURE Seds[e]	DSOM202S1			900	1											90	1		
NURE Seds[e]	DSOM204S1			1090	1											80	1		
NURE Seds[e]	DSOM205S1			590	1											30	1		
NURE Seds[e]	DSOM206S1			610	1											40	1		
NURE Seds[e]	DSOM207S1			210	1											30	1		
NURE Seds[e]	DSOM208S1			870	1											60	1		
NURE Seds[e]	DSOM209S1			880	1											60	1		
NURE Seds[e]	DSOM210S1			1210	1											70	1		
NURE Seds[e]	DSOM211S1			920	1											130	1		
NURE Seds[e]	DSOM212S1			780	1											80	1		
NURE Seds[e]	DSOM213S1			1080	1											80	1		
NURE Seds[e]	DSOM214S1			440	1											60	1		
NURE Seds[e]	DSOM215S1			540	1											70	1		
NURE Seds[e]	DSOM216S1			430	1											20	1		
NURE Seds[e]	DSOM218S1			460	1											50	1		
NURE Seds[e]	DSOM219S1			390	1											60	1		
NURE Seds[e]	DSOM220S1			460	1											60	1		
NURE Seds[e]	DSOM221S1			500	1											40	1		
NURE Seds[e]	DSOM222S1			700	1											80	1		
NURE Seds[e]	DSOM223S1			460	1											100	1		
NURE Seds[e]	DSOM226S1			510	1											50	1		
NURE Seds[e]	DSOM227S1			380	1											70	1		
NURE Seds[e]	DSOM228S1			410	1											70	1		
NURE Seds[e]	DSOM229S1			600	1											40	1		
NURE Seds[e]	DSOM231S1			580	1											80	1		
NURE Seds[e]	DSOM233S1			570	1											60	1		
NURE Seds[e]	DSOM234S1			840	1											40	1		
NURE Seds[e]	DSOM236S1			570	1											50	1		
NURE Seds[e]	DSOM237S1			680	1											60	1		
NURE Seds[e]	DSOM238S1			700	1											40	1		
NURE Seds[e]	DSOM239S1			750	1											40	1		
NURE Seds[e]	DSOM240S1			500	1											80	1		
NURE Seds[e]	DSOM241S1			650	1											50	1		
NURE Seds[e]	DSOM242S1			530	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM243S1	66200	1																	28900	1
NURE Seds[e]	DSOM244S1	60300	1																	27500	1
NURE Seds[e]	DSOM245S1	61900	1																	35100	1
NURE Seds[e]	DSOM246S1	60100	1																	28000	1
NURE Seds[e]	DSOM247S1	66200	1																	29000	1
NURE Seds[e]	DSOM248S1	57600	1																	29800	1
NURE Seds[e]	DSOM249S1	59300	1																	30000	1
NURE Seds[e]	DSOM250S1	58600	1																	24900	1
NURE Seds[e]	DSOM251S1	66000	1																	26000	1
NURE Seds[e]	DSOM252S1	67500	1																	21900	1
NURE Seds[e]	DSOM253S1	68000	1																	38400	1
NURE Seds[e]	DSOM254S1	68200	1																	28600	1
NURE Seds[e]	DSOM256S1	78300	1																	26800	1
NURE Seds[e]	DSOM257S1	54500	1																	27300	1
NURE Seds[e]	DSOM258S1	62100	1																	16200	1
NURE Seds[e]	DSOM259S1	66800	1																	26800	1
NURE Seds[e]	DSOM260S1	72600	1																	28800	1
NURE Seds[e]	DSOM261S1	63500	1																	30500	1
NURE Seds[e]	DSOM262S1	62000	1																	55000	1
NURE Seds[e]	DSOM263S1	62100	1																	25700	1
NURE Seds[e]	DSOM264S1	55700	1																	28300	1
NURE Seds[e]	DSOM265S1	65700	1																	41200	1
NURE Seds[e]	DSOM266S1	52600	1																	32000	1
NURE Seds[e]	DSOM267S1	63100	1																	29300	1
NURE Seds[e]	DSOM268S1	63700	1																	30100	1
NURE Seds[e]	DSOM269S1	60400	1																	34200	1
NURE Seds[e]	DSOM271S1	63600	1																	27600	1
NURE Seds[e]	DSOM274S1	60100	1																	52000	1
NURE Seds[e]	DSOM275S1	67500	1																	36600	1
NURE Seds[e]	DSOM277S1	52000	1																	35500	1
NURE Seds[e]	DSOM278S1	59700	1																	31400	1
NURE Seds[e]	DSOM279S1	64300	1																	28800	1
NURE Seds[e]	DSOM280S1	62000	1																	30600	1
NURE Seds[e]	DSOM281S1	58800	1																	22300	1
NURE Seds[e]	DSOM282S1	56500	1																	34300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM243S1			1040	1											80	1		
NURE Seds[e]	DSOM244S1			1540	1											60	1		
NURE Seds[e]	DSOM245S1			680	1											70	1		
NURE Seds[e]	DSOM246S1			640	1											50	1		
NURE Seds[e]	DSOM247S1			690	1											70	1		
NURE Seds[e]	DSOM248S1			920	1											90	1		
NURE Seds[e]	DSOM249S1			680	1											80	1		
NURE Seds[e]	DSOM250S1			1220	1											60	1		
NURE Seds[e]	DSOM251S1			880	1											50	1		
NURE Seds[e]	DSOM252S1			470	1											70	1		
NURE Seds[e]	DSOM253S1			750	1											70	1		
NURE Seds[e]	DSOM254S1			610	1											90	1		
NURE Seds[e]	DSOM256S1			520	1											50	1		
NURE Seds[e]	DSOM257S1			490	1											50	1		
NURE Seds[e]	DSOM258S1			690	1											60	1		
NURE Seds[e]	DSOM259S1			650	1											80	1		
NURE Seds[e]	DSOM260S1			810	1											70	1		
NURE Seds[e]	DSOM261S1			500	1											90	1		
NURE Seds[e]	DSOM262S1			760	1											110	1		
NURE Seds[e]	DSOM263S1			1950	1											50	1		
NURE Seds[e]	DSOM264S1			540	1											60	1		
NURE Seds[e]	DSOM265S1			1100	1											100	1		
NURE Seds[e]	DSOM266S1			810	1											90	1		
NURE Seds[e]	DSOM267S1			770	1											70	1		
NURE Seds[e]	DSOM268S1			870	1											90	1		
NURE Seds[e]	DSOM269S1			860	1											120	1		
NURE Seds[e]	DSOM271S1			470	1											60	1		
NURE Seds[e]	DSOM274S1			1020	1											160	1		
NURE Seds[e]	DSOM275S1			660	1											80	1		
NURE Seds[e]	DSOM277S1			590	1											70	1		
NURE Seds[e]	DSOM278S1			1480	1											70	1		
NURE Seds[e]	DSOM279S1			730	1											50	1		
NURE Seds[e]	DSOM280S1			1930	1											10	0		
NURE Seds[e]	DSOM281S1			670	1											50	1		
NURE Seds[e]	DSOM282S1			1220	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM283S1	63700	1																	44700	1
NURE Seds[e]	DSOM284S1	71800	1																	31800	1
NURE Seds[e]	DSOM285S1	64800	1																	38400	1
NURE Seds[e]	DSOM286S1	64800	1																	41300	1
NURE Seds[e]	DSOM287S1	64200	1																	35600	1
NURE Seds[e]	DSOM288S1	65100	1																	35300	1
NURE Seds[e]	DSOM289S1	39900	1																	19600	1
NURE Seds[e]	DSOM290S1	60600	1																	33400	1
NURE Seds[e]	DSOM291S1	62000	1																	29400	1
NURE Seds[e]	DSOM293S1	57900	1																	26000	1
NURE Seds[e]	DSOM295S1	57000	1																	42300	1
NURE Seds[e]	DSOM296S1	63000	1																	32400	1
NURE Seds[e]	DSOM297S1	67700	1																	36700	1
NURE Seds[e]	DSOM298S1	64700	1																	34600	1
NURE Seds[e]	DSOM300S1	66500	1																	38400	1
NURE Seds[e]	DSOM301S1	57000	1																	23500	1
NURE Seds[e]	DSOM304S1	64000	1																	44100	1
NURE Seds[e]	DSOM305S1	49400	1																	22000	1
NURE Seds[e]	DSOM307S1	58700	1																	26900	1
NURE Seds[e]	DSOM309S1	53400	1																	36300	1
NURE Seds[e]	DSOM310S1	73100	1																	37300	1
NURE Seds[e]	DSOM311S1	59800	1																	24100	1
NURE Seds[e]	DSOM312S1	58100	1																	38800	1
NURE Seds[e]	DSOM313S1	61300	1																	31200	1
NURE Seds[e]	DSOM315S1	54900	1																	32900	1
NURE Seds[e]	DSOM317S1	64800	1																	35000	1
NURE Seds[e]	DSOM318S1	66700	1																	26400	1
NURE Seds[e]	DSOM319S1	59800	1																	26200	1
NURE Seds[e]	DSOM320S1	62400	1																	27700	1
NURE Seds[e]	DSOM322S1	59500	1																	33300	1
NURE Seds[e]	DSOM324S1	62400	1																	24800	1
NURE Seds[e]	DSOM326S1	57100	1																	15100	1
NURE Seds[e]	DSOM327S1	63900	1																	23900	1
NURE Seds[e]	DSOM328S1	60200	1																	29900	1
NURE Seds[e]	DSOM329S1	55500	1																	27500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM283S1			730	1											100	1		
NURE Seds[e]	DSOM284S1			690	1											110	1		
NURE Seds[e]	DSOM285S1			710	1											80	1		
NURE Seds[e]	DSOM286S1			940	1											110	1		
NURE Seds[e]	DSOM287S1			720	1											80	1		
NURE Seds[e]	DSOM288S1			1120	1											90	1		
NURE Seds[e]	DSOM289S1			530	1											50	1		
NURE Seds[e]	DSOM290S1			890	1											110	1		
NURE Seds[e]	DSOM291S1			860	1											60	1		
NURE Seds[e]	DSOM293S1			900	1											80	1		
NURE Seds[e]	DSOM295S1			900	1											150	1		
NURE Seds[e]	DSOM296S1			1130	1											100	1		
NURE Seds[e]	DSOM297S1			670	1											100	1		
NURE Seds[e]	DSOM298S1			870	1											130	1		
NURE Seds[e]	DSOM300S1			870	1											90	1		
NURE Seds[e]	DSOM301S1			800	1											60	1		
NURE Seds[e]	DSOM304S1			620	1											120	1		
NURE Seds[e]	DSOM305S1			1180	1											70	1		
NURE Seds[e]	DSOM307S1			550	1											80	1		
NURE Seds[e]	DSOM309S1			570	1											90	1		
NURE Seds[e]	DSOM310S1			1140	1											90	1		
NURE Seds[e]	DSOM311S1			800	1											50	1		
NURE Seds[e]	DSOM312S1			1660	1											110	1		
NURE Seds[e]	DSOM313S1			780	1											70	1		
NURE Seds[e]	DSOM315S1			1110	1											70	1		
NURE Seds[e]	DSOM317S1			1110	1											60	1		
NURE Seds[e]	DSOM318S1			490	1											70	1		
NURE Seds[e]	DSOM319S1			870	1											60	1		
NURE Seds[e]	DSOM320S1			490	1											80	1		
NURE Seds[e]	DSOM322S1			550	1											80	1		
NURE Seds[e]	DSOM324S1			450	1											60	1		
NURE Seds[e]	DSOM326S1			640	1											30	1		
NURE Seds[e]	DSOM327S1			720	1											60	1		
NURE Seds[e]	DSOM328S1			770	1											60	1		
NURE Seds[e]	DSOM329S1			1030	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM330S1	67300	1																	31400	1
NURE Seds[e]	DSOM331S1	54200	1																	19200	1
NURE Seds[e]	DSOM332S1	60100	1																	39600	1
NURE Seds[e]	DSOM333S1	66800	1																	33900	1
NURE Seds[e]	DSOM334S1	61300	1																	49200	1
NURE Seds[e]	DSOM335S1	62700	1																		
NURE Seds[e]	DSOM336S1	54000	1																	32400	1
NURE Seds[e]	DSOM337S1	58500	1																	26200	1
NURE Seds[e]	DSOM338S1	67400	1																	21300	1
NURE Seds[e]	DSOM340S1	61800	1																	28900	1
NURE Seds[e]	DSOM342S1	58300	1																	22000	1
NURE Seds[e]	DSOM344S1	60700	1																	23200	1
NURE Seds[e]	DSOM345S1	65600	1																	30200	1
NURE Seds[e]	DSOM346S1	62300	1																	38700	1
NURE Seds[e]	DSOM347S1	59300	1																	31300	1
NURE Seds[e]	DSOM348S1	61000	1																	25900	1
NURE Seds[e]	DSOM350S1	60400	1																	22900	1
NURE Seds[e]	DSOM351S1	65400	1																	23800	1
NURE Seds[e]	DSOM353S1	60100	1																	31700	1
NURE Seds[e]	DSOM354S1	60800	1																	34900	1
NURE Seds[e]	DSOM355S1	55700	1																	25900	1
NURE Seds[e]	DSOM356S1	58500	1																	34200	1
NURE Seds[e]	DSOM358S1	45000	1																	22400	1
NURE Seds[e]	DSOM359S1	54000	1																	45700	1
NURE Seds[e]	DSOM360S1	56300	1																	45900	1
NURE Seds[e]	DSOM362S1	41100	1																	34100	1
NURE Seds[e]	DSOM363S1	66600	1																	23500	1
NURE Seds[e]	DSOM365S1	61000	1																	18800	1
NURE Seds[e]	DSOM368S1	56200	1																	27500	1
NURE Seds[e]	DSOM369S1	62500	1																	25200	1
NURE Seds[e]	DSOM370S1	62900	1																	53700	1
NURE Seds[e]	DSOM371S1	60800	1																	42300	1
NURE Seds[e]	DSOM374S1	63400	1																	40600	1
NURE Seds[e]	DSOM375S1	54100	1																	69700	1
NURE Seds[e]	DSOM377S1	66200	1																	23300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM330S1			1090	1											50	1		
NURE Seds[e]	DSOM331S1			630	1											50	1		
NURE Seds[e]	DSOM332S1			820	1											140	1		
NURE Seds[e]	DSOM333S1			760	1											90	1		
NURE Seds[e]	DSOM334S1			700	1											100	1		
NURE Seds[e]	DSOM335S1			680	1											110	1		
NURE Seds[e]	DSOM336S1			690	1											80	1		
NURE Seds[e]	DSOM337S1			660	1											80	1		
NURE Seds[e]	DSOM338S1			590	1											60	1		
NURE Seds[e]	DSOM340S1			630	1											50	1		
NURE Seds[e]	DSOM342S1			710	1											40	1		
NURE Seds[e]	DSOM344S1			660	1											70	1		
NURE Seds[e]	DSOM345S1			470	1											70	1		
NURE Seds[e]	DSOM346S1			540	1											80	1		
NURE Seds[e]	DSOM347S1			1180	1											80	1		
NURE Seds[e]	DSOM348S1			20	0											40	1		
NURE Seds[e]	DSOM350S1			500	1											70	1		
NURE Seds[e]	DSOM351S1			360	1											60	1		
NURE Seds[e]	DSOM353S1			490	1											80	1		
NURE Seds[e]	DSOM354S1			410	1											90	1		
NURE Seds[e]	DSOM355S1			490	1											50	1		
NURE Seds[e]	DSOM356S1			780	1											120	1		
NURE Seds[e]	DSOM358S1			520	1											60	1		
NURE Seds[e]	DSOM359S1			850	1											110	1		
NURE Seds[e]	DSOM360S1			720	1											110	1		
NURE Seds[e]	DSOM362S1			700	1											110	1		
NURE Seds[e]	DSOM363S1			400	1											80	1		
NURE Seds[e]	DSOM365S1			330	1											40	1		
NURE Seds[e]	DSOM368S1			530	1											50	1		
NURE Seds[e]	DSOM369S1			550	1											100	1		
NURE Seds[e]	DSOM370S1			880	1											140	1		
NURE Seds[e]	DSOM371S1			730	1											130	1		
NURE Seds[e]	DSOM374S1			650	1											100	1		
NURE Seds[e]	DSOM375S1			1020	1											170	1		
NURE Seds[e]	DSOM377S1			340	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM378S1	52800	1																	27800	1
NURE Seds[e]	DSOM379S1	63500	1																	27200	1
NURE Seds[e]	DSOM380S1	54900	1																	31200	1
NURE Seds[e]	DSOM381S1	68100	1																	39500	1
NURE Seds[e]	DSOM382S1	54800	1																	31000	1
NURE Seds[e]	DSOM384S1	65700	1																	25600	1
NURE Seds[e]	DSOM385S1	62700	1																	28800	1
NURE Seds[e]	DSOM387S1	73100	1																	34000	1
NURE Seds[e]	DSOM388S1	59200	1																	25300	1
NURE Seds[e]	DSOM389S1	53400	1																	36800	1
NURE Seds[e]	DSOM390S1	62400	1																	42100	1
NURE Seds[e]	DSOM391S1	54100	1																	47600	1
NURE Seds[e]	DSOM392S1	57400	1																	31100	1
NURE Seds[e]	DSOM393S1	58300	1																	23700	1
NURE Seds[e]	DSOM394S1	55400	1																	22400	1
NURE Seds[e]	DSOM396S1	51700	1																	27300	1
NURE Seds[e]	DSOM397S1	22500	1																	13200	1
NURE Seds[e]	DSOM398S1	43700	1																	40700	1
NURE Seds[e]	DSOM399S1	46700	1																	28600	1
NURE Seds[e]	DSOM400S1	54000	1																	22900	1
NURE Seds[e]	DSOM401S1	53200	1																	29200	1
NURE Seds[e]	DSOM402S1	42800	1																	21600	1
NURE Seds[e]	DSOM403S1	53300	1																	21700	1
NURE Seds[e]	DSOM404S1	50000	1																	54000	1
NURE Seds[e]	DSOM405S1	46600	1																	33600	1
NURE Seds[e]	DSOM406S1	44500	1																	28700	1
NURE Seds[e]	DSOM408S1	43200	1																	35100	1
NURE Seds[e]	DSOM409S1	64000	1																	37500	1
NURE Seds[e]	DSOM410S1	61200	1																	28100	1
NURE Seds[e]	DSOM411S1	61400	1																	43200	1
NURE Seds[e]	DSOM412S1	51100	1																	24800	1
NURE Seds[e]	DSOM413S1	59500	1																	23800	1
NURE Seds[e]	DSOM414S1	58800	1																	25500	1
NURE Seds[e]	DSOM415S1	45000	1																	22000	1
NURE Seds[e]	DSOM416S1	42000	1																	23800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM378S1			590	1											90	1		
NURE Seds[e]	DSOM379S1			410	1											60	1		
NURE Seds[e]	DSOM380S1			650	1											100	1		
NURE Seds[e]	DSOM381S1			810	1											110	1		
NURE Seds[e]	DSOM382S1			480	1											90	1		
NURE Seds[e]	DSOM384S1			610	1											100	1		
NURE Seds[e]	DSOM385S1			420	1											60	1		
NURE Seds[e]	DSOM387S1			260	1											70	1		
NURE Seds[e]	DSOM388S1			650	1											60	1		
NURE Seds[e]	DSOM389S1			700	1											100	1		
NURE Seds[e]	DSOM390S1			650	1											120	1		
NURE Seds[e]	DSOM391S1			860	1											130	1		
NURE Seds[e]	DSOM392S1			600	1											90	1		
NURE Seds[e]	DSOM393S1			490	1											70	1		
NURE Seds[e]	DSOM394S1			500	1											80	1		
NURE Seds[e]	DSOM396S1			460	1											60	1		
NURE Seds[e]	DSOM397S1			250	1											50	1		
NURE Seds[e]	DSOM398S1			630	1											150	1		
NURE Seds[e]	DSOM399S1			590	1											80	1		
NURE Seds[e]	DSOM400S1			1010	1											60	1		
NURE Seds[e]	DSOM401S1			500	1											110	1		
NURE Seds[e]	DSOM402S1			380	1											60	1		
NURE Seds[e]	DSOM403S1			430	1											60	1		
NURE Seds[e]	DSOM404S1			1020	1											210	1		
NURE Seds[e]	DSOM405S1			620	1											180	1		
NURE Seds[e]	DSOM406S1			620	1											100	1		
NURE Seds[e]	DSOM408S1			1070	1											70	1		
NURE Seds[e]	DSOM409S1			750	1											120	1		
NURE Seds[e]	DSOM410S1			730	1											100	1		
NURE Seds[e]	DSOM411S1			820	1											120	1		
NURE Seds[e]	DSOM412S1			640	1											80	1		
NURE Seds[e]	DSOM413S1			450	1											50	1		
NURE Seds[e]	DSOM414S1			460	1											60	1		
NURE Seds[e]	DSOM415S1			460	1											70	1		
NURE Seds[e]	DSOM416S1			370	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM418S1	47500	1																	23900	1
NURE Seds[e]	DSOM420S1	52900	1																	30600	1
NURE Seds[e]	DSOM421S1	45200	1																	27800	1
NURE Seds[e]	DSOM422S1	46500	1																	30500	1
NURE Seds[e]	DSOM424S1	59400	1																	23800	1
NURE Seds[e]	DSOM425S1	60300	1																	24400	1
NURE Seds[e]	DSOM426S1	56400	1																	33300	1
NURE Seds[e]	DSOM427S1	60700	1																	25900	1
NURE Seds[e]	DSOM431S1	58400	1																	25200	1
NURE Seds[e]	DSOM432S1	40300	1																	11100	1
NURE Seds[e]	DSOM433S1	57100	1																	28200	1
NURE Seds[e]	DSOM434S1	61800	1																	33300	1
NURE Seds[e]	DSOM436S1	62200	1																	38600	1
NURE Seds[e]	DSOM437S1	52800	1																	37000	1
NURE Seds[e]	DSOM439S1	60900	1																	30500	1
NURE Seds[e]	DSOM440S1	66300	1																	34300	1
NURE Seds[e]	DSOM442S1	64200	1																	33700	1
NURE Seds[e]	DSOM443S1	50900	1																	42100	1
NURE Seds[e]	DSOM445S1	50900	1																	39700	1
NURE Seds[e]	DSOM446S1	69700	1																	28700	1
NURE Seds[e]	DSOM447S1	63300	1																	21900	1
NURE Seds[e]	DSOM448S1	67400	1																	38000	1
NURE Seds[e]	DSOM449S1	53000	1																	22000	1
NURE Seds[e]	DSOM450S1	57100	1																	33600	1
NURE Seds[e]	DSOM451S1	56000	1																	25300	1
NURE Seds[e]	DSOM452S1	63400	1																	25100	1
NURE Seds[e]	DSOM453S1	61200	1																	28300	1
NURE Seds[e]	DSOM455S1	55100	1																	43600	1
NURE Seds[e]	DSOM457S1	65900	1																	25300	1
NURE Seds[e]	DSOM458S1	93500	1																	21600	1
NURE Seds[e]	DSOM460S1	64100	1																	28400	1
NURE Seds[e]	DSOM461S1	58300	1																	23000	1
NURE Seds[e]	DSOM462S1	54700	1																	23900	1
NURE Seds[e]	DSOM463S1	72900	1																	28300	1
NURE Seds[e]	DSOM464S1	62700	1																	42200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM418S1			520	1											50	1		
NURE Seds[e]	DSOM420S1			330	1											90	1		
NURE Seds[e]	DSOM421S1			610	1											60	1		
NURE Seds[e]	DSOM422S1			360	1											100	1		
NURE Seds[e]	DSOM424S1			1440	1											70	1		
NURE Seds[e]	DSOM425S1			380	1											50	1		
NURE Seds[e]	DSOM426S1			940	1											120	1		
NURE Seds[e]	DSOM427S1			780	1											50	1		
NURE Seds[e]	DSOM431S1			670	1											80	1		
NURE Seds[e]	DSOM432S1			150	1											30	1		
NURE Seds[e]	DSOM433S1			740	1											50	1		
NURE Seds[e]	DSOM434S1			610	1											50	1		
NURE Seds[e]	DSOM436S1			690	1											70	1		
NURE Seds[e]	DSOM437S1			750	1											90	1		
NURE Seds[e]	DSOM439S1			870	1											80	1		
NURE Seds[e]	DSOM440S1			620	1											70	1		
NURE Seds[e]	DSOM442S1			660	1											90	1		
NURE Seds[e]	DSOM443S1			890	1											150	1		
NURE Seds[e]	DSOM445S1			1000	1											120	1		
NURE Seds[e]	DSOM446S1			1090	1											70	1		
NURE Seds[e]	DSOM447S1			700	1											60	1		
NURE Seds[e]	DSOM448S1			820	1											80	1		
NURE Seds[e]	DSOM449S1			520	1											70	1		
NURE Seds[e]	DSOM450S1			520	1											70	1		
NURE Seds[e]	DSOM451S1			1280	1											70	1		
NURE Seds[e]	DSOM452S1			600	1											40	1		
NURE Seds[e]	DSOM453S1			730	1											80	1		
NURE Seds[e]	DSOM455S1			1090	1											120	1		
NURE Seds[e]	DSOM457S1			990	1											60	1		
NURE Seds[e]	DSOM458S1			530	1											60	1		
NURE Seds[e]	DSOM460S1			540	1											50	1		
NURE Seds[e]	DSOM461S1			650	1											80	1		
NURE Seds[e]	DSOM462S1			620	1											50	1		
NURE Seds[e]	DSOM463S1			1010	1											70	1		
NURE Seds[e]	DSOM464S1			500	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM465S1	59700	1																	41800	1
NURE Seds[e]	DSOM466S1	71700	1																	35600	1
NURE Seds[e]	DSOM467S1	69100	1																	49800	1
NURE Seds[e]	DSOM468S1	70500	1																	34400	1
NURE Seds[e]	DSOM469S1	61800	1																	35400	1
NURE Seds[e]	DSOM470S1	57600	1																	33200	1
NURE Seds[e]	DSOM472S1	57800	1																	31400	1
NURE Seds[e]	DSON001S1	61700	1																	22900	1
NURE Seds[e]	DSON002S1	63000	1																	28300	1
NURE Seds[e]	DSON004S1	63600	1																		
NURE Seds[e]	DSON005S1	66600	1																	31900	1
NURE Seds[e]	DSON006S1	61700	1																	15500	1
NURE Seds[e]	DSON007S1	51000	1																	48600	1
NURE Seds[e]	DSON008S1	67500	1																	25600	1
NURE Seds[e]	DSON011S1	63900	1																	22500	1
NURE Seds[e]	DSON012S1	63100	1																	30600	1
NURE Seds[e]	DSON013S1	68800	1																		
NURE Seds[e]	DSON014S1	71300	1																	18300	1
NURE Seds[e]	DSON015S1	60300	1																	24900	1
NURE Seds[e]	DSON017S1	66800	1																	24900	1
NURE Seds[e]	DSON018S1	65100	1																	33100	1
NURE Seds[e]	DSON019S1	68700	1																	28200	1
NURE Seds[e]	DSON020S1	69500	1																	17600	1
NURE Seds[e]	DSON021S1	69800	1																	26400	1
NURE Seds[e]	DSON024S1	64100	1																	32500	1
NURE Seds[e]	DSON025S1	65800	1																	25400	1
NURE Seds[e]	DSON027S1	62100	1																	18500	1
NURE Seds[e]	DSON028S1	56800	1																		
NURE Seds[e]	DSON031S1	63800	1																	35000	1
NURE Seds[e]	DSON032S1	71200	1																	13300	1
NURE Seds[e]	DSON035S1	67700	1																	23900	1
NURE Seds[e]	DSON036S1	62900	1																	23300	1
NURE Seds[e]	DSON037S1	52800	1																	22700	1
NURE Seds[e]	DSON038S1	46900	1																	15500	1
NURE Seds[e]	DSON039S1	60500	1																	22700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOM465S1			650	1											90	1		
NURE Seds[e]	DSOM466S1			560	1											80	1		
NURE Seds[e]	DSOM467S1			640	1											100	1		
NURE Seds[e]	DSOM468S1			630	1											70	1		
NURE Seds[e]	DSOM469S1			960	1											70	1		
NURE Seds[e]	DSOM470S1			1390	1											70	1		
NURE Seds[e]	DSOM472S1			2410	1											80	1		
NURE Seds[e]	DSON001S1			970	1											60	1		
NURE Seds[e]	DSON002S1			780	1											60	1		
NURE Seds[e]	DSON004S1			380	1											30	1		
NURE Seds[e]	DSON005S1			770	1											100	1		
NURE Seds[e]	DSON006S1			530	1											20	1		
NURE Seds[e]	DSON007S1			950	1											150	1		
NURE Seds[e]	DSON008S1			830	1											60	1		
NURE Seds[e]	DSON011S1			640	1											50	1		
NURE Seds[e]	DSON012S1			1180	1											60	1		
NURE Seds[e]	DSON013S1			800	1											60	1		
NURE Seds[e]	DSON014S1			980	1											40	1		
NURE Seds[e]	DSON015S1			470	1											40	1		
NURE Seds[e]	DSON017S1			800	1											50	1		
NURE Seds[e]	DSON018S1			1180	1											100	1		
NURE Seds[e]	DSON019S1			920	1											60	1		
NURE Seds[e]	DSON020S1			390	1											30	1		
NURE Seds[e]	DSON021S1			470	1											40	1		
NURE Seds[e]	DSON024S1			1090	1											50	1		
NURE Seds[e]	DSON025S1			790	1											70	1		
NURE Seds[e]	DSON027S1			470	1											30	1		
NURE Seds[e]	DSON028S1			1340	1											30	1		
NURE Seds[e]	DSON031S1			900	1											80	1		
NURE Seds[e]	DSON032S1			360	1											30	1		
NURE Seds[e]	DSON035S1			660	1											50	1		
NURE Seds[e]	DSON036S1			480	1											40	1		
NURE Seds[e]	DSON037S1			1020	1											40	1		
NURE Seds[e]	DSON038S1			370	1											30	1		
NURE Seds[e]	DSON039S1			390	1											30	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON040S1	56900	1																	13900	1
NURE Seds[e]	DSON041S1	62200	1																	16600	1
NURE Seds[e]	DSON042S1	60000	1																	25900	1
NURE Seds[e]	DSON043S1	62800	1																	30400	1
NURE Seds[e]	DSON044S1	57600	1																	24100	1
NURE Seds[e]	DSON046S1	65300	1																	24000	1
NURE Seds[e]	DSON048S1	71200	1																	29700	1
NURE Seds[e]	DSON049S1	68500	1																	23800	1
NURE Seds[e]	DSON050S1	69500	1																	23200	1
NURE Seds[e]	DSON051S1	57000	1																	23100	1
NURE Seds[e]	DSON052S1	68900	1																	32900	1
NURE Seds[e]	DSON053S1	71500	1																	24600	1
NURE Seds[e]	DSON056S1	53100	1																	19800	1
NURE Seds[e]	DSON057S1	105500	1																	25500	1
NURE Seds[e]	DSON058S1	62100	1																	30500	1
NURE Seds[e]	DSON059S1	60100	1																	22400	1
NURE Seds[e]	DSON061S1	68200	1																	30200	1
NURE Seds[e]	DSON062S1	69100	1																	28600	1
NURE Seds[e]	DSON063S1	68800	1																	18900	1
NURE Seds[e]	DSON064S1	63900	1																	27100	1
NURE Seds[e]	DSON065S1	65000	1																	39700	1
NURE Seds[e]	DSON066S1	60000	1																	30300	1
NURE Seds[e]	DSON067S1	73000	1																	33900	1
NURE Seds[e]	DSON068S1	62500	1																	32700	1
NURE Seds[e]	DSON069S1	67300	1																	31600	1
NURE Seds[e]	DSON070S1	63300	1																	23100	1
NURE Seds[e]	DSON071S1	59600	1																	27300	1
NURE Seds[e]	DSON072S1	62900	1																	39400	1
NURE Seds[e]	DSON073S1	67800	1																	32500	1
NURE Seds[e]	DSON074S1	55300	1																	49900	1
NURE Seds[e]	DSON075S1	61200	1																	27800	1
NURE Seds[e]	DSON076S1	70100	1																	26400	1
NURE Seds[e]	DSON077S1	51900	1																	43900	1
NURE Seds[e]	DSON078S1	65600	1																	26500	1
NURE Seds[e]	DSON079S1	64000	1																	25900	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON040S1			270	1											30	1		
NURE Seds[e]	DSON041S1			370	1											40	1		
NURE Seds[e]	DSON042S1			1070	1											50	1		
NURE Seds[e]	DSON043S1			1110	1											40	1		
NURE Seds[e]	DSON044S1			1060	1											50	1		
NURE Seds[e]	DSON046S1			810	1											30	1		
NURE Seds[e]	DSON048S1			800	1											60	1		
NURE Seds[e]	DSON049S1			1020	1											30	1		
NURE Seds[e]	DSON050S1			780	1											40	1		
NURE Seds[e]	DSON051S1			900	1											50	1		
NURE Seds[e]	DSON052S1			640	1											60	1		
NURE Seds[e]	DSON053S1			890	1											40	1		
NURE Seds[e]	DSON056S1			450	1											50	1		
NURE Seds[e]	DSON057S1			560	1											70	1		
NURE Seds[e]	DSON058S1			1950	1											100	1		
NURE Seds[e]	DSON059S1			1360	1											50	1		
NURE Seds[e]	DSON061S1			660	1											60	1		
NURE Seds[e]	DSON062S1			980	1											70	1		
NURE Seds[e]	DSON063S1			470	1											30	1		
NURE Seds[e]	DSON064S1			790	1											40	1		
NURE Seds[e]	DSON065S1			1420	1											90	1		
NURE Seds[e]	DSON066S1			1310	1											90	1		
NURE Seds[e]	DSON067S1			1230	1											90	1		
NURE Seds[e]	DSON068S1			800	1											50	1		
NURE Seds[e]	DSON069S1			1480	1											40	1		
NURE Seds[e]	DSON070S1			840	1											60	1		
NURE Seds[e]	DSON071S1			660	1											50	1		
NURE Seds[e]	DSON072S1			760	1											100	1		
NURE Seds[e]	DSON073S1			480	1											70	1		
NURE Seds[e]	DSON074S1			1040	1											110	1		
NURE Seds[e]	DSON075S1			470	1											50	1		
NURE Seds[e]	DSON076S1			610	1											70	1		
NURE Seds[e]	DSON077S1			930	1											120	1		
NURE Seds[e]	DSON078S1			940	1											70	1		
NURE Seds[e]	DSON079S1			660	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON080S1	65100	1																	22900	1
NURE Seds[e]	DSON081S1	77700	1																	30000	1
NURE Seds[e]	DSON082S1	30500	1																	18900	1
NURE Seds[e]	DSON083S1	21500	1																	24200	1
NURE Seds[e]	DSON084S1	58000	1																	29800	1
NURE Seds[e]	DSON085S1	61200	1																	21900	1
NURE Seds[e]	DSON086S1	68700	1																	24600	1
NURE Seds[e]	DSON087S1	57200	1																	26100	1
NURE Seds[e]	DSON088S1	56000	1																	18900	1
NURE Seds[e]	DSON089S1	60500	1																	18700	1
NURE Seds[e]	DSON090S1	69700	1																	32300	1
NURE Seds[e]	DSON091S1	66700	1																	33800	1
NURE Seds[e]	DSON092S1	65700	1																	34800	1
NURE Seds[e]	DSON093S1	60700	1																	38800	1
NURE Seds[e]	DSON094S1	64900	1																	33800	1
NURE Seds[e]	DSON096S1	71900	1																	29900	1
NURE Seds[e]	DSON097S1	65000	1																	36400	1
NURE Seds[e]	DSON098S1	61500	1																	21300	1
NURE Seds[e]	DSON099S1	69400	1																	27300	1
NURE Seds[e]	DSON100S1	48900	1																	26000	1
NURE Seds[e]	DSON101S1	62900	1																	27200	1
NURE Seds[e]	DSON102S1	65700	1																	25000	1
NURE Seds[e]	DSON103S1	58500	1																	26000	1
NURE Seds[e]	DSON106S1	57900	1																	49300	1
NURE Seds[e]	DSON107S1	64600	1																	35300	1
NURE Seds[e]	DSON111S1	64300	1																	42500	1
NURE Seds[e]	DSON113S1	66700	1																	31000	1
NURE Seds[e]	DSON114S1	55500	1																	24800	1
NURE Seds[e]	DSON115S1	60900	1																	22100	1
NURE Seds[e]	DSON116S1	60500	1																	25500	1
NURE Seds[e]	DSON117S1	68000	1																	35500	1
NURE Seds[e]	DSON118S1	70900	1																	29800	1
NURE Seds[e]	DSON119S1	97500	1																	46200	1
NURE Seds[e]	DSON120S1	72200	1																	32900	1
NURE Seds[e]	DSON121S1	60800	1																	58600	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON080S1			740	1											70	1		
NURE Seds[e]	DSON081S1			500	1											80	1		
NURE Seds[e]	DSON082S1			440	1											30	1		
NURE Seds[e]	DSON083S1			1090	1											50	1		
NURE Seds[e]	DSON084S1			1400	1											50	1		
NURE Seds[e]	DSON085S1			900	1											60	1		
NURE Seds[e]	DSON086S1			450	1											40	1		
NURE Seds[e]	DSON087S1			650	1											40	1		
NURE Seds[e]	DSON088S1			630	1											30	1		
NURE Seds[e]	DSON089S1			320	1											40	1		
NURE Seds[e]	DSON090S1			680	1											60	1		
NURE Seds[e]	DSON091S1			1740	1											60	1		
NURE Seds[e]	DSON092S1			750	1											70	1		
NURE Seds[e]	DSON093S1			930	1											60	1		
NURE Seds[e]	DSON094S1			610	1											80	1		
NURE Seds[e]	DSON096S1			690	1											100	1		
NURE Seds[e]	DSON097S1			670	1											90	1		
NURE Seds[e]	DSON098S1			870	1											40	1		
NURE Seds[e]	DSON099S1			480	1											60	1		
NURE Seds[e]	DSON100S1			900	1											30	1		
NURE Seds[e]	DSON101S1			470	1											40	1		
NURE Seds[e]	DSON102S1			480	1											50	1		
NURE Seds[e]	DSON103S1			1500	1											90	1		
NURE Seds[e]	DSON106S1			900	1											140	1		
NURE Seds[e]	DSON107S1			940	1											130	1		
NURE Seds[e]	DSON111S1			810	1											150	1		
NURE Seds[e]	DSON113S1			820	1											110	1		
NURE Seds[e]	DSON114S1			500	1											50	1		
NURE Seds[e]	DSON115S1			490	1											50	1		
NURE Seds[e]	DSON116S1			320	1											30	1		
NURE Seds[e]	DSON117S1			790	1											70	1		
NURE Seds[e]	DSON118S1			1200	1											60	1		
NURE Seds[e]	DSON119S1			530	1											90	1		
NURE Seds[e]	DSON120S1			300	1											50	1		
NURE Seds[e]	DSON121S1			1240	1											170	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON122S1	63100	1																	25900	1
NURE Seds[e]	DSON123S1	61500	1																	25500	1
NURE Seds[e]	DSON124S1	71900	1																	33200	1
NURE Seds[e]	DSON125S1	75600	1																	55400	1
NURE Seds[e]	DSON126S1	72400	1																	16100	1
NURE Seds[e]	DSON127S1	70500	1																	24600	1
NURE Seds[e]	DSON128S1	57800	1																	49900	1
NURE Seds[e]	DSON129S1	70900	1																	41100	1
NURE Seds[e]	DSON130S1	62500	1																	35100	1
NURE Seds[e]	DSON131S1	62300	1																	51200	1
NURE Seds[e]	DSON132S1	60800	1																	36600	1
NURE Seds[e]	DSON133S1	54000	1																	57700	1
NURE Seds[e]	DSON134S1	74400	1																	47200	1
NURE Seds[e]	DSON136S1	68900	1																	34300	1
NURE Seds[e]	DSON137S1	69700	1																	28400	1
NURE Seds[e]	DSON138S1	70500	1																	36000	1
NURE Seds[e]	DSON139S1	64700	1																	24800	1
NURE Seds[e]	DSON140S1	64000	1																	29200	1
NURE Seds[e]	DSON141S1	59400	1																	36000	1
NURE Seds[e]	DSON142S1	61800	1																	42200	1
NURE Seds[e]	DSON143S1	58600	1																	32700	1
NURE Seds[e]	DSON144S1	71200	1																	34500	1
NURE Seds[e]	DSON145S1	67900	1																	47000	1
NURE Seds[e]	DSON146S1	66400	1																	38000	1
NURE Seds[e]	DSON147S1	63600	1																	47300	1
NURE Seds[e]	DSON148S1	55600	1																	48400	1
NURE Seds[e]	DSON149S1	60000	1																	51000	1
NURE Seds[e]	DSON151S1	62800	1																	39700	1
NURE Seds[e]	DSON152S1	65600	1																	26600	1
NURE Seds[e]	DSON153S1	62900	1																	43200	1
NURE Seds[e]	DSON154S1	65700	1																	33500	1
NURE Seds[e]	DSON155S1	71300	1																	62900	1
NURE Seds[e]	DSON156S1	62800	1																	32800	1
NURE Seds[e]	DSON157S1	64800	1																	37400	1
NURE Seds[e]	DSON158S1	67700	1																	36000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON122S1			350	1											40	1		
NURE Seds[e]	DSON123S1			400	1											50	1		
NURE Seds[e]	DSON124S1			750	1											80	1		
NURE Seds[e]	DSON125S1			850	1											60	1		
NURE Seds[e]	DSON126S1			320	1											30	1		
NURE Seds[e]	DSON127S1			1450	1											60	1		
NURE Seds[e]	DSON128S1			840	1											130	1		
NURE Seds[e]	DSON129S1			690	1											70	1		
NURE Seds[e]	DSON130S1			960	1											80	1		
NURE Seds[e]	DSON131S1			870	1											110	1		
NURE Seds[e]	DSON132S1			1690	1											140	1		
NURE Seds[e]	DSON133S1			1080	1											170	1		
NURE Seds[e]	DSON134S1			850	1											160	1		
NURE Seds[e]	DSON136S1			520	1											90	1		
NURE Seds[e]	DSON137S1			1340	1											50	1		
NURE Seds[e]	DSON138S1			860	1											70	1		
NURE Seds[e]	DSON139S1			350	1											50	1		
NURE Seds[e]	DSON140S1			1240	1											80	1		
NURE Seds[e]	DSON141S1			1140	1											110	1		
NURE Seds[e]	DSON142S1			750	1											140	1		
NURE Seds[e]	DSON143S1			650	1											90	1		
NURE Seds[e]	DSON144S1			960	1											90	1		
NURE Seds[e]	DSON145S1			860	1											110	1		
NURE Seds[e]	DSON146S1			970	1											90	1		
NURE Seds[e]	DSON147S1			1020	1											140	1		
NURE Seds[e]	DSON148S1			850	1											130	1		
NURE Seds[e]	DSON149S1			1080	1											180	1		
NURE Seds[e]	DSON151S1			880	1											160	1		
NURE Seds[e]	DSON152S1			500	1											60	1		
NURE Seds[e]	DSON153S1			1230	1											130	1		
NURE Seds[e]	DSON154S1			700	1											90	1		
NURE Seds[e]	DSON155S1			780	1											230	1		
NURE Seds[e]	DSON156S1			590	1											80	1		
NURE Seds[e]	DSON157S1			550	1											90	1		
NURE Seds[e]	DSON158S1			640	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON159S1	78300	1																	33500	1
NURE Seds[e]	DSON160S1	64800	1																	29900	1
NURE Seds[e]	DSON161S1	61300	1																	28800	1
NURE Seds[e]	DSON162S1	71000	1																	36700	1
NURE Seds[e]	DSON163S1	67200	1																	49500	1
NURE Seds[e]	DSON164S1	64300	1																	25900	1
NURE Seds[e]	DSON165S1	55700	1																	43600	1
NURE Seds[e]	DSON166S1	55900	1																	38200	1
NURE Seds[e]	DSON167S1	74300	1																	26800	1
NURE Seds[e]	DSON168S1	51300	1																	46200	1
NURE Seds[e]	DSON169S1	63200	1																	25400	1
NURE Seds[e]	DSON170S1	62400	1																	22300	1
NURE Seds[e]	DSON171S1	67800	1																	27600	1
NURE Seds[e]	DSON172S1	62500	1																	29700	1
NURE Seds[e]	DSON173S1	55900	1																	27100	1
NURE Seds[e]	DSON174S1	64600	1																	42000	1
NURE Seds[e]	DSON175S1	55800	1																	39400	1
NURE Seds[e]	DSON176S1	67100	1																	32200	1
NURE Seds[e]	DSON177S1	75000	1																	36600	1
NURE Seds[e]	DSON178S1	64700	1																	42800	1
NURE Seds[e]	DSON179S1	59200	1																	48400	1
NURE Seds[e]	DSON180S1	58600	1																	44000	1
NURE Seds[e]	DSON181S1	74800	1																	27400	1
NURE Seds[e]	DSON182S1	53800	1																	18100	1
NURE Seds[e]	DSON183S1	57900	1																	31300	1
NURE Seds[e]	DSON184S1	57300	1																	36500	1
NURE Seds[e]	DSON185S1	56500	1																	33500	1
NURE Seds[e]	DSON186S1	68500	1																	31200	1
NURE Seds[e]	DSON187S1	66700	1																	27800	1
NURE Seds[e]	DSON188S1	68400	1																	29600	1
NURE Seds[e]	DSON189S1	64200	1																	34100	1
NURE Seds[e]	DSON190S1	65000	1																	25300	1
NURE Seds[e]	DSON191S1	65000	1																	26300	1
NURE Seds[e]	DSON194S1	57400	1																	28400	1
NURE Seds[e]	DSON195S1	59700	1																	27100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON159S1			920	1											80	1		
NURE Seds[e]	DSON160S1			920	1											90	1		
NURE Seds[e]	DSON161S1			670	1											60	1		
NURE Seds[e]	DSON162S1			480	1											90	1		
NURE Seds[e]	DSON163S1			880	1											140	1		
NURE Seds[e]	DSON164S1			1080	1											60	1		
NURE Seds[e]	DSON165S1			750	1											90	1		
NURE Seds[e]	DSON166S1			870	1											120	1		
NURE Seds[e]	DSON167S1			670	1											90	1		
NURE Seds[e]	DSON168S1			1010	1											90	1		
NURE Seds[e]	DSON169S1			510	1											60	1		
NURE Seds[e]	DSON170S1			480	1											50	1		
NURE Seds[e]	DSON171S1			790	1											80	1		
NURE Seds[e]	DSON172S1			780	1											100	1		
NURE Seds[e]	DSON173S1			670	1											50	1		
NURE Seds[e]	DSON174S1			690	1											100	1		
NURE Seds[e]	DSON175S1			850	1											70	1		
NURE Seds[e]	DSON176S1			1020	1											90	1		
NURE Seds[e]	DSON177S1			850	1											80	1		
NURE Seds[e]	DSON178S1			940	1											110	1		
NURE Seds[e]	DSON179S1			1530	1											90	1		
NURE Seds[e]	DSON180S1			900	1											140	1		
NURE Seds[e]	DSON181S1			880	1											60	1		
NURE Seds[e]	DSON182S1			300	1											30	1		
NURE Seds[e]	DSON183S1			820	1											90	1		
NURE Seds[e]	DSON184S1			780	1											90	1		
NURE Seds[e]	DSON185S1			680	1											70	1		
NURE Seds[e]	DSON186S1			680	1											50	1		
NURE Seds[e]	DSON187S1			670	1											50	1		
NURE Seds[e]	DSON188S1			580	1											90	1		
NURE Seds[e]	DSON189S1			790	1											60	1		
NURE Seds[e]	DSON190S1			1080	1											70	1		
NURE Seds[e]	DSON191S1			1000	1											80	1		
NURE Seds[e]	DSON194S1			740	1											70	1		
NURE Seds[e]	DSON195S1			820	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON196S1	57200	1																	34400	1
NURE Seds[e]	DSON197S1	63400	1																	24700	1
NURE Seds[e]	DSON198S1	69300	1																	37800	1
NURE Seds[e]	DSON199S1	61600	1																	34500	1
NURE Seds[e]	DSON200S1	61300	1																	26700	1
NURE Seds[e]	DSON203S1	61400	1																	21300	1
NURE Seds[e]	DSON204S1	73300	1																	30700	1
NURE Seds[e]	DSON205S1	61700	1																	28400	1
NURE Seds[e]	DSON206S1	53200	1																	16700	1
NURE Seds[e]	DSON207S1	51600	1																	20500	1
NURE Seds[e]	DSON208S1	55900	1																	24900	1
NURE Seds[e]	DSON209S1	57100	1																	26800	1
NURE Seds[e]	DSON210S1	57800	1																	25400	1
NURE Seds[e]	DSON211S1	52700	1																	22200	1
NURE Seds[e]	DSON212S1	62200	1																	25900	1
NURE Seds[e]	DSON213S1	63600	1																	26600	1
NURE Seds[e]	DSON214S1	65400	1																	29400	1
NURE Seds[e]	DSON215S1	56200	1																	16900	1
NURE Seds[e]	DSON217S1	56700	1																	23000	1
NURE Seds[e]	DSON218S1	64500	1																	23800	1
NURE Seds[e]	DSON219S1	54200	1																	19800	1
NURE Seds[e]	DSON220S1	71300	1																	30600	1
NURE Seds[e]	DSON221S1	65800	1																	34900	1
NURE Seds[e]	DSON222S1	71100	1																	27600	1
NURE Seds[e]	DSON223S1	68600	1																	29300	1
NURE Seds[e]	DSON224S1	54900	1																	22600	1
NURE Seds[e]	DSON227S1	61400	1																	38300	1
NURE Seds[e]	DSON229S1	66700	1																	31300	1
NURE Seds[e]	DSON232S1	61900	1																	23000	1
NURE Seds[e]	DSON233S1	68900	1																	28600	1
NURE Seds[e]	DSON234S1	60700	1																	32000	1
NURE Seds[e]	DSON235S1	69100	1																	40000	1
NURE Seds[e]	DSON236S1	61900	1																	28700	1
NURE Seds[e]	DSON238S1	54600	1																	27500	1
NURE Seds[e]	DSON239S1	73300	1																	29700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON196S1			620	1											90	1		
NURE Seds[e]	DSON197S1			300	1											50	1		
NURE Seds[e]	DSON198S1			940	1											70	1		
NURE Seds[e]	DSON199S1			1070	1											70	1		
NURE Seds[e]	DSON200S1			470	1											40	1		
NURE Seds[e]	DSON203S1			580	1											50	1		
NURE Seds[e]	DSON204S1			640	1											50	1		
NURE Seds[e]	DSON205S1			830	1											70	1		
NURE Seds[e]	DSON206S1			180	1											30	1		
NURE Seds[e]	DSON207S1			350	1											10	0		
NURE Seds[e]	DSON208S1			330	1											20	1		
NURE Seds[e]	DSON209S1			630	1											60	1		
NURE Seds[e]	DSON210S1			790	1											100	1		
NURE Seds[e]	DSON211S1			580	1											60	1		
NURE Seds[e]	DSON212S1			340	1											20	1		
NURE Seds[e]	DSON213S1			560	1											100	1		
NURE Seds[e]	DSON214S1			830	1											10	0		
NURE Seds[e]	DSON215S1			340	1											40	1		
NURE Seds[e]	DSON217S1			370	1											30	1		
NURE Seds[e]	DSON218S1			740	1											40	1		
NURE Seds[e]	DSON219S1			530	1											40	1		
NURE Seds[e]	DSON220S1			700	1											60	1		
NURE Seds[e]	DSON221S1			590	1											50	1		
NURE Seds[e]	DSON222S1			570	1											30	1		
NURE Seds[e]	DSON223S1			420	1											100	1		
NURE Seds[e]	DSON224S1			450	1											40	1		
NURE Seds[e]	DSON227S1			650	1											90	1		
NURE Seds[e]	DSON229S1			650	1											70	1		
NURE Seds[e]	DSON232S1			640	1											50	1		
NURE Seds[e]	DSON233S1			520	1											50	1		
NURE Seds[e]	DSON234S1			760	1											80	1		
NURE Seds[e]	DSON235S1			1600	1											80	1		
NURE Seds[e]	DSON236S1			520	1											60	1		
NURE Seds[e]	DSON238S1			910	1											30	1		
NURE Seds[e]	DSON239S1			550	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON240S1	72400	1																	34400	1
NURE Seds[e]	DSON242S1	68800	1																	34900	1
NURE Seds[e]	DSON245S1	66300	1																	21500	1
NURE Seds[e]	DSON246S1	66800	1																	25800	1
NURE Seds[e]	DSON248S1	61700	1																	33500	1
NURE Seds[e]	DSON249S1	54400	1																	43300	1
NURE Seds[e]	DSON250S1	51600	1																	18500	1
NURE Seds[e]	DSON252S1	54000	1																	27300	1
NURE Seds[e]	DSON255S1	51500	1																	15700	1
NURE Seds[e]	DSON256S1	50900	1																	21500	1
NURE Seds[e]	DSON259S1	73100	1																	32300	1
NURE Seds[e]	DSON260S1	62000	1																	29600	1
NURE Seds[e]	DSON261S1	63900	1																	24500	1
NURE Seds[e]	DSON262S1	60800	1																	27100	1
NURE Seds[e]	DSON263S1	72700	1																	30200	1
NURE Seds[e]	DSON264S1	61400	1																	20700	1
NURE Seds[e]	DSON265S1	64700	1																	29300	1
NURE Seds[e]	DSON266S1	42200	1																	17300	1
NURE Seds[e]	DSON267S1	59600	1																	24800	1
NURE Seds[e]	DSON268S1	43800	1																	21600	1
NURE Seds[e]	DSON269S1	52100	1																	23600	1
NURE Seds[e]	DSON270S1	58200	1																	23000	1
NURE Seds[e]	DSON271S1	63900	1																	26300	1
NURE Seds[e]	DSON274S1	53800	1																	25400	1
NURE Seds[e]	DSON275S1	51900	1																	18400	1
NURE Seds[e]	DSON276S1	64700	1																	29100	1
NURE Seds[e]	DSON277S1	61700	1																	29800	1
NURE Seds[e]	DSON278S1	64600	1																	25400	1
NURE Seds[e]	DSON279S1	68300	1																	27900	1
NURE Seds[e]	DSON281S1	56600	1																	43800	1
NURE Seds[e]	DSON282S1	61500	1																	36100	1
NURE Seds[e]	DSON283S1	52000	1																	17500	1
NURE Seds[e]	DSON284S1	69000	1																	26400	1
NURE Seds[e]	DSON285S1	66200	1																	35100	1
NURE Seds[e]	DSON286S1	73100	1																	31700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON240S1			650	1											40	1		
NURE Seds[e]	DSON242S1			570	1											50	1		
NURE Seds[e]	DSON245S1			350	1											30	1		
NURE Seds[e]	DSON246S1			750	1											110	1		
NURE Seds[e]	DSON248S1			740	1											90	1		
NURE Seds[e]	DSON249S1			1640	1											150	1		
NURE Seds[e]	DSON250S1			590	1											40	1		
NURE Seds[e]	DSON252S1			630	1											40	1		
NURE Seds[e]	DSON255S1			520	1											40	1		
NURE Seds[e]	DSON256S1			1050	1											30	1		
NURE Seds[e]	DSON259S1			850	1											70	1		
NURE Seds[e]	DSON260S1			1660	1											50	1		
NURE Seds[e]	DSON261S1			1040	1											50	1		
NURE Seds[e]	DSON262S1			1350	1											70	1		
NURE Seds[e]	DSON263S1			780	1											60	1		
NURE Seds[e]	DSON264S1			1440	1											40	1		
NURE Seds[e]	DSON265S1			1010	1											70	1		
NURE Seds[e]	DSON266S1			460	1											30	1		
NURE Seds[e]	DSON267S1			740	1											60	1		
NURE Seds[e]	DSON268S1			390	1											40	1		
NURE Seds[e]	DSON269S1			1150	1											50	1		
NURE Seds[e]	DSON270S1			920	1											40	1		
NURE Seds[e]	DSON271S1			1330	1											80	1		
NURE Seds[e]	DSON274S1			580	1											60	1		
NURE Seds[e]	DSON275S1			510	1											40	1		
NURE Seds[e]	DSON276S1			790	1											70	1		
NURE Seds[e]	DSON277S1			690	1											60	1		
NURE Seds[e]	DSON278S1			630	1											50	1		
NURE Seds[e]	DSON279S1			2600	1											70	1		
NURE Seds[e]	DSON281S1			960	1											150	1		
NURE Seds[e]	DSON282S1			720	1											110	1		
NURE Seds[e]	DSON283S1			900	1											40	1		
NURE Seds[e]	DSON284S1			580	1											50	1		
NURE Seds[e]	DSON285S1			1180	1											80	1		
NURE Seds[e]	DSON286S1			1420	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON287S1	71500	1																	34400	1
NURE Seds[e]	DSON288S1	62100	1																	16000	1
NURE Seds[e]	DSON291S1	62800	1																	28600	1
NURE Seds[e]	DSON292S1	63900	1																	23800	1
NURE Seds[e]	DSON294S1	58800	1																	21600	1
NURE Seds[e]	DSON295S1	65100	1																	23900	1
NURE Seds[e]	DSON296S1	64600	1																	23100	1
NURE Seds[e]	DSON297S1	52200	1																	18400	1
NURE Seds[e]	DSON298S1	57900	1																	23900	1
NURE Seds[e]	DSON299S1	48400	1																	24100	1
NURE Seds[e]	DSON300S1	59800	1																	24600	1
NURE Seds[e]	DSON301S1	66200	1																	26600	1
NURE Seds[e]	DSON302S1	92300	1																	30300	1
NURE Seds[e]	DSON303S1	61000	1																	44000	1
NURE Seds[e]	DSON304S1	62500	1																	43600	1
NURE Seds[e]	DSON305S1	65700	1																	30100	1
NURE Seds[e]	DSON307S1	58800	1																	25800	1
NURE Seds[e]	DSON308S1	59000	1																	20800	1
NURE Seds[e]	DSON311S1	55800	1																	16200	1
NURE Seds[e]	DSON312S1	68100	1																	29600	1
NURE Seds[e]	DSON313S1	55400	1																	28300	1
NURE Seds[e]	DSON314S1	51400	1																	26100	1
NURE Seds[e]	DSON315S1	55700	1																	31800	1
NURE Seds[e]	DSON316S1	61900	1																	26400	1
NURE Seds[e]	DSON317S1	55700	1																	29300	1
NURE Seds[e]	DSON318S1	67300	1																	26000	1
NURE Seds[e]	DSON321S1	66200	1																	20500	1
NURE Seds[e]	DSON322S1	59600	1																	23200	1
NURE Seds[e]	DSON323S1	57900	1																	26400	1
NURE Seds[e]	DSON324S1	56600	1																	32500	1
NURE Seds[e]	DSON325S1	63500	1																	28600	1
NURE Seds[e]	DSON326S1	60900	1																	28500	1
NURE Seds[e]	DSON327S1	54100	1																	22100	1
NURE Seds[e]	DSON328S1	62700	1																	33900	1
NURE Seds[e]	DSON330S1	57500	1																	24400	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON287S1			1320	1											80	1		
NURE Seds[e]	DSON288S1			330	1											40	1		
NURE Seds[e]	DSON291S1			740	1											30	1		
NURE Seds[e]	DSON292S1			1040	1											40	1		
NURE Seds[e]	DSON294S1			760	1											40	1		
NURE Seds[e]	DSON295S1			870	1											60	1		
NURE Seds[e]	DSON296S1			680	1											50	1		
NURE Seds[e]	DSON297S1			880	1											50	1		
NURE Seds[e]	DSON298S1			570	1											50	1		
NURE Seds[e]	DSON299S1			370	1											40	1		
NURE Seds[e]	DSON300S1			740	1											40	1		
NURE Seds[e]	DSON301S1			800	1											50	1		
NURE Seds[e]	DSON302S1			830	1											90	1		
NURE Seds[e]	DSON303S1			940	1											130	1		
NURE Seds[e]	DSON304S1			880	1											110	1		
NURE Seds[e]	DSON305S1			1030	1											70	1		
NURE Seds[e]	DSON307S1			700	1											80	1		
NURE Seds[e]	DSON308S1			670	1											60	1		
NURE Seds[e]	DSON311S1			640	1											50	1		
NURE Seds[e]	DSON312S1			1210	1											70	1		
NURE Seds[e]	DSON313S1			1140	1											50	1		
NURE Seds[e]	DSON314S1			720	1											90	1		
NURE Seds[e]	DSON315S1			650	1											80	1		
NURE Seds[e]	DSON316S1			510	1											50	1		
NURE Seds[e]	DSON317S1			630	1											70	1		
NURE Seds[e]	DSON318S1			700	1											60	1		
NURE Seds[e]	DSON321S1			580	1											50	1		
NURE Seds[e]	DSON322S1			530	1											30	1		
NURE Seds[e]	DSON323S1			690	1											10	0		
NURE Seds[e]	DSON324S1			610	1											70	1		
NURE Seds[e]	DSON325S1			880	1											10	0		
NURE Seds[e]	DSON326S1			920	1											30	1		
NURE Seds[e]	DSON327S1			640	1											50	1		
NURE Seds[e]	DSON328S1			820	1											10	0		
NURE Seds[e]	DSON330S1			640	1											10	0		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON331S1	54200	1																	32700	1
NURE Seds[e]	DSON333S1	67100	1																	22700	1
NURE Seds[e]	DSON334S1	63100	1																	28700	1
NURE Seds[e]	DSON335S1	61100	1																	33700	1
NURE Seds[e]	DSON336S1	72200	1																	33000	1
NURE Seds[e]	DSON337S1	63900	1																	27900	1
NURE Seds[e]	DSON338S1	62500	1																	38500	1
NURE Seds[e]	DSON339S1	63200	1																	34700	1
NURE Seds[e]	DSON340S1	63900	1																	42100	1
NURE Seds[e]	DSON345S1	60900	1																	77200	1
NURE Seds[e]	DSON346S1	64200	1																	52000	1
NURE Seds[e]	DSON348S1	73600	1																	31800	1
NURE Seds[e]	DSON349S1	72200	1																	42900	1
NURE Seds[e]	DSON351S1	62300	1																	35500	1
NURE Seds[e]	DSON352S1	61900	1																	53800	1
NURE Seds[e]	DSON353S1	68500	1																	50900	1
NURE Seds[e]	DSON354S1	62100	1																	29000	1
NURE Seds[e]	DSON356S1	64200	1																	21600	1
NURE Seds[e]	DSON357S1	69700	1																	25200	1
NURE Seds[e]	DSON358S1	69100	1																	33400	1
NURE Seds[e]	DSON359S1	60400	1																	28300	1
NURE Seds[e]	DSON360S1	61100	1																	46200	1
NURE Seds[e]	DSON361S1	72000	1																	30800	1
NURE Seds[e]	DSON362S1	66900	1																	39700	1
NURE Seds[e]	DSON363S1	65800	1																	38400	1
NURE Seds[e]	DSON364S1	69300	1																	45000	1
NURE Seds[e]	DSON365S1	71600	1																	45800	1
NURE Seds[e]	DSON366S1	65200	1																	60400	1
NURE Seds[e]	DSON368S1	59900	1																	24400	1
NURE Seds[e]	DSON370S1	71500	1																	31200	1
NURE Seds[e]	DSON373S1	61700	1																	40000	1
NURE Seds[e]	DSON375S1	70400	1																	41900	1
NURE Seds[e]	DSON376S1	72200	1																	31100	1
NURE Seds[e]	DSON377S1	59500	1																	44700	1
NURE Seds[e]	DSON378S1	61500	1																	27500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON331S1			930	1											20	1		
NURE Seds[e]	DSON333S1			850	1											50	1		
NURE Seds[e]	DSON334S1			1080	1											50	1		
NURE Seds[e]	DSON335S1			570	1											60	1		
NURE Seds[e]	DSON336S1			790	1											50	1		
NURE Seds[e]	DSON337S1			1160	1											10	0		
NURE Seds[e]	DSON338S1			1120	1											50	1		
NURE Seds[e]	DSON339S1			950	1											70	1		
NURE Seds[e]	DSON340S1			740	1											90	1		
NURE Seds[e]	DSON345S1			1510	1											150	1		
NURE Seds[e]	DSON346S1			1060	1											110	1		
NURE Seds[e]	DSON348S1			1190	1											40	1		
NURE Seds[e]	DSON349S1			790	1											40	1		
NURE Seds[e]	DSON351S1			980	1											80	1		
NURE Seds[e]	DSON352S1			860	1											120	1		
NURE Seds[e]	DSON353S1			1410	1											90	1		
NURE Seds[e]	DSON354S1			690	1											50	1		
NURE Seds[e]	DSON356S1			1140	1											50	1		
NURE Seds[e]	DSON357S1			1120	1											10	0		
NURE Seds[e]	DSON358S1			1920	1											50	1		
NURE Seds[e]	DSON359S1			1380	1											80	1		
NURE Seds[e]	DSON360S1			1290	1											80	1		
NURE Seds[e]	DSON361S1			1290	1											50	1		
NURE Seds[e]	DSON362S1			1600	1											110	1		
NURE Seds[e]	DSON363S1			1020	1											60	1		
NURE Seds[e]	DSON364S1			1320	1											90	1		
NURE Seds[e]	DSON365S1			830	1											10	0		
NURE Seds[e]	DSON366S1			1170	1											130	1		
NURE Seds[e]	DSON368S1			1080	1											70	1		
NURE Seds[e]	DSON370S1			1060	1											30	1		
NURE Seds[e]	DSON373S1			800	1											140	1		
NURE Seds[e]	DSON375S1			840	1											80	1		
NURE Seds[e]	DSON376S1			690	1											70	1		
NURE Seds[e]	DSON377S1			1120	1											200	1		
NURE Seds[e]	DSON378S1			1710	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON379S1	67600	1																	35600	1
NURE Seds[e]	DSON380S1	70900	1																	29100	1
NURE Seds[e]	DSON381S1	71400	1																	24600	1
NURE Seds[e]	DSON382S1	69600	1																	28300	1
NURE Seds[e]	DSON383S1	73400	1																	40600	1
NURE Seds[e]	DSON384S1	70100	1																	29800	1
NURE Seds[e]	DSON385S1	67800	1																	36200	1
NURE Seds[e]	DSON386S1	66100	1																	30900	1
NURE Seds[e]	DSON387S1	76500	1																	24900	1
NURE Seds[e]	DSON388S1	63200	1																	23700	1
NURE Seds[e]	DSON389S1	62200	1																	25000	1
NURE Seds[e]	DSON390S1	64100	1																	24500	1
NURE Seds[e]	DSON391S1	66100	1																	31600	1
NURE Seds[e]	DSON392S1	68600	1																	25300	1
NURE Seds[e]	DSON393S1	53400	1																	20500	1
NURE Seds[e]	DSON394S1	71900	1																	37000	1
NURE Seds[e]	DSON395S1	60400	1																	24300	1
NURE Seds[e]	DSON396S1	72100	1																	24100	1
NURE Seds[e]	DSON397S1	67100	1																	29600	1
NURE Seds[e]	DSON398S1	65700	1																	28200	1
NURE Seds[e]	DSON399S1	82500	1																	40800	1
NURE Seds[e]	DSON400S1	71000	1																	36500	1
NURE Seds[e]	DSON401S1	63300	1																	47700	1
NURE Seds[e]	DSON402S1	65900	1																	45000	1
NURE Seds[e]	DSON403S1	66700	1																	54400	1
NURE Seds[e]	DSON404S1	59000	1																	50600	1
NURE Seds[e]	DSON405S1	68900	1																	46800	1
NURE Seds[e]	DSON406S1	67900	1																	38900	1
NURE Seds[e]	DSON407S1	54300	1																	29200	1
NURE Seds[e]	DSON408S1	73800	1																	26800	1
NURE Seds[e]	DSON409S1	66800	1																	38900	1
NURE Seds[e]	DSON410S1	65300	1																	40600	1
NURE Seds[e]	DSON411S1	64600	1																	48200	1
NURE Seds[e]	DSON412S1	63600	1																	36000	1
NURE Seds[e]	DSON413S1	500	0																	46200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON379S1			790	1											50	1		
NURE Seds[e]	DSON380S1			1070	1											60	1		
NURE Seds[e]	DSON381S1			1280	1														
NURE Seds[e]	DSON382S1			1010	1											110	1		
NURE Seds[e]	DSON383S1			750	1											30	1		
NURE Seds[e]	DSON384S1			1120	1											60	1		
NURE Seds[e]	DSON385S1			840	1											30	1		
NURE Seds[e]	DSON386S1			1150	1											40	1		
NURE Seds[e]	DSON387S1			950	1											10	0		
NURE Seds[e]	DSON388S1			1270	1														
NURE Seds[e]	DSON389S1			500	1											40	1		
NURE Seds[e]	DSON390S1			1730	1											20	1		
NURE Seds[e]	DSON391S1			1630	1														
NURE Seds[e]	DSON392S1			1010	1											70	1		
NURE Seds[e]	DSON393S1			730	1											30	1		
NURE Seds[e]	DSON394S1			1070	1											50	1		
NURE Seds[e]	DSON395S1			1550	1											10	0		
NURE Seds[e]	DSON396S1			940	1											20	1		
NURE Seds[e]	DSON397S1			870	1											70	1		
NURE Seds[e]	DSON398S1			1180	1											20	1		
NURE Seds[e]	DSON399S1			680	1											10	0		
NURE Seds[e]	DSON400S1			720	1											50	1		
NURE Seds[e]	DSON401S1			1580	1											40	1		
NURE Seds[e]	DSON402S1			20	0											50	1		
NURE Seds[e]	DSON403S1			930	1											130	1		
NURE Seds[e]	DSON404S1			1370	1											60	1		
NURE Seds[e]	DSON405S1			20	0											30	1		
NURE Seds[e]	DSON406S1			360	1											10	0		
NURE Seds[e]	DSON407S1			770	1											10	0		
NURE Seds[e]	DSON408S1			20	0											40	1		
NURE Seds[e]	DSON409S1			420	1											40	1		
NURE Seds[e]	DSON410S1			20	0											70	1		
NURE Seds[e]	DSON411S1			20	0											80	1		
NURE Seds[e]	DSON412S1			20	0											10	0		
NURE Seds[e]	DSON413S1			20	0											30	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON414S1	61600	1																	47600	1
NURE Seds[e]	DSON415S1	60300	1																	46200	1
NURE Seds[e]	DSON416S1	500	0																	38700	1
NURE Seds[e]	DSON417S1	62500	1																	29700	1
NURE Seds[e]	DSON418S1	63900	1																	29800	1
NURE Seds[e]	DSON419S1	56600	1																	23900	1
NURE Seds[e]	DSON420S1	500	0																	22900	1
NURE Seds[e]	DSON421S1	500	0																	43100	1
NURE Seds[e]	DSON422S1	500	0																	39900	1
NURE Seds[e]	DSON423S1	500	0																	40800	1
NURE Seds[e]	DSON424S1	500	0																	43800	1
NURE Seds[e]	DSON425S1	500	0																	25500	1
NURE Seds[e]	DSON426S1	500	0																	39600	1
NURE Seds[e]	DSON427S1	500	0																	24400	1
NURE Seds[e]	DSON428S1	67000	1																	23400	1
NURE Seds[e]	DSON429S1	68900	1																	25500	1
NURE Seds[e]	DSON430S1	69100	1																	21300	1
NURE Seds[e]	DSON431S1	70300	1																	27800	1
NURE Seds[e]	DSON432S1	66900	1																	25000	1
NURE Seds[e]	DSON433S1	53700	1																	25400	1
NURE Seds[e]	DSON434S1	52300	1																	25300	1
NURE Seds[e]	DSON435S1	500	0																	26300	1
NURE Seds[e]	DSON436S1	67200	1																	22300	1
NURE Seds[e]	DSON437S1	500	0																	28400	1
NURE Seds[e]	DSON438S1	500	0																	21200	1
NURE Seds[e]	DSON439S1	47600	1																	14400	1
NURE Seds[e]	DSON440S1	500	0																	28600	1
NURE Seds[e]	DSON441S1	500	0																	28200	1
NURE Seds[e]	DSON442S1	500	0																	32000	1
NURE Seds[e]	DSON443S1	500	0																	19400	1
NURE Seds[e]	DSON444S1	500	0																	18600	1
NURE Seds[e]	DSON445S1	500	0																	24800	1
NURE Seds[e]	DSON446S1	53600	1																	22800	1
NURE Seds[e]	DSON447S1	500	0																	26100	1
NURE Seds[e]	DSON448S1	500	0																	30300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON414S1			20	0											80	1		
NURE Seds[e]	DSON415S1			490	1											20	1		
NURE Seds[e]	DSON416S1			300	1											10	0		
NURE Seds[e]	DSON417S1			20	0											10	0		
NURE Seds[e]	DSON418S1			350	1											10	0		
NURE Seds[e]	DSON419S1			420	1											70	1		
NURE Seds[e]	DSON420S1			20	0											10	0		
NURE Seds[e]	DSON421S1			20	0														
NURE Seds[e]	DSON422S1			160	1											10	0		
NURE Seds[e]	DSON423S1			450	1											10	0		
NURE Seds[e]	DSON424S1			620	1											10	0		
NURE Seds[e]	DSON425S1			350	1											40	1		
NURE Seds[e]	DSON426S1			370	1											10	0		
NURE Seds[e]	DSON427S1			260	1											20	1		
NURE Seds[e]	DSON428S1			250	1											20	1		
NURE Seds[e]	DSON429S1			300	1											40	1		
NURE Seds[e]	DSON430S1			370	1											20	1		
NURE Seds[e]	DSON431S1			460	1											50	1		
NURE Seds[e]	DSON432S1			540	1											40	1		
NURE Seds[e]	DSON433S1			520	1											10	0		
NURE Seds[e]	DSON434S1			350	1											40	1		
NURE Seds[e]	DSON435S1			320	1														
NURE Seds[e]	DSON436S1			550	1											40	1		
NURE Seds[e]	DSON437S1			390	1											10	0		
NURE Seds[e]	DSON438S1			500	1											10	0		
NURE Seds[e]	DSON439S1			890	1											20	1		
NURE Seds[e]	DSON440S1			820	1											30	1		
NURE Seds[e]	DSON441S1			650	1											10	0		
NURE Seds[e]	DSON442S1			490	1											10	0		
NURE Seds[e]	DSON443S1			270	1											10	0		
NURE Seds[e]	DSON444S1			230	1											10	0		
NURE Seds[e]	DSON445S1			260	1											10	0		
NURE Seds[e]	DSON446S1			410	1											10	0		
NURE Seds[e]	DSON447S1			510	1											30	1		
NURE Seds[e]	DSON448S1			470	1														

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON449S1	63100	1																	27100	1
NURE Seds[e]	DSON450S1	57200	1																	26300	1
NURE Seds[e]	DSON451S1	500	0																	25300	1
NURE Seds[e]	DSON453S1	69500	1																	26500	1
NURE Seds[e]	DSON454S1	71400	1																	28600	1
NURE Seds[e]	DSON455S1	69700	1																	21800	1
NURE Seds[e]	DSON456S1	59700	1																	25600	1
NURE Seds[e]	DSON457S1	500	0																		
NURE Seds[e]	DSON458S1	500	0																		
NURE Seds[e]	DSON459S1	500	0																		
NURE Seds[e]	DSON460S1	67300	1																	29200	1
NURE Seds[e]	DSON461S1	49000	1																	21600	1
NURE Seds[e]	DSON462S1	71200	1																	26600	1
NURE Seds[e]	DSON463S1	60900	1																	22100	1
NURE Seds[e]	DSON465S1	69300	1																	28500	1
NURE Seds[e]	DSON466S1	58300	1																	29000	1
NURE Seds[e]	DSON467S1	60100	1																	23700	1
NURE Seds[e]	DSON468S1	65100	1																	35100	1
NURE Seds[e]	DSON469S1	66700	1																	31200	1
NURE Seds[e]	DSON470S1	63600	1																	30100	1
NURE Seds[e]	DSON471S1	64100	1																	39500	1
NURE Seds[e]	DSON472S1	70500	1																	51500	1
NURE Seds[e]	DSON473S1	54100	1																	35900	1
NURE Seds[e]	DSON474S1	63700	1																	35900	1
NURE Seds[e]	DSON475S1	64500	1																	29900	1
NURE Seds[e]	DSON476S1	59100	1																	34200	1
NURE Seds[e]	DSON477S1	59300	1																	25500	1
NURE Seds[e]	DSON478S1	58200	1																	27400	1
NURE Seds[e]	DSON479S1	60600	1																	35300	1
NURE Seds[e]	DSON480S1	63000	1																	34600	1
NURE Seds[e]	DSON481S1	62700	1																	28300	1
NURE Seds[e]	DSON482S1	59800	1																	31800	1
NURE Seds[e]	DSON483S1	58700	1																	35300	1
NURE Seds[e]	DSON484S1	56600	1																	26500	1
NURE Seds[e]	DSON485S1	71400	1																	45500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON449S1			530	1											10	0		
NURE Seds[e]	DSON450S1			1590	1											10	0		
NURE Seds[e]	DSON451S1			1310	1											10	0		
NURE Seds[e]	DSON453S1			660	1														
NURE Seds[e]	DSON454S1			510	1											60	1		
NURE Seds[e]	DSON455S1			380	1											30	1		
NURE Seds[e]	DSON456S1			810	1											40	1		
NURE Seds[e]	DSON457S1			20	0														
NURE Seds[e]	DSON458S1			20	0														
NURE Seds[e]	DSON459S1			20	0														
NURE Seds[e]	DSON460S1			850	1											10	0		
NURE Seds[e]	DSON461S1			950	1											40	1		
NURE Seds[e]	DSON462S1			980	1											30	1		
NURE Seds[e]	DSON463S1			1210	1											10	0		
NURE Seds[e]	DSON465S1			1100	1											10	0		
NURE Seds[e]	DSON466S1			1020	1											90	1		
NURE Seds[e]	DSON467S1			940	1											60	1		
NURE Seds[e]	DSON468S1			1000	1											70	1		
NURE Seds[e]	DSON469S1			1550	1											80	1		
NURE Seds[e]	DSON470S1			1130	1											140	1		
NURE Seds[e]	DSON471S1			1260	1											170	1		
NURE Seds[e]	DSON472S1			1600	1											140	1		
NURE Seds[e]	DSON473S1			1590	1											220	1		
NURE Seds[e]	DSON474S1			1280	1											110	1		
NURE Seds[e]	DSON475S1			830	1											50	1		
NURE Seds[e]	DSON476S1			1550	1											40	1		
NURE Seds[e]	DSON477S1			1230	1														
NURE Seds[e]	DSON478S1			1030	1											10	0		
NURE Seds[e]	DSON479S1			1610	1											50	1		
NURE Seds[e]	DSON480S1			1350	1											220	1		
NURE Seds[e]	DSON481S1			1200	1											50	1		
NURE Seds[e]	DSON482S1			1390	1											140	1		
NURE Seds[e]	DSON483S1			1140	1											80	1		
NURE Seds[e]	DSON484S1			1180	1											50	1		
NURE Seds[e]	DSON485S1			520	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON486S1	76900	1																	30000	1
NURE Seds[e]	DSON487S1	60200	1																	37500	1
NURE Seds[e]	DSON488S1	63400	1																	36000	1
NURE Seds[e]	DSON489S1	99900	1																	45400	1
NURE Seds[e]	DSON490S1	55900	1																	49600	1
NURE Seds[e]	DSON491S1	84600	1																	60800	1
NURE Seds[e]	DSON492S1	60800	1																	36600	1
NURE Seds[e]	DSON493S1	82300	1																	38100	1
NURE Seds[e]	DSON494S1	55600	1																	36500	1
NURE Seds[e]	DSON496S1	59900	1																	24800	1
NURE Seds[e]	DSON497S1	85800	1																	26000	1
NURE Seds[e]	DSON498S1	61700	1																		
NURE Seds[e]	DSOO002S1	71500	1																	31600	1
NURE Seds[e]	DSOO005S1	61900	1																	20500	1
NURE Seds[e]	DSOO007S1	54700	1																	54300	1
NURE Seds[e]	DSOO008S1	60100	1																	28000	1
NURE Seds[e]	DSOO009S1	54800	1																	22400	1
NURE Seds[e]	DSOO010S1	56700	1																	50000	1
NURE Seds[e]	DSOO011S1	52800	1																	68500	1
NURE Seds[e]	DSOO012S1	55700	1																	29600	1
NURE Seds[e]	DSOO013S1	58700	1																	40600	1
NURE Seds[e]	DSOO014S1	57800	1																	27000	1
NURE Seds[e]	DSOO015S1	56200	1																	17300	1
NURE Seds[e]	DSOO016S1	56200	1																	25500	1
NURE Seds[e]	DSOO018S1	54700	1																	23600	1
NURE Seds[e]	DSOO019S1	54700	1																	31500	1
NURE Seds[e]	DSOO021S1	47400	1																	18300	1
NURE Seds[e]	DSOO022S1	53300	1																	24000	1
NURE Seds[e]	DSOO023S1	53600	1																	25600	1
NURE Seds[e]	DSOO024S1	51600	1																	21900	1
NURE Seds[e]	DSOO026S1	56900	1																	25900	1
NURE Seds[e]	DSOO028S1	54300	1																	42800	1
NURE Seds[e]	DSOO033S1	54700	1																	41100	1
NURE Seds[e]	DSOO034S1	51300	1																	31800	1
NURE Seds[e]	DSOO037S1	46600	1																	25800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSON486S1			660	1											70	1		
NURE Seds[e]	DSON487S1			1270	1											110	1		
NURE Seds[e]	DSON488S1			500	1											60	1		
NURE Seds[e]	DSON489S1			1000	1											130	1		
NURE Seds[e]	DSON490S1			1090	1											170	1		
NURE Seds[e]	DSON491S1			850	1											140	1		
NURE Seds[e]	DSON492S1			440	1											80	1		
NURE Seds[e]	DSON493S1			610	1											80	1		
NURE Seds[e]	DSON494S1			690	1											70	1		
NURE Seds[e]	DSON496S1			530	1											30	1		
NURE Seds[e]	DSON497S1			890	1											30	1		
NURE Seds[e]	DSON498S1			520	1											50	1		
NURE Seds[e]	DSOO002S1			620	1											110	1		
NURE Seds[e]	DSOO005S1			550	1											40	1		
NURE Seds[e]	DSOO007S1			1110	1											190	1		
NURE Seds[e]	DSOO008S1			490	1											80	1		
NURE Seds[e]	DSOO009S1			560	1											70	1		
NURE Seds[e]	DSOO010S1			870	1											140	1		
NURE Seds[e]	DSOO011S1			1410	1											250	1		
NURE Seds[e]	DSOO012S1			780	1											100	1		
NURE Seds[e]	DSOO013S1			790	1											80	1		
NURE Seds[e]	DSOO014S1			680	1											70	1		
NURE Seds[e]	DSOO015S1			350	1											40	1		
NURE Seds[e]	DSOO016S1			570	1											60	1		
NURE Seds[e]	DSOO018S1			670	1											40	1		
NURE Seds[e]	DSOO019S1			740	1											120	1		
NURE Seds[e]	DSOO021S1			450	1											40	1		
NURE Seds[e]	DSOO022S1			800	1											40	1		
NURE Seds[e]	DSOO023S1			440	1											40	1		
NURE Seds[e]	DSOO024S1			580	1											50	1		
NURE Seds[e]	DSOO026S1			600	1											60	1		
NURE Seds[e]	DSOO028S1			1140	1											160	1		
NURE Seds[e]	DSOO033S1			1110	1											150	1		
NURE Seds[e]	DSOO034S1			920	1											110	1		
NURE Seds[e]	DSOO037S1			580	1											250	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO040S1	57300	1																	24800	1
NURE Seds[e]	DSOO041S1	58600	1																	32200	1
NURE Seds[e]	DSOO045S1	55100	1																	26700	1
NURE Seds[e]	DSOO046S1	57300	1																	23800	1
NURE Seds[e]	DSOO047S1	54800	1																	26200	1
NURE Seds[e]	DSOO049S1	55900	1																	33300	1
NURE Seds[e]	DSOO050S1	55000	1																	22900	1
NURE Seds[e]	DSOO051S1	52600	1																	26300	1
NURE Seds[e]	DSOO052S1	52400	1																	26000	1
NURE Seds[e]	DSOO053S1	53500	1																	31200	1
NURE Seds[e]	DSOO054S1	49300	1																	21000	1
NURE Seds[e]	DSOO057S1	48900	1																	26300	1
NURE Seds[e]	DSOO058S1	49100	1																	16000	1
NURE Seds[e]	DSOO059S1	52900	1																	22800	1
NURE Seds[e]	DSOO060S1	51300	1																	27300	1
NURE Seds[e]	DSOO061S1	54900	1																	26600	1
NURE Seds[e]	DSOO062S1	56000	1																	36900	1
NURE Seds[e]	DSOO066S1	54300	1																	21900	1
NURE Seds[e]	DSOO068S1	51300	1																	19500	1
NURE Seds[e]	DSOO069S1	58100	1																	28700	1
NURE Seds[e]	DSOO071S1	53700	1																	29100	1
NURE Seds[e]	DSOO072S1	53200	1																	31400	1
NURE Seds[e]	DSOO074S1	51300	1																	19400	1
NURE Seds[e]	DSOO075S1	47100	1																	22900	1
NURE Seds[e]	DSOO076S1	52600	1																	26300	1
NURE Seds[e]	DSOO078S1	54400	1																	26500	1
NURE Seds[e]	DSOO079S1	50700	1																	25300	1
NURE Seds[e]	DSOO080S1	53600	1																	24700	1
NURE Seds[e]	DSOO081S1	47900	1																	21700	1
NURE Seds[e]	DSOO082S1	52000	1																	19900	1
NURE Seds[e]	DSOO083S1	51500	1																	22100	1
NURE Seds[e]	DSOO084S1	49700	1																	25100	1
NURE Seds[e]	DSOO085S1	48400	1																	33700	1
NURE Seds[e]	DSOO087S1	56900	1																	35300	1
NURE Seds[e]	DSOO088S1	47500	1																	23700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO040S1			480	1											130	1		
NURE Seds[e]	DSOO041S1			480	1											90	1		
NURE Seds[e]	DSOO045S1			640	1											50	1		
NURE Seds[e]	DSOO046S1			790	1											60	1		
NURE Seds[e]	DSOO047S1			720	1											60	1		
NURE Seds[e]	DSOO049S1			730	1											60	1		
NURE Seds[e]	DSOO050S1			660	1											50	1		
NURE Seds[e]	DSOO051S1			570	1											60	1		
NURE Seds[e]	DSOO052S1			510	1											80	1		
NURE Seds[e]	DSOO053S1			610	1											100	1		
NURE Seds[e]	DSOO054S1			540	1											60	1		
NURE Seds[e]	DSOO057S1			680	1											40	1		
NURE Seds[e]	DSOO058S1			210	1											20	1		
NURE Seds[e]	DSOO059S1			510	1											40	1		
NURE Seds[e]	DSOO060S1			1030	1											50	1		
NURE Seds[e]	DSOO061S1			520	1											110	1		
NURE Seds[e]	DSOO062S1			620	1											120	1		
NURE Seds[e]	DSOO066S1			550	1											60	1		
NURE Seds[e]	DSOO068S1			460	1											30	1		
NURE Seds[e]	DSOO069S1			750	1											60	1		
NURE Seds[e]	DSOO071S1			520	1											80	1		
NURE Seds[e]	DSOO072S1			790	1											90	1		
NURE Seds[e]	DSOO074S1			400	1											50	1		
NURE Seds[e]	DSOO075S1			670	1											50	1		
NURE Seds[e]	DSOO076S1			390	1											80	1		
NURE Seds[e]	DSOO078S1			800	1											50	1		
NURE Seds[e]	DSOO079S1			660	1											80	1		
NURE Seds[e]	DSOO080S1			420	1											40	1		
NURE Seds[e]	DSOO081S1			320	1											40	1		
NURE Seds[e]	DSOO082S1			460	1											70	1		
NURE Seds[e]	DSOO083S1			480	1											40	1		
NURE Seds[e]	DSOO084S1			750	1											60	1		
NURE Seds[e]	DSOO085S1			860	1											90	1		
NURE Seds[e]	DSOO087S1			530	1											80	1		
NURE Seds[e]	DSOO088S1			570	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO089S1	53100	1																	29000	1
NURE Seds[e]	DSOO090S1	46200	1																	16600	1
NURE Seds[e]	DSOO091S1	55900	1																	26200	1
NURE Seds[e]	DSOO092S1	57900	1																	32200	1
NURE Seds[e]	DSOO093S1	53700	1																	25900	1
NURE Seds[e]	DSOO094S1	47300	1																	23800	1
NURE Seds[e]	DSOO095S1	54500	1																	22000	1
NURE Seds[e]	DSOO096S1	48500	1																	25800	1
NURE Seds[e]	DSOO097S1	500	0																	24100	1
NURE Seds[e]	DSOO098S1	44300	1																	17600	1
NURE Seds[e]	DSOO099S1	24100	1																	9800	1
NURE Seds[e]	DSOO100S1	51400	1																	27800	1
NURE Seds[e]	DSOO101S1	53600	1																	25200	1
NURE Seds[e]	DSOO103S1	56000	1																	26000	1
NURE Seds[e]	DSOO105S1	54000	1																	27500	1
NURE Seds[e]	DSOO106S1	54000	1																	29600	1
NURE Seds[e]	DSOO107S1	39900	1																	24800	1
NURE Seds[e]	DSOO108S1	51800	1																	24600	1
NURE Seds[e]	DSOO109S1	49700	1																	24400	1
NURE Seds[e]	DSOO110S1	47200	1																	23500	1
NURE Seds[e]	DSOO111S1	55300	1																	24100	1
NURE Seds[e]	DSOO112S1	52800	1																	25000	1
NURE Seds[e]	DSOO114S1	53300	1																	18400	1
NURE Seds[e]	DSOO115S1	55600	1																	22600	1
NURE Seds[e]	DSOO116S1	52800	1																	23800	1
NURE Seds[e]	DSOO118S1	52700	1																	27900	1
NURE Seds[e]	DSOO119S1	60000	1																	31100	1
NURE Seds[e]	DSOO120S1	54500	1																	25700	1
NURE Seds[e]	DSOO121S1	50100	1																	49500	1
NURE Seds[e]	DSOO123S1	51800	1																	20000	1
NURE Seds[e]	DSOO124S1	45200	1																	16900	1
NURE Seds[e]	DSOO125S1	48100	1																	19000	1
NURE Seds[e]	DSOO126S1	51800	1																	22100	1
NURE Seds[e]	DSOO127S1	52600	1																	27700	1
NURE Seds[e]	DSOO128S1	55800	1																	25800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO089S1			820	1											110	1		
NURE Seds[e]	DSOO090S1			490	1											40	1		
NURE Seds[e]	DSOO091S1			670	1											90	1		
NURE Seds[e]	DSOO092S1			700	1											90	1		
NURE Seds[e]	DSOO093S1			580	1											50	1		
NURE Seds[e]	DSOO094S1			600	1											50	1		
NURE Seds[e]	DSOO095S1			420	1											60	1		
NURE Seds[e]	DSOO096S1			570	1											80	1		
NURE Seds[e]	DSOO097S1			20	0														
NURE Seds[e]	DSOO098S1			450	1											40	1		
NURE Seds[e]	DSOO099S1			890	1											30	1		
NURE Seds[e]	DSOO100S1			680	1											70	1		
NURE Seds[e]	DSOO101S1			430	1											40	1		
NURE Seds[e]	DSOO103S1			650	1											100	1		
NURE Seds[e]	DSOO105S1			680	1											90	1		
NURE Seds[e]	DSOO106S1			610	1											90	1		
NURE Seds[e]	DSOO107S1			700	1											60	1		
NURE Seds[e]	DSOO108S1			590	1											60	1		
NURE Seds[e]	DSOO109S1			980	1											50	1		
NURE Seds[e]	DSOO110S1			1340	1											30	1		
NURE Seds[e]	DSOO111S1			430	1											50	1		
NURE Seds[e]	DSOO112S1			620	1											50	1		
NURE Seds[e]	DSOO114S1			910	1											30	1		
NURE Seds[e]	DSOO115S1			540	1											60	1		
NURE Seds[e]	DSOO116S1			500	1											50	1		
NURE Seds[e]	DSOO118S1			460	1											60	1		
NURE Seds[e]	DSOO119S1			610	1											50	1		
NURE Seds[e]	DSOO120S1			450	1											80	1		
NURE Seds[e]	DSOO121S1			740	1											150	1		
NURE Seds[e]	DSOO123S1			670	1											40	1		
NURE Seds[e]	DSOO124S1			500	1											30	1		
NURE Seds[e]	DSOO125S1			890	1											50	1		
NURE Seds[e]	DSOO126S1			410	1											30	1		
NURE Seds[e]	DSOO127S1			450	1											60	1		
NURE Seds[e]	DSOO128S1			860	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO129S1	58500	1																	30300	1
NURE Seds[e]	DSOO130S1	50100	1																	25800	1
NURE Seds[e]	DSOO133S1	59900	1																	27800	1
NURE Seds[e]	DSOO134S1	46400	1																	28700	1
NURE Seds[e]	DSOO135S1	63800	1																	33300	1
NURE Seds[e]	DSOO136S1	52000	1																	26100	1
NURE Seds[e]	DSOO137S1	57600	1																	23700	1
NURE Seds[e]	DSOO138S1	51900	1																	21500	1
NURE Seds[e]	DSOO139S1	53200	1																	22100	1
NURE Seds[e]	DSOO140S1	48000	1																	20500	1
NURE Seds[e]	DSOO141S1	34400	1																	28900	1
NURE Seds[e]	DSOO142S1	46500	1																	39300	1
NURE Seds[e]	DSOO143S1	53700	1																	30600	1
NURE Seds[e]	DSOO144S1	51700	1																	30100	1
NURE Seds[e]	DSOO145S1	51300	1																	31000	1
NURE Seds[e]	DSOO146S1	42200	1																	16000	1
NURE Seds[e]	DSOO148S1	52600	1																	27100	1
NURE Seds[e]	DSOO149S1	32300	1																	15900	1
NURE Seds[e]	DSOO150S1	55300	1																	32100	1
NURE Seds[e]	DSOO151S1	8200	1																	3600	1
NURE Seds[e]	DSOO152S1	57000	1																	35500	1
NURE Seds[e]	DSOO153S1	58800	1																	23300	1
NURE Seds[e]	DSOO154S1	32400	1																	45500	1
NURE Seds[e]	DSOO158S1	48400	1																	35100	1
NURE Seds[e]	DSOO160S1	44900	1																	17900	1
NURE Seds[e]	DSOO163S1	54100	1																	24200	1
NURE Seds[e]	DSOO164S1	43600	1																	31700	1
NURE Seds[e]	DSOO165S1	52800	1																	29900	1
NURE Seds[e]	DSOO166S1	37400	1																	16600	1
NURE Seds[e]	DSOO167S1	52800	1																	36600	1
NURE Seds[e]	DSOO168S1	59300	1																	35900	1
NURE Seds[e]	DSOO170S1	44600	1																	27500	1
NURE Seds[e]	DSOO171S1	53900	1																	30500	1
NURE Seds[e]	DSOO172S1	50600	1																	40600	1
NURE Seds[e]	DSOO173S1	60100	1																	27000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO129S1			590	1											60	1		
NURE Seds[e]	DSOO130S1			1570	1											10	0		
NURE Seds[e]	DSOO133S1			710	1											80	1		
NURE Seds[e]	DSOO134S1			770	1											60	1		
NURE Seds[e]	DSOO135S1			580	1											110	1		
NURE Seds[e]	DSOO136S1			390	1											50	1		
NURE Seds[e]	DSOO137S1			500	1											80	1		
NURE Seds[e]	DSOO138S1			710	1											50	1		
NURE Seds[e]	DSOO139S1			520	1											70	1		
NURE Seds[e]	DSOO140S1			250	1											30	1		
NURE Seds[e]	DSOO141S1			510	1											60	1		
NURE Seds[e]	DSOO142S1			570	1											110	1		
NURE Seds[e]	DSOO143S1			2010	1											40	1		
NURE Seds[e]	DSOO144S1			560	1											60	1		
NURE Seds[e]	DSOO145S1			830	1											80	1		
NURE Seds[e]	DSOO146S1			380	1											30	1		
NURE Seds[e]	DSOO148S1			690	1											60	1		
NURE Seds[e]	DSOO149S1			590	1											40	1		
NURE Seds[e]	DSOO150S1			530	1											70	1		
NURE Seds[e]	DSOO151S1			100	1											10	1		
NURE Seds[e]	DSOO152S1			440	1											100	1		
NURE Seds[e]	DSOO153S1			850	1											50	1		
NURE Seds[e]	DSOO154S1			1360	1											40	1		
NURE Seds[e]	DSOO158S1			1020	1											80	1		
NURE Seds[e]	DSOO160S1			530	1											20	1		
NURE Seds[e]	DSOO163S1			1170	1											40	1		
NURE Seds[e]	DSOO164S1			530	1											80	1		
NURE Seds[e]	DSOO165S1			810	1											70	1		
NURE Seds[e]	DSOO166S1			410	1											50	1		
NURE Seds[e]	DSOO167S1			790	1											130	1		
NURE Seds[e]	DSOO168S1			660	1											70	1		
NURE Seds[e]	DSOO170S1			510	1											50	1		
NURE Seds[e]	DSOO171S1			520	1											80	1		
NURE Seds[e]	DSOO172S1			820	1											140	1		
NURE Seds[e]	DSOO173S1			770	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO174S1	55200	1																	30000	1
NURE Seds[e]	DSOP002S1	55700	1																	54000	1
NURE Seds[e]	DSOP003S1	48900	1																	32800	1
NURE Seds[e]	DSOP004S1	41700	1																	22100	1
NURE Seds[e]	DSOP006S1	56600	1																	24900	1
NURE Seds[e]	DSOP008S1	40900	1																	17800	1
NURE Seds[e]	DSOP010S1	59700	1																	45300	1
NURE Seds[e]	DSOP011S1	64500	1																	30400	1
NURE Seds[e]	DSOP012S1	59200	1																	39100	1
NURE Seds[e]	DSOP013S1	62100	1																	30000	1
NURE Seds[e]	DSOP014S1	59600	1																	31500	1
NURE Seds[e]	DSOP015S1	55100	1																	23800	1
NURE Seds[e]	DSOP016S1	55800	1																	40000	1
NURE Seds[e]	DSOP017S1	61500	1																	47700	1
NURE Seds[e]	DSOP018S1	56200	1																	28600	1
NURE Seds[e]	DSOP019S1	56200	1																	33700	1
NURE Seds[e]	DSOP020S1	52700	1																	30100	1
NURE Seds[e]	DSOP022S1	51700	1																	28800	1
NURE Seds[e]	DSOP024S1	59500	1																	25000	1
NURE Seds[e]	DSOP025S1	57200	1																	30400	1
NURE Seds[e]	DSOP027S1	49100	1																	27100	1
NURE Seds[e]	DSOP028S1	62300	1																	25800	1
NURE Seds[e]	DSOP030S1	54400	1																	27100	1
NURE Seds[e]	DSOP033S1	42500	1																	26900	1
NURE Seds[e]	DSOP035S1	29200	1																	12600	1
NURE Seds[e]	DSOP036S1	58700	1																	49200	1
NURE Seds[e]	DSOP037S1	50700	1																	25000	1
NURE Seds[e]	DSOP040S1	60600	1																	27800	1
NURE Seds[e]	DSOP041S1	56700	1																	20800	1
NURE Seds[e]	DSOP042S1	62000	1																	22400	1
NURE Seds[e]	DSOP043S1	52800	1																	24700	1
NURE Seds[e]	DSOP044S1	64100	1																	28600	1
NURE Seds[e]	DSOP047S1	56500	1																	26500	1
NURE Seds[e]	DSOP048S1	64100	1																	36000	1
NURE Seds[e]	DSOP049S1	53600	1																	22800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOO174S1			650	1											70	1		
NURE Seds[e]	DSOP002S1			1530	1											160	1		
NURE Seds[e]	DSOP003S1			580	1											40	1		
NURE Seds[e]	DSOP004S1			670	1											70	1		
NURE Seds[e]	DSOP006S1			270	1											60	1		
NURE Seds[e]	DSOP008S1			750	1											30	1		
NURE Seds[e]	DSOP010S1			860	1											150	1		
NURE Seds[e]	DSOP011S1			410	1											70	1		
NURE Seds[e]	DSOP012S1			960	1											110	1		
NURE Seds[e]	DSOP013S1			970	1											70	1		
NURE Seds[e]	DSOP014S1			1240	1											40	1		
NURE Seds[e]	DSOP015S1			910	1											70	1		
NURE Seds[e]	DSOP016S1			710	1											90	1		
NURE Seds[e]	DSOP017S1			930	1											170	1		
NURE Seds[e]	DSOP018S1			590	1											50	1		
NURE Seds[e]	DSOP019S1			610	1											70	1		
NURE Seds[e]	DSOP020S1			960	1											100	1		
NURE Seds[e]	DSOP022S1			500	1											100	1		
NURE Seds[e]	DSOP024S1			610	1											70	1		
NURE Seds[e]	DSOP025S1			650	1											70	1		
NURE Seds[e]	DSOP027S1			680	1											50	1		
NURE Seds[e]	DSOP028S1			720	1											80	1		
NURE Seds[e]	DSOP030S1			540	1											60	1		
NURE Seds[e]	DSOP033S1			520	1											60	1		
NURE Seds[e]	DSOP035S1			370	1											20	1		
NURE Seds[e]	DSOP036S1			1290	1											130	1		
NURE Seds[e]	DSOP037S1			540	1											70	1		
NURE Seds[e]	DSOP040S1			310	1											70	1		
NURE Seds[e]	DSOP041S1			370	1											100	1		
NURE Seds[e]	DSOP042S1			290	1											50	1		
NURE Seds[e]	DSOP043S1			1230	1											50	1		
NURE Seds[e]	DSOP044S1			850	1											60	1		
NURE Seds[e]	DSOP047S1			380	1											80	1		
NURE Seds[e]	DSOP048S1			510	1											70	1		
NURE Seds[e]	DSOP049S1			370	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP050S1	49200	1																	19400	1
NURE Seds[e]	DSOP052S1	48800	1																	27400	1
NURE Seds[e]	DSOP054S1	52600	1																	21800	1
NURE Seds[e]	DSOP055S1	51100	1																	26200	1
NURE Seds[e]	DSOP056S1	48200	1																	17200	1
NURE Seds[e]	DSOP057S1	60900	1																	33400	1
NURE Seds[e]	DSOP059S1	52900	1																	29800	1
NURE Seds[e]	DSOP060S1	46600	1																	25300	1
NURE Seds[e]	DSOP061S1	66000	1																	33800	1
NURE Seds[e]	DSOP064S1	59500	1																	31200	1
NURE Seds[e]	DSOP065S1	52700	1																	26600	1
NURE Seds[e]	DSOP066S1	51100	1																	35200	1
NURE Seds[e]	DSOP067S1	40900	1																	15100	1
NURE Seds[e]	DSOP068S1	62000	1																	27300	1
NURE Seds[e]	DSOP069S1	54200	1																	23200	1
NURE Seds[e]	DSOP070S1	39100	1																	19700	1
NURE Seds[e]	DSOP071S1	54500	1																	32100	1
NURE Seds[e]	DSOP072S1	54700	1																	36500	1
NURE Seds[e]	DSOP074S1	51900	1																	68700	1
NURE Seds[e]	DSOP076S1	55000	1																	49800	1
NURE Seds[e]	DSOP077S1	58900	1																	45400	1
NURE Seds[e]	DSOP078S1	62600	1																	54000	1
NURE Seds[e]	DSOP079S1	60700	1																	32800	1
NURE Seds[e]	DSOP080S1	76100	1																	30400	1
NURE Seds[e]	DSOP081S1	54500	1																	33300	1
NURE Seds[e]	DSOP082S1	58800	1																	28500	1
NURE Seds[e]	DSOP084S1	54100	1																	23800	1
NURE Seds[e]	DSOP085S1	61500	1																	25400	1
NURE Seds[e]	DSOP086S1	56800	1																	30300	1
NURE Seds[e]	DSOP087S1	61600	1																	42300	1
NURE Seds[e]	DSOP090S1	60100	1																	47600	1
NURE Seds[e]	DSOP091S1	67600	1																	48400	1
NURE Seds[e]	DSOP092S1	65000	1																	43600	1
NURE Seds[e]	DSOP093S1	63100	1																	46700	1
NURE Seds[e]	DSOP094S1	67500	1																	46200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP050S1			320	1											50	1		
NURE Seds[e]	DSOP052S1			690	1											70	1		
NURE Seds[e]	DSOP054S1			510	1											50	1		
NURE Seds[e]	DSOP055S1			680	1											70	1		
NURE Seds[e]	DSOP056S1			380	1											40	1		
NURE Seds[e]	DSOP057S1			680	1											80	1		
NURE Seds[e]	DSOP059S1			680	1											90	1		
NURE Seds[e]	DSOP060S1			640	1											80	1		
NURE Seds[e]	DSOP061S1			590	1											90	1		
NURE Seds[e]	DSOP064S1			560	1											100	1		
NURE Seds[e]	DSOP065S1			660	1											70	1		
NURE Seds[e]	DSOP066S1			640	1											80	1		
NURE Seds[e]	DSOP067S1			320	1											40	1		
NURE Seds[e]	DSOP068S1			540	1											80	1		
NURE Seds[e]	DSOP069S1			660	1											70	1		
NURE Seds[e]	DSOP070S1			440	1											50	1		
NURE Seds[e]	DSOP071S1			610	1											130	1		
NURE Seds[e]	DSOP072S1			750	1											130	1		
NURE Seds[e]	DSOP074S1			1150	1											320	1		
NURE Seds[e]	DSOP076S1			550	1											120	1		
NURE Seds[e]	DSOP077S1			610	1											100	1		
NURE Seds[e]	DSOP078S1			800	1											150	1		
NURE Seds[e]	DSOP079S1			700	1											90	1		
NURE Seds[e]	DSOP080S1			930	1											90	1		
NURE Seds[e]	DSOP081S1			700	1											100	1		
NURE Seds[e]	DSOP082S1			660	1											100	1		
NURE Seds[e]	DSOP084S1			670	1											70	1		
NURE Seds[e]	DSOP085S1			510	1											60	1		
NURE Seds[e]	DSOP086S1			770	1											70	1		
NURE Seds[e]	DSOP087S1			780	1											100	1		
NURE Seds[e]	DSOP090S1			850	1											170	1		
NURE Seds[e]	DSOP091S1			710	1											90	1		
NURE Seds[e]	DSOP092S1			840	1											130	1		
NURE Seds[e]	DSOP093S1			820	1											100	1		
NURE Seds[e]	DSOP094S1			720	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP095S1	61800	1																	37300	1
NURE Seds[e]	DSOP096S1	61400	1																	47400	1
NURE Seds[e]	DSOP097S1	51900	1																	26000	1
NURE Seds[e]	DSOP098S1	57600	1																	34200	1
NURE Seds[e]	DSOP099S1	56400	1																	25900	1
NURE Seds[e]	DSOP100S1	64400	1																	30700	1
NURE Seds[e]	DSOP102S1	57200	1																	34100	1
NURE Seds[e]	DSOP103S1	60300	1																	28600	1
NURE Seds[e]	DSOP104S1	61600	1																	30800	1
NURE Seds[e]	DSOP106S1	61600	1																	39000	1
NURE Seds[e]	DSOP107S1	58800	1																	39400	1
NURE Seds[e]	DSOP108S1	62500	1																	32500	1
NURE Seds[e]	DSOP109S1	72500	1																	40400	1
NURE Seds[e]	DSOP111S1	52900	1																	72500	1
NURE Seds[e]	DSOP112S1	58300	1																	32100	1
NURE Seds[e]	DSOP113S1	62300	1																	34300	1
NURE Seds[e]	DSOP115S1	59800	1																	33400	1
NURE Seds[e]	DSOP116S1	67400	1																	36900	1
NURE Seds[e]	DSOP117S1	60400	1																	37000	1
NURE Seds[e]	DSOP118S1	64000	1																	37300	1
NURE Seds[e]	DSOP119S1	57500	1																	37100	1
NURE Seds[e]	DSOP120S1	58100	1																	39800	1
NURE Seds[e]	DSOP121S1	59000	1																	30800	1
NURE Seds[e]	DSOP122S1	50300	1																	33500	1
NURE Seds[e]	DSOP124S1	57100	1																	27000	1
NURE Seds[e]	DSOP125S1	61900	1																	28600	1
NURE Seds[e]	DSOP126S1	56600	1																	26000	1
NURE Seds[e]	DSOP127S1	63600	1																	34800	1
NURE Seds[e]	DSOP128S1	61700	1																	28700	1
NURE Seds[e]	DSOP129S1	48900	1																	62900	1
NURE Seds[e]	DSOP132S1	55900	1																	38600	1
NURE Seds[e]	DSOP133S1	67900	1																	33000	1
NURE Seds[e]	DSOP135S1	56000	1																	31900	1
NURE Seds[e]	DSOP136S1	64800	1																	51400	1
NURE Seds[e]	DSOP137S1	62000	1																	49500	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP095S1			660	1											100	1		
NURE Seds[e]	DSOP096S1			720	1											100	1		
NURE Seds[e]	DSOP097S1			780	1											60	1		
NURE Seds[e]	DSOP098S1			1020	1											100	1		
NURE Seds[e]	DSOP099S1			720	1											60	1		
NURE Seds[e]	DSOP100S1			470	1											70	1		
NURE Seds[e]	DSOP102S1			590	1											100	1		
NURE Seds[e]	DSOP103S1			800	1											80	1		
NURE Seds[e]	DSOP104S1			590	1											70	1		
NURE Seds[e]	DSOP106S1			680	1											110	1		
NURE Seds[e]	DSOP107S1			770	1											70	1		
NURE Seds[e]	DSOP108S1			610	1											80	1		
NURE Seds[e]	DSOP109S1			570	1											110	1		
NURE Seds[e]	DSOP111S1			960	1											190	1		
NURE Seds[e]	DSOP112S1			680	1											60	1		
NURE Seds[e]	DSOP113S1			20	0											50	1		
NURE Seds[e]	DSOP115S1			610	1											60	1		
NURE Seds[e]	DSOP116S1			390	1											70	1		
NURE Seds[e]	DSOP117S1			830	1											10	0		
NURE Seds[e]	DSOP118S1			940	1											80	1		
NURE Seds[e]	DSOP119S1			520	1											60	1		
NURE Seds[e]	DSOP120S1			610	1											100	1		
NURE Seds[e]	DSOP121S1			1150	1											80	1		
NURE Seds[e]	DSOP122S1			820	1											90	1		
NURE Seds[e]	DSOP124S1			1040	1														
NURE Seds[e]	DSOP125S1			500	1											90	1		
NURE Seds[e]	DSOP126S1			810	1											40	1		
NURE Seds[e]	DSOP127S1			600	1											10	0		
NURE Seds[e]	DSOP128S1			800	1											50	1		
NURE Seds[e]	DSOP129S1			970	1											110	1		
NURE Seds[e]	DSOP132S1			1040	1											70	1		
NURE Seds[e]	DSOP133S1			1090	1											120	1		
NURE Seds[e]	DSOP135S1			750	1											70	1		
NURE Seds[e]	DSOP136S1			1130	1											150	1		
NURE Seds[e]	DSOP137S1			1220	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP138S1	43300	1																	18700	1
NURE Seds[e]	DSOP139S1	62000	1																	41000	1
NURE Seds[e]	DSOP140S1	55700	1																	32700	1
NURE Seds[e]	DSOP141S1	59400	1																	32700	1
NURE Seds[e]	DSOP142S1	63800	1																	28400	1
NURE Seds[e]	DSOP143S1	62900	1																	26300	1
NURE Seds[e]	DSOP144S1	68000	1																	38500	1
NURE Seds[e]	DSOP145S1	73000	1																	33200	1
NURE Seds[e]	DSOP146S1	65500	1																	46200	1
NURE Seds[e]	DSOP147S1	65400	1																	34900	1
NURE Seds[e]	DSOP148S1	66300	1																	43100	1
NURE Seds[e]	DSOP149S1	64600	1																	40100	1
NURE Seds[e]	DSOP150S1	59400	1																	67400	1
NURE Seds[e]	DSOP151S1	68500	1																	38700	1
NURE Seds[e]	DSOP152S1	62000	1																	32800	1
NURE Seds[e]	DSOP153S1	62100	1																	27300	1
NURE Seds[e]	DSOP154S1	65200	1																	27000	1
NURE Seds[e]	DSOP155S1	59300	1																	26600	1
NURE Seds[e]	DSOP156S1	67500	1																	31100	1
NURE Seds[e]	DSOP157S1	55000	1																	30000	1
NURE Seds[e]	DSOP158S1	51900	1																	35900	1
NURE Seds[e]	DSOP159S1	62200	1																	34600	1
NURE Seds[e]	DSOP160S1	60500	1																	30000	1
NURE Seds[e]	DSOP161S1	61600	1																	48500	1
NURE Seds[e]	DSOP162S1	60500	1																	25900	1
NURE Seds[e]	DSOP166S1	58300	1																	22200	1
NURE Seds[e]	DSOP167S1	65600	1																	35500	1
NURE Seds[e]	DSOP168S1	63600	1																	22900	1
NURE Seds[e]	DSOP169S1	59900	1																	29400	1
NURE Seds[e]	DSOP170S1	58700	1																	27200	1
NURE Seds[e]	DSOP172S1	60400	1																	45400	1
NURE Seds[e]	DSOP173S1	56800	1																	47900	1
NURE Seds[e]	DSOP174S1	46700	1																	33200	1
NURE Seds[e]	DSOP175S1	54000	1																	20200	1
NURE Seds[e]	DSOP176S1	61800	1																	38000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP138S1			500	1											70	1		
NURE Seds[e]	DSOP139S1			530	1											20	1		
NURE Seds[e]	DSOP140S1			1260	1											50	1		
NURE Seds[e]	DSOP141S1			1040	1											60	1		
NURE Seds[e]	DSOP142S1			630	1											90	1		
NURE Seds[e]	DSOP143S1			1870	1											50	1		
NURE Seds[e]	DSOP144S1			880	1											50	1		
NURE Seds[e]	DSOP145S1			830	1											50	1		
NURE Seds[e]	DSOP146S1			430	1											130	1		
NURE Seds[e]	DSOP147S1			1660	1											60	1		
NURE Seds[e]	DSOP148S1			810	1											50	1		
NURE Seds[e]	DSOP149S1			1140	1											120	1		
NURE Seds[e]	DSOP150S1			1340	1											120	1		
NURE Seds[e]	DSOP151S1			880	1											50	1		
NURE Seds[e]	DSOP152S1			1120	1											60	1		
NURE Seds[e]	DSOP153S1			720	1											10	0		
NURE Seds[e]	DSOP154S1			1000	1											50	1		
NURE Seds[e]	DSOP155S1			710	1											50	1		
NURE Seds[e]	DSOP156S1			530	1											30	1		
NURE Seds[e]	DSOP157S1			1030	1											40	1		
NURE Seds[e]	DSOP158S1			2370	1											90	1		
NURE Seds[e]	DSOP159S1			1150	1											90	1		
NURE Seds[e]	DSOP160S1			1400	1											60	1		
NURE Seds[e]	DSOP161S1			980	1											70	1		
NURE Seds[e]	DSOP162S1			930	1											10	0		
NURE Seds[e]	DSOP166S1			1040	1											60	1		
NURE Seds[e]	DSOP167S1			690	1											50	1		
NURE Seds[e]	DSOP168S1			670	1											60	1		
NURE Seds[e]	DSOP169S1			1000	1											20	1		
NURE Seds[e]	DSOP170S1			980	1											40	1		
NURE Seds[e]	DSOP172S1			1120	1											10	0		
NURE Seds[e]	DSOP173S1			810	1											80	1		
NURE Seds[e]	DSOP174S1			1320	1											60	1		
NURE Seds[e]	DSOP175S1			610	1											90	1		
NURE Seds[e]	DSOP176S1			20	0											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP179S1	57300	1																	52200	1
NURE Seds[e]	DSOP180S1	53700	1																	34300	1
NURE Seds[e]	DSOP182S1	58700	1																	33600	1
NURE Seds[e]	DSOP183S1	56600	1																	24900	1
NURE Seds[e]	DSOP186S1	61500	1																	43700	1
NURE Seds[e]	DSOP188S1	64700	1																	21600	1
NURE Seds[e]	DSOP189S1	52300	1																	39800	1
NURE Seds[e]	DSOP192S1	55100	1																	23500	1
NURE Seds[e]	DSOP193S1	58400	1																	29000	1
NURE Seds[e]	DSOP194S1	60200	1																	37100	1
NURE Seds[e]	DSOP195S1	49600	1																	21200	1
NURE Seds[e]	DSOP196S1	45500	1																	28700	1
NURE Seds[e]	DSOP197S1	50300	1																	29400	1
NURE Seds[e]	DSOP198S1	57800	1																	35400	1
NURE Seds[e]	DSOP199S1	48300	1																	21800	1
NURE Seds[e]	DSOP200S1	54100	1																	83700	1
NURE Seds[e]	DSOP202S1	58300	1																	30400	1
NURE Seds[e]	DSOP203S1	58000	1																	26100	1
NURE Seds[e]	DSOP204S1	57000	1																	34600	1
NURE Seds[e]	DSOP206S1	62500	1																	32200	1
NURE Seds[e]	DSOP207S1	52800	1																	37600	1
NURE Seds[e]	DSOP211S1	56000	1																	43000	1
NURE Seds[e]	DSOP212S1	58500	1																	41800	1
NURE Seds[e]	DSOP213S1	58400	1																	40300	1
NURE Seds[e]	DSOP214S1	58600	1																	39500	1
NURE Seds[e]	DSOP215S1	66500	1																	40300	1
NURE Seds[e]	DSOP216S1	56400	1																	32300	1
NURE Seds[e]	DSOP217S1	56600	1																	35200	1
NURE Seds[e]	DSOP218S1	56100	1																	30000	1
NURE Seds[e]	DSOP219S1	52700	1																	34100	1
NURE Seds[e]	DSOP220S1	62200	1																	29900	1
NURE Seds[e]	DSOP221S1	55700	1																	22000	1
NURE Seds[e]	DSOP222S1	55600	1																	35100	1
NURE Seds[e]	DSOP223S1	59800	1																	34400	1
NURE Seds[e]	DSOP224S1	61000	1																	55800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP179S1			760	1											40	1		
NURE Seds[e]	DSOP180S1			850	1											70	1		
NURE Seds[e]	DSOP182S1			1090	1											10	0		
NURE Seds[e]	DSOP183S1			1140	1											70	1		
NURE Seds[e]	DSOP186S1			700	1											70	1		
NURE Seds[e]	DSOP188S1			910	1											10	0		
NURE Seds[e]	DSOP189S1			900	1											150	1		
NURE Seds[e]	DSOP192S1			680	1											30	1		
NURE Seds[e]	DSOP193S1			670	1											80	1		
NURE Seds[e]	DSOP194S1			1180	1											120	1		
NURE Seds[e]	DSOP195S1			600	1											30	1		
NURE Seds[e]	DSOP196S1			1220	1											20	1		
NURE Seds[e]	DSOP197S1			880	1											20	1		
NURE Seds[e]	DSOP198S1			400	1											30	1		
NURE Seds[e]	DSOP199S1			980	1											40	1		
NURE Seds[e]	DSOP200S1			940	1											50	1		
NURE Seds[e]	DSOP202S1			20	0											70	1		
NURE Seds[e]	DSOP203S1			540	1											10	0		
NURE Seds[e]	DSOP204S1			710	1											10	0		
NURE Seds[e]	DSOP206S1			550	1											70	1		
NURE Seds[e]	DSOP207S1			20	0											80	1		
NURE Seds[e]	DSOP211S1			760	1											20	1		
NURE Seds[e]	DSOP212S1			390	1											110	1		
NURE Seds[e]	DSOP213S1			450	1											10	0		
NURE Seds[e]	DSOP214S1			870	1											40	1		
NURE Seds[e]	DSOP215S1			660	1											40	1		
NURE Seds[e]	DSOP216S1			310	1											10	0		
NURE Seds[e]	DSOP217S1			280	1											110	1		
NURE Seds[e]	DSOP218S1			870	1											130	1		
NURE Seds[e]	DSOP219S1			170	1											10	0		
NURE Seds[e]	DSOP220S1			330	1											40	1		
NURE Seds[e]	DSOP221S1			140	1											50	1		
NURE Seds[e]	DSOP222S1			20	0											40	1		
NURE Seds[e]	DSOP223S1			20	0											10	0		
NURE Seds[e]	DSOP224S1			760	1											160	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP225S1	59300	1																	59700	1
NURE Seds[e]	DSOP226S1	68700	1																	55500	1
NURE Seds[e]	DSOP227S1	59200	1																	27600	1
NURE Seds[e]	DSOP228S1	61900	1																	40800	1
NURE Seds[e]	DSOP229S1	58400	1																	65300	1
NURE Seds[e]	DSOP230S1	56200	1																	44800	1
NURE Seds[e]	DSOP232S1	57400	1																	49800	1
NURE Seds[e]	DSOP233S1	56700	1																	26700	1
NURE Seds[e]	DSOP237S1	58900	1																	36800	1
NURE Seds[e]	DSOP238S1	53800	1																	37700	1
NURE Seds[e]	DSOP239S1	52700	1																	40400	1
NURE Seds[e]	DSOP240S1	62800	1																	28500	1
NURE Seds[e]	DSOP241S1	52900	1																	24300	1
NURE Seds[e]	DSOP242S1	16800	1																	7000	1
NURE Seds[e]	DSOP243S1	500	0																	25800	1
NURE Seds[e]	DSOP245S1	47400	1																	21500	1
NURE Seds[e]	DSOP246S1	57500	1																	33600	1
NURE Seds[e]	DSOP249S1	500	0																	26300	1
NURE Seds[e]	DSOP250S1	500	0																	27000	1
NURE Seds[e]	DSOP251S1	43600	1																	20400	1
NURE Seds[e]	DSOP252S1	61100	1																	33500	1
NURE Seds[e]	DSOP253S1	60800	1																	31400	1
NURE Seds[e]	DSOP254S1	57900	1																	49000	1
NURE Seds[e]	DSOP256S1	57600	1																	40200	1
NURE Seds[e]	DSOP257S1	53000	1																	32200	1
NURE Seds[e]	DSOP259S1	56900	1																	25100	1
NURE Seds[e]	DSOP260S1	57700	1																	26100	1
NURE Seds[e]	DSOP261S1	61000	1																	38800	1
NURE Seds[e]	DSOP262S1	59200	1																	30600	1
NURE Seds[e]	DSOP263S1	59900	1																	26100	1
NURE Seds[e]	DSOP265S1	60100	1																	31400	1
NURE Seds[e]	DSOP267S1	52800	1																	38200	1
NURE Seds[e]	DSOP268S1	56800	1																	31400	1
NURE Seds[e]	DSOP269S1	62900	1																	36100	1
NURE Seds[e]	DSOP270S1	62100	1																	60000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP225S1			560	1											50	1		
NURE Seds[e]	DSOP226S1			680	1											10	0		
NURE Seds[e]	DSOP227S1			180	1											10	0		
NURE Seds[e]	DSOP228S1			420	1											30	1		
NURE Seds[e]	DSOP229S1			710	1											50	1		
NURE Seds[e]	DSOP230S1			670	1											10	0		
NURE Seds[e]	DSOP232S1			740	1											40	1		
NURE Seds[e]	DSOP233S1			440	1											50	1		
NURE Seds[e]	DSOP237S1			710	1											20	1		
NURE Seds[e]	DSOP238S1			400	1											60	1		
NURE Seds[e]	DSOP239S1			690	1											50	1		
NURE Seds[e]	DSOP240S1			340	1											10	0		
NURE Seds[e]	DSOP241S1			480	1											20	1		
NURE Seds[e]	DSOP242S1			120	1											50	1		
NURE Seds[e]	DSOP243S1			350	1											10	0		
NURE Seds[e]	DSOP245S1			450	1											30	1		
NURE Seds[e]	DSOP246S1			310	1											30	1		
NURE Seds[e]	DSOP249S1			340	1											10	0		
NURE Seds[e]	DSOP250S1			350	1											10	0		
NURE Seds[e]	DSOP251S1			560	1											10	0		
NURE Seds[e]	DSOP252S1			520	1											110	1		
NURE Seds[e]	DSOP253S1			600	1											20	1		
NURE Seds[e]	DSOP254S1			820	1											130	1		
NURE Seds[e]	DSOP256S1			1200	1											130	1		
NURE Seds[e]	DSOP257S1			1360	1											90	1		
NURE Seds[e]	DSOP259S1			1120	1											40	1		
NURE Seds[e]	DSOP260S1			1020	1											50	1		
NURE Seds[e]	DSOP261S1			1700	1											40	1		
NURE Seds[e]	DSOP262S1			870	1											30	1		
NURE Seds[e]	DSOP263S1			820	1											10	0		
NURE Seds[e]	DSOP265S1			1210	1											20	1		
NURE Seds[e]	DSOP267S1			1270	1											40	1		
NURE Seds[e]	DSOP268S1			1090	1											50	1		
NURE Seds[e]	DSOP269S1			1130	1											90	1		
NURE Seds[e]	DSOP270S1			1330	1											90	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP271S1	54200	1																	26900	1
NURE Seds[e]	DSOP272S1	62200	1																	45800	1
NURE Seds[e]	DSOP274S1	73500	1																	41400	1
NURE Seds[e]	DSOP276S1	67200	1																	22700	1
NURE Seds[e]	DSOP277S1	69500	1																	26100	1
NURE Seds[e]	DSOP278S1	67600	1																	24400	1
NURE Seds[e]	DSOP279S1	49700	1																		
NURE Seds[e]	DSOP280S1	75600	1																	44000	1
NURE Seds[e]	DSOP281S1	56100	1																	34300	1
NURE Seds[e]	DSOP282S1	59700	1																	25400	1
NURE Seds[e]	DSOP283S1	73700	1																	36800	1
NURE Seds[e]	DSOP284S1	71100	1																	50100	1
NURE Seds[e]	DSOP285S1	58400	1																	27900	1
NURE Seds[e]	DSOP286S1	63900	1																	22200	1
NURE Seds[e]	DSOP287S1	69600	1																	36600	1
NURE Seds[e]	DSOP288S1	74700	1																	54400	1
NURE Seds[e]	DSOP289S1	68700	1																	35200	1
NURE Seds[e]	DSOP290S1	49900	1																	26100	1
NURE Seds[e]	DSOP291S1	57200	1																	34200	1
NURE Seds[e]	DSOP292S1	64600	1																	36600	1
NURE Seds[e]	DSOP293S1	66000	1																	34300	1
NURE Seds[e]	DSOP294S1	58900	1																	42900	1
NURE Seds[e]	DSOP295S1	72100	1																	30900	1
NURE Seds[e]	DSOQ001S1	50100	1																	29300	1
NURE Seds[e]	DSOQ002S1	59200	1																	28800	1
NURE Seds[e]	DSOQ003S1	56100	1																	32800	1
NURE Seds[e]	DSOQ004S1	58200	1																	24200	1
NURE Seds[e]	DSOQ005S1	62300	1																	23400	1
NURE Seds[e]	DSOQ006S1	59300	1																	18300	1
NURE Seds[e]	DSOQ007S1	53300	1																	24000	1
NURE Seds[e]	DSOQ008S1	58000	1																	20900	1
NURE Seds[e]	DSOQ009S1	89500	1																	27500	1
NURE Seds[e]	DSOQ010S1	56500	1																	27600	1
NURE Seds[e]	DSOQ011S1	71900	1																	33500	1
NURE Seds[e]	DSOQ012S1	77300	1																	55200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOP271S1			900	1											50	1		
NURE Seds[e]	DSOP272S1			1500	1											70	1		
NURE Seds[e]	DSOP274S1			780	1											100	1		
NURE Seds[e]	DSOP276S1			410	1											50	1		
NURE Seds[e]	DSOP277S1			590	1											70	1		
NURE Seds[e]	DSOP278S1			360	1											70	1		
NURE Seds[e]	DSOP279S1			480	1											40	1		
NURE Seds[e]	DSOP280S1			720	1											130	1		
NURE Seds[e]	DSOP281S1			700	1											70	1		
NURE Seds[e]	DSOP282S1			600	1											60	1		
NURE Seds[e]	DSOP283S1			920	1											100	1		
NURE Seds[e]	DSOP284S1			850	1											120	1		
NURE Seds[e]	DSOP285S1			560	1											60	1		
NURE Seds[e]	DSOP286S1			390	1											60	1		
NURE Seds[e]	DSOP287S1			520	1											80	1		
NURE Seds[e]	DSOP288S1			830	1											150	1		
NURE Seds[e]	DSOP289S1			890	1											120	1		
NURE Seds[e]	DSOP290S1			1130	1											60	1		
NURE Seds[e]	DSOP291S1			540	1											80	1		
NURE Seds[e]	DSOP292S1			740	1											90	1		
NURE Seds[e]	DSOP293S1			850	1											100	1		
NURE Seds[e]	DSOP294S1			580	1											60	1		
NURE Seds[e]	DSOP295S1			730	1											60	1		
NURE Seds[e]	DSOQ001S1			820	1											40	1		
NURE Seds[e]	DSOQ002S1			430	1											50	1		
NURE Seds[e]	DSOQ003S1			570	1											40	1		
NURE Seds[e]	DSOQ004S1			1060	1											40	1		
NURE Seds[e]	DSOQ005S1			880	1											60	1		
NURE Seds[e]	DSOQ006S1			300	1											50	1		
NURE Seds[e]	DSOQ007S1			700	1											50	1		
NURE Seds[e]	DSOQ008S1			550	1											40	1		
NURE Seds[e]	DSOQ009S1			580	1											70	1		
NURE Seds[e]	DSOQ010S1			560	1											40	1		
NURE Seds[e]	DSOQ011S1			500	1											40	1		
NURE Seds[e]	DSOQ012S1			1340	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOQ013S1	64200	1																	29400	1
NURE Seds[e]	DSOQ014S1	66300	1																	28600	1
NURE Seds[e]	DSOQ015S1	58900	1																	29800	1
NURE Seds[e]	DSOQ016S1	59200	1																	32700	1
NURE Seds[e]	DSOQ017S1	60300	1																	27300	1
NURE Seds[e]	DSOQ019S1	58800	1																	21900	1
NURE Seds[e]	DSOQ020S1	63500	1																	29200	1
NURE Seds[e]	DSOQ021S1	52300	1																	22200	1
NURE Seds[e]	DSOQ022S1	59500	1																	27100	1
NURE Seds[e]	DSOQ023S1	65400	1																	18500	1
NURE Seds[e]	DSOQ024S1	64600	1																	21600	1
NURE Seds[e]	DSOQ026S1	60100	1																	26200	1
NURE Seds[e]	DSOR002S1	56000	1																	85000	1
NURE Seds[e]	DSOR003S1	65000	1																	53400	1
NURE Seds[e]	DSOR004S1	62200	1																	38500	1
NURE Seds[e]	DSOR005S1	52500	1																	25700	1
NURE Seds[e]	DSOR006S1	55400	1																	30600	1
NURE Seds[e]	DSOR009S1	59800	1																	33900	1
NURE Seds[e]	DSOR010S1	53300	1																	34700	1
NURE Seds[e]	DSOR011S1	54200	1																	37500	1
NURE Seds[e]	DSOR012S1	73400	1																	37700	1
NURE Seds[e]	DSOR014S1	67700	1																	35400	1
NURE Seds[e]	DSOR015S1	54900	1																	31300	1
NURE Seds[e]	DSOR016S1	56000	1																	29000	1
NURE Seds[e]	DSOR019S1	62400	1																	19300	1
NURE Seds[e]	DSOR021S1	62800	1																	48100	1
NURE Seds[e]	DSOR024S1	66600	1																	39400	1
NURE Seds[e]	DSOR026S1	59600	1																	36100	1
NURE Seds[e]	DSOR028S1	63700	1																	32200	1
NURE Seds[e]	DSOR029S1	76200	1																	42200	1
NURE Seds[e]	DSOR030S1	66700	1																	38700	1
NURE Seds[e]	DSOR031S1	74700	1																	39700	1
NURE Seds[e]	DSOR033S1	97800	1																	32100	1
NURE Seds[e]	DSOR034S1	61400	1																	31300	1
NURE Seds[e]	DSOR035S1	67100	1																	39100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOQ013S1			1020	1											60	1		
NURE Seds[e]	DSOQ014S1			860	1											80	1		
NURE Seds[e]	DSOQ015S1			710	1											60	1		
NURE Seds[e]	DSOQ016S1			1390	1											80	1		
NURE Seds[e]	DSOQ017S1			330	1											50	1		
NURE Seds[e]	DSOQ019S1			790	1											50	1		
NURE Seds[e]	DSOQ020S1			850	1											70	1		
NURE Seds[e]	DSOQ021S1			430	1											40	1		
NURE Seds[e]	DSOQ022S1			570	1											40	1		
NURE Seds[e]	DSOQ023S1			350	1											30	1		
NURE Seds[e]	DSOQ024S1			440	1											40	1		
NURE Seds[e]	DSOQ026S1			720	1											110	1		
NURE Seds[e]	DSOR002S1			1480	1											290	1		
NURE Seds[e]	DSOR003S1			750	1											140	1		
NURE Seds[e]	DSOR004S1			670	1											100	1		
NURE Seds[e]	DSOR005S1			580	1											70	1		
NURE Seds[e]	DSOR006S1			720	1											80	1		
NURE Seds[e]	DSOR009S1			640	1											70	1		
NURE Seds[e]	DSOR010S1			590	1											70	1		
NURE Seds[e]	DSOR011S1			560	1											90	1		
NURE Seds[e]	DSOR012S1			810	1											90	1		
NURE Seds[e]	DSOR014S1			760	1											110	1		
NURE Seds[e]	DSOR015S1			540	1											70	1		
NURE Seds[e]	DSOR016S1			590	1											70	1		
NURE Seds[e]	DSOR019S1			610	1											40	1		
NURE Seds[e]	DSOR021S1			930	1											120	1		
NURE Seds[e]	DSOR024S1			700	1											90	1		
NURE Seds[e]	DSOR026S1			1480	1											110	1		
NURE Seds[e]	DSOR028S1			580	1											80	1		
NURE Seds[e]	DSOR029S1			640	1											90	1		
NURE Seds[e]	DSOR030S1			1300	1											100	1		
NURE Seds[e]	DSOR031S1			590	1											90	1		
NURE Seds[e]	DSOR033S1			950	1											90	1		
NURE Seds[e]	DSOR034S1			670	1											70	1		
NURE Seds[e]	DSOR035S1			760	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR037S1	65100	1																	36100	1
NURE Seds[e]	DSOR038S1	62700	1																	24600	1
NURE Seds[e]	DSOR041S1	57600	1																	37300	1
NURE Seds[e]	DSOR044S1	57600	1																	25100	1
NURE Seds[e]	DSOR045S1	60400	1																	33100	1
NURE Seds[e]	DSOR048S1	55600	1																	29400	1
NURE Seds[e]	DSOR049S1	58000	1																	30700	1
NURE Seds[e]	DSOR050S1	54000	1																	44700	1
NURE Seds[e]	DSOR052S1	59400	1																	35700	1
NURE Seds[e]	DSOR054S1	66400	1																	40700	1
NURE Seds[e]	DSOR055S1	56300	1																	34600	1
NURE Seds[e]	DSOR056S1	62700	1																	40800	1
NURE Seds[e]	DSOR057S1	67900	1																	33100	1
NURE Seds[e]	DSOR058S1	57200	1																	37900	1
NURE Seds[e]	DSOR060S1	61800	1																	29400	1
NURE Seds[e]	DSOR063S1	66800	1																	33600	1
NURE Seds[e]	DSOR070S1	58900	1																	29400	1
NURE Seds[e]	DSOR073S1	61100	1																	39700	1
NURE Seds[e]	DSOR074S1	62700	1																	42700	1
NURE Seds[e]	DSOR075S1	63400	1																	38000	1
NURE Seds[e]	DSOR076S1	77700	1																	45600	1
NURE Seds[e]	DSOR079S1	65400	1																	26600	1
NURE Seds[e]	DSOR080S1	60100	1																	39200	1
NURE Seds[e]	DSOR081S1	63100	1																	42100	1
NURE Seds[e]	DSOR082S1	60800	1																	43100	1
NURE Seds[e]	DSOR084S1	74100	1																	70900	1
NURE Seds[e]	DSOR085S1	62100	1																	30000	1
NURE Seds[e]	DSOR087S1	67500	1																	76100	1
NURE Seds[e]	DSOR091S1	63100	1																	41900	1
NURE Seds[e]	DSOR093S1	62200	1																	32500	1
NURE Seds[e]	DSOR094S1	64600	1																	32900	1
NURE Seds[e]	DSOR095S1	59700	1																	25000	1
NURE Seds[e]	DSOR096S1	59800	1																	39200	1
NURE Seds[e]	DSOR099S1	59500	1																	36100	1
NURE Seds[e]	DSOR103S1	69100	1																	31300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR037S1			800	1											50	1		
NURE Seds[e]	DSOR038S1			800	1											80	1		
NURE Seds[e]	DSOR041S1			740	1											70	1		
NURE Seds[e]	DSOR044S1			770	1											70	1		
NURE Seds[e]	DSOR045S1			800	1											50	1		
NURE Seds[e]	DSOR048S1			810	1											50	1		
NURE Seds[e]	DSOR049S1			920	1											60	1		
NURE Seds[e]	DSOR050S1			730	1											70	1		
NURE Seds[e]	DSOR052S1			830	1											80	1		
NURE Seds[e]	DSOR054S1			810	1											90	1		
NURE Seds[e]	DSOR055S1			470	1											70	1		
NURE Seds[e]	DSOR056S1			730	1											90	1		
NURE Seds[e]	DSOR057S1			810	1											80	1		
NURE Seds[e]	DSOR058S1			800	1											70	1		
NURE Seds[e]	DSOR060S1			700	1											50	1		
NURE Seds[e]	DSOR063S1			1120	1											60	1		
NURE Seds[e]	DSOR070S1			680	1											60	1		
NURE Seds[e]	DSOR073S1			960	1											120	1		
NURE Seds[e]	DSOR074S1			730	1											80	1		
NURE Seds[e]	DSOR075S1			1010	1											70	1		
NURE Seds[e]	DSOR076S1			940	1											110	1		
NURE Seds[e]	DSOR079S1			20	0											90	1		
NURE Seds[e]	DSOR080S1			650	1											80	1		
NURE Seds[e]	DSOR081S1			620	1											80	1		
NURE Seds[e]	DSOR082S1			580	1											70	1		
NURE Seds[e]	DSOR084S1			2710	1											120	1		
NURE Seds[e]	DSOR085S1			770	1											100	1		
NURE Seds[e]	DSOR087S1			920	1											210	1		
NURE Seds[e]	DSOR091S1			580	1											90	1		
NURE Seds[e]	DSOR093S1			670	1											60	1		
NURE Seds[e]	DSOR094S1			660	1											70	1		
NURE Seds[e]	DSOR095S1			1010	1											90	1		
NURE Seds[e]	DSOR096S1			680	1											90	1		
NURE Seds[e]	DSOR099S1			750	1											80	1		
NURE Seds[e]	DSOR103S1			790	1											60	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR105S1	70200	1																	29000	1
NURE Seds[e]	DSOR107S1	70400	1																	30200	1
NURE Seds[e]	DSOR108S1	56600	1																	28900	1
NURE Seds[e]	DSOR111S1	55400	1																	35300	1
NURE Seds[e]	DSOR114S1	61300	1																	41500	1
NURE Seds[e]	DSOR115S1	61900	1																	37500	1
NURE Seds[e]	DSOR116S1	500	0																		
NURE Seds[e]	DSOR117S1	63900	1																	34400	1
NURE Seds[e]	DSOR123S1	64600	1																	33500	1
NURE Seds[e]	DSOR124S1	66200	1																	30200	1
NURE Seds[e]	DSOR125S1	68500	1																	29900	1
NURE Seds[e]	DSOR138S1	55100	1																	37100	1
NURE Seds[e]	DSOR139S1	62800	1																	35100	1
NURE Seds[e]	DSOR140S1	61400	1																	36600	1
NURE Seds[e]	DSOR141S1	57000	1																	34600	1
NURE Seds[e]	DSOR142S1	54500	1																	50800	1
NURE Seds[e]	DSOR144S1	57800	1																	42000	1
NURE Seds[e]	DSOR145S1	56500	1																	40200	1
NURE Seds[e]	DSOR146S1	61300	1																	30000	1
NURE Seds[e]	DSOR148S1	56400	1																	39700	1
NURE Seds[e]	DSOR149S1	61300	1																	41000	1
NURE Seds[e]	DSOR150S1	56400	1																	37500	1
NURE Seds[e]	DSOR151S1	57200	1																	33600	1
NURE Seds[e]	DSOR155S1	62100	1																	35800	1
NURE Seds[e]	DSOR156S1	61100	1																	34600	1
NURE Seds[e]	DSOR159S1	54100	1																	34500	1
NURE Seds[e]	DSOR162S1	62400	1																	43700	1
NURE Seds[e]	DSOR163S1	62200	1																	43800	1
NURE Seds[e]	DSOR164S1	56500	1																	38100	1
NURE Seds[e]	DSOR165S1	62100	1																	33100	1
NURE Seds[e]	DSOR166S1	68500	1																	44600	1
NURE Seds[e]	DSOR167S1	65600	1																	43800	1
NURE Seds[e]	DSOR168S1	58200	1																	32400	1
NURE Seds[e]	DSOR170S1	71300	1																	45200	1
NURE Seds[e]	DSOR172S1	72300	1																	40300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR105S1			1370	1											50	1		
NURE Seds[e]	DSOR107S1			750	1											60	1		
NURE Seds[e]	DSOR108S1			790	1											50	1		
NURE Seds[e]	DSOR111S1			530	1											50	1		
NURE Seds[e]	DSOR114S1			500	1											80	1		
NURE Seds[e]	DSOR115S1			680	1											60	1		
NURE Seds[e]	DSOR116S1			20	0														
NURE Seds[e]	DSOR117S1			440	1											60	1		
NURE Seds[e]	DSOR123S1			940	1											100	1		
NURE Seds[e]	DSOR124S1			720	1											50	1		
NURE Seds[e]	DSOR125S1			920	1											80	1		
NURE Seds[e]	DSOR138S1			860	1											70	1		
NURE Seds[e]	DSOR139S1			1530	1											90	1		
NURE Seds[e]	DSOR140S1			710	1											50	1		
NURE Seds[e]	DSOR141S1			710	1											70	1		
NURE Seds[e]	DSOR142S1			860	1											100	1		
NURE Seds[e]	DSOR144S1			790	1											70	1		
NURE Seds[e]	DSOR145S1			870	1											90	1		
NURE Seds[e]	DSOR146S1			610	1											60	1		
NURE Seds[e]	DSOR148S1			720	1											60	1		
NURE Seds[e]	DSOR149S1			720	1											70	1		
NURE Seds[e]	DSOR150S1			820	1											70	1		
NURE Seds[e]	DSOR151S1			580	1											60	1		
NURE Seds[e]	DSOR155S1			780	1											80	1		
NURE Seds[e]	DSOR156S1			610	1											60	1		
NURE Seds[e]	DSOR159S1			820	1											60	1		
NURE Seds[e]	DSOR162S1			1170	1											100	1		
NURE Seds[e]	DSOR163S1			720	1											70	1		
NURE Seds[e]	DSOR164S1			1080	1											90	1		
NURE Seds[e]	DSOR165S1			920	1											110	1		
NURE Seds[e]	DSOR166S1			600	1											70	1		
NURE Seds[e]	DSOR167S1			680	1											100	1		
NURE Seds[e]	DSOR168S1			630	1											110	1		
NURE Seds[e]	DSOR170S1			680	1											140	1		
NURE Seds[e]	DSOR172S1			940	1											140	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR173S1	66200	1																	40300	1
NURE Seds[e]	DSOR174S1	62200	1																	30800	1
NURE Seds[e]	DSOR175S1	59300	1																	35100	1
NURE Seds[e]	DSOR176S1	63300	1																	48100	1
NURE Seds[e]	DSOR177S1	56500	1																	35700	1
NURE Seds[e]	DSOR178S1	61400	1																	84500	1
NURE Seds[e]	DSOR179S1	64800	1																	41400	1
NURE Seds[e]	DSOR180S1	59700	1																	30100	1
NURE Seds[e]	DSOR181S1	61800	1																	45600	1
NURE Seds[e]	DSOR182S1	51500	1																	39700	1
NURE Seds[e]	DSOR185S1	61800	1																	39600	1
NURE Seds[e]	DSOR186S1	54300	1																	78900	1
NURE Seds[e]	DSOR188S1	58700	1																	43900	1
NURE Seds[e]	DSOR190S1	56500	1																	52200	1
NURE Seds[e]	DSOR192S1	53900	1																	46000	1
NURE Seds[e]	DSOR194S1	58800	1																	51900	1
NURE Seds[e]	DSOR195S1	57900	1																	38800	1
NURE Seds[e]	DSOR196S1	55800	1																	32800	1
NURE Seds[e]	DSOR197S1	57500	1																	35400	1
NURE Seds[e]	DSOR198S1	53600	1																	30100	1
NURE Seds[e]	DSOR199S1	51400	1																	44900	1
NURE Seds[e]	DSOR200S1	57600	1																	41100	1
NURE Seds[e]	DSOR201S1	62200	1																	41900	1
NURE Seds[e]	DSOR203S1	63100	1																	48500	1
NURE Seds[e]	DSOR204S1	53900	1																	37500	1
NURE Seds[e]	DSOR205S1	55900	1																	37000	1
NURE Seds[e]	DSOR206S1	68000	1																	98500	1
NURE Seds[e]	DSOR208S1	58600	1																	68000	1
NURE Seds[e]	DSOR209S1	57500	1																	37900	1
NURE Seds[e]	DSOR210S1	62100	1																	74900	1
NURE Seds[e]	DSOR211S1	64800	1																	37200	1
NURE Seds[e]	DSOR213S1	88000	1																	53900	1
NURE Seds[e]	DSOR214S1	52800	1																	35400	1
NURE Seds[e]	DSOR215S1	66100	1																	36200	1
NURE Seds[e]	DSOR217S1	60000	1																	50200	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR173S1			720	1											120	1		
NURE Seds[e]	DSOR174S1			510	1											80	1		
NURE Seds[e]	DSOR175S1			580	1											60	1		
NURE Seds[e]	DSOR176S1			840	1											130	1		
NURE Seds[e]	DSOR177S1			1140	1											90	1		
NURE Seds[e]	DSOR178S1			1310	1											200	1		
NURE Seds[e]	DSOR179S1			790	1											150	1		
NURE Seds[e]	DSOR180S1			690	1											90	1		
NURE Seds[e]	DSOR181S1			720	1											90	1		
NURE Seds[e]	DSOR182S1			1260	1											150	1		
NURE Seds[e]	DSOR185S1			1310	1											90	1		
NURE Seds[e]	DSOR186S1			1380	1											210	1		
NURE Seds[e]	DSOR188S1			920	1											160	1		
NURE Seds[e]	DSOR190S1			650	1											120	1		
NURE Seds[e]	DSOR192S1			810	1											160	1		
NURE Seds[e]	DSOR194S1			770	1											120	1		
NURE Seds[e]	DSOR195S1			780	1											110	1		
NURE Seds[e]	DSOR196S1			630	1											80	1		
NURE Seds[e]	DSOR197S1			590	1											60	1		
NURE Seds[e]	DSOR198S1			700	1											100	1		
NURE Seds[e]	DSOR199S1			700	1											110	1		
NURE Seds[e]	DSOR200S1			590	1											110	1		
NURE Seds[e]	DSOR201S1			700	1											90	1		
NURE Seds[e]	DSOR203S1			720	1											180	1		
NURE Seds[e]	DSOR204S1			610	1											90	1		
NURE Seds[e]	DSOR205S1			720	1											90	1		
NURE Seds[e]	DSOR206S1			1610	1											350	1		
NURE Seds[e]	DSOR208S1			1090	1											190	1		
NURE Seds[e]	DSOR209S1			790	1											110	1		
NURE Seds[e]	DSOR210S1			1020	1											260	1		
NURE Seds[e]	DSOR211S1			600	1											110	1		
NURE Seds[e]	DSOR213S1			770	1											130	1		
NURE Seds[e]	DSOR214S1			590	1											90	1		
NURE Seds[e]	DSOR215S1			530	1											90	1		
NURE Seds[e]	DSOR217S1			970	1											170	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR218S1	73500	1																	40700	1
NURE Seds[e]	DSOR220S1	67500	1																	44100	1
NURE Seds[e]	DSOR221S1	59800	1																	34800	1
NURE Seds[e]	DSOR224S1	79700	1																	61200	1
NURE Seds[e]	DSOR226S1	58600	1																	33500	1
NURE Seds[e]	DSOR227S1	58600	1																	29500	1
NURE Seds[e]	DSOR228S1	55000	1																	37700	1
NURE Seds[e]	DSOR230S1	68900	1																	43500	1
NURE Seds[e]	DSOR233S1	58100	1																	39000	1
NURE Seds[e]	DSOR234S1	59700	1																	63900	1
NURE Seds[e]	DSOR235S1	61800	1																	70600	1
NURE Seds[e]	DSOR236S1	53600	1																	36200	1
NURE Seds[e]	DSOR238S1	55000	1																	33500	1
NURE Seds[e]	DSOR242S1	49000	1																	48700	1
NURE Seds[e]	DSOR243S1	58200	1																	30700	1
NURE Seds[e]	DSOR244S1	53700	1																	41000	1
NURE Seds[e]	DSOR246S1	51000	1																	35600	1
NURE Seds[e]	DSOR250S1	56200	1																	35700	1
NURE Seds[e]	DSOR252S1	57600	1																	32000	1
NURE Seds[e]	DSOR255S1	61000	1																	32600	1
NURE Seds[e]	DSOR256S1	55300	1																	33500	1
NURE Seds[e]	DSOR257S1	56900	1																	49000	1
NURE Seds[e]	DSOR258S1	62500	1																	35700	1
NURE Seds[e]	DSOR259S1	57100	1																	40500	1
NURE Seds[e]	DSOR260S1	61100	1																	32600	1
NURE Seds[e]	DSOR261S1	58100	1																	39600	1
NURE Seds[e]	DSOR265S1	61500	1																	53500	1
NURE Seds[e]	DSOR266S1	65900	1																	44500	1
NURE Seds[e]	DSOR267S1	55300	1																	32400	1
NURE Seds[e]	DSOR268S1	64000	1																	30100	1
NURE Seds[e]	DSOR269S1	64200	1																	30500	1
NURE Seds[e]	DSOR270S1	69900	1																	36400	1
NURE Seds[e]	DSOR272S1	61700	1																	37500	1
NURE Seds[e]	DSOR274S1	52900	1																	38900	1
NURE Seds[e]	DSOR275S1	65700	1																	52700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR218S1			700	1											90	1		
NURE Seds[e]	DSOR220S1			2590	1											110	1		
NURE Seds[e]	DSOR221S1			570	1											80	1		
NURE Seds[e]	DSOR224S1			1240	1											170	1		
NURE Seds[e]	DSOR226S1			620	1											60	1		
NURE Seds[e]	DSOR227S1			490	1											70	1		
NURE Seds[e]	DSOR228S1			590	1											100	1		
NURE Seds[e]	DSOR230S1			720	1											110	1		
NURE Seds[e]	DSOR233S1			1220	1											90	1		
NURE Seds[e]	DSOR234S1			1000	1											140	1		
NURE Seds[e]	DSOR235S1			830	1											150	1		
NURE Seds[e]	DSOR236S1			510	1											70	1		
NURE Seds[e]	DSOR238S1			500	1											60	1		
NURE Seds[e]	DSOR242S1			580	1											100	1		
NURE Seds[e]	DSOR243S1			770	1											80	1		
NURE Seds[e]	DSOR244S1			730	1											110	1		
NURE Seds[e]	DSOR246S1			530	1											40	1		
NURE Seds[e]	DSOR250S1			750	1											100	1		
NURE Seds[e]	DSOR252S1			640	1											100	1		
NURE Seds[e]	DSOR255S1			780	1											70	1		
NURE Seds[e]	DSOR256S1			1070	1											80	1		
NURE Seds[e]	DSOR257S1			990	1											150	1		
NURE Seds[e]	DSOR258S1			550	1											80	1		
NURE Seds[e]	DSOR259S1			740	1											120	1		
NURE Seds[e]	DSOR260S1			770	1											120	1		
NURE Seds[e]	DSOR261S1			730	1											170	1		
NURE Seds[e]	DSOR265S1			920	1											170	1		
NURE Seds[e]	DSOR266S1			870	1											100	1		
NURE Seds[e]	DSOR267S1			900	1											80	1		
NURE Seds[e]	DSOR268S1			860	1											80	1		
NURE Seds[e]	DSOR269S1			710	1											60	1		
NURE Seds[e]	DSOR270S1			870	1											100	1		
NURE Seds[e]	DSOR272S1			610	1											80	1		
NURE Seds[e]	DSOR274S1			520	1											80	1		
NURE Seds[e]	DSOR275S1			1170	1											140	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR276S1	61200	1																	34100	1
NURE Seds[e]	DSOR281S1	58000	1																	39300	1
NURE Seds[e]	DSOR282S1	63100	1																	26800	1
NURE Seds[e]	DSOR284S1	78500	1																	66100	1
NURE Seds[e]	DSOR286S1	60900	1																	29800	1
NURE Seds[e]	DSOR287S1	63800	1																	34800	1
NURE Seds[e]	DSOR288S1	62200	1																	30200	1
NURE Seds[e]	DSOR289S1	69700	1																	33000	1
NURE Seds[e]	DSOR290S1	77200	1																	41500	1
NURE Seds[e]	DSOR292S1	30900	1																	25300	1
NURE Seds[e]	DSOR293S1	65800	1																	28000	1
NURE Seds[e]	DSOR294S1	68000	1																	37600	1
NURE Seds[e]	DSOR296S1	57500	1																	39400	1
NURE Seds[e]	DSOR297S1	60000	1																	43600	1
NURE Seds[e]	DSOR298S1	500	0																	43200	1
NURE Seds[e]	DSOR299S1	63700	1																	33100	1
NURE Seds[e]	DSOR301S1	67000	1																	49100	1
NURE Seds[e]	DSOR303S1	56200	1																	38200	1
NURE Seds[e]	DSOR304S1	50600	1																	33500	1
NURE Seds[e]	DSOR305S1	64900	1																	51100	1
NURE Seds[e]	DSOR306S1	52700	1																	28200	1
NURE Seds[e]	DSOR307S1	58800	1																	51000	1
NURE Seds[e]	DSOR308S1	62300	1																	44100	1
NURE Seds[e]	DSOR309S1	50500	1																	31800	1
NURE Seds[e]	DSOR310S1	62500	1																	38500	1
NURE Seds[e]	DSOR311S1	60700	1																	31000	1
NURE Seds[e]	DSOR312S1	54400	1																	38000	1
NURE Seds[e]	DSOR316S1	49700	1																	38600	1
NURE Seds[e]	DSOR317S1	57600	1																	45400	1
NURE Seds[e]	DSOR318S1	54900	1																	32000	1
NURE Seds[e]	DSOR320S1	75800	1																	38600	1
NURE Seds[e]	DSOR325S1	65700	1																	34100	1
NURE Seds[e]	DSOR326S1	54000	1																	39700	1
NURE Seds[e]	DSOR328S1	63800	1																	42700	1
NURE Seds[e]	DSOR329S1	56200	1																	34600	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR276S1			790	1											80	1		
NURE Seds[e]	DSOR281S1			860	1											100	1		
NURE Seds[e]	DSOR282S1			770	1											80	1		
NURE Seds[e]	DSOR284S1			980	1											160	1		
NURE Seds[e]	DSOR286S1			730	1											70	1		
NURE Seds[e]	DSOR287S1			900	1											90	1		
NURE Seds[e]	DSOR288S1			740	1											70	1		
NURE Seds[e]	DSOR289S1			590	1											70	1		
NURE Seds[e]	DSOR290S1			820	1											110	1		
NURE Seds[e]	DSOR292S1			400	1											30	1		
NURE Seds[e]	DSOR293S1			600	1											70	1		
NURE Seds[e]	DSOR294S1			850	1											90	1		
NURE Seds[e]	DSOR296S1			580	1											100	1		
NURE Seds[e]	DSOR297S1			700	1											80	1		
NURE Seds[e]	DSOR298S1			840	1											110	1		
NURE Seds[e]	DSOR299S1			700	1											50	1		
NURE Seds[e]	DSOR301S1			1620	1											150	1		
NURE Seds[e]	DSOR303S1			880	1											90	1		
NURE Seds[e]	DSOR304S1			430	1											90	1		
NURE Seds[e]	DSOR305S1			1020	1											160	1		
NURE Seds[e]	DSOR306S1			960	1											80	1		
NURE Seds[e]	DSOR307S1			830	1											90	1		
NURE Seds[e]	DSOR308S1			780	1											130	1		
NURE Seds[e]	DSOR309S1			410	1											70	1		
NURE Seds[e]	DSOR310S1			1010	1											120	1		
NURE Seds[e]	DSOR311S1			680	1											60	1		
NURE Seds[e]	DSOR312S1			950	1											80	1		
NURE Seds[e]	DSOR316S1			690	1											80	1		
NURE Seds[e]	DSOR317S1			820	1											70	1		
NURE Seds[e]	DSOR318S1			1550	1											50	1		
NURE Seds[e]	DSOR320S1			1370	1											100	1		
NURE Seds[e]	DSOR325S1			670	1											60	1		
NURE Seds[e]	DSOR326S1			820	1											80	1		
NURE Seds[e]	DSOR328S1			1030	1											120	1		
NURE Seds[e]	DSOR329S1			440	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR330S1	55700	1																	34400	1
NURE Seds[e]	DSOR332S1	58200	1																	37700	1
NURE Seds[e]	DSOR333S1	61300	1																	50300	1
NURE Seds[e]	DSOR334S1	59200	1																	34800	1
NURE Seds[e]	DSOR335S1	56300	1																	31200	1
NURE Seds[e]	DSOR336S1	60600	1																	37500	1
NURE Seds[e]	DSOR337S1	62500	1																	59700	1
NURE Seds[e]	DSOR338S1	61000	1																	41600	1
NURE Seds[e]	DSOR342S1	64400	1																	38600	1
NURE Seds[e]	DSOR343S1	66000	1																	41300	1
NURE Seds[e]	DSOR345S1	59800	1																	34400	1
NURE Seds[e]	DSOR346S1	57400	1																	35000	1
NURE Seds[e]	DSOR347S1	54300	1																	23700	1
NURE Seds[e]	DSOR349S1	54400	1																	37500	1
NURE Seds[e]	DSOR350S1	58600	1																	38500	1
NURE Seds[e]	DSOR351S1	59500	1																	27000	1
NURE Seds[e]	DSOR352S1	500	0																	33400	1
NURE Seds[e]	DSOR353S1	59500	1																	36100	1
NURE Seds[e]	DSOR354S1	39600	1																	19900	1
NURE Seds[e]	DSOR355S1	55900	1																	35500	1
NURE Seds[e]	DSOR356S1	59300	1																	32300	1
NURE Seds[e]	DSOR357S1	52400	1																	29000	1
NURE Seds[e]	DSOR360S1	59500	1																	34100	1
NURE Seds[e]	DSOR361S1	54600	1																	32700	1
NURE Seds[e]	DSOR362S1	56200	1																	30200	1
NURE Seds[e]	DSOR363S1	56200	1																	41400	1
NURE Seds[e]	DSOR364S1	60600	1																	39100	1
NURE Seds[e]	DSOR365S1	47600	1																	28900	1
NURE Seds[e]	DSOR366S1	66500	1																	31700	1
NURE Seds[e]	DSOR367S1	53100	1																	37200	1
NURE Seds[e]	DSOR368S1	62200	1																	36700	1
NURE Seds[e]	DSOR369S1	59300	1																	29300	1
NURE Seds[e]	DSOR371S1	60800	1																	36700	1
NURE Seds[e]	DSOR372S1	67500	1																	32400	1
NURE Seds[e]	DSOR373S1	57200	1																	38700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR330S1			740	1											90	1		
NURE Seds[e]	DSOR332S1			620	1											90	1		
NURE Seds[e]	DSOR333S1			960	1											150	1		
NURE Seds[e]	DSOR334S1			640	1											80	1		
NURE Seds[e]	DSOR335S1			610	1											70	1		
NURE Seds[e]	DSOR336S1			1010	1											90	1		
NURE Seds[e]	DSOR337S1			1200	1											180	1		
NURE Seds[e]	DSOR338S1			1420	1											100	1		
NURE Seds[e]	DSOR342S1			1020	1											100	1		
NURE Seds[e]	DSOR343S1			740	1											70	1		
NURE Seds[e]	DSOR345S1			750	1											70	1		
NURE Seds[e]	DSOR346S1			760	1											70	1		
NURE Seds[e]	DSOR347S1			850	1											80	1		
NURE Seds[e]	DSOR349S1			1240	1											80	1		
NURE Seds[e]	DSOR350S1			840	1											90	1		
NURE Seds[e]	DSOR351S1			790	1											80	1		
NURE Seds[e]	DSOR352S1			860	1											80	1		
NURE Seds[e]	DSOR353S1			720	1											90	1		
NURE Seds[e]	DSOR354S1			230	1											170	1		
NURE Seds[e]	DSOR355S1			730	1											80	1		
NURE Seds[e]	DSOR356S1			680	1											80	1		
NURE Seds[e]	DSOR357S1			610	1											70	1		
NURE Seds[e]	DSOR360S1			860	1											80	1		
NURE Seds[e]	DSOR361S1			590	1											60	1		
NURE Seds[e]	DSOR362S1			600	1											50	1		
NURE Seds[e]	DSOR363S1			880	1											80	1		
NURE Seds[e]	DSOR364S1			1330	1											100	1		
NURE Seds[e]	DSOR365S1			600	1											50	1		
NURE Seds[e]	DSOR366S1			780	1											80	1		
NURE Seds[e]	DSOR367S1			1270	1											100	1		
NURE Seds[e]	DSOR368S1			890	1											70	1		
NURE Seds[e]	DSOR369S1			970	1											80	1		
NURE Seds[e]	DSOR371S1			730	1											100	1		
NURE Seds[e]	DSOR372S1			800	1											90	1		
NURE Seds[e]	DSOR373S1			850	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR374S1	60800	1																	42100	1
NURE Seds[e]	DSOR375S1	59100	1																	44700	1
NURE Seds[e]	DSOR381S1	59700	1																	31600	1
NURE Seds[e]	DSOR382S1	53900	1																	22400	1
NURE Seds[e]	DSOR385S1	62900	1																	36200	1
NURE Seds[e]	DSOR386S1	61300	1																	50400	1
NURE Seds[e]	DSOR391S1	90500	1																	37000	1
NURE Seds[e]	DSOR394S1	60400	1																	32900	1
NURE Seds[e]	DSOR402S1	61800	1																	31200	1
NURE Seds[e]	DSOR405S1	66100	1																	26800	1
NURE Seds[e]	DSOR406S1	62100	1																	29600	1
NURE Seds[e]	DSOR407S1	72100	1																	34000	1
NURE Seds[e]	DSOR408S1	77700	1																	33500	1
NURE Seds[e]	DSOR409S1	83900	1																	41300	1
NURE Seds[e]	DSOR410S1	69400	1																	39300	1
NURE Seds[e]	DSOR412S1	61000	1																	17900	1
NURE Seds[e]	DSOR428S1	73300	1																	35000	1
NURE Seds[e]	DSOR429S1	80700	1																	30300	1
NURE Seds[e]	DSOR430S1	78300	1																	34200	1
NURE Seds[e]	DSOR431S1	65100	1																	31200	1
NURE Seds[e]	DSOR432S1	73300	1																	30800	1
NURE Seds[e]	DSOR435S1	67100	1																	28800	1
NURE Seds[e]	DSOR436S1	64700	1																	31400	1
NURE Seds[e]	DSOR444S1	69300	1																	26700	1
NURE Seds[e]	DSOR453S1	76100	1																	33700	1
NURE Seds[e]	DSOR454S1	69000	1																	33400	1
NURE Seds[e]	DSOR459S1	57800	1																	32500	1
NURE Seds[e]	DSOR462S1	56900	1																	23300	1
NURE Seds[e]	DSOR464S1	55900	1																	36300	1
NURE Seds[e]	DSOR465S1	69100	1																	33400	1
NURE Seds[e]	DSOR466S1	62600	1																	36700	1
NURE Seds[e]	DSOR467S1	66900	1																	41800	1
NURE Seds[e]	DSOR468S1	53800	1																	34200	1
NURE Seds[e]	DSOR469S1	56900	1																	37400	1
NURE Seds[e]	DSOR470S1	59100	1																	31700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR374S1			1030	1											80	1		
NURE Seds[e]	DSOR375S1			1310	1											100	1		
NURE Seds[e]	DSOR381S1			750	1											80	1		
NURE Seds[e]	DSOR382S1			500	1											80	1		
NURE Seds[e]	DSOR385S1			1130	1											70	1		
NURE Seds[e]	DSOR386S1			1000	1											70	1		
NURE Seds[e]	DSOR391S1			750	1											60	1		
NURE Seds[e]	DSOR394S1			580	1											60	1		
NURE Seds[e]	DSOR402S1			810	1											50	1		
NURE Seds[e]	DSOR405S1			1200	1											60	1		
NURE Seds[e]	DSOR406S1			580	1											100	1		
NURE Seds[e]	DSOR407S1			480	1											50	1		
NURE Seds[e]	DSOR408S1			900	1											70	1		
NURE Seds[e]	DSOR409S1			900	1											90	1		
NURE Seds[e]	DSOR410S1			1000	1											80	1		
NURE Seds[e]	DSOR412S1			390	1											50	1		
NURE Seds[e]	DSOR428S1			940	1											70	1		
NURE Seds[e]	DSOR429S1			1210	1											100	1		
NURE Seds[e]	DSOR430S1			2230	1											50	1		
NURE Seds[e]	DSOR431S1			2150	1											60	1		
NURE Seds[e]	DSOR432S1			1750	1											60	1		
NURE Seds[e]	DSOR435S1			770	1											70	1		
NURE Seds[e]	DSOR436S1			900	1											70	1		
NURE Seds[e]	DSOR444S1			590	1											50	1		
NURE Seds[e]	DSOR453S1			980	1											90	1		
NURE Seds[e]	DSOR454S1			660	1											80	1		
NURE Seds[e]	DSOR459S1			580	1											60	1		
NURE Seds[e]	DSOR462S1			690	1											60	1		
NURE Seds[e]	DSOR464S1			920	1											80	1		
NURE Seds[e]	DSOR465S1			970	1											100	1		
NURE Seds[e]	DSOR466S1			870	1											100	1		
NURE Seds[e]	DSOR467S1			1190	1											80	1		
NURE Seds[e]	DSOR468S1			650	1											60	1		
NURE Seds[e]	DSOR469S1			1090	1											60	1		
NURE Seds[e]	DSOR470S1			810	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR471S1	58500	1																	33700	1
NURE Seds[e]	DSOR472S1	54500	1																	37100	1
NURE Seds[e]	DSOR475S1	50000	1																	28700	1
NURE Seds[e]	DSOR477S1	55900	1																	34300	1
NURE Seds[e]	DSOR478S1	56300	1																	27600	1
NURE Seds[e]	DSOR479S1	61800	1																	34200	1
NURE Seds[e]	DSOR481S1	52500	1																	29900	1
NURE Seds[e]	DSOR482S1	58800	1																	31800	1
NURE Seds[e]	DSOS001S1	58600	1																	32200	1
NURE Seds[e]	DSOS002S1	61300	1																	39500	1
NURE Seds[e]	DSOS004S1	53600	1																	37500	1
NURE Seds[e]	DSOS006S1	52300	1																	33200	1
NURE Seds[e]	DSOS007S1	56500	1																	27700	1
NURE Seds[e]	DSOS014S1	52800	1																	40700	1
NURE Seds[e]	DSOS015S1	59400	1																	18700	1
NURE Seds[e]	DSOS016S1	62600	1																	36300	1
NURE Seds[e]	DSOS017S1	59000	1																	22900	1
NURE Seds[e]	DSOS018S1	54700	1																	37900	1
NURE Seds[e]	DSOS019S1	54300	1																	49500	1
NURE Seds[e]	DSOS020S1	59100	1																	36800	1
NURE Seds[e]	DSOS021S1	56200	1																	30800	1
NURE Seds[e]	DSOS022S1	59900	1																	52900	1
NURE Seds[e]	DSOS023S1	59800	1																	22500	1
NURE Seds[e]	DSOS024S1	57600	1																	35300	1
NURE Seds[e]	DSOS026S1	58100	1																	32400	1
NURE Seds[e]	DSOS030S1	57400	1																	41100	1
NURE Seds[e]	DSOS031S1	58700	1																	42500	1
NURE Seds[e]	DSOS032S1	58600	1																	44800	1
NURE Seds[e]	DSOS033S1	58400	1																	40100	1
NURE Seds[e]	DSOS034S1	55000	1																	26800	1
NURE Seds[e]	DSOS037S1	57600	1																	45000	1
NURE Seds[e]	DSOS038S1	62600	1																	35200	1
NURE Seds[e]	DSOS040S1	55100	1																	42100	1
NURE Seds[e]	DSOS041S1	58300	1																	51700	1
NURE Seds[e]	DSOS042S1	56800	1																	35800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOR471S1			860	1											70	1		
NURE Seds[e]	DSOR472S1			720	1											60	1		
NURE Seds[e]	DSOR475S1			530	1											10	0		
NURE Seds[e]	DSOR477S1			860	1											40	1		
NURE Seds[e]	DSOR478S1			470	1											40	1		
NURE Seds[e]	DSOR479S1			940	1											80	1		
NURE Seds[e]	DSOR481S1			780	1											70	1		
NURE Seds[e]	DSOR482S1			520	1											70	1		
NURE Seds[e]	DSOS001S1			960	1											80	1		
NURE Seds[e]	DSOS002S1			1120	1											100	1		
NURE Seds[e]	DSOS004S1			790	1											80	1		
NURE Seds[e]	DSOS006S1			1130	1											70	1		
NURE Seds[e]	DSOS007S1			630	1											80	1		
NURE Seds[e]	DSOS014S1			730	1											100	1		
NURE Seds[e]	DSOS015S1			850	1											80	1		
NURE Seds[e]	DSOS016S1			660	1											60	1		
NURE Seds[e]	DSOS017S1			600	1											110	1		
NURE Seds[e]	DSOS018S1			630	1											90	1		
NURE Seds[e]	DSOS019S1			630	1											110	1		
NURE Seds[e]	DSOS020S1			650	1											100	1		
NURE Seds[e]	DSOS021S1			640	1											70	1		
NURE Seds[e]	DSOS022S1			870	1											170	1		
NURE Seds[e]	DSOS023S1			440	1											60	1		
NURE Seds[e]	DSOS024S1			910	1											90	1		
NURE Seds[e]	DSOS026S1			400	1											50	1		
NURE Seds[e]	DSOS030S1			590	1											90	1		
NURE Seds[e]	DSOS031S1			820	1											90	1		
NURE Seds[e]	DSOS032S1			740	1											90	1		
NURE Seds[e]	DSOS033S1			40	1											90	1		
NURE Seds[e]	DSOS034S1			500	1											60	1		
NURE Seds[e]	DSOS037S1			680	1											100	1		
NURE Seds[e]	DSOS038S1			570	1											70	1		
NURE Seds[e]	DSOS040S1			740	1											90	1		
NURE Seds[e]	DSOS041S1			860	1											140	1		
NURE Seds[e]	DSOS042S1			860	1											80	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS043S1	57700	1																	42500	1
NURE Seds[e]	DSOS045S1	56500	1																	37200	1
NURE Seds[e]	DSOS046S1	54200	1																	63900	1
NURE Seds[e]	DSOS047S1	55700	1																	47400	1
NURE Seds[e]	DSOS048S1	60500	1																	51600	1
NURE Seds[e]	DSOS050S1	59300	1																	42700	1
NURE Seds[e]	DSOS051S1	59800	1																	37500	1
NURE Seds[e]	DSOS056S1	54400	1																	34400	1
NURE Seds[e]	DSOS058S1	62200	1																	54000	1
NURE Seds[e]	DSOS059S1	70400	1																	26700	1
NURE Seds[e]	DSOS060S1	62700	1																	61500	1
NURE Seds[e]	DSOS061S1	56500	1																	37500	1
NURE Seds[e]	DSOS063S1	59900	1																	40100	1
NURE Seds[e]	DSOS064S1	56100	1																	30700	1
NURE Seds[e]	DSOS065S1	52500	1																	23200	1
NURE Seds[e]	DSOS066S1	57800	1																	39100	1
NURE Seds[e]	DSOS067S1	55900	1																	36100	1
NURE Seds[e]	DSOS069S1	54900	1																	21200	1
NURE Seds[e]	DSOS070S1	55800	1																	28600	1
NURE Seds[e]	DSOS071S1	62400	1																	41800	1
NURE Seds[e]	DSOS072S1	54900	1																	30600	1
NURE Seds[e]	DSOS073S1	64000	1																	47400	1
NURE Seds[e]	DSOS074S1	58100	1																	49600	1
NURE Seds[e]	DSOS075S1	49600	1																	37100	1
NURE Seds[e]	DSOS076S1	50800	1																	33300	1
NURE Seds[e]	DSOS077S1	54600	1																	37800	1
NURE Seds[e]	DSOS079S1	57500	1																	29700	1
NURE Seds[e]	DSOS080S1	60300	1																	34700	1
NURE Seds[e]	DSOS082S1	57900	1																	38200	1
NURE Seds[e]	DSOS085S1	57000	1																	39200	1
NURE Seds[e]	DSOS087S1	61700	1																	30600	1
NURE Seds[e]	DSOS088S1	57500	1																	45900	1
NURE Seds[e]	DSOS092S1	61700	1																	39000	1
NURE Seds[e]	DSOS093S1	65000	1																	53500	1
NURE Seds[e]	DSOS094S1	63100	1																	37300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS043S1			980	1											170	1		
NURE Seds[e]	DSOS045S1			590	1											80	1		
NURE Seds[e]	DSOS046S1			870	1											180	1		
NURE Seds[e]	DSOS047S1			740	1											130	1		
NURE Seds[e]	DSOS048S1			860	1											130	1		
NURE Seds[e]	DSOS050S1			710	1											100	1		
NURE Seds[e]	DSOS051S1			760	1											80	1		
NURE Seds[e]	DSOS056S1			600	1											80	1		
NURE Seds[e]	DSOS058S1			1050	1											170	1		
NURE Seds[e]	DSOS059S1			590	1											80	1		
NURE Seds[e]	DSOS060S1			1180	1											240	1		
NURE Seds[e]	DSOS061S1			530	1											70	1		
NURE Seds[e]	DSOS063S1			780	1											90	1		
NURE Seds[e]	DSOS064S1			630	1											50	1		
NURE Seds[e]	DSOS065S1			800	1											80	1		
NURE Seds[e]	DSOS066S1			630	1											90	1		
NURE Seds[e]	DSOS067S1			780	1											80	1		
NURE Seds[e]	DSOS069S1			740	1											50	1		
NURE Seds[e]	DSOS070S1			650	1											80	1		
NURE Seds[e]	DSOS071S1			810	1											90	1		
NURE Seds[e]	DSOS072S1			630	1											70	1		
NURE Seds[e]	DSOS073S1			1020	1											150	1		
NURE Seds[e]	DSOS074S1			990	1											120	1		
NURE Seds[e]	DSOS075S1			490	1											80	1		
NURE Seds[e]	DSOS076S1			520	1											60	1		
NURE Seds[e]	DSOS077S1			740	1											80	1		
NURE Seds[e]	DSOS079S1			700	1											60	1		
NURE Seds[e]	DSOS080S1			880	1											60	1		
NURE Seds[e]	DSOS082S1			660	1											90	1		
NURE Seds[e]	DSOS085S1			760	1											110	1		
NURE Seds[e]	DSOS087S1			740	1											70	1		
NURE Seds[e]	DSOS088S1			790	1											120	1		
NURE Seds[e]	DSOS092S1			730	1											120	1		
NURE Seds[e]	DSOS093S1			980	1											180	1		
NURE Seds[e]	DSOS094S1			660	1											110	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS096S1	58800	1																	41200	1
NURE Seds[e]	DSOS098S1	59100	1																	25200	1
NURE Seds[e]	DSOS099S1	57500	1																	30300	1
NURE Seds[e]	DSOS100S1	66200	1																	53200	1
NURE Seds[e]	DSOS102S1	59700	1																	48900	1
NURE Seds[e]	DSOS103S1	54400	1																	46600	1
NURE Seds[e]	DSOS104S1	55900	1																	36400	1
NURE Seds[e]	DSOS106S1	54000	1																	35200	1
NURE Seds[e]	DSOS107S1	56100	1																	37200	1
NURE Seds[e]	DSOS108S1	57500	1																	40200	1
NURE Seds[e]	DSOS109S1	70500	1																	38700	1
NURE Seds[e]	DSOS110S1	58600	1																	29400	1
NURE Seds[e]	DSOS111S1	57200	1																	47000	1
NURE Seds[e]	DSOS113S1	53300	1																	35000	1
NURE Seds[e]	DSOS114S1	61500	1																	38600	1
NURE Seds[e]	DSOS115S1	57300	1																	29800	1
NURE Seds[e]	DSOS117S1	59700	1																	38500	1
NURE Seds[e]	DSOS118S1	54000	1																	35600	1
NURE Seds[e]	DSOS119S1	64200	1																	42900	1
NURE Seds[e]	DSOS124S1	59100	1																	45400	1
NURE Seds[e]	DSOS128S1	48000	1																	61300	1
NURE Seds[e]	DSOS129S1	64200	1																	38400	1
NURE Seds[e]	DSOS130S1	55000	1																	39800	1
NURE Seds[e]	DSOS131S1	59600	1																	71900	1
NURE Seds[e]	DSOS133S1	51900	1																	37400	1
NURE Seds[e]	DSOS135S1	59700	1																	25900	1
NURE Seds[e]	DSOS136S1	58100	1																	36200	1
NURE Seds[e]	DSOS137S1	58200	1																	54400	1
NURE Seds[e]	DSOS138S1	54200	1																	63800	1
NURE Seds[e]	DSOS139S1	54100	1																	54000	1
NURE Seds[e]	DSOS141S1	56600	1																	37200	1
NURE Seds[e]	DSOS142S1	55000	1																	48400	1
NURE Seds[e]	DSOS144S1	54500	1																	34600	1
NURE Seds[e]	DSOS145S1	54900	1																	44300	1
NURE Seds[e]	DSOS146S1	55700	1																	36300	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS096S1			700	1											100	1		
NURE Seds[e]	DSOS098S1			430	1											50	1		
NURE Seds[e]	DSOS099S1			710	1											80	1		
NURE Seds[e]	DSOS100S1			720	1											140	1		
NURE Seds[e]	DSOS102S1			750	1											130	1		
NURE Seds[e]	DSOS103S1			760	1											100	1		
NURE Seds[e]	DSOS104S1			530	1											70	1		
NURE Seds[e]	DSOS106S1			870	1											120	1		
NURE Seds[e]	DSOS107S1			640	1											90	1		
NURE Seds[e]	DSOS108S1			610	1											80	1		
NURE Seds[e]	DSOS109S1			620	1											90	1		
NURE Seds[e]	DSOS110S1			570	1											70	1		
NURE Seds[e]	DSOS111S1			880	1											110	1		
NURE Seds[e]	DSOS113S1			560	1											90	1		
NURE Seds[e]	DSOS114S1			850	1											100	1		
NURE Seds[e]	DSOS115S1			560	1											80	1		
NURE Seds[e]	DSOS117S1			680	1											90	1		
NURE Seds[e]	DSOS118S1			680	1											80	1		
NURE Seds[e]	DSOS119S1			660	1											120	1		
NURE Seds[e]	DSOS124S1			750	1											140	1		
NURE Seds[e]	DSOS128S1			800	1											120	1		
NURE Seds[e]	DSOS129S1			850	1											90	1		
NURE Seds[e]	DSOS130S1			740	1											110	1		
NURE Seds[e]	DSOS131S1			1170	1											250	1		
NURE Seds[e]	DSOS133S1			640	1											100	1		
NURE Seds[e]	DSOS135S1			680	1											60	1		
NURE Seds[e]	DSOS136S1			630	1											60	1		
NURE Seds[e]	DSOS137S1			1130	1											140	1		
NURE Seds[e]	DSOS138S1			980	1											160	1		
NURE Seds[e]	DSOS139S1			790	1											110	1		
NURE Seds[e]	DSOS141S1			790	1											110	1		
NURE Seds[e]	DSOS142S1			760	1											120	1		
NURE Seds[e]	DSOS144S1			760	1											80	1		
NURE Seds[e]	DSOS145S1			650	1											90	1		
NURE Seds[e]	DSOS146S1			680	1											100	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS148S1	54000	1																	41800	1
NURE Seds[e]	DSOS149S1	57600	1																	41100	1
NURE Seds[e]	DSOS150S1	52400	1																	31700	1
NURE Seds[e]	DSOS152S1	56700	1																	66800	1
NURE Seds[e]	DSOS155S1	54800	1																	31200	1
NURE Seds[e]	DSOS156S1	58400	1																	54900	1
NURE Seds[e]	DSOS157S1	58500	1																	49200	1
NURE Seds[e]	DSOS158S1	49200	1																	32400	1
NURE Seds[e]	DSOS159S1	57400	1																	35300	1
NURE Seds[e]	DSOS160S1	52900	1																	35000	1
NURE Seds[e]	DSOS161S1	47700	1																	27200	1
NURE Seds[e]	DSOS162S1	52700	1																	27600	1
NURE Seds[e]	DSOS164S1	55600	1																	38100	1
NURE Seds[e]	DSOS165S1	56800	1																	37900	1
NURE Seds[e]	DSOS166S1	57300	1																	40700	1
NURE Seds[e]	DSOS168S1	50700	1																	36800	1
NURE Seds[e]	DSOS171S1	60600	1																	25200	1
NURE Seds[e]	DSOS173S1	58600	1																	31100	1
NURE Seds[e]	DSOS180S1	67700	1																	39600	1
NURE Seds[e]	DSOS181S1	61600	1																	34500	1
NURE Seds[e]	DSOS182S1	50000	1																	26200	1
NURE Seds[e]	DSOS184S1	55700	1																	39000	1
NURE Seds[e]	DSOS187S1	56700	1																	38300	1
NURE Seds[e]	DSOS193S1	57200	1																	40200	1
NURE Seds[e]	DSOS194S1	61200	1																	24200	1
NURE Seds[e]	DSOS195S1	63400	1																	44900	1
NURE Seds[e]	DSOS196S1	53400	1																	27200	1
NURE Seds[e]	DSOS198S1	55000	1																	21000	1
NURE Seds[e]	DSOS199S1	55300	1																	27000	1
NURE Seds[e]	DSOS200S1	62200	1																	25300	1
NURE Seds[e]	DSOS202S1	51300	1																	29900	1
NURE Seds[e]	DSOS203S1	50900	1																	30100	1
NURE Seds[e]	DSOS204S1	53100	1																	26800	1
NURE Seds[e]	DSOS205S1	56600	1																	28400	1
NURE Seds[e]	DSOS206S1	79700	1																	16100	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS148S1			610	1											70	1		
NURE Seds[e]	DSOS149S1			640	1											120	1		
NURE Seds[e]	DSOS150S1			770	1											110	1		
NURE Seds[e]	DSOS152S1			750	1											130	1		
NURE Seds[e]	DSOS155S1			570	1											80	1		
NURE Seds[e]	DSOS156S1			1000	1											180	1		
NURE Seds[e]	DSOS157S1			920	1											120	1		
NURE Seds[e]	DSOS158S1			590	1											70	1		
NURE Seds[e]	DSOS159S1			550	1											90	1		
NURE Seds[e]	DSOS160S1			600	1											80	1		
NURE Seds[e]	DSOS161S1			520	1											50	1		
NURE Seds[e]	DSOS162S1			720	1											80	1		
NURE Seds[e]	DSOS164S1			840	1											80	1		
NURE Seds[e]	DSOS165S1			1330	1											100	1		
NURE Seds[e]	DSOS166S1			1090	1											90	1		
NURE Seds[e]	DSOS168S1			20	0											10	0		
NURE Seds[e]	DSOS171S1			670	1											70	1		
NURE Seds[e]	DSOS173S1			530	1											10	0		
NURE Seds[e]	DSOS180S1			1960	1											90	1		
NURE Seds[e]	DSOS181S1			990	1											90	1		
NURE Seds[e]	DSOS182S1			630	1											50	1		
NURE Seds[e]	DSOS184S1			710	1											70	1		
NURE Seds[e]	DSOS187S1			790	1											80	1		
NURE Seds[e]	DSOS193S1			620	1											70	1		
NURE Seds[e]	DSOS194S1			670	1											60	1		
NURE Seds[e]	DSOS195S1			990	1											100	1		
NURE Seds[e]	DSOS196S1			580	1											70	1		
NURE Seds[e]	DSOS198S1			600	1											70	1		
NURE Seds[e]	DSOS199S1			620	1											60	1		
NURE Seds[e]	DSOS200S1			900	1											70	1		
NURE Seds[e]	DSOS202S1			820	1											80	1		
NURE Seds[e]	DSOS203S1			630	1											50	1		
NURE Seds[e]	DSOS204S1			600	1											50	1		
NURE Seds[e]	DSOS205S1			770	1											70	1		
NURE Seds[e]	DSOS206S1			620	1											70	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS208S1	69800	1																	20800	1
NURE Seds[e]	DSOS209S1	65800	1																	27700	1
NURE Seds[e]	DSOS211S1	66600	1																	24200	1
NURE Seds[e]	DSOS214S1	57800	1																	48200	1
NURE Seds[e]	DSOS216S1	71000	1																	25100	1
NURE Seds[e]	DSOS217S1	61900	1																	28300	1
NURE Seds[e]	DSOS219S1	62300	1																	22700	1
NURE Seds[e]	DSSS001S1	82200	1																	32500	1
NURE Seds[e]	DSSS002S1	56700	1																	38100	1
NURE Seds[e]	DSSS003S1	90800	1																	32500	1
NURE Seds[e]	DSSS004S1	43300	1																	30400	1
NURE Seds[e]	DSSS005S1	88900	1																	29800	1
NURE Seds[e]	DSSS006S1	42900	1																	38600	1
NURE Seds[e]	DSSS007S1	81000	1																	23800	1
NURE Seds[e]	DSSS008S1	55000	1																	27500	1
NURE Seds[e]	DSSS009S1	47700	1																	35900	1
NURE Seds[e]	DSSS010S1	51500	1																	32000	1
NURE Seds[e]	DSSS011S1	84800	1																	33600	1
NURE Seds[e]	DSSS012S1	51200	1																	24300	1
NURE Seds[e]	DSSS014S1	48000	1																	31600	1
NURE Seds[e]	DSSS015S1	77500	1																	25200	1
NURE Seds[e]	DSSS016S1	43700	1																	26100	1
NURE Seds[e]	DSSS017S1	77300	1																	25500	1
NURE Seds[e]	DSSS019S1	40400	1																		
NURE Seds[e]	DSSS022S1	73300	1																	25400	1
NURE Seds[e]	DSSS023S1	78900	1																	39200	1
NURE Seds[e]	DSSS024S1	72000	1																	18400	1
NURE Seds[e]	DSSS025S1	78300	1																	24900	1
NURE Seds[e]	DSSS026S1	65800	1																	27600	1
NURE Seds[e]	DSSS027S1	78200	1																	39900	1
NURE Seds[e]	DSSS028S1	67900	1																	26500	1
NURE Seds[e]	DSSS030S1	68600	1																		
NURE Seds[e]	DSSS032S1	74200	1																	28000	1
NURE Seds[e]	DSSS034S1	82900	1																	24400	1
NURE Seds[e]	DSSS036S1	64000	1																	29800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSOS208S1			380	1											40	1		
NURE Seds[e]	DSOS209S1			520	1											80	1		
NURE Seds[e]	DSOS211S1			400	1											40	1		
NURE Seds[e]	DSOS214S1			430	1											90	1		
NURE Seds[e]	DSOS216S1			470	1											50	1		
NURE Seds[e]	DSOS217S1			530	1											70	1		
NURE Seds[e]	DSOS219S1			460	1											70	1		
NURE Seds[e]	DSSS001S1			600	1											80	1		
NURE Seds[e]	DSSS002S1			850	1											100	1		
NURE Seds[e]	DSSS003S1			560	1											40	1		
NURE Seds[e]	DSSS004S1			460	1											70	1		
NURE Seds[e]	DSSS005S1			650	1											80	1		
NURE Seds[e]	DSSS006S1			2450	1											100	1		
NURE Seds[e]	DSSS007S1			410	1											40	1		
NURE Seds[e]	DSSS008S1			650	1											60	1		
NURE Seds[e]	DSSS009S1			670	1											100	1		
NURE Seds[e]	DSSS010S1			580	1											100	1		
NURE Seds[e]	DSSS011S1			280	1											40	1		
NURE Seds[e]	DSSS012S1			400	1											60	1		
NURE Seds[e]	DSSS014S1			660	1											90	1		
NURE Seds[e]	DSSS015S1			440	1											50	1		
NURE Seds[e]	DSSS016S1			400	1											60	1		
NURE Seds[e]	DSSS017S1			610	1											70	1		
NURE Seds[e]	DSSS019S1			510	1											30	1		
NURE Seds[e]	DSSS022S1			940	1											70	1		
NURE Seds[e]	DSSS023S1			1260	1											50	1		
NURE Seds[e]	DSSS024S1			990	1											50	1		
NURE Seds[e]	DSSS025S1			870	1											30	1		
NURE Seds[e]	DSSS026S1			700	1											70	1		
NURE Seds[e]	DSSS027S1			830	1											80	1		
NURE Seds[e]	DSSS028S1			660	1											50	1		
NURE Seds[e]	DSSS030S1			800	1											80	1		
NURE Seds[e]	DSSS032S1			830	1											100	1		
NURE Seds[e]	DSSS034S1			780	1											70	1		
NURE Seds[e]	DSSS036S1			560	1											40	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSSS037S1	80100	1																	34900	1
NURE Seds[e]	DSSS039S1	90800	1																	56000	1
NURE Seds[e]	DSSS042S1	84200	1																	20800	1
NURE Seds[e]	DSSS046S1	72600	1																	35500	1
NURE Seds[e]	DSSS047S1	74400	1																	25300	1
NURE Seds[e]	DSSS048S1	73300	1																	25700	1
NURE Seds[e]	DSSS050S1	51600	1																	35700	1
NURE Seds[e]	DSSS051S1	71500	1																	57400	1
NURE Seds[e]	DSSS052S1	58100	1																	28000	1
NURE Seds[e]	DSSS053S1	70900	1																	21800	1
NURE Seds[e]	DSSS054S1	80200	1																	32500	1
NURE Seds[e]	DSSS057S1	75600	1																	36200	1
NURE Seds[e]	DSSS060S1	60900	1																	43500	1
NURE Seds[e]	DSSS066S1	78200	1																	24900	1
NURE Seds[e]	DSSS068S1	76700	1																	25500	1
NURE Seds[e]	DSSS070S1	94500	1																	37300	1
NURE Seds[e]	DSSS122S1	70300	1																	32600	1
NURE Seds[e]	DSSS164S1	79800	1																	26300	1
NURE Seds[e]	DSSS165S1	83900	1																	18800	1
NURE Seds[e]	DSSS166S1	83700	1																	26100	1
NURE Seds[e]	DSSS168S1	87800	1																	25800	1
NURE Seds[e]	DSSS170S1	67300	1																	26300	1
NURE Seds[e]	DSSS171S1	88200	1																	20200	1
NURE Seds[e]	DSSS172S1	74300	1																	38300	1
NURE Seds[e]	DSSS180S1	63500	1																	28700	1
NURE Seds[e]	DSSS181S1	75200	1																	24300	1
NURE Seds[e]	DSSS182S1	66700	1																	27200	1
NURE Seds[e]	DSSS185S1	73500	1																	27800	1
NURE Seds[e]	DSSS190S1	55300	1																	29300	1
NURE Seds[e]	DSSS192S1	66200	1																	43400	1
NURE Seds[e]	DSSS193S1	71600	1																	32100	1
NURE Seds[e]	DSSS194S1	61800	1																	37800	1
NURE Seds[e]	DSSS195S1	71100	1																	27700	1
NURE Seds[e]	DSSS197S1	81900	1																	21300	1
NURE Seds[e]	DSSS198S1	69900	1																	24800	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSSS037S1			870	1											100	1		
NURE Seds[e]	DSSS039S1			710	1											100	1		
NURE Seds[e]	DSSS042S1			420	1											30	1		
NURE Seds[e]	DSSS046S1			480	1											70	1		
NURE Seds[e]	DSSS047S1			500	1											60	1		
NURE Seds[e]	DSSS048S1			470	1											50	1		
NURE Seds[e]	DSSS050S1			530	1											60	1		
NURE Seds[e]	DSSS051S1			870	1											180	1		
NURE Seds[e]	DSSS052S1			510	1											50	1		
NURE Seds[e]	DSSS053S1			1010	1											40	1		
NURE Seds[e]	DSSS054S1			1130	1											70	1		
NURE Seds[e]	DSSS057S1			1610	1											90	1		
NURE Seds[e]	DSSS060S1			1480	1											60	1		
NURE Seds[e]	DSSS066S1			340	1											40	1		
NURE Seds[e]	DSSS068S1			790	1											70	1		
NURE Seds[e]	DSSS070S1			390	1											50	1		
NURE Seds[e]	DSSS122S1			620	1											50	1		
NURE Seds[e]	DSSS164S1			920	1											50	1		
NURE Seds[e]	DSSS165S1			540	1											30	1		
NURE Seds[e]	DSSS166S1			840	1											60	1		
NURE Seds[e]	DSSS168S1			600	1											80	1		
NURE Seds[e]	DSSS170S1			550	1											40	1		
NURE Seds[e]	DSSS171S1			480	1											30	1		
NURE Seds[e]	DSSS172S1			1090	1											110	1		
NURE Seds[e]	DSSS180S1			410	1											40	1		
NURE Seds[e]	DSSS181S1			460	1											70	1		
NURE Seds[e]	DSSS182S1			1070	1											50	1		
NURE Seds[e]	DSSS185S1			460	1											60	1		
NURE Seds[e]	DSSS190S1			380	1											50	1		
NURE Seds[e]	DSSS192S1			390	1											80	1		
NURE Seds[e]	DSSS193S1			600	1											40	1		
NURE Seds[e]	DSSS194S1			550	1											10	0		
NURE Seds[e]	DSSS195S1			520	1											30	1		
NURE Seds[e]	DSSS197S1			710	1											50	1		
NURE Seds[e]	DSSS198S1			1290	1											50	1		

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	DSSS199S1	69800	1																	29800	1
NURE Seds[e]	DSSS200S1	78900	1																	31600	1
NURE Seds[e]	DSSS204S1	73200	1																	32200	1
NURE Seds[e]	DSSS206S1	76700	1																	31800	1
NURE Seds[e]	DSSS207S1	69900	1																	30100	1
NURE Seds[e]	DSSS208S1	86600	1																	23700	1
NURE Seds[e]	DSSS210S1	62100	1																	24700	1
NURE Seds[e]	DSSS212S1	83700	1																	29600	1
NURE Seds[e]	DSSS213S1	79300	1																	25100	1
NURE Seds[e]	DSSS214S1	73100	1																	34000	1
NURE Seds[e]	DSSS216S1	72200	1																	26000	1
NURE Seds[e]	DSSS218S1	72000	1																	21500	1
NURE Seds[e]	DSSS223S1	57300	1																	26500	1
NURE Seds[e]	ONAA003S1	60847	1			4	1	232	1	1.5	1			25	1	5	1	13	1		
NURE Seds[e]	ONAA004S1	59173	1			2	1	467	1	1	1			15	1	10	1	13	1	68200	1
NURE Seds[e]	ONAA005S1	63566	1			1	1							9	1					37420	1
NURE Seds[e]	ONAA006S1	72400	1			2	1	375	1	1	1			15	1	5	0	8	1	52480	1
NURE Seds[e]	ONAA007S1	63026	1			2	1	380	1	1.5	1			10	1	5	1	16	1	50053	1
NURE Seds[e]	ONAA008S1	59973	1			1	1	260	1	1.5	1			10	1	5	1	18	1	36053	1
NURE Seds[e]	ONAA009S1	64780	1			2	1	447	1	1.5	1			5	1	5	0	4	1	33933	1
NURE Seds[e]	ONAA010S1	61686	1			1	1	227	1	1	1			25	1	5	1	5	1	62953	1
NURE Seds[e]	ONAA011S1	59040	1			1	1	257	1	1.5	1			15	1	5	0	8	1	31320	1
NURE Seds[e]	ONAA013S1																				
NURE Seds[e]	ONAA014S1	60493	1			1	1	295	1	1.5	1			5	1	5	0	7	1	21167	1
NURE Seds[e]	ONAA015S1	74733	1			2	1	335	1	1	1			85	1	5	0	11	1	54880	1
NURE Seds[e]	ONAA016S1	69466	1			2	1	352	1	1	1			10	1	5	0	5	1	25073	1
NURE Seds[e]	ONAA021S1	64486	1			4	1	475	1	2.5	1			5	1	5	1	24	1	41433	1
NURE Seds[e]	ONAA023S1	67000	1			1	1	360	1	1	1			30	1	5	1	5	1	41620	1
NURE Seds[e]	ONAA024S1	38600	1					107	1	0.5	1			10	1	12	1	22	1	29980	1
NURE Seds[e]	ONAA026S1	63313	1					357	1	1	1			265	1	5	1	9	1	40460	1
NURE Seds[e]	ONAA028S1	51713	1			2	1	172	1	1	1			410	1	25	1	32	1	56387	1
NURE Seds[e]	ONAA029S1	68333	1			2	1	357	1	0.5	1			25	1	5	1	4	1	53967	1
NURE Seds[e]	ONAA030S1	59700	1			2	1	207	1	1	1			200	1	5	1	9	1	40300	1
NURE Seds[e]	ONAA031S1	59793	1			1	1	170	1	1	1			115	1	5	1	11	1	56767	1
NURE Seds[e]	ONAA033S1	65813	1			1	1	487	1	2	1			40	1	5	0	8	1	44347	1

Notes provided at end of attachment.

Table C4-1. (Continued)

	Sample	Lead	Qual.	Manganese	Qual.	Molybdenum	Qual.	Nickel	Qual.	Selenium	Qual.	Silver	Qual.	Thallium	Qual.	Vanadium	Qual.	Zinc	Qual.
Study_ID	Identifier	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)	(mg/kg)	(ND=0)
NURE Seds[e]	DSSS199S1			470	1											40	1		
NURE Seds[e]	DSSS200S1			790	1											60	1		
NURE Seds[e]	DSSS204S1			900	1											110	1		
NURE Seds[e]	DSSS206S1			570	1											60	1		
NURE Seds[e]	DSSS207S1			1100	1											80	1		
NURE Seds[e]	DSSS208S1			660	1											30	1		
NURE Seds[e]	DSSS210S1			680	1											30	1		
NURE Seds[e]	DSSS212S1			820	1											70	1		
NURE Seds[e]	DSSS213S1			580	1											70	1		
NURE Seds[e]	DSSS214S1			740	1											50	1		
NURE Seds[e]	DSSS216S1			1000	1											80	1		
NURE Seds[e]	DSSS218S1			450	1											40	1		
NURE Seds[e]	DSSS223S1			670	1											60	1		
NURE Seds[e]	ONAA003S1	35	1	1944	1	2	1	15	1	1	1	0.2	1			132	1	70	1
NURE Seds[e]	ONAA004S1	35	1	2730	1	4	1	22	1	1	0	0.3	1			151	1	65	1
NURE Seds[e]	ONAA005S1			1045	1	2	0			1	0					77	1		
NURE Seds[e]	ONAA006S1	25	1	1048	1	2	0	12	1	1	0	0.2	1			192	1	17	1
NURE Seds[e]	ONAA007S1	20	1	1217	1	3	1	17	1	1	0	0.3	1			193	1	18	1
NURE Seds[e]	ONAA008S1	25	1	941	1	2	0	10	1	2	1	0.2	1			90	1	27	1
NURE Seds[e]	ONAA009S1	25	1	989	1	2	1	12	1	1	0	0.1	0			96	1	15	1
NURE Seds[e]	ONAA010S1	25	1	1006	1	3	1	10	1	1	0	0.1	0			134	1	15	1
NURE Seds[e]	ONAA011S1	30	1	1013	1	2	0	7	1	1	0	0.3	1			95	1	30	1
NURE Seds[e]	ONAA013S1											0.2	1						
NURE Seds[e]	ONAA014S1	25	1	344	1	4	1	7	1	1	0	0.3	1			35	1	12	1
NURE Seds[e]	ONAA015S1	25	1	1045	1	3	1	22	1	1	0	0.3	1			208	1	22	1
NURE Seds[e]	ONAA016S1	30	1	465	1	2	0	12	1	2	1	0.2	1			67	1	20	1
NURE Seds[e]	ONAA021S1	25	1	1177	1	2	0	12	1	1	0	0.2	1			101	1	40	1
NURE Seds[e]	ONAA023S1	10	0	988	1	2	0	7	1	1	0	0.5	1			143	1	22	1
NURE Seds[e]	ONAA024S1	10	1	1062	1	2	1	17	1	1	0	0.4	1			155	1	57	1
NURE Seds[e]	ONAA026S1	10	1	999	1	2	0	22	1	1	0	0.2	1			100	1	15	1
NURE Seds[e]	ONAA028S1	10	0	1216	1	2	1	450	1	1	1	0.6	1			142	1	57	1
NURE Seds[e]	ONAA029S1	10	0	805	1	2	0	7	1	1	1	0.2	1			151	1	22	1
NURE Seds[e]	ONAA030S1	10	0	879	1	2	1	27	1	1	0	0.3	1			108	1	17	1
NURE Seds[e]	ONAA031S1	10	0	1282	1	2	0	20	1	1	1	0.4	1			228	1	22	1
NURE Seds[e]	ONAA033S1	10	1	1021	1	2	1	12	1	1	0	0.2	1			114	1	22	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAA034S1																				
NURE Seds[e]	ONAA035S1	55900	1			1	1	292	1	1	1			155	1	10	1	14	1	40727	1
NURE Seds[e]	ONAA036S1	64833	1			2	1	302	1	1.5	1			20	1	5	1	5	1	50027	1
NURE Seds[e]	ONAB004S1	50220	1			1	1	242	1	1	1			180	1	5	1	15	1	41767	1
NURE Seds[e]	ONAB005S1	48473	1			2	1	172	1	1	1			550	1	7	1	10	1		
NURE Seds[e]	ONAB006S1	31240	1			2	1	325	1	0.5	1			20	1	17	1	44	1	17920	1
NURE Seds[e]	ONAB007S1	59373	1			1	1	317	1	1	1			15	1	5	1	12	1	38253	1
NURE Seds[e]	ONAB009S1	54060	1			1	1	202	1	2	1			30	1	5	1	13	1	31060	1
NURE Seds[e]	ONAB011S1	55320	1			13	1	267	1	1	1			60	1	20	1	45	1	50127	1
NURE Seds[e]	ONAB016S1																				
NURE Seds[e]	ONAB017S1	48200	1			3	1	327	1	1.5	1			50	1	10	1	24	1	44033	1
NURE Seds[e]	ONAB018S1	32173	1			1	1	272	1	1	1			15	1	15	1	28	1	17987	1
NURE Seds[e]	ONAB019S1	58540	1			4	1	307	1	1	1			40	1	10	1	24	1	39327	1
NURE Seds[e]	ONAB020S1	56773	1			2	1	42	1	1	1			45	1	12	1	40	1	27833	1
NURE Seds[e]	ONAB021S1	58013	1			4	1	325	1	1.5	1			20	1	5	1	16	1	28060	1
NURE Seds[e]	ONAB022S1	49073	1			9	1	227	1	2	1			25	1	12	1	37	1	29827	1
NURE Seds[e]	ONAB023S1	55880	1			5	1	152	1	1	1			70	1	17	1	44	1	50593	1
NURE Seds[e]	ONAB024S1	44427	1			10	1	437	1	2	1			40	1	17	1	28	1	36733	1
NURE Seds[e]	ONAB027S1	49767	1			5	1	132	1	0.5	1			35	1	17	1	39	1	35320	1
NURE Seds[e]	ONAB028S1	37687	1			3	1	305	1	1	1			85	1	20	1	32	1	15580	1
NURE Seds[e]	ONAB031S1	55840	1			11	1	385	1	1	1			35	1	12	1	32	1	67000	1
NURE Seds[e]	ONAB032S1	55053	1			6	1	392	1	1	1			80	1	20	1	47	1	45587	1
NURE Seds[e]	ONAB033S1	40440	1					72	1	0.5	1			25	1	10	1	60	1	22580	1
NURE Seds[e]	ONAB034S1	45967	1			2	1	300	1	1.5	1			35	1	15	1	26	1	35007	1
NURE Seds[e]	ONAB035S1	33707	1			1	1	42	1	0.5	1			25	1	17	1	39	1	18380	1
NURE Seds[e]	ONAB037S1	53720	1			2	1	390	1	1.5	1			45	1	15	1	30	1	41500	1
NURE Seds[e]	ONAC001S1	59327	1			2	1	325	1	1	1			30	1	15	1	98	1	45633	1
NURE Seds[e]	ONAC002S1	53687	1			4	1	367	1	1	1			35	1	12	1	30	1	30987	1
NURE Seds[e]	ONAC003S1	55067	1			2	1	397	1	1	1			25	1	12	1	68	1	28520	1
NURE Seds[e]	ONAC006S1	53847	1			13	1	342	1	0.5	1			55	1	12	1	33	1	39280	1
NURE Seds[e]	ONAC007S1	59353	1			3	1	287	1	1	1			35	1	10	1	16	1	31347	1
NURE Seds[e]	ONAC008S1	58200	1			17	1	372	1	0.5	1			50	1	27	1	77	1	49320	1
NURE Seds[e]	ONAC009S1	49353	1			13	1	200	1	1	1			40	1	17	1	35	1	27987	1
NURE Seds[e]	ONAC016S1	50727	1					245	1	1	1			15	1	5	0	8	1	28833	1
NURE Seds[e]	ONAC017S1	57560	1			1	1	287	1	1	1			25	1	5	1	8	1	27247	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAA034S1											0.3	1						
NURE Seds[e]	ONAA035S1	15	1	1633	1	2	0	55	1	1	0	0.4	1			186	1	25	1
NURE Seds[e]	ONAA036S1	10	1	1346	1	2	0	10	1	1	0	0.3	1			133	1	30	1
NURE Seds[e]	ONAB004S1	15	1	793	1	2	0	10	1	1	0	0.2	1			100	1	22	1
NURE Seds[e]	ONAB005S1	10	1	971	1	3	1	57	1	1	1	0.1	1			126	1	20	1
NURE Seds[e]	ONAB006S1	10	0	419	1	2	0	25	1	1	0	1.6	1			53	1	37	1
NURE Seds[e]	ONAB007S1	10	0	946	1	2	1	10	1	1	0	0.3	1			92	1	32	1
NURE Seds[e]	ONAB009S1	15	1	597	1	2	0	12	1	1	0	0.3	1			99	1	17	1
NURE Seds[e]	ONAB011S1	10	1	1419	1	2	0	35	1	1	1	0.9	1			157	1	122	1
NURE Seds[e]	ONAB016S1											0.2	1						
NURE Seds[e]	ONAB017S1	25	1	1259	1	2	0	22	1	1	0	0.4	1			155	1	62	1
NURE Seds[e]	ONAB018S1	15	1	459	1	2	0	25	1	1	1	1.6	1			46	1	42	1
NURE Seds[e]	ONAB019S1	10	0	734	1	2	0	20	1	2	1	0.3	1			90	1	45	1
NURE Seds[e]	ONAB020S1	10	1	481	1	2	1	25	1	1	0	0.5	1			93	1	82	1
NURE Seds[e]	ONAB021S1	10	0	578	1	2	1	12	1	1	0	0.2	1			50	1	42	1
NURE Seds[e]	ONAB022S1	10	0	616	1	2	0	15	1	1	1	0.9	1			65	1	62	1
NURE Seds[e]	ONAB023S1	15	1	1071	1	2	0	25	1	1	0	0.4	1			156	1	35	1
NURE Seds[e]	ONAB024S1	10	1	814	1	2	1	22	1	1	0	1.3	1			117	1	47	1
NURE Seds[e]	ONAB027S1	10	0	880	1	2	0	27	1	1	0	0.6	1			100	1	120	1
NURE Seds[e]	ONAB028S1	15	1	373	1	2	0	40	1	1	0	0.6	1			43	1	85	1
NURE Seds[e]	ONAB031S1	10	0	1300	1	2	1	15	1	1	0	0.8	1			186	1	40	1
NURE Seds[e]	ONAB032S1	10	0	929	1	2	0	37	1	1	0	0.7	1			124	1	45	1
NURE Seds[e]	ONAB033S1	10	1	502	1	2	0	22	1	1	0	0.4	1			45	1	52	1
NURE Seds[e]	ONAB034S1	10	0			2	0	25	1	1	0	0.9	1			78	1	72	1
NURE Seds[e]	ONAB035S1	15	1	358	1	2	0	30	1	1	0	1.1	1			24	1	40	1
NURE Seds[e]	ONAB037S1	15	1	1226	1	2	0	22	1	1	0	0.6	1			144	1	50	1
NURE Seds[e]	ONAC001S1	10	1	1279	1	2	0	17	1	1	0	0.7	1			157	1	50	1
NURE Seds[e]	ONAC002S1	10	1	535	1	2	0	22	1	1	1	0.5	1			72	1	45	1
NURE Seds[e]	ONAC003S1	10	1	1807	1	2	1	20	1	1	1	0.4	1			98	1	47	1
NURE Seds[e]	ONAC006S1	10	0	929	1	2	1	22	1	1	0	0.5	1			152	1	47	1
NURE Seds[e]	ONAC007S1	10	0	603	1	2	1	15	1	1	0	0.1	1			77	1	70	1
NURE Seds[e]	ONAC008S1	10	1	1245	1	2	1	45	1	1	0	0.7	1			161	1	127	1
NURE Seds[e]	ONAC009S1	15	1	745	1	5	1	30	1	1	0	0.9	1			127	1	65	1
NURE Seds[e]	ONAC016S1	15	1	576	1	2	0	12	1	2	1	0.2	1			69	1	25	1
NURE Seds[e]	ONAC017S1	20	1	527	1	3	1	12	1	1	1	0.1	1			66	1	22	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAC018S1	49533	1			1	1	112	1	1	1			15	1	5	1	12	1	18787	1
NURE Seds[e]	ONAC019S1	52940	1			5	1	267	1	1	1			35	1	5	1	9	1	24653	1
NURE Seds[e]	ONAC020S1	39833	1					75	1	0.5	1			10	1	5	0	101	1	12220	1
NURE Seds[e]	ONAC021S1	56633	1			2	1	270	1	1	1			20	1	5	1	11	1	17980	1
NURE Seds[e]	ONAC022S1	59733	1			3	1	317	1	1	1			25	1	5	1	12	1	24820	1
NURE Seds[e]	ONAC023S1	58113	1					197	1	1	1			15	1	5	0	5	1	16420	1
NURE Seds[e]	ONAC024S1	58773	1			3	1	332	1	1	1			25	1	5	1	7	1	26407	1
NURE Seds[e]	ONAC025S1																				
NURE Seds[e]	ONAC026S1	52080	1			2	1	307	1	1	1			65	1	7	1	15	1	39273	1
NURE Seds[e]	ONAC028S1	63280	1			7	1	275	1	1.5	1			40	1	12	1	29	1	33587	1
NURE Seds[e]	ONAC030S1	55607	1					375	1	1	1			75	1	7	1	9	1	42313	1
NURE Seds[e]	ONAC031S1	58527	1					500	1	1.5	1			35	1	5	1	6	1	23533	1
NURE Seds[e]	ONAC032S1	50140	1			4	1	467	1	0.5	1			105	1	5	1	18	1	35767	1
NURE Seds[e]	ONAC033S1	48100	1					295	1	1	1			40	1	5	1	10	1	25813	1
NURE Seds[e]	ONAC034S1	57980	1					420	1	1	1			30	1	5	0	6	1	19713	1
NURE Seds[e]	ONAC035S1	54127	1			1	1	305	1	1	1			35	1	5	1	10	1	21020	1
NURE Seds[e]	ONAC037S1																				
NURE Seds[e]	ONAD001S1	58080	1			1	1	532	1	0.5	1			35	1	7	1	15	1	26480	1
NURE Seds[e]	ONAD002S1	43467	1			1	1	170	1	1.5	1			75	1	15	1	39	1	28380	1
NURE Seds[e]	ONAD003S1	53267	1			4	1	512	1	1.5	1			125	1	7	1	7	1	27607	1
NURE Seds[e]	ONAD004S1	49553	1			4	1	147	1	1	1			30	1	12	1	20	1	26240	1
NURE Seds[e]	ONAD005S1	52413	1			4	1	352	1	1	1			30	1	12	1	22	1	26007	1
NURE Seds[e]	ONAD006S1	55193	1			11	1	382	1	0.5	1			65	1	17	1	32	1	33353	1
NURE Seds[e]	ONAD007S1	55107	1			9	1	350	1	2	1			90	1	20	1	38	1	44247	1
NURE Seds[e]	ONAD008S1	57720	1			1	1	502	1	1	1			70	1	15	1	37	1	38160	1
NURE Seds[e]	ONAD009S1	48573	1			9	1	352	1	1	1			35	1	12	1	28	1	17233	1
NURE Seds[e]	ONAD011S1	40733	1			1	1	320	1	0.5	1			40	1	15	1	29	1	18560	1
NURE Seds[e]	ONAD013S1	53893	1			1	1	532	1	1	1			45	1	10	1	17	1	29840	1
NURE Seds[e]	ONAD014S1	50620	1			5	1	430	1	1	1			45	1	10	1	24	1	27467	1
NURE Seds[e]	ONAD015S1	65940	1			1	1	522	1	1.5	1			15	1	5	1	2	0	10393	1
NURE Seds[e]	ONAD016S1	59073	1			5	1	400	1	1	1			45	1	10	1	13	1	28067	1
NURE Seds[e]	ONAD018S1	53513	1			1	1	500	1	0.5	1			50	1	5	1	25	1	23687	1
NURE Seds[e]	ONAD019S1	47753	1			3	1	607	1	1	1			35	1	7	1	18	1	28240	1
NURE Seds[e]	ONAD021S1	49747	1					305	1	1	1			30	1	5	1	20	1	24460	1
NURE Seds[e]	ONAD022S1																				

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAC018S1	10	0	284	1	2	0	10	1	1	1	0.1	1			31	1	25	1
NURE Seds[e]	ONAC019S1	15	1	515	1	4	1	12	1	1	1	0.3	1			74	1	25	1
NURE Seds[e]	ONAC020S1	10	1	199	1	2	0	30	1	1	0	0.1	1			22	1	7	1
NURE Seds[e]	ONAC021S1	10	1	473	1	2	0	15	1	1	1	0.3	1			34	1	35	1
NURE Seds[e]	ONAC022S1	10	1	404	1	2	0	12	1	1	0	0.4	1			40	1	15	1
NURE Seds[e]	ONAC023S1	10	1	389	1	2	0	10	1	1	0	0.1	0			44	1	17	1
NURE Seds[e]	ONAC024S1	20	1	594	1	4	1	10	1	1	0	0.2	1			72	1	20	1
NURE Seds[e]	ONAC025S1											0.2	1						
NURE Seds[e]	ONAC026S1	15	1	959	1	2	0	15	1	1	0	0.1	1			104	1	40	1
NURE Seds[e]	ONAC028S1	10	0	925	1	2	0	25	1	1	0	0.5	1			111	1	62	1
NURE Seds[e]	ONAC030S1	10	0	1035	1	2	0	12	1	1	0	0.4	1			112	1	25	1
NURE Seds[e]	ONAC031S1	10	0	591	1	2	0	10	1	1	0	0.5	1			53	1	12	1
NURE Seds[e]	ONAC032S1	10	0	910	1	2	0	15	1	1	0	0.5	1			114	1	15	1
NURE Seds[e]	ONAC033S1	10	0	554	1	2	1	15	1	1	1	0.7	1			74	1	22	1
NURE Seds[e]	ONAC034S1	15	1	399	1	2	0	10	1	1	1	0.4	1			38	1	10	1
NURE Seds[e]	ONAC035S1	10	1	545	1	3	1	15	1	1	1	0.5	1			59	1	27	1
NURE Seds[e]	ONAC037S1											0.4	1						
NURE Seds[e]	ONAD001S1	10	0	643	1	2	1	15	1	1	0	0.4	1			80	1	30	1
NURE Seds[e]	ONAD002S1	10	1	399	1	2	0	77	1	1	0	0.7	1			90	1	85	1
NURE Seds[e]	ONAD003S1	10	0	701	1	2	1	20	1	1	0	0.4	1			93	1	35	1
NURE Seds[e]	ONAD004S1	15	1	520	1	2	0	37	1	1	1	0.9	1			69	1	35	1
NURE Seds[e]	ONAD005S1	10	1	667	1	2	0	30	1	1	0	0.6	1			82	1	65	1
NURE Seds[e]	ONAD006S1	15	1	898	1	3	1	35	1	1	0	0.5	1			74	1	52	1
NURE Seds[e]	ONAD007S1	10	1	1095	1	3	1	55	1	1	0	0.7	1			120	1	77	1
NURE Seds[e]	ONAD008S1	10	1	1010	1	2	0	40	1	1	0	0.5	1			99	1	45	1
NURE Seds[e]	ONAD009S1	10	0	660	1	2	0	25	1	1	1	0.5	1			45	1	47	1
NURE Seds[e]	ONAD011S1	10	0	466	1	2	1	30	1	1	0	1.4	1			53	1	55	1
NURE Seds[e]	ONAD013S1	10	0	581	1	2	1	20	1	1	0	0.4	1			78	1	45	1
NURE Seds[e]	ONAD014S1	15	1	819	1	3	1	27	1	1	0	0.4	1			94	1	37	1
NURE Seds[e]	ONAD015S1	10	0	218	1	2	0	5	1	1	1	0.1	1			20	1	15	1
NURE Seds[e]	ONAD016S1	10	1	1095	1	2	1	22	1	1	1	0.5	1			74	1	52	1
NURE Seds[e]	ONAD018S1	10	0	374	1	2	0	17	1	1	0	0.4	1			52	1	27	1
NURE Seds[e]	ONAD019S1	10	1	688	1	2	0	20	1	1	0	0.3	1			106	1	30	1
NURE Seds[e]	ONAD021S1	10	0	473	1	2	0	17	1	1	0	0.3	1			50	1	27	1
NURE Seds[e]	ONAD022S1											0.8	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAD023S1	24347	1			5	1	310	1	0.5	0			25	1	20	1	26	1	17840	1
NURE Seds[e]	ONAD024S1	53367	1			10	1	542	1	1	1			65	1	10	1	21	1	29840	1
NURE Seds[e]	ONAD027S1	53313	1			2	1	470	1	1.5	1			110	1	10	1	15	1	34753	1
NURE Seds[e]	ONAD028S1	51867	1			6	1	152	1	1	1			65	1	7	1	19	1	27420	1
NURE Seds[e]	ONAD029S1	55580	1					522	1	1	1			35	1	5	1	18	1	21760	1
NURE Seds[e]	ONAD030S1	44827	1			14	1	462	1	1	1			110	1	12	1	24	1	44573	1
NURE Seds[e]	ONAD031S1	52813	1			12	1	537	1	1	1			35	1	7	1	14	1	26620	1
NURE Seds[e]	ONAD033S1	62307	1			7	1	747	1	2	1			65	1	17	1	26	1	41947	1
NURE Seds[e]	ONAD034S1	52860	1			1	1	417	1	2	1			30	1	5	1	5	1	17913	1
NURE Seds[e]	ONAD035S1	49093	1			1	1	90	1	2	1			15	1	5	0	92	1	18040	1
NURE Seds[e]	ONAE001S1	60113	1			1	1	500	1	2	1			35	1	5	1	12	1	30760	1
NURE Seds[e]	ONAE002S1	61306	1			14	1	597	1	2	1			50	1	7	1	17	1	31667	1
NURE Seds[e]	ONAE004S1	49960	1			2	1	257	1	2.5	1			50	1	7	1	20	1	30207	1
NURE Seds[e]	ONAE005S1	50707	1			2	1	300	1	2	1			30	1	5	1	17	1	23467	1
NURE Seds[e]	ONAE006S1	57773	1			4	1	445	1	2.5	1			55	1	12	1	20	1	35793	1
NURE Seds[e]	ONAE007S1	61233	1			4	1	520	1	1.5	1			75	1	10	1	13	1	29767	1
NURE Seds[e]	ONAE008S1	60613	1			1	1	600	1	1	1			70	1	5	1	13	1	30873	1
NURE Seds[e]	ONAE010S1																				
NURE Seds[e]	ONAE011S1	57133	1			4	1	232	1	1.5	1			20	1	10	1	30	1	29967	1
NURE Seds[e]	ONAE012S1	59747	1			1	1	292	1	1	1			25	1	7	1	22	1	23613	1
NURE Seds[e]	ONAE013S1	53147	1			2	1	450	1	0.5	1			75	1	5	1	7	1	25973	1
NURE Seds[e]	ONAE014S1	59667	1			3	1	265	1	1	1			10	1	5	1	8	1	18947	1
NURE Seds[e]	ONAE016S1	63600	1			1	1	597	1	0.5	1			35	1	7	1	15	1	23340	1
NURE Seds[e]	ONAE021S1	58753	1			1	1	305	1	1	1			25	1	5	0	20	1	19520	1
NURE Seds[e]	ONAE024S1	69333	1			1	1	247	1	1	1			35	1	7	1	9	1	54187	1
NURE Seds[e]	ONAE025S1	52160	1			3	1	455	1	0.5	1			15	1	7	1	21	1	25013	1
NURE Seds[e]	ONAE026S1	47987	1			2	1	172	1	1	1			15	1	10	1	37	1	15867	1
NURE Seds[e]	ONAE030S1	56927	1			1	1	400	1	1	1			30	1	5	1	15	1	29213	1
NURE Seds[e]	ONAE033S1	57413	1			1	1	425	1	1.5	1			40	1	5	1	9	1	30053	1
NURE Seds[e]	ONAE037S1	59353	1					572	1	1	1			85	1	5	1	7	1	50753	1
NURE Seds[e]	ONAF002S1	82666	1					270	1	0.5	0			60	1	5	0	17	1	49080	1
NURE Seds[e]	ONAF003S1	55147	1			1	1	525	1	0.5	1			140	1	7	1	21	1	37693	1
NURE Seds[e]	ONAF004S1	51820	1			1	1	180	1	1	1			160	1	10	1	35	1	26240	1
NURE Seds[e]	ONAF005S1	53233	1			1	1	412	1	1	1			470	1	10	1	17	1	51373	1
NURE Seds[e]	ONAF006S1	54647	1					330	1	1	1			900	1	15	1	24	1	30673	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAD023S1	10	0	456	1	2	1	35	1	1	0	1.9	1			24	1	37	1
NURE Seds[e]	ONAD024S1	15	1	816	1	5	1	27	1	1	0	0.3	1			75	1	45	1
NURE Seds[e]	ONAD027S1	10	1	1255	1	2	0	22	1	1	0	0.5	1			104	1	32	1
NURE Seds[e]	ONAD028S1	10	1	675	1	2	0	20	1	1	0	0.3	1			76	1	17	1
NURE Seds[e]	ONAD029S1	10	0	388	1	3	1	17	1	1	0	0.3	1			67	1	15	1
NURE Seds[e]	ONAD030S1	10	0	837	1	2	0	25	1	1	1	0.6	1			110	1	40	1
NURE Seds[e]	ONAD031S1	10	0	1991	1	2	0	17	1	1	0	0.3	1			81	1	37	1
NURE Seds[e]	ONAD033S1	10	0	644	1	3	1	37	1	1	1	0.8	1			119	1	67	1
NURE Seds[e]	ONAD034S1	10	0	494	1	2	1	12	1	1	1	0.3	1			49	1	27	1
NURE Seds[e]	ONAD035S1	10	1	375	1	2	0	20	1	4	1	0.5	1			47	1	25	1
NURE Seds[e]	ONAE001S1	10	1	557	1	3	1	15	1	2	1	0.6	1			96	1	32	1
NURE Seds[e]	ONAE002S1	10	0	554	1	2	0	17	1	2	1	0.5	1			77	1	37	1
NURE Seds[e]	ONAE004S1	10	0	516	1	2	0	15	1	1	0	0.4	1			94	1	27	1
NURE Seds[e]	ONAE005S1	15	1	571	1	3	1	12	1	1	1	0.6	1			68	1	20	1
NURE Seds[e]	ONAE006S1	15	1	666	1	2	0			1	1	0.6	1			76	1	57	1
NURE Seds[e]	ONAE007S1	10	0	700	1	2	1	25	1	2	1	0.2	1			111	1	42	1
NURE Seds[e]	ONAE008S1	10	1	657	1	2	0	12	1	1	1	0.3	1			152	1	25	1
NURE Seds[e]	ONAE010S1											0.6	1						
NURE Seds[e]	ONAE011S1	10	1	1025	1	2	1	17	1	3	1	0.7	1			60	1	75	1
NURE Seds[e]	ONAE012S1	10	0	655	1	3	1	15	1	1	1	0.4	1			88	1	40	1
NURE Seds[e]	ONAE013S1	15	1	463	1	4	1	15	1	1	0	0.4	1			76	1	25	1
NURE Seds[e]	ONAE014S1	10	0	763	1	2	1	7	1	1	0	0.3	1			56	1	40	1
NURE Seds[e]	ONAE016S1	10	1	707	1	2	1	5	1	1	0	0.4	1			91	1	32	1
NURE Seds[e]	ONAE021S1	10	1	410	1	2	0	10	1	2	1	0.3	1			57	1	27	1
NURE Seds[e]	ONAE024S1	10	1	906	1	4	1	15	1	1	1	0.1	1			170	1	32	1
NURE Seds[e]	ONAE025S1	10	0	472	1	3	1	20	1	2	1	0.3	1			114	1	42	1
NURE Seds[e]	ONAE026S1	10	0	367	1	2	0	15	1	1	0	1.1	1			47	1	40	1
NURE Seds[e]	ONAE030S1	10	0	671	1	2	0	20	1	1	0	0.4	1			106	1	27	1
NURE Seds[e]	ONAE033S1	10	1	564	1	3	1	17	1	1	1	0.2	1			99	1	22	1
NURE Seds[e]	ONAE037S1	10	0	957	1	2	0	17	1	1	0	0.5	1			206	1	35	1
NURE Seds[e]	ONAF002S1	10	0	1159	1	2	0	12	1	1	0	0.4	1			148	1	17	1
NURE Seds[e]	ONAF003S1	10	0	671	1	2	0	22	1	1	1	0.5	1			129	1	45	1
NURE Seds[e]	ONAF004S1	10	0	586	1	2	0	50	1	1	0	0.8	1			73	1	42	1
NURE Seds[e]	ONAF005S1	10	0	915	1	2	0	25	1	1	0	0.5	1			108	1	32	1
NURE Seds[e]	ONAF006S1	10	0	564	1	2	0	75	1	1	0	0.6	1			113	1	40	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAF007S1	54333	1			2	1	220	1	1	1			1250	1	12	1	31	1	49840	1
NURE Seds[e]	ONAF008S1	49527	1			10	1	377	1	1.5	1			1200	1	12	1	28	1	44700	1
NURE Seds[e]	ONAF010S1	41640	1					152	1	0.5	1			550	1	15	1	37	1	31813	1
NURE Seds[e]	ONAF012S1	58273	1			1	1	325	1	1.5	1			130	1	5	1	11	1		
NURE Seds[e]	ONAF013S1	60387	1			2	1	447	1	1.5	1			70	1	7	1	12	1	24527	1
NURE Seds[e]	ONAF014S1	49207	1			2	1	367	1	1	1			190	1	7	1	8	1	47160	1
NURE Seds[e]	ONAF015S1	55540	1					232	1	1.5	1			30	1	12	1	15	1	22687	1
NURE Seds[e]	ONAF016S1	68266	1					277	1	1.5	1			25	1	10	1	13	1	32173	1
NURE Seds[e]	ONAF017S1	61353	1					477	1	1	1			30	1	10	1	12	1	31433	1
NURE Seds[e]	ONAF019S1	50067	1					247	1	1.5	1			85	1	10	1	7	1	54640	1
NURE Seds[e]	ONAF020S1	54527	1					300	1	2	1			325	1	12	1	6	1	55233	1
NURE Seds[e]	ONAF021S1	50340	1			2	1	222	1	1	1			360	1	5	1	9	1	29540	1
NURE Seds[e]	ONAF022S1	56373	1					535	1	1.5	1			100	1	5	1	9	1	19540	1
NURE Seds[e]	ONAF025S1	56487	1					502	1	0.5	1			145	1	7	1	16	1	31693	1
NURE Seds[e]	ONAF026S1	52687	1					290	1	1	1			70	1	5	1	5	1	23393	1
NURE Seds[e]	ONAF027S1	52227	1			8	1							50	1					40113	1
NURE Seds[e]	ONAF029S1	54700	1			1	1	247	1	0.5	1			50	1	5	0	13	1	22300	1
NURE Seds[e]	ONAF030S1	58860	1			4	1	387	1	1	1			85	1	10	1	18	1	35247	1
NURE Seds[e]	ONAF031S1	53687	1			1	1	272	1	1	1			45	1	10	1	32	1	23393	1
NURE Seds[e]	ONAF032S1	59460	1			3	1	300	1	2	1			65	1	7	1	28	1	36953	1
NURE Seds[e]	ONAF033S1	59560	1			1	1	162	1	2.5	1			40	1	5	1	8	1	24953	1
NURE Seds[e]	ONAF034S1	51600	1					192	1	2	1			125	1	5	1	9	1	41693	1
NURE Seds[e]	ONAF036S1	53200	1			10	1	392	1	1	1			1000	1	7	1	18	1	32233	1
NURE Seds[e]	ONAF037S1	50853	1			14	1	372	1	0.5	1			1300	1	5	1	32	1	54847	1
NURE Seds[e]	ONAF038S1																				
NURE Seds[e]	ONAG001S1	40667	1			12	1	35	1	1	1			105	1	15	1	38	1		
NURE Seds[e]	ONAG002S1	52567	1			2	1	240	1	1.5	1			45	1	10	1	14	1	33613	1
NURE Seds[e]	ONAG006S1	56953	1					247	1	1.5	1			105	1	12	1	12	1	25367	1
NURE Seds[e]	ONAG007S1	60167	1					400	1	1	1			125	1	5	1	5	1	19147	1
NURE Seds[e]	ONAG008S1	59047	1					382	1	2.5	1			160	1	7	1	5	1	13093	1
NURE Seds[e]	ONAG011S1	54867	1					172	1	2	1			15	1	5	0	3	1	16667	1
NURE Seds[e]	ONAG012S1	61920	1					472	1	3.5	1			25	1	5	0	3	1	24747	1
NURE Seds[e]	ONAG013S1	69133	1					500	1	2.5	1			25	1	5	0	2	1	23360	1
NURE Seds[e]	ONAG015S1	70466	1					377	1	3	1			15	1	5	1	4	1	24840	1
NURE Seds[e]	ONAG016S1	69066	1					682	1	2.5	1			15	1	5	0	2	1	25347	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAF007S1	10	0	925	1	2	0	90	1	1	1	0.6	1			152	1	40	1
NURE Seds[e]	ONAF008S1	10	0	900	1	2	0	67	1	1	1	0.7	1			178	1	47	1
NURE Seds[e]	ONAF010S1	10	1	590	1	2	0	450	1	1	1	1.2	1			72	1	30	1
NURE Seds[e]	ONAF012S1	10	1	866	1	2	0	30	1	1	0	0.5	1			78	1	40	1
NURE Seds[e]	ONAF013S1	10	0	457	1	2	0	42	1	1	0	0.4	1			53	1	67	1
NURE Seds[e]	ONAF014S1	10	0	860	1	2	0	25	1	1	1	0.2	1			165	1	27	1
NURE Seds[e]	ONAF015S1	10	1	771	1	2	0	15	1	1	1	0.5	1			31	1	42	1
NURE Seds[e]	ONAF016S1	15	1	727	1	2	0	12	1	1	0	0.3	1			95	1	42	1
NURE Seds[e]	ONAF017S1	10	1	634	1	2	0	15	1	1	1	0.3	1			95	1	27	1
NURE Seds[e]	ONAF019S1	10	1	969	1	2	0	12	1	1	0	0.3	1			140	1	17	1
NURE Seds[e]	ONAF020S1	10	0	819	1	2	0	17	1	1	0	0.5	1			169	1	25	1
NURE Seds[e]	ONAF021S1	15	1	487	1	2	0	42	1	1	0	0.8	1			93	1	25	1
NURE Seds[e]	ONAF022S1	10	1	326	1	2	0	22	1	1	0	0.3	1			43	1	17	1
NURE Seds[e]	ONAF025S1	10	1	563	1	2	0	30	1	1	0	0.3	1			75	1	32	1
NURE Seds[e]	ONAF026S1	10	1	350	1	2	1	15	1	1	1	0.2	1			64	1	25	1
NURE Seds[e]	ONAF027S1			933	1	12	1			1	0					132	1		
NURE Seds[e]	ONAF029S1	10	1	515	1	2	1	15	1	1	0	0.1	1			91	1	30	1
NURE Seds[e]	ONAF030S1	10	0	683	1	2	0	17	1	1	1	0.2	1			92	1	47	1
NURE Seds[e]	ONAF031S1	10	0	473	1	2	0	20	1	1	0	0.3	1			54	1	37	1
NURE Seds[e]	ONAF032S1	10	0	795	1	2	1	17	1	1	0	0.4	1			137	1	52	1
NURE Seds[e]	ONAF033S1	10	0	528	1	2	1	15	1	1	1	0.1	1			67	1	22	1
NURE Seds[e]	ONAF034S1	10	1	852	1	2	0	15	1	1	0	0.2	1			162	1	22	1
NURE Seds[e]	ONAF036S1	15	1	675	1	2	0	90	1	1	0	0.2	1			105	1	32	1
NURE Seds[e]	ONAF037S1	10	0	883	1	2	0	118	1	1	0	0.3	1			155	1	47	1
NURE Seds[e]	ONAF038S1											0.2	1						
NURE Seds[e]	ONAG001S1	10	0	567	1	2	0	67	1	1	1	0.4	1			85	1	82	1
NURE Seds[e]	ONAG002S1	10	0	667	1	2	0	12	1	1	0	0.3	1			130	1	52	1
NURE Seds[e]	ONAG006S1	15	1	575	1	2	0	37	1	1	1	0.3	1			40	1	32	1
NURE Seds[e]	ONAG007S1	10	1	330	1	2	0	10	1	1	0	0.1	0			52	1	17	1
NURE Seds[e]	ONAG008S1	10	1	272	1	2	1	7	1	2	1	0.1	0			33	1	17	1
NURE Seds[e]	ONAG011S1	10	0	418	1	2	1	5	1	3	1	0.1	1			27	1	12	1
NURE Seds[e]	ONAG012S1	10	0	671	1	2	0	10	1	1	1	0.1	0					17	1
NURE Seds[e]	ONAG013S1	10	1	618	1	2	0	5	1	1	1	0.1	1			68	1	15	1
NURE Seds[e]	ONAG015S1	15	1	580	1	3	1	10	1	2	1	0.1	0			40	1	12	1
NURE Seds[e]	ONAG016S1	10	1	445	1	2	1	10	1	1	0	0.1	0			56	1	12	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAG018S1	66040	1					367	1	2.5	1			35	1	5	1	3	1	24453	1
NURE Seds[e]	ONAG020S1	66866	1			1	1	612	1	1.5	1			30	1	7	1	3	1	20980	1
NURE Seds[e]	ONAG021S1	62206	1					245	1	1.5	1			25	1	7	1	5	1	27553	1
NURE Seds[e]	ONAG023S1	47840	1					240	1	2	1			70	1	7	1	5	1	37587	1
NURE Seds[e]	ONAH007S1																				
NURE Seds[e]	ONAH009S1	30100	1			11	1	1047	1	1	1			145	1	7	1	12	1	20667	1
NURE Seds[e]	ONAH012S1	50160	1			1	1	542	1	1.5	1			70	1	15	1	18	1	24580	1
NURE Seds[e]	ONAH015S1	52847	1			2	1	190	1	2.5	1			90	1	7	1	10	1	58493	1
NURE Seds[e]	ONAH018S1	52833	1			1	1	282	1	2	1			80	1	15	1	28	1	43627	1
NURE Seds[e]	ONAH021S1	55173	1			1	1	550	1	1.5	1			385	1	7	1	6	1	84200	1
NURE Seds[e]	ONAH022S1	16587	1			1	1	382	1	0.5	0			50	1	15	1	58	1	9407	1
NURE Seds[e]	ONAH023S1	53653	1			5	1	200	1	1	1			305	1	30	1	64	1	45873	1
NURE Seds[e]	ONAH024S1	43233	1					282	1	1.5	1			95	1	5	1	21	1	35353	1
NURE Seds[e]	ONAH026S1	73066	1					600	1	1	1			50	1	10	1	7	1	42893	1
NURE Seds[e]	ONAH027S1	8873	1					287	1	0.5	1			10	1	7	1	16	1	4460	1
NURE Seds[e]	ONAH028S1	30440	1					357	1	0.5	1			175	1	7	1	24	1	22920	1
NURE Seds[e]	ONAH032S1	55933	1					252	1	1.5	1			115	1	15	1	25	1	41073	1
NURE Seds[e]	ONAH033S1	55453	1			1	1	297	1	1.5	1			170	1	5	0	22	1	31713	1
NURE Seds[e]	ONAH035S1	59933	1			1	1	485	1	2	1			255	1	7	1	12	1	43660	1
NURE Seds[e]	ONAH036S1	59407	1			1	1	190	1	0.5	1			120	1	10	1	19	1	34887	1
NURE Seds[e]	ONAH038S1	32573	1					230	1	1.5	1			30	1	5	0	9	1	15613	1
NURE Seds[e]	ONBA004S1	60253	1					277	1	5.1	1			20	1	5	0	2	1	28227	1
NURE Seds[e]	ONBA005S1	65547	1																	83400	1
NURE Seds[e]	ONBA006S1	60100	1					357	1	1	1			45	1	7	1	4	1	91133	1
NURE Seds[e]	ONBA007S1	66666	1					460	1	1.5	1			30	1	5	1	5	1	92533	1
NURE Seds[e]	ONBA010S1	59287	1					342	1	1.5	1			25	1	5	0	10	1	47273	1
NURE Seds[e]	ONBA011S1	63033	1			2	1	635	1	2.5	1			20	1	7	1	17	1	25020	1
NURE Seds[e]	ONBA013S1	60453	1			1	1	375	1	2	1			25	1	7	1	18	1	40467	1
NURE Seds[e]	ONBA015S1	55540	1					232	1	1	1			20	1	5	0	8	1	46940	1
NURE Seds[e]	ONBA016S1	63553	1			1	1	250	1	0.5	1			20	1	5	0	8	1	54633	1
NURE Seds[e]	ONBA017S1	65813	1			6	1	290	1	1	1			25	1	5	1	9	1	56027	1
NURE Seds[e]	ONBA019S1	67200	1					482	1	0.5	1			20	1	5	0	7	1	50193	1
NURE Seds[e]	ONBA027S1	65593	1					402	1	1.5	1			15	1	5	1	4	1	41867	1
NURE Seds[e]	ONBA029S1	61887	1					485	1	1.5	1			10	1	5	1	5	1	85466	1
NURE Seds[e]	ONBA030S1	62113	1					470	1	2.5	1			15	1	5	0	4	1	85866	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONAG018S1	10	0	503	1	2	0	7	1	1	1	0.1	0			54	1	17	1
NURE Seds[e]	ONAG020S1	15	1	478	1	2	1	7	1	1	0	0.1	0			65	1	12	1
NURE Seds[e]	ONAG021S1	10	1	385	1	2	0	10	1	1	0	0.1	0			60	1	25	1
NURE Seds[e]	ONAG023S1	10	0	802	1	2	0	7	1	1	1	0.1	0			64	1	15	1
NURE Seds[e]	ONAH007S1											0.2	1						
NURE Seds[e]	ONAH009S1	10	1	1472	1	3	1	25	1	1	0	2	1			70	1	27	1
NURE Seds[e]	ONAH012S1	10	0	580	1	2	1	25	1	1	1	0.6	1			70	1	37	1
NURE Seds[e]	ONAH015S1	10	1	805	1	3	1	12	1	1	0	0.3	1			151	1	42	1
NURE Seds[e]	ONAH018S1	15	1	1017	1	2	1	47	1	1	0	0.6	1			91	1	92	1
NURE Seds[e]	ONAH021S1	15	1	1347	1	2	1	45	1	1	0	0.3	1			323	1	17	1
NURE Seds[e]	ONAH022S1	15	1	355	1	2	1	122	1	1	0	2.6	1			26	1	27	1
NURE Seds[e]	ONAH023S1	25	1	1353	1	3	1	207	1	1	0	0.7	1			137	1	70	1
NURE Seds[e]	ONAH024S1	25	1	749	1	2	1	55	1	1	0	0.3	1			72	1	52	1
NURE Seds[e]	ONAH026S1	10	1	616	1	2	0	15	1	1	0	0.6	1			139	1	37	1
NURE Seds[e]	ONAH027S1	25	1			2	1	25	1	1	0	3	1			19	1	12	1
NURE Seds[e]	ONAH028S1	20	1	342	1	3	1	85	1	2	1	2.1	1			61	1	20	1
NURE Seds[e]	ONAH032S1	15	1	888	1	2	1	147	1	7	1	0.5	1			99	1	47	1
NURE Seds[e]	ONAH033S1	10	1	829	1	2	1	45	1	1	0	0.3	1			143	1	32	1
NURE Seds[e]	ONAH035S1	15	1	851	1	2	0	55	1	1	0	0.4	1			95	1	40	1
NURE Seds[e]	ONAH036S1	20	1	807	1	3	1	40	1	1	1	0.5	1			121	1	40	1
NURE Seds[e]	ONAH038S1	25	1	585	1	2	0	12	1	1	0	1.3	1			60	1	27	1
NURE Seds[e]	ONBA004S1	10	1	741	1	2	0	5	1	1	0	0.1	0			75	1	10	1
NURE Seds[e]	ONBA005S1			960	1											167	1		
NURE Seds[e]	ONBA006S1	10	1	1407	1	2	1	7	1	1	0	0.1	0			359	1	22	1
NURE Seds[e]	ONBA007S1	10	1	979	1	2	0	10	1	1	0	0.2	1			237	1	22	1
NURE Seds[e]	ONBA010S1	10	1	1347	1	4	1	7	1	1	0	0.2	1			171	1	62	1
NURE Seds[e]	ONBA011S1	10	1	861	1	3	1	5	1	1	0	0.5	1			104	1	60	1
NURE Seds[e]	ONBA013S1	10	1	924	1	2	0	17	1	1	0	0.3	1			127	1	60	1
NURE Seds[e]	ONBA015S1	10	0	765	1	2	1	5	1	1	0	0.2	1			139	1	20	1
NURE Seds[e]	ONBA016S1	10	1	764	1	2	0	10	1	1	0	0.3	1			167	1	17	1
NURE Seds[e]	ONBA017S1	15	1	976	1	2	0	7	1	1	1	0.3	1			166	1	32	1
NURE Seds[e]	ONBA019S1	10	1	871	1	2	0	5	1	1	1	0.3	1			137	1	25	1
NURE Seds[e]	ONBA027S1	10	0	911	1	2	0	5	1	1	0	0.3	1			110	1	30	1
NURE Seds[e]	ONBA029S1	10	1	1089	1	2	0	5	1	1	0	0.3	1			175	1	30	1
NURE Seds[e]	ONBA030S1	15	1	707	1	2	0	5	0	1	0	0.3	1			177	1	17	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBA031S1	62620	1			1	1	480	1	1.5	1			25	1	5	1	4	1	67266	1
NURE Seds[e]	ONBA035S1	63047	1					425	1	1	1			30	1	5	1	8	1	31193	1
NURE Seds[e]	ONBA037S1																				
NURE Seds[e]	ONBA039S1	60267	1			1	1	427	1	1.5	1			25	1	5	0	9	1	48147	1
NURE Seds[e]	ONBB001S1	53007	1					430	1	1.5	1			40	1	5	0	7	1	26900	1
NURE Seds[e]	ONBB002S1	60773	1			1	1	437	1	0.5	1			30	1	5	0	9	1	39267	1
NURE Seds[e]	ONBB004S1	51267	1													7	1	20	1	34413	1
NURE Seds[e]	ONBB005S1	42787	1																	25833	1
NURE Seds[e]	ONBB006S1	42653	1					347	1	1	1			20	1	7	1	22	1	22593	1
NURE Seds[e]	ONBB008S1	21453	1					947	1	0.5	1			5	1	5	0	11	1	13267	1
NURE Seds[e]	ONBB010S1	56540	1			1	1	227	1	2.5	1			15	1	7	1	7	1	19480	1
NURE Seds[e]	ONBB012S1	43340	1			1	1	310	1	1	1			55	1	7	1	31	1	23193	1
NURE Seds[e]	ONBB014S1	59927	1			12	1	332	1	0.5	1			25	1	5	1	10	1	23900	1
NURE Seds[e]	ONBB015S1	40500	1			1	1	357	1	1	1			60	1	7	1	31	1	26600	1
NURE Seds[e]	ONBB016S1	47567	1			1	1	442	1	1.5	1			25	1	5	0	16	1	32307	1
NURE Seds[e]	ONBB017S1	54100	1			5	1	285	1	1	1			20	1	5	1	22	1	32907	1
NURE Seds[e]	ONBB021S1	55540	1			2	1	437	1	1	1			55	1	5	1	6	1	35507	1
NURE Seds[e]	ONBB022S1																				
NURE Seds[e]	ONBB023S1	49500	1			7	1	342	1	1	1			70	1	7	1	20	1	58380	1
NURE Seds[e]	ONBB025S1	24807	1					347	1	1	1			10	1	7	1	42	1	12793	1
NURE Seds[e]	ONBB027S1	36667	1			4	1	135	1	1	1			25	1	10	1	44	1	22540	1
NURE Seds[e]	ONBB028S1	48027	1					272	1	1.5	1			30	1	7	1	22	1	27967	1
NURE Seds[e]	ONBB029S1	49427	1					262	1	1.5	1			30	1	5	1	7	1	31460	1
NURE Seds[e]	ONBB032S1	54040	1					217	1	1.5	1			35	1	7	1	9	1	42060	1
NURE Seds[e]	ONBB033S1	57493	1			2	1	430	1	1	1			35	1	10	1	17	1	33267	1
NURE Seds[e]	ONBB034S1	49400	1					190	1	1	1			25	1	10	1	8	1	23167	1
NURE Seds[e]	ONBB037S1	54033	1					80	1	2	1			25	1	5	1	33	1	25093	1
NURE Seds[e]	ONBC001S1																				
NURE Seds[e]	ONBC002S1	48160	1			1	1	247	1	1	1			20	1	10	1	10	1	27027	1
NURE Seds[e]	ONBC003S1	54473	1			2	1	317	1	1.5	1			20	1	5	0	9	1	31893	1
NURE Seds[e]	ONBC004S1	54680	1			4	1	317	1	1.5	1			20	1	5	0	7	1	26767	1
NURE Seds[e]	ONBC008S1	48240	1					260	1	1.5	1			40	1	5	1	8	1	52453	1
NURE Seds[e]	ONBC009S1	52547	1					282	1	1	1			30	1	5	1	7	1	36573	1
NURE Seds[e]	ONBC010S1	47553	1					265	1	1.5	1			25	1	7	1	15	1	33507	1
NURE Seds[e]	ONBC011S1	54360	1			3	1	317	1	1	1			15	1	5	0	7	1	30160	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBA031S1	10	1	772	1	2	0	5	0	1	1	0.2	1			140	1	17	1
NURE Seds[e]	ONBA035S1	10	1	814	1	2	1	10	1	1	0	0.5	1			155	1	35	1
NURE Seds[e]	ONBA037S1											0.3	1						
NURE Seds[e]	ONBA039S1	10	1	1107	1	2	1	22	1	1	1	0.4	1			149	1	40	1
NURE Seds[e]	ONBB001S1	10	1	984	1	2	0	12	1	1	0	0.5	1			147	1	25	1
NURE Seds[e]	ONBB002S1	10	1	1190	1	2	1	12	1	1	0	0.6	1			142	1	27	1
NURE Seds[e]	ONBB004S1			980	1			27	1			0.8	1			128	1	77	1
NURE Seds[e]	ONBB005S1			475	1											61	1		
NURE Seds[e]	ONBB006S1	25	1	371	1	2	1	22	1	1	0	1.1	1			48	1	47	1
NURE Seds[e]	ONBB008S1	20	1	323	1	2	0	92	1	1	0	1.6	1			34	1	30	1
NURE Seds[e]	ONBB010S1	10	1	535	1	2	1	7	1	1	0	0.2	1			52	1	22	1
NURE Seds[e]	ONBB012S1	10	1	782	1	3	1	7	1	1	0	0.8	1			58	1	32	1
NURE Seds[e]	ONBB014S1	10	1	555	1	2	0	17	1	1	0	0.3	1			76	1	50	1
NURE Seds[e]	ONBB015S1	15	1	813	1	2	0	17	1	1	0	0.6	1			86	1	30	1
NURE Seds[e]	ONBB016S1	20	1	543	1	2	1	22	1	1	0	1	1			69	1	52	1
NURE Seds[e]	ONBB017S1	15	1	744	1	2	1	25	1	1	0	0.9	1			97	1	97	1
NURE Seds[e]	ONBB021S1	10	0	663	1	2	0	5	1	1	0	0.7	1			114	1	30	1
NURE Seds[e]	ONBB022S1											1	1						
NURE Seds[e]	ONBB023S1	15	1	734	1	2	1	12	1	1	0	0.5	1			167	1	45	1
NURE Seds[e]	ONBB025S1	65	1	485	1	2	1	15	1	1	1	2.1	1			28	1	42	1
NURE Seds[e]	ONBB027S1	25	1	750	1	2	0	40	1	1	1	1.9	1			75	1	95	1
NURE Seds[e]	ONBB028S1	10	0	1252	1	2	0	22	1	1	0	0.8	1			104	1	77	1
NURE Seds[e]	ONBB029S1	10	0	617	1	2	0	7	1	1	0	0.4	1			101	1	22	1
NURE Seds[e]	ONBB032S1	15	1	601	1	2	0	10	1	1	0	0.6	1			116	1	32	1
NURE Seds[e]	ONBB033S1	10	1	705	1	2	0	12	1	1	0	0.6	1			93	1	65	1
NURE Seds[e]	ONBB034S1	15	1	395	1	2	0	12	1	1	0	0.7	1			64	1	30	1
NURE Seds[e]	ONBB037S1	10	0	579	1	2	0	17	1	1	0	0.6	1			85	1	40	1
NURE Seds[e]	ONBC001S1											0.5	1						
NURE Seds[e]	ONBC002S1	10	1	587	1	2	0	15	1	2	1	0.7	1			52	1	22	1
NURE Seds[e]	ONBC003S1	15	1	687	1	2	1	15	1	1	0	0.2	1			84	1	27	1
NURE Seds[e]	ONBC004S1	15	1	619	1	2	0	10	1	1	0	0.5	1			73	1	25	1
NURE Seds[e]	ONBC008S1	10	1	848	1	2	0	10	1	1	0	0.3	1			146	1	15	1
NURE Seds[e]	ONBC009S1	10	1	744	1	2	0	7	1	1	0	0.2	1			142	1	20	1
NURE Seds[e]	ONBC010S1	10	0	981	1	2	0	7	1	1	0	0.4	1			118	1	22	1
NURE Seds[e]	ONBC011S1	10	0	742	1	2	0	5	1	1	0	0.3	1			96	1	17	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBC012S1	57793	1					295	1	1	1			15	1	5	1	9	1	39927	1
NURE Seds[e]	ONBC013S1	45227	1					80	1	1.5	1			35	1	5	0	5	1	81866	1
NURE Seds[e]	ONBC014S1																				
NURE Seds[e]	ONBC015S1	54800	1			1	1	307	1	2.5	1			15	1	5	0	7	1	17367	1
NURE Seds[e]	ONBC016S1	51427	1			3	1	325	1	1	1			60	1	7	1	17	1	43967	1
NURE Seds[e]	ONBC017S1	51313	1			5	1	320	1	2.5	1			25	1	5	1	11	1	31980	1
NURE Seds[e]	ONBC018S1	54627	1			4	1							45	1	10	1	14	1	32707	1
NURE Seds[e]	ONBC019S1	52580	1					117	1	2	1			15	1	7	1	6	1	19613	1
NURE Seds[e]	ONBC022S1	49040	1			2	1	342	1	1.5	1			35	1	5	1	9	1	25500	1
NURE Seds[e]	ONBC023S1	53833	1			4	1	442	1	1.5	1			40	1	5	1	13	1	28073	1
NURE Seds[e]	ONBC024S1	55727	1			2	1	57	1	1.5	1			35	1	5	0	12	1	25907	1
NURE Seds[e]	ONBC025S1	57400	1			2	1	342	1	1.5	1			20	1	5	1	10	1	22253	1
NURE Seds[e]	ONBC026S1	58567	1			1	1	300	1	1.5	1			25	1	5	1	9	1	31673	1
NURE Seds[e]	ONBC027S1	55960	1			1	1	307	1	2	1			30	1	5	1	9	1	29233	1
NURE Seds[e]	ONBC028S1	54160	1			2	1	302	1	2	1			35	1	5	1	7	1	21420	1
NURE Seds[e]	ONBC029S1	56120	1			1	1	372	1	2	1			30	1	5	1	8	1	23433	1
NURE Seds[e]	ONBC030S1	57587	1					245	1	2	1			25	1	7	1	16	1	26360	1
NURE Seds[e]	ONBC031S1	56940	1			1	1	327	1	2	1			35	1	7	1	16	1	28467	1
NURE Seds[e]	ONBC034S1	52233	1			2	1	397	1	2	1			55	1	7	1	16	1	42860	1
NURE Seds[e]	ONBC035S1	67666	1					357	1	2	1			30	1	7	1	10	1	19093	1
NURE Seds[e]	ONBC036S1	57880	1			3	1	260	1	1.5	1			25	1	5	1	11	1	25940	1
NURE Seds[e]	ONBD001S1	59533	1					337	1	2	1			25	1	5	0	4	1	35240	1
NURE Seds[e]	ONBD002S1	55507	1			1	1	432	1	1.5	1			30	1	5	1	18	1	20220	1
NURE Seds[e]	ONBD003S1	57613	1			1	1	410	1	1.5	1			50	1	5	1	15	1	21067	1
NURE Seds[e]	ONBD004S1	55040	1			1	1	260	1	1.5	1			30	1	5	1	10	1	26887	1
NURE Seds[e]	ONBD005S1	62107	1					285	1	2	1			20	1	5	1	9	1	26267	1
NURE Seds[e]	ONBD009S1	63640	1			1	1	425	1	1.5	1			15	1	5	0	2	1	23620	1
NURE Seds[e]	ONBD010S1	62180	1					342	1	2	1			15	1	5	1	9	1	28513	1
NURE Seds[e]	ONBD011S1																				
NURE Seds[e]	ONBD013S1	57160	1			4	1	307	1	1	1			25	1	5	1	7	1	29280	1
NURE Seds[e]	ONBD014S1	50080	1			1	1	422	1	2	1			20	1	7	1	20	1	21940	1
NURE Seds[e]	ONBD016S1	48433	1			2	1	347	1	1.5	1			30	1	5	0	3	1	18133	1
NURE Seds[e]	ONBD017S1	63720	1					297	1	2	1			20	1	5	0	4	1	13540	1
NURE Seds[e]	ONBD019S1	51407	1			5	1	310	1	2	1			30	1	5	0	8	1	27387	1
NURE Seds[e]	ONBD020S1	58100	1					112	1	1.5	1			15	1	5	1	9	1	24580	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBC012S1	10	1	723	1	2	0	5	1	1	0	0.3	1			96	1	25	1
NURE Seds[e]	ONBC013S1	15	1	1093	1	2	0	5	0	1	0	0.3	1			235	1	12	1
NURE Seds[e]	ONBC014S1											0.3	1						
NURE Seds[e]	ONBC015S1	10	1	400	1	2	0	10	1	1	0	0.3	1			45	1	17	1
NURE Seds[e]	ONBC016S1	10	1	917	1	2	1	15	1	1	1	0.4	1			114	1	32	1
NURE Seds[e]	ONBC017S1	10	0	657	1	2	0	20	1	1	0	0.4	1			84	1	32	1
NURE Seds[e]	ONBC018S1			721	1	2	0	14	1	1	0	0.6	1			90	1	34	1
NURE Seds[e]	ONBC019S1	25	1	428	1	2	0	12	1	1	0	0.4	1			44	1	25	1
NURE Seds[e]	ONBC022S1	10	1	505	1	2	1	7	1	1	0	0.4	1			62	1	27	1
NURE Seds[e]	ONBC023S1	10	1	543	1	3	1	10	1	1	0	0.4	1			51	1	35	1
NURE Seds[e]	ONBC024S1	10	1	543	1	2	0	5	1	2	1	0.4	1			74	1	30	1
NURE Seds[e]	ONBC025S1	10	0	426	1	2	0	5	1	4	1	0.1	1			54	1	32	1
NURE Seds[e]	ONBC026S1	10	1	612	1	2	0	5	0	1	0	0.3	1			76	1	25	1
NURE Seds[e]	ONBC027S1	10	1	572	1	2	1	7	1	1	1	0.2	1			55	1	30	1
NURE Seds[e]	ONBC028S1	10	1	468	1	2	0	5	1	1	0	0.2	1			51	1	22	1
NURE Seds[e]	ONBC029S1	15	1	566	1	2	0	5	1	1	0	0.4	1			58	1	25	1
NURE Seds[e]	ONBC030S1	10	1	737	1	2	0	5	0	1	0	0.2	1			62	1	52	1
NURE Seds[e]	ONBC031S1	15	1	764	1	2	0	7	1	1	0	0.2	1			69	1	47	1
NURE Seds[e]	ONBC034S1	15	1	639	1	2	0	15	1	1	0	0.3	1			111	1	35	1
NURE Seds[e]	ONBC035S1	10	1	492	1	2	0	17	1	1	0	0.4	1			49	1	55	1
NURE Seds[e]	ONBC036S1	15	1	526	1	2	0	5	1	1	0	0.1	1			51	1	40	1
NURE Seds[e]	ONBD001S1	10	1	526	1	2	1	5	0	1	0	0.4	1			80	1	10	1
NURE Seds[e]	ONBD002S1	10	1	588	1	2	1	10	1	1	0	0.4	1			77	1	67	1
NURE Seds[e]	ONBD003S1	10	1	437	1	2	0	12	1	1	1	0.3	1			56	1	42	1
NURE Seds[e]	ONBD004S1	10	1	529	1	3	1	10	1	4	1	0.3	1			82	1	35	1
NURE Seds[e]	ONBD005S1	10	1	538	1	2	0	7	1	1	0	0.3	1			51	1	40	1
NURE Seds[e]	ONBD009S1	15	1	720	1	2	0	5	0	1	0	0.1	1			75	1	10	1
NURE Seds[e]	ONBD010S1	10	1	465	1	2	0	5	1	1	1	0.5	1			56	1	32	1
NURE Seds[e]	ONBD011S1											0.4	1						
NURE Seds[e]	ONBD013S1	10	0	557	1	2	0	5	1	1	0	0.3	1			36	1	22	1
NURE Seds[e]	ONBD014S1	10	1	419	1	2	1	7	1	1	0	0.1	1			51	1	35	1
NURE Seds[e]	ONBD016S1	10	0	542	1	2	0	5	0	1	0	0.1	0			56	1	5	1
NURE Seds[e]	ONBD017S1	10	1	348	1	2	1	5	0	1	0	0.1	0			40	1	17	1
NURE Seds[e]	ONBD019S1	10	1	644	1	2	0	5	0	1	0	0.2	1			79	1	17	1
NURE Seds[e]	ONBD020S1	20	1	798	1	2	0	5	0	1	0	0.1	1			55	1	35	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBD021S1	58447	1			11	1	297	1	1.5	1			15	1	5	0	5	1	18360	1
NURE Seds[e]	ONBD022S1	66666	1			7	1	467	1	2	1			15	1	5	0	3	1	19920	1
NURE Seds[e]	ONBD023S1	63740	1					247	1	2	1			20	1	5	1	7	1	19873	1
NURE Seds[e]	ONBD025S1																				
NURE Seds[e]	ONBD026S1	55127	1			1	1							33	1					7627	1
NURE Seds[e]	ONBD027S1	57727	1			2	1	167	1	2	1			15	1	5	0	7	1	16873	1
NURE Seds[e]	ONBD028S1	58900	1			2	1	232	1	1.5	1			10	1	5	0	4	1	16667	1
NURE Seds[e]	ONBD030S1	60967	1			1	1	197	1	3	1			10	1	5	0	2	1	15093	1
NURE Seds[e]	ONBD032S1	56980	1			1	1	192	1	2	1			20	1	5	1	10	1	29227	1
NURE Seds[e]	ONBD033S1																				
NURE Seds[e]	ONBD034S1	56967	1			2	1	235	1	2	1			20	1	7	1	11	1	23247	1
NURE Seds[e]	ONBD035S1	63473	1			4	1	125	1	2.5	1			20	1	7	1	10	1	21993	1
NURE Seds[e]	ONBD036S1	60827	1			1	1	167	1	2.5	1			10	1	5	1	7	1	20760	1
NURE Seds[e]	ONBD037S1	52787	1			11	1	100	1	1.5	1			5	1	7	1	12	1	16233	1
NURE Seds[e]	ONBE001S1	46300	1			3	1	117	1	1.5	1			15	1	10	1	46	1	18067	1
NURE Seds[e]	ONBE002S1	53153	1			2	1	57	1	1.5	1			40	1	10	1	20	1	27220	1
NURE Seds[e]	ONBE003S1	50147	1			2	1	122	1	2.5	1			30	1	10	1	21	1	24527	1
NURE Seds[e]	ONBE004S1	64233	1			4	1	135	1	2.5	1			25	1	7	1	19	1	27927	1
NURE Seds[e]	ONBE005S1	60227	1			2	1	272	1	1.5	1			35	1	5	1	8	1	19607	1
NURE Seds[e]	ONBE006S1	60600	1			2	1	205	1	2	1			40	1	5	1	4	1	19933	1
NURE Seds[e]	ONBE008S1	57747	1			1	1	142	1	2.5	1			20	1	5	1	12	1	18060	1
NURE Seds[e]	ONBE010S1	54560	1			3	1	60	1	3	1			15	1	5	1	21	1	17573	1
NURE Seds[e]	ONBE012S1	58027	1			11	1	117	1	2.5	1			55	1	10	1	11	1	25660	1
NURE Seds[e]	ONBE013S1	56200	1			7	1	112	1	2	1			50	1	10	1	10	1	27393	1
NURE Seds[e]	ONBE017S1	61407	1			2	1	95	1	2.5	1			50	1	10	1	21	1	25173	1
NURE Seds[e]	ONBE018S1	47740	1			5	1	160	1	2.5	1			30	1	10	1	13	1	22933	1
NURE Seds[e]	ONBE019S1	64547	1			1	1	110	1	2.5	1			50	1	10	1	20	1	31047	1
NURE Seds[e]	ONBE021S1	56120	1			4	1	60	1	3	1			50	1	7	1	23	1	22373	1
NURE Seds[e]	ONBE022S1	61487	1			7	1	125	1	3	1			25	1	7	1	7	1	21187	1
NURE Seds[e]	ONBE023S1	62227	1			11	1	197	1	2.5	1			45	1	7	1	14	1	30653	1
NURE Seds[e]	ONBE024S1	68133	1			11	1	147	1	5.5	1			20	1	7	1	25	1	20153	1
NURE Seds[e]	ONBE025S1	61980	1			2	1	52	1	3	1			15	1	5	1	6	1	14667	1
NURE Seds[e]	ONBE026S1	68666	1			2	1							25	1	7	1	13	1	20860	1
NURE Seds[e]	ONBE027S1	54140	1			1	1	167	1	2	1			25	1	5	0	11	1	18067	1
NURE Seds[e]	ONBE028S1																				

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBD021S1	10	1	416	1	3	1	5	0	1	0	0.1	1			43	1	15	1
NURE Seds[e]	ONBD022S1	10	0	592	1	2	1	5	0	1	0	0.1	1			76	1	12	1
NURE Seds[e]	ONBD023S1	10	1	490	1	2	1	5	0	2	1	0.2	1			60	1	20	1
NURE Seds[e]	ONBD025S1											0.5	1						
NURE Seds[e]	ONBD026S1			899	1	6	1			8	1					49	1		
NURE Seds[e]	ONBD027S1	15	1	454	1	2	1	7	1	3	1	0.5	1			39	1	22	1
NURE Seds[e]	ONBD028S1	15	1	419	1	2	1	5	0	2	1	0.5	1			31	1	20	1
NURE Seds[e]	ONBD030S1	20	1	356	1	2	0	5	0	1	1	0.2	1			32	1	10	1
NURE Seds[e]	ONBD032S1	15	1	511	1	2	1	10	1	2	1	0.4	1			60	1	30	1
NURE Seds[e]	ONBD033S1											0.3	1						
NURE Seds[e]	ONBD034S1	20	1	573	1	2	0	7	1	2	1	0.6	1			81	1	25	1
NURE Seds[e]	ONBD035S1	15	1	865	1	2	0	7	1	1	0	0.5	1			60	1	50	1
NURE Seds[e]	ONBD036S1	15	1	448	1	2	0	5	1	2	1	0.2	1			37	1	30	1
NURE Seds[e]	ONBD037S1	15	1	515	1	3	1	7	1	2	1	0.8	1			44	1	27	1
NURE Seds[e]	ONBE001S1	15	1	306	1	2	0	15	1	2	1	0.5	1			48	1	55	1
NURE Seds[e]	ONBE002S1	20	1	562	1	2	0	15	1	1	0	0.6	1			82	1	52	1
NURE Seds[e]	ONBE003S1	20	1	479	1	2	0	7	1	2	1	0.6	1			50	1	42	1
NURE Seds[e]	ONBE004S1	15	1	428	1	3	1	7	1	2	1	0.8	1			43	1	27	1
NURE Seds[e]	ONBE005S1	15	1	655	1	2	0	5	1	1	0	0.5	1			59	1	27	1
NURE Seds[e]	ONBE006S1	20	1	438	1	2	0	7	1	1	0	0.3	1			49	1	20	1
NURE Seds[e]	ONBE008S1	20	1	568	1	2	0	5	1	1	0	0.6	1			62	1	40	1
NURE Seds[e]	ONBE010S1	20	1	460	1	2	0	10	1	2	1	0.6	1			30	1	52	1
NURE Seds[e]	ONBE012S1	20	1	1501	1	2	0	12	1	1	0	0.6	1			114	1	35	1
NURE Seds[e]	ONBE013S1	20	1	889	1	2	0	12	1	2	1	0.6	1			92	1	32	1
NURE Seds[e]	ONBE017S1	20	1	418	1	2	0	12	1	1	0	0.7	1			73	1	35	1
NURE Seds[e]	ONBE018S1	20	1	667	1	2	0	15	1	1	0	0.5	1			93	1	62	1
NURE Seds[e]	ONBE019S1	25	1	869	1	3	1	12	1	1	0	0.6	1			77	1	65	1
NURE Seds[e]	ONBE021S1	15	1	590	1	2	1	7	1	1	1	0.6	1			54	1	32	1
NURE Seds[e]	ONBE022S1	20	1	870	1	2	0	5	0	3	1	0.5	1			52	1	80	1
NURE Seds[e]	ONBE023S1	20	1	739	1	2	1	10	1	1	0	0.6	1			102	1	37	1
NURE Seds[e]	ONBE024S1	20	1	929	1	3	1	7	1	1	0	0.8	1			41	1	107	1
NURE Seds[e]	ONBE025S1	20	1	445	1	2	0	5	0	2	1	0.5	1			23	1	17	1
NURE Seds[e]	ONBE026S1			1153	1	2	0	5	1	1	1	0.9	1			47	1	47	1
NURE Seds[e]	ONBE027S1	10	1	354	1	2	0	12	1	1	0	0.4	1			47	1	32	1
NURE Seds[e]	ONBE028S1											0.4	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBE029S1	57940	1			3	1	147	1	2.5	1			40	1	5	1	12	1	20640	1
NURE Seds[e]	ONBE031S1	52773	1			4	1	172	1	2.5	1			30	1	5	1	12	1	19340	1
NURE Seds[e]	ONBE032S1	45460	1			3	1	72	1	2	1			10	1	5	1	19	1	15233	1
NURE Seds[e]	ONBF001S1	51500	1			8	1	250	1	2	1			240	1	12	1	15	1	29387	1
NURE Seds[e]	ONBF002S1	58000	1			6	1	260	1	2.5	1			70	1	7	1	16	1	23153	1
NURE Seds[e]	ONBF003S1	50587	1			7	1	162	1	2	1			70	1	7	1	25	1	27100	1
NURE Seds[e]	ONBF004S1	63693	1			5	1	272	1	1.5	1			55	1	5	1	13	1	28807	1
NURE Seds[e]	ONBF005S1	61300	1			2	1	202	1	1.5	1			60	1	7	1	14	1	44093	1
NURE Seds[e]	ONBF006S1	53467	1			5	1	172	1	2.5	1			45	1	5	1	10	1	28553	1
NURE Seds[e]	ONBF009S1	56980	1			3	1	242	1	2	1			45	1	5	1	17	1	18480	1
NURE Seds[e]	ONBF011S1	47587	1			2	1	190	1	1.5	1			105	1	10	1	20	1	33540	1
NURE Seds[e]	ONBF014S1	58460	1			2	1	185	1	2.5	1			80	1	7	1	25	1	26800	1
NURE Seds[e]	ONBF015S1	56433	1			3	1	205	1	3	1			80	1	5	1	19	1	26267	1
NURE Seds[e]	ONBF016S1	53580	1			2	1	187	1	2.5	1			65	1	5	1	32	1	23833	1
NURE Seds[e]	ONBF017S1	45653	1			6	1	85	1	2.5	1			65	1	10	1	31	1	23267	1
NURE Seds[e]	ONBF018S1	54987	1			4	1	135	1	2.5	1			105	1	5	1	11	1	33033	1
NURE Seds[e]	ONBF019S1	53327	1			2	1	347	1	2.5	1			50	1	5	1	9	1	38473	1
NURE Seds[e]	ONBF021S1	53513	1			5	1	222	1	2.5	1			85	1	5	1	22	1	22227	1
NURE Seds[e]	ONBF022S1	50647	1			5	1	87	1	2.5	1			135	1	7	1	19	1	21887	1
NURE Seds[e]	ONBF023S1	61940	1			2	1	267	1	2.5	1			60	1	5	1	11	1	32693	1
NURE Seds[e]	ONBF024S1	57540	1			1	1	227	1	2.5	1			165	1	5	1	11	1	32940	1
NURE Seds[e]	ONBF025S1	49420	1			5	1	177	1	2	1			50	1	5	1	35	1	18800	1
NURE Seds[e]	ONBF026S1	59293	1			4	1	275	1	2	1			80	1	7	1	12	1	27500	1
NURE Seds[e]	ONBF028S1	60447	1			4	1	197	1	3.5	1			195	1	5	1	12	1	42707	1
NURE Seds[e]	ONBF030S1	55120	1			4	1	177	1	2	1			50	1	7	1	24	1	22367	1
NURE Seds[e]	ONBF031S1	48893	1			2	1	80	1	3	1			25	1	7	1	14	1	18753	1
NURE Seds[e]	ONBF032S1	54127	1			2	1	62	1	2	1			80	1	5	1	35	1	23973	1
NURE Seds[e]	ONBG007S1	50100	1					70	1	2.5	1			15	1	5	1	10	1	24953	1
NURE Seds[e]	ONBG008S1	58253	1			1	1	142	1	1.5	1			15	1	5	1	8	1	32320	1
NURE Seds[e]	ONBG009S1	56700	1					217	1	2	1			20	1	5	1	4	1	19940	1
NURE Seds[e]	ONBG010S1	54733	1					165	1	2.5	1			15	1	5	1	6	1	25200	1
NURE Seds[e]	ONBG011S1	56400	1					140	1	2.5	1			20	1	5	0	4	1	29113	1
NURE Seds[e]	ONBG012S1	59500	1					82	1	3	1			25	1	5	1	20	1	25353	1
NURE Seds[e]	ONBG013S1	62673	1			1	1	310	1	2.5	1			15	1	5	0	3	1	23680	1
NURE Seds[e]	ONBG014S1	62626	1					290	1	3	1			10	1	5	0	2	1	7953	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBE029S1	10	0	462	1	2	0	10	1	1	0	0.4	1			54	1	37	1
NURE Seds[e]	ONBE031S1	10	1	448	1	3	1	12	1	1	0	0.5	1			46	1	35	1
NURE Seds[e]	ONBE032S1	10	1	271	1	2	1	7	1	1	0	0.4	1			31	1	42	1
NURE Seds[e]	ONBF001S1	30	1	498	1	2	1	62	1	1	0	0.7	1			115	1	57	1
NURE Seds[e]	ONBF002S1	10	1	721	1	2	1	15	1	1	0	0.4	1			72	1	42	1
NURE Seds[e]	ONBF003S1	15	1	632	1	3	1	22	1	1	0	0.8	1			62	1	55	1
NURE Seds[e]	ONBF004S1	10	1	455	1	2	0	10	1	1	0	0.3	1			53	1	37	1
NURE Seds[e]	ONBF005S1	10	0	651	1	4	1	17	1	1	0	0.5	1			119	1	62	1
NURE Seds[e]	ONBF006S1	10	0	517	1	2	0	12	1	1	0	0.4	1			80	1	37	1
NURE Seds[e]	ONBF009S1	10	1	540	1	2	1	12	1	1	0	0.4	1			74	1	42	1
NURE Seds[e]	ONBF011S1	10	1	644	1	4	1	22	1	1	0	0.7	1			71	1	32	1
NURE Seds[e]	ONBF014S1	25	1	635	1	2	0	12	1	1	0	0.4	1			102	1	72	1
NURE Seds[e]	ONBF015S1	10	0	576	1	2	0	7	1	1	0	0.3	1			104	1	40	1
NURE Seds[e]	ONBF016S1	10	0	514	1	2	0	22	1	1	0	0.5	1			76	1	20	1
NURE Seds[e]	ONBF017S1	15	1	343	1	3	1	12	1	1	0	0.8	1			59	1	50	1
NURE Seds[e]	ONBF018S1	25	1	467	1	2	1	10	1	1	0	0.4	1			90	1	27	1
NURE Seds[e]	ONBF019S1	10	1	777	1	2	0	5	0	1	0	0.4	1			122	1	22	1
NURE Seds[e]	ONBF021S1	20	1	577	1	2	1	20	1	1	0	0.5	1			78	1	30	1
NURE Seds[e]	ONBF022S1	10	1	507	1	2	0	65	1	1	0	0.5	1			51	1	22	1
NURE Seds[e]	ONBF023S1	10	0	703	1	2	0	5	1	1	0	0.3	1			110	1	25	1
NURE Seds[e]	ONBF024S1	10	1	723	1	2	0	17	1	1	0	0.3	1			104	1	27	1
NURE Seds[e]	ONBF025S1	10	1	338	1	2	0	15	1	1	0	0.4	1			61	1	37	1
NURE Seds[e]	ONBF026S1	20	1	558	1	2	0	15	1	1	0	0.4	1			83	1	37	1
NURE Seds[e]	ONBF028S1	10	1	907	1	2	0	20	1	1	0	0.4	1			137	1	25	1
NURE Seds[e]	ONBF030S1	10	0	1311	1	3	1	15	1	1	0	0.4	1			69	1	42	1
NURE Seds[e]	ONBF031S1	30	1	406	1	2	0	12	1	1	0	0.5	1			71	1	92	1
NURE Seds[e]	ONBF032S1	20	1	434	1	3	1	15	1	1	0	0.5	1			76	1	30	1
NURE Seds[e]	ONBG007S1	20	1	768	1	6	1	5	1	1	1	0.4	1			44	1	22	1
NURE Seds[e]	ONBG008S1	15	1	840	1	2	0	7	1	3	1	0.6	1			86	1	27	1
NURE Seds[e]	ONBG009S1	15	1	607	1	3	1	5	0	4	1	0.1	1			55	1	17	1
NURE Seds[e]	ONBG010S1	20	1	683	1	2	0	5	1	2	1	0.4	1			40	1	45	1
NURE Seds[e]	ONBG011S1	15	1	581	1	4	1	5	1	1	0	0.4	1			59	1	12	1
NURE Seds[e]	ONBG012S1	25	1	697	1	2	0	15	1	1	0	0.5	1			31	1	52	1
NURE Seds[e]	ONBG013S1	15	1	484	1	2	0	7	1	1	0	0.3	1			38	1	17	1
NURE Seds[e]	ONBG014S1	10	1	315	1	2	0	5	1	4	1	0.4	1			19	1	15	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBG015S1	57167	1					172	1	2	1			15	1	5	0	4	1	15053	1
NURE Seds[e]	ONBG016S1	62100	1					275	1	2.5	1			25	1	5	0	6	1	29253	1
NURE Seds[e]	ONBG017S1	62593	1			1	1	385	1	2	1			30	1	5	0	5	1	17367	1
NURE Seds[e]	ONBG020S1	52167	1					95	1	1.5	1			30	1	5	1	6	1	43500	1
NURE Seds[e]	ONBG021S1	59033	1					125	1	2.5	1			35	1	7	1	13	1	29907	1
NURE Seds[e]	ONBG022S1	58967	1					150	1	2	1			15	1	5	0	9	1	28067	1
NURE Seds[e]	ONBG024S1	59567	1					137	1	1.5	1			15	1	5	0	6	1	25640	1
NURE Seds[e]	ONBG025S1																				
NURE Seds[e]	ONBG026S1	54393	1					170	1	2	1			25	1	5	0	7	1	24307	1
NURE Seds[e]	ONBH002S1	48480	1			8	1	152	1	1.5	1			15	1	10	1	22	1	28220	1
NURE Seds[e]	ONBH005S1	47107	1			9	1	235	1	1.5	1			70	1	12	1	26	1	26393	1
NURE Seds[e]	ONBH006S1	44700	1			10	1	157	1	2	1			60	1	15	1	41	1	30873	1
NURE Seds[e]	ONBH007S1	56433	1			1	1	250	1	2.5	1			70	1	7	1	23	1	49393	1
NURE Seds[e]	ONBH009S1	52820	1			6	1	200	1	2	1			25	1	7	1	16	1	24940	1
NURE Seds[e]	ONBH010S1	44473	1			3	1	90	1	1.5	1			30	1	5	0	10	1	18233	1
NURE Seds[e]	ONBH011S1	36340	1			2	1	77	1	2	1			40	1	5	1	6	1	43167	1
NURE Seds[e]	ONBH012S1	43953	1			6	1	97	1	2	1			25	1	5	1	8	1	30067	1
NURE Seds[e]	ONBH013S1	55687	1			5	1	150	1	2.5	1			25	1	5	1	8	1	26147	1
NURE Seds[e]	ONBH014S1	52707	1			12	1	112	1	2	1			40	1	12	1	23	1	28447	1
NURE Seds[e]	ONBH015S1	40240	1			1	1	112	1	1	1			40	1	7	1	11	1	35573	1
NURE Seds[e]	ONBH016S1	42760	1			3	1	197	1	1.5	1			30	1	10	1	14	1	18053	1
NURE Seds[e]	ONBH017S1	41727	1			1	1	72	1	0.5	1			45	1	10	1	9	1	34400	1
NURE Seds[e]	ONBH018S1	21427	1			1	1	200	1	1	1			15	1	15	1	12	1	11340	1
NURE Seds[e]	ONBH019S1	41773	1			2	1	22	1	1.5	1			80	1	10	1	22	1	39300	1
NURE Seds[e]	ONBH021S1	51273	1			3	1	150	1	1	1			80	1	5	1	16	1	26187	1
NURE Seds[e]	ONBH022S1	34813	1			2	1	55	1	0.5	1			50	1	7	1	9	1	37493	1
NURE Seds[e]	ONBH023S1	45907	1			10	1	137	1	1.5	1			40	1	12	1	28	1	28493	1
NURE Seds[e]	ONBH029S1	55027	1			1	1	157	1	1.5	1			30	1	7	1	20	1	27027	1
NURE Seds[e]	ONBH030S1	53213	1			6	1	240	1	1.5	1			35	1	10	1	17	1	28520	1
NURE Seds[e]	ONBH031S1	58487	1					112	1	1	1			15	1	5	0	4	1	17653	1
NURE Seds[e]	ONBH032S1	52987	1			2	1	62	1	2	1			20	1	5	1	8	1	27593	1
NURE Seds[e]	ONBH033S1	54807	1			3	1	97	1	1	1			20	1	5	1	4	1	25887	1
NURE Seds[e]	ONBH036S1	32487	1			1	1	55	1	0.5	1			15	1	5	0	8	1	21460	1
NURE Seds[e]	ONCA002S1	63513	1			4	1	192	1	2	1			15	1	5	0	5	1	38027	1
NURE Seds[e]	ONCA003S1	59833	1			7	1	240	1	1.5	1			10	1	5	0	6	1	54660	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONBG015S1	15	1	330	1	2	0	5	1	2	1	0.4	1			34	1	20	1
NURE Seds[e]	ONBG016S1	15	1	676	1	2	0	5	0	2	1	0.4	1			80	1	22	1
NURE Seds[e]	ONBG017S1	15	1	541	1	2	0	7	1	1	0	0.3	1			71	1	27	1
NURE Seds[e]	ONBG020S1	15	1	837	1	2	0	10	1	1	1	0.3	1			98	1	27	1
NURE Seds[e]	ONBG021S1	20	1	832	1	5	1	10	1	1	1	0.6	1			118	1	60	1
NURE Seds[e]	ONBG022S1	10	1	634	1	2	0	7	1	1	0	0.2	1			87	1	22	1
NURE Seds[e]	ONBG024S1	30	1	582	1	4	1	5	1	3	1	0.2	1			65	1	17	1
NURE Seds[e]	ONBG025S1											0.5	1						
NURE Seds[e]	ONBG026S1	15	1	565	1	2	0	5	0	1	1	0.3	1			67	1	15	1
NURE Seds[e]	ONBH002S1	25	1	591	1	2	0	10	1	1	0	0.6	1			113	1	67	1
NURE Seds[e]	ONBH005S1	10	1	594	1	2	0	25	1	1	0	0.9	1			84	1	52	1
NURE Seds[e]	ONBH006S1	30	1	754	1	3	1	32	1	1	0	1.1	1			72	1	72	1
NURE Seds[e]	ONBH007S1	15	1	815	1	2	0	15	1	3	1	0.4	1			108	1	47	1
NURE Seds[e]	ONBH009S1	35	1	855	1	2	0	5	1	1	0	0.4	1			49	1	80	1
NURE Seds[e]	ONBH010S1	20	1	478	1	2	0	7	1	3	1	0.3	1			47	1	35	1
NURE Seds[e]	ONBH011S1	30	1	649	1	2	0	10	1	1	0	0.3	1			93	1	20	1
NURE Seds[e]	ONBH012S1	25	1	484	1	2	0	10	1	1	0	0.4	1			44	1	47	1
NURE Seds[e]	ONBH013S1	25	1	593	1	2	0	7	1	1	0	0.5	1			34	1	47	1
NURE Seds[e]	ONBH014S1	230	1	1055	1	2	0	22	1	1	0	0.7	1			103	1	212	1
NURE Seds[e]	ONBH015S1	20	1	378	1	2	0	15	1	1	0	6.2	1			164	1	80	1
NURE Seds[e]	ONBH016S1	35	1	503	1	2	0	12	1	1	0	19.3	1			75	1	80	1
NURE Seds[e]	ONBH017S1	25	1	738	1	2	0	15	1	1	0	10.3	1			118	1	40	1
NURE Seds[e]	ONBH018S1	20	1	346	1	2	0	12	1	1	0	2.4	1			43	1	40	1
NURE Seds[e]	ONBH019S1	25	1	694	1	2	0	17	1	1	0	0.8	1			120	1	55	1
NURE Seds[e]	ONBH021S1	25	1	482	1	2	0	15	1	1	0	0.6	1			95	1	65	1
NURE Seds[e]	ONBH022S1	15	1	468	1	2	0	7	1	1	0	0.4	1			60	1	32	1
NURE Seds[e]	ONBH023S1	30	1	517	1	8	1	22	1	1	0	0.9	1			76	1	92	1
NURE Seds[e]	ONBH029S1	15	1	762	1	2	0	15	1	1	0	0.7	1			67	1	45	1
NURE Seds[e]	ONBH030S1	45	1	642	1	2	0	15	1	1	0	0.5	1			77	1	122	1
NURE Seds[e]	ONBH031S1	10	1	347	1	2	0	5	0	1	0	0.2	1			31	1	20	1
NURE Seds[e]	ONBH032S1	15	1	704	1	2	0	5	0	1	0	0.4	1			67	1	35	1
NURE Seds[e]	ONBH033S1	20	1	499	1	2	0	17	1	1	0	0.6	1			57	1	12	1
NURE Seds[e]	ONBH036S1	15	1	697	1	2	0	5	0	1	0	0.5	1			71	1	25	1
NURE Seds[e]	ONCA002S1	15	1	833	1	2	0	5	0	1	0	0.5	1			101	1	25	1
NURE Seds[e]	ONCA003S1	15	1	1261	1	2	1	5	1	1	0	0.5	1			144	1	20	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCA004S1	66166	1			2	1	177	1	1.5	1			25	1	5	0	7	1	26360	1
NURE Seds[e]	ONCA013S1	62007	1			5	1	330	1	1.5	1			15	1	5	0	7	1	18193	1
NURE Seds[e]	ONCA015S1																				
NURE Seds[e]	ONCA016S1	62300	1			1	1	160	1	1	1			35	1	5	1	12	1	24360	1
NURE Seds[e]	ONCA017S1	55093	1			6	1	325	1	0.5	1			35	1	5	1	8	1	38560	1
NURE Seds[e]	ONCA026S1	63200	1			1	1	397	1	1.5	1			20	1	5	1	11	1	44093	1
NURE Seds[e]	ONCA033S1	67733	1			5	1	162	1	2	1			15	1	5	0	22	1	24253	1
NURE Seds[e]	ONCB003S1	55107	1			1	1	335	1	2	1			35	1	7	1	14	1	33953	1
NURE Seds[e]	ONCB005S1	53920	1			2	1	245	1	2	1			35	1	5	1	11	1	25153	1
NURE Seds[e]	ONCB006S1	54320	1			2	1	227	1	2	1			15	1	7	1	17	1	22680	1
NURE Seds[e]	ONCB007S1	57140	1			2	1	437	1	2	1			40	1	5	0	16	1	26307	1
NURE Seds[e]	ONCB010S1	54687	1			2	1	275	1	1.5	1			30	1	10	1	22	1	25533	1
NURE Seds[e]	ONCB011S1	59033	1			2	1	387	1	2.5	1			35	1	5	1	14	1	33487	1
NURE Seds[e]	ONCB012S1	49693	1					317	1	1.5	1			20	1	5	1	17	1	28560	1
NURE Seds[e]	ONCB013S1	54767	1			4	1	287	1	2	1			30	1	7	1	19	1	31487	1
NURE Seds[e]	ONCB014S1																				
NURE Seds[e]	ONCB015S1	55620	1			4	1	310	1	2	1			65	1	12	1	22	1	38273	1
NURE Seds[e]	ONCB016S1	59253	1			1	1	342	1	2	1			50	1	5	1	10	1	33227	1
NURE Seds[e]	ONCB017S1	58800	1			5	1	192	1	2	1			20	1	5	1	13	1	28060	1
NURE Seds[e]	ONCB018S1	57167	1			2	1	275	1	1.5	1			35	1	5	1	14	1	32827	1
NURE Seds[e]	ONCB019S1	51140	1			2	1	85	1	2	1			25	1	5	1	32	1	19813	1
NURE Seds[e]	ONCB020S1	55707	1			7	1	210	1	2.5	1			85	1	12	1	30	1	47407	1
NURE Seds[e]	ONCB022S1	65866	1			1	1	212	1	3	1			70	1	7	1	15	1	28920	1
NURE Seds[e]	ONCB023S1	58207	1			9	1	190	1	2.5	1			25	1	5	0	27	1	19000	1
NURE Seds[e]	ONCB025S1	64880	1			3	1	212	1	3	1			15	1	5	0	17	1	18940	1
NURE Seds[e]	ONCB028S1	58867	1			4	1	178	1	1.5	1			90	1	10	1	36	1	54280	1
NURE Seds[e]	ONCB031S1																				
NURE Seds[e]	ONCC001S1	60987	1					163	1	0.5	1			25	1	5	0	5	1	28140	1
NURE Seds[e]	ONCC002S1	49227	1					73	1	1	1			20	1	5	1	8	1	16153	1
NURE Seds[e]	ONCC004S1	56607	1					168	1	0.5	1			20	1	5	0	26	1	19760	1
NURE Seds[e]	ONCC007S1	54833	1			1	1	150	1	1	1			20	1	5	0	12	1	21980	1
NURE Seds[e]	ONCC013S1	60347	1			2	1	185	1	1	1			20	1	5	0	12	1	29440	1
NURE Seds[e]	ONCC014S1	55100	1			1	1	168	1	1.5	1			25	1	5	0	12	1	27400	1
NURE Seds[e]	ONCC015S1	59340	1					80	1	1	1			25	1	5	0	7	1	35640	1
NURE Seds[e]	ONCC016S1																				

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCA004S1	15	1	703	1	2	0	5	0	1	0	0.2	1			89	1	22	1
NURE Seds[e]	ONCA013S1	10	1	421	1	2	0	5	0	1	0	0.5	1			43	1	37	1
NURE Seds[e]	ONCA015S1											0.7	1						
NURE Seds[e]	ONCA016S1	15	1	733	1	2	0	5	1	1	0	0.7	1			55	1	37	1
NURE Seds[e]	ONCA017S1	15	1	739	1	2	0	5	1	1	0	0.5	1			124	1	25	1
NURE Seds[e]	ONCA026S1	10	1	706	1	2	0	7	1	1	1	0.5	1			106	1	350	1
NURE Seds[e]	ONCA033S1	15	1	420	1	2	0	5	0	3	1	0.2	1			47	1	23	1
NURE Seds[e]	ONCB003S1	10	0	636	1	2	0	12	1	1	1	0.7	1			75	1	37	1
NURE Seds[e]	ONCB005S1	10	0	438	1	2	0	10	1	1	0	0.8	1			71	1	30	1
NURE Seds[e]	ONCB006S1	10	1	498	1	2	0	7	1	1	0	1	1			36	1	57	1
NURE Seds[e]	ONCB007S1	10	0	755	1	2	0	15	1	1	0	0.5	1			112	1	47	1
NURE Seds[e]	ONCB010S1	20	1	554	1	2	0	20	1	1	0	0.8	1			74	1	55	1
NURE Seds[e]	ONCB011S1	10	1	776	1	2	0	12	1	2	1	0.2	1			93	1	37	1
NURE Seds[e]	ONCB012S1	10	1	540	1	2	0	12	1	1	1	0.5	1			73	1	45	1
NURE Seds[e]	ONCB013S1	10	1	681	1	2	0	15	1	2	1	0.6	1			98	1	50	1
NURE Seds[e]	ONCB014S1											0.6	1						
NURE Seds[e]	ONCB015S1	20	1	996	1	2	0	20	1	1	0	0.8	1			94	1	65	1
NURE Seds[e]	ONCB016S1	20	1	769	1	2	0	7	1	1	0	0.5	1			79	1	40	1
NURE Seds[e]	ONCB017S1	10	1	652	1	2	0	15	1	1	0	0.5	1			68	1	32	1
NURE Seds[e]	ONCB018S1	10	1	691	1	2	0	7	1	1	0	0.4	1			71	1	42	1
NURE Seds[e]	ONCB019S1	15	1	396	1	2	0	25	1	1	0	0.7	1			39	1	50	1
NURE Seds[e]	ONCB020S1	15	1	1181	1	2	0	40	1	1	0	0.6	1			151	1	65	1
NURE Seds[e]	ONCB022S1	20	1	719	1	2	0	27	1	1	0	0.7	1			48	1	65	1
NURE Seds[e]	ONCB023S1	15	1	519	1	2	0	10	1	1	0	0.5	1			33	1	275	1
NURE Seds[e]	ONCB025S1	10	1	705	1	6	1	5	1	3	1	0.6	1			25	1	57	1
NURE Seds[e]	ONCB028S1	20	1	1189	1	2	0	33	1	1	0	0.3	1			149	1	60	1
NURE Seds[e]	ONCB031S1											0.3	1						
NURE Seds[e]	ONCC001S1	10	1	985	1	2	0	5	0	1	0	0.2	1			110	1	13	1
NURE Seds[e]	ONCC002S1	10	1	395	1	2	0	5	0	1	0	0.1	1			49	1	13	1
NURE Seds[e]	ONCC004S1	10	1	439	1	2	0	5	1	1	0	0.1	1			48	1	25	1
NURE Seds[e]	ONCC007S1	10	1	467	1	2	0	8	1	1	0	0.1	1			47	1	33	1
NURE Seds[e]	ONCC013S1	10	1	511	1	2	0	5	0	3	1	0.3	1			70	1	30	1
NURE Seds[e]	ONCC014S1	15	1			2	0	8	1	1	1	0.3	1					28	1
NURE Seds[e]	ONCC015S1	25	1	579	1	2	0	5	0	1	0	0.2	1			83	1	20	1
NURE Seds[e]	ONCC016S1											0.4	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCC017S1	62560	1			1	1	153	1	0.5	1			25	1	5	0	10	1	22067	1
NURE Seds[e]	ONCC018S1	63866	1			1	1	205	1	1.5	1			25	1	5	0	11	1	40847	1
NURE Seds[e]	ONCC019S1	62346	1			1	1	98	1	1	1			20	1	5	0	8	1	25207	1
NURE Seds[e]	ONCC023S1	64453	1					240	1	1	1			15	1	8	1	5	1	23740	1
NURE Seds[e]	ONCC024S1	68600	1					150	1	1	1			15	1	5	0	8	1	26120	1
NURE Seds[e]	ONCC025S1	63293	1			1	1	325	1	1	1			25	1	5	0	11	1	23713	1
NURE Seds[e]	ONCC026S1	57473	1			2	1	163	1	1	1			20	1	5	0	12	1	28213	1
NURE Seds[e]	ONCC027S1	62560	1					325	1	1	1			20	1	5	0	7	1	19887	1
NURE Seds[e]	ONCC028S1	57387	1			1	1	135	1	1	1			35	1	5	0	15	1	25687	1
NURE Seds[e]	ONCC029S1	60327	1			2	1	140	1	1	1			30	1	5	0	5	1	42280	1
NURE Seds[e]	ONCC030S1	60613	1			2	1	373	1	1	1			30	1	5	1	9	1	34953	1
NURE Seds[e]	ONCC032S1	53073	1			6	1	335	1	1	1			65	1	5	0	9	1	32293	1
NURE Seds[e]	ONCC033S1	58313	1			2	1	73	1	1.5	1			35	1	5	0	7	1	39340	1
NURE Seds[e]	ONCC034S1	55113	1			4	1	45	1	1.5	1			95	1	5	0	19	1	40187	1
NURE Seds[e]	ONCC035S1	58700	1			3	1	200	1	2	1			20	1	5	0	16	1	26720	1
NURE Seds[e]	ONCD005S1	68400	1			1	1	285	1	2	1			10	1	5	0	3	1	15547	1
NURE Seds[e]	ONCD006S1	67666	1					280	1	2.5	1			10	1	5	0	5	1	24540	1
NURE Seds[e]	ONCD007S1	56773	1			4	1	230	1	1.5	1			15	1	8	1	4	1	16567	1
NURE Seds[e]	ONCD009S1	61647	1					163	1	1	1			15	1	5	0	6	1	14173	1
NURE Seds[e]	ONCD010S1	65086	1					195	1	2	1			10	1	8	1	3	1	17433	1
NURE Seds[e]	ONCD011S1	62866	1					203	1	2	1			10	1	5	0	7	1	21287	1
NURE Seds[e]	ONCD012S1	60453	1					293	1	1.5	1			20	1	5	0	4	1	17600	1
NURE Seds[e]	ONCD014S1	61953	1					230	1	1.5	1			20	1	8	1	6	1	22413	1
NURE Seds[e]	ONCD016S1	56353	1					268	1	2	1			10	1	10	1	6	1	19480	1
NURE Seds[e]	ONCD018S1																				
NURE Seds[e]	ONCD019S1	61060	1					145	1	1.5	1			35	1	8	1	3	1	53707	1
NURE Seds[e]	ONCD022S1	59947	1					115	1	2	1			15	1	5	0	16	1	20027	1
NURE Seds[e]	ONCD024S1	62253	1			2	1	180	1	2	1			40	1	8	1	6	1	38513	1
NURE Seds[e]	ONCD025S1	61153	1					113	1	3	1			25	1	5	0	14	1	33787	1
NURE Seds[e]	ONCD028S1	59547	1					185	1	2	1			15	1	5	0	7	1	17720	1
NURE Seds[e]	ONCD029S1	62726	1			1	1	183	1	1.5	1			25	1	8	1	7	1	51687	1
NURE Seds[e]	ONCD030S1	61153	1					88	1	1.5	1			15	1	5	0	9	1	17287	1
NURE Seds[e]	ONCD032S1	59320	1					163	1	2	1			15	1	5	1	6	1	16727	1
NURE Seds[e]	ONCD033S1	55953	1			3	1	48	1	1.5	1			20	1	13	1	26	1	26827	1
NURE Seds[e]	ONCD034S1	62800	1					150	1	1	1			20	1	8	1	9	1	17840	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCC017S1	15	1	524	1	2	0	5	1	1	0	0.2	1			44	1	35	1
NURE Seds[e]	ONCC018S1	15	1	596	1	2	0	8	1	1	0	0.2	1			85	1	35	1
NURE Seds[e]	ONCC019S1	20	1	467	1	2	0	5	1	1	0	0.1	1			54	1	20	1
NURE Seds[e]	ONCC023S1	15	1	521	1	2	0	8	1	1	0	0.1	1			60	1	10	1
NURE Seds[e]	ONCC024S1	15	1	553	1	2	0	8	1	2	1	0.1	1			65	1	20	1
NURE Seds[e]	ONCC025S1	10	1	707	1	2	0	5	0	2	1	0.3	1			84	1	33	1
NURE Seds[e]	ONCC026S1	15	1	670	1	2	0	8	1	1	0	0.3	1			71	1	38	1
NURE Seds[e]	ONCC027S1	10	1	378	1	2	0	5	0	3	1	0.2	1			58	1	13	1
NURE Seds[e]	ONCC028S1	15	1	2027	1	2	0	10	1	1	0	0.3	1			72	1	40	1
NURE Seds[e]	ONCC029S1	15	1	706	1	2	0	8	1	2	1	0.2	1			106	1	18	1
NURE Seds[e]	ONCC030S1	10	1	727	1	2	0	5	0	4	1	0.3	1			107	1	23	1
NURE Seds[e]	ONCC032S1	10	1	715	1	2	0	20	1	1	0	0.2	1			88	1	28	1
NURE Seds[e]	ONCC033S1	30	1	771	1	3	1	5	0	1	0	0.3	1			112	1	15	1
NURE Seds[e]	ONCC034S1	25	1	801	1	2	0	48	1	1	0	0.2	1			97	1	53	1
NURE Seds[e]	ONCC035S1	15	1	703	1	2	0	5	1	2	1	0.3	1			58	1	40	1
NURE Seds[e]	ONCD005S1	10	1	440	1	2	0	5	0	1	1	0.2	1			39	1	15	1
NURE Seds[e]	ONCD006S1	15	1	463	1	2	0	5	0	2	1	0.3	1			46	1	10	1
NURE Seds[e]	ONCD007S1	10	1	308	1	2	0	5	0	1	0	0.2	1			36	1	18	1
NURE Seds[e]	ONCD009S1	10	0	529	1	2	0	5	0	1	0	0.2	1			54	1	28	1
NURE Seds[e]	ONCD010S1	15	1	515	1	2	0	5	1	1	0	0.3	1			58	1	10	1
NURE Seds[e]	ONCD011S1	10	1	526	1	2	0	5	1	2	1	0.1	1			45	1	33	1
NURE Seds[e]	ONCD012S1	10	1	457	1	2	1	5	0	2	1	0.1	1			56	1	13	1
NURE Seds[e]	ONCD014S1	15	1	367	1	2	0	5	1	1	0	0.2	1			65	1	15	1
NURE Seds[e]	ONCD016S1	10	1	442	1	2	0	5	0	1	0	0.1	1			52	1	13	1
NURE Seds[e]	ONCD018S1											0.5	1						
NURE Seds[e]	ONCD019S1	15	1	1077	1	5	1	5	0	3	1	0.3	1			178	1	15	1
NURE Seds[e]	ONCD022S1	15	1	686	1	2	0	13	1	4	1	0.2	1			46	1	20	1
NURE Seds[e]	ONCD024S1	15	1	703	1	2	0	10	1	1	0	0.1	1			91	1	23	1
NURE Seds[e]	ONCD025S1	20	1	1085	1	2	0	15	1	1	0	0.2	1			80	1	50	1
NURE Seds[e]	ONCD028S1	20	1	476	1	2	0	10	1	1	0	0.1	1			38	1	25	1
NURE Seds[e]	ONCD029S1	20	1	988	1	2	0	5	0	1	0	0.1	1			134	1	28	1
NURE Seds[e]	ONCD030S1	20	1	590	1	2	0	8	1	1	0	0.1	1			46	1	40	1
NURE Seds[e]	ONCD032S1	15	1	372	1	2	0	5	1	1	0	0.1	1			34	1	15	1
NURE Seds[e]	ONCD033S1	20	1	865	1	2	0	18	1	1	0	0.5	1			62	1	28	1
NURE Seds[e]	ONCD034S1	15	1	547	1	2	0	8	1	2	1	0.1	1			72	1	20	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCD036S1	56993	1					55	1	2	1			20	1	5	1	20	1	38547	1
NURE Seds[e]	ONCE006S1	60647	1			7	1	148	1	2	1			55	1	13	1	13	1	34140	1
NURE Seds[e]	ONCE007S1	59873	1			1	1	125	1	2.5	1			20	1	5	0	10	1	22340	1
NURE Seds[e]	ONCE008S1	52787	1			4	1	113	1	3	1			50	1	5	0	16	1	25700	1
NURE Seds[e]	ONCE010S1	54347	1			6	1	110	1	1.5	1			40	1	8	1	11	1	22600	1
NURE Seds[e]	ONCE012S1	63713	1			2	1	198	1	2.5	1			15	1	5	1	9	1	17500	1
NURE Seds[e]	ONCE014S1	58367	1			1	1	235	1	2.5	1			10	1	5	0	3	1	20620	1
NURE Seds[e]	ONCE015S1	58020	1			11	1	165	1	2.5	1			25	1	8	1	48	1	32340	1
NURE Seds[e]	ONCE017S1	68266	1			2	1	125	1	1	1			15	1	5	0	8	1	16153	1
NURE Seds[e]	ONCE018S1	64793	1			1	1	148	1	2	1			10	1	5	0	4	1	11973	1
NURE Seds[e]	ONCE019S1	56107	1			1	1	220	1	2	1			15	1	5	1	9	1	25167	1
NURE Seds[e]	ONCE020S1	61073	1			8	1	183	1	2	1			50	1	5	1	20	1	28973	1
NURE Seds[e]	ONCE021S1	66066	1			2	1	290	1	2	1			30	1	5	1	5	1	20280	1
NURE Seds[e]	ONCE022S1	55753	1			3	1	240	1	1.5	1			30	1	8	1	11	1	31227	1
NURE Seds[e]	ONCE023S1	57387	1			1	1	93	1	3.5	1			45	1	73	1	46	1	26940	1
NURE Seds[e]	ONCE024S1	54547	1			1	1	85	1	2	1			5	1	13	1	26	1	21660	1
NURE Seds[e]	ONCE026S1	59033	1			3	1	125	1	1.5	1			20	1	8	1	20	1	26340	1
NURE Seds[e]	ONCE027S1	61440	1			3	1	213	1	1	1			35	1	20	1	16	1	30407	1
NURE Seds[e]	ONCE030S1	53813	1			2	1	110	1	1	1			40	1	13	1	13	1	26613	1
NURE Seds[e]	ONCF001S1	60673	1			1	1	260	1	1.5	1			90	1	5	1	7	1	41367	1
NURE Seds[e]	ONCF004S1	61207	1			2	1	103	1	1	1			70	1	5	1	17	1		
NURE Seds[e]	ONCF005S1	62493	1			2	1	288	1	1.5	1			80	1	5	1	11	1	53847	1
NURE Seds[e]	ONCF006S1	58907	1			3	1	273	1	1.5	1			75	1	5	0	18	1	42780	1
NURE Seds[e]	ONCF007S1	58167	1			1	1	303	1	1.5	1			100	1	5	0	13	1	49300	1
NURE Seds[e]	ONCF008S1	64153	1					223	1	1.5	1			30	1	10	1	5	1	14467	1
NURE Seds[e]	ONCF009S1	62073	1			1	1	310	1	2	1			10	1	5	0	3	1	8260	1
NURE Seds[e]	ONCF010S1	63647	1			2	1	220	1	2.5	1			15	1	5	1	2	1	14260	1
NURE Seds[e]	ONCF012S1	65680	1			1	1	373	1	2.5	1			10	1	5	0	2	1	10973	1
NURE Seds[e]	ONCF014S1	59753	1			1	1	498	1	2.5	1			85	1	5	0	5	1	40513	1
NURE Seds[e]	ONCF019S1	53947	1			1	1	93	1	2.5	1			65	1	5	0	9	1	25787	1
NURE Seds[e]	ONCF020S1	57513	1					335	1	2.5	1			85	1	5	1	4	1	36347	1
NURE Seds[e]	ONCF021S1	256	1			1	1	193	1	2	1			75	1	5	1	7	1	38140	1
NURE Seds[e]	ONCF022S1	59760	1					425	1	2.5	1			30	1	8	1	6	1	32093	1
NURE Seds[e]	ONCF024S1	60353	1			2	1	435	1	2.5	1			60	1	5	0	9	1	32153	1
NURE Seds[e]	ONCF026S1	56780	1					395	1	2.5	1			45	1	5	1	8	1	32933	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCD036S1	25	1	1463	1	2	0	13	1	1	0	0.5	1			84	1	43	1
NURE Seds[e]	ONCE006S1	15	1	601	1	2	0	13	1	1	0	0.3	1			75	1	65	1
NURE Seds[e]	ONCE007S1	25	1	703	1	2	0	5	0	1	0	0.4	1			54	1	53	1
NURE Seds[e]	ONCE008S1	25	1	679	1	2	0	28	1	1	0	0.5	1			63	1	45	1
NURE Seds[e]	ONCE010S1	25	1	467	1	2	0	13	1	1	0	0.2	1			55	1	53	1
NURE Seds[e]	ONCE012S1	20	1	453	1	2	0	8	1	1	0	0.6	1			44	1	98	1
NURE Seds[e]	ONCE014S1	20	1	363	1	2	0	5	0	1	0	0.3	1			32	1	15	1
NURE Seds[e]	ONCE015S1	70	1	1483	1	2	0	40	1	1	0	1.2	1			78	1	1650	1
NURE Seds[e]	ONCE017S1	25	1	460	1	2	0	5	0	1	0	0.1	1			53	1	18	1
NURE Seds[e]	ONCE018S1	25	1	323	1	2	0	5	1	1	0	0.2	1			22	1	30	1
NURE Seds[e]	ONCE019S1	20	1	916	1	2	0	13	1	1	0	0.2	1			83	1	33	1
NURE Seds[e]	ONCE020S1	15	1	491	1	2	0	65	1	1	0	0.5	1			54	1	83	1
NURE Seds[e]	ONCE021S1	10	1	393	1	2	0	8	1	5	1	0.1	1			34	1	28	1
NURE Seds[e]	ONCE022S1	25	1	497	1	2	0	15	1	3	1	0.4	1			79	1	43	1
NURE Seds[e]	ONCE023S1	50	1	1512	1	2	1	85	1	8	1	0.6	1			59	1	350	1
NURE Seds[e]	ONCE024S1	40	1	1011	1	2	0	20	1	1	0	0.6	1			61	1	200	1
NURE Seds[e]	ONCE026S1	10	1	573	1	2	0	15	1	1	0	0.7	1			29	1	115	1
NURE Seds[e]	ONCE027S1	20	1	1467	1	2	0	30	1	5	1	0.5	1			60	1	95	1
NURE Seds[e]	ONCE030S1	10	1	662	1	2	0	13	1	1	0	0.5	1			82	1	28	1
NURE Seds[e]	ONCF001S1	10	0	837	1	4	1	10	1	2	1	0.5	1			158	1	28	1
NURE Seds[e]	ONCF004S1	20	1	686	1	2	0	15	1	1	0	0.5	1			104	1	65	1
NURE Seds[e]	ONCF005S1	10	1	714	1	2	0	10	1	1	0	0.3	1			133	1	43	1
NURE Seds[e]	ONCF006S1	15	1	890	1	2	0	20	1	1	0	0.5	1			139	1	40	1
NURE Seds[e]	ONCF007S1	10	0	765	1	2	0	13	1	1	0	0.5	1			143	1	40	1
NURE Seds[e]	ONCF008S1	10	1	520	1	2	0	5	0	1	0	0.3	1			59	1	15	1
NURE Seds[e]	ONCF009S1	15	1	308	1	2	1	5	0	1	0	0.3	1			17	1	18	1
NURE Seds[e]	ONCF010S1	10	0	547	1	2	0	5	0	1	0	0.4	1			33	1	13	1
NURE Seds[e]	ONCF012S1	10	0	375	1	2	0	5	0	1	0	0.2	1			21	1	8	1
NURE Seds[e]	ONCF014S1	10	0	671	1	2	0	5	0	1	1	0.4	1			109	1	25	1
NURE Seds[e]	ONCF019S1	10	1	634	1	2	0	5	0	1	0	0.4	1			80	1	90	1
NURE Seds[e]	ONCF020S1	10	1	596	1	2	0	15	1	1	0	0.4	1			95	1	13	1
NURE Seds[e]	ONCF021S1	15	1	801	1	2	0	10	1	1	0	0.4	1			72	1	20	1
NURE Seds[e]	ONCF022S1	10	0	502	1	2	0	5	1	1	0	0.3	1			73	1	28	1
NURE Seds[e]	ONCF024S1	15	1	524	1	2	0	5	1	1	0	0.3	1			94	1	40	1
NURE Seds[e]	ONCF026S1	10	0	779	1	2	0	10	1	1	1	0.2	1			121	1	23	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCF027S1	56587	1			1	1	350	1	2.5	1			55	1	5	0	8	1	30540	1
NURE Seds[e]	ONCF028S1	62186	1					323	1	2	1			65	1	5	0	8	1	34527	1
NURE Seds[e]	ONCF029S1	57853	1					470	1	2	1			65	1	5	0	6	1	47313	1
NURE Seds[e]	ONCF030S1	67000	1					385	1	2	1			25	1	8	1	11	1	28060	1
NURE Seds[e]	ONCF031S1	66346	1					463	1	2.5	1			30	1	5	0	11	1	36153	1
NURE Seds[e]	ONCF034S1																				
NURE Seds[e]	ONCG001S1	67733	1			1	1	323	1	3	1			20	1	5	1	5	1	21720	1
NURE Seds[e]	ONCG004S1	53727	1			5	1	275	1	2	1			25	1	13	1	15	1	29167	1
NURE Seds[e]	ONCG005S1	55740	1			1	1	328	1	2	1			30	1	5	0	19	1	29720	1
NURE Seds[e]	ONCG006S1	65066	1			5	1	443	1	2	1			20	1	18	1	20	1	28840	1
NURE Seds[e]	ONCG007S1	49733	1			5	1	243	1	2	1			25	1	5	0	18	1	29067	1
NURE Seds[e]	ONCG008S1																				
NURE Seds[e]	ONCG010S1	55147	1					398	1	2.5	1			15	1	5	0	4	1	24587	1
NURE Seds[e]	ONCG011S1	40380	1			1	1	400	1	2	1			20	1	20	1	24	1	28740	1
NURE Seds[e]	ONCG012S1	57047	1			1	1	515	1	2.5	1			10	1	5	0	6	1	40387	1
NURE Seds[e]	ONCG013S1	58407	1			2	1	353	1	2	1			50	1	5	0	12	1	27700	1
NURE Seds[e]	ONCG014S1	59413	1			1	1	198	1	2	1			60	1	5	1	32	1	42820	1
NURE Seds[e]	ONCG017S1	57013	1			6	1	240	1	1	1			45	1	5	0	21	1	32873	1
NURE Seds[e]	ONCG018S1	60880	1			3	1	348	1	2	1			35	1	5	0	10	1	22120	1
NURE Seds[e]	ONCG019S1	49813	1			14	1	258	1	2	1			50	1	5	0	16	1	38867	1
NURE Seds[e]	ONCG020S1	56207	1					248	1	2.5	1			30	1	5	0	8	1	19580	1
NURE Seds[e]	ONCG021S1	49787	1			1	1	250	1	2	1			45	1	5	0	4	1	21807	1
NURE Seds[e]	ONCG022S1	53627	1			1	1	318	1	2	1			30	1	5	0	3	1	15087	1
NURE Seds[e]	ONCG023S1	64373	1			2	1	318	1	2	1			25	1	5	0	3	1	18413	1
NURE Seds[e]	ONCG024S1	47027	1			6	1	180	1	2.5	1			60	1	5	0	8	1	32487	1
NURE Seds[e]	ONCG025S1	63040	1			1	1	193	1	3.5	1			25	1	5	0	10	1	22187	1
NURE Seds[e]	ONCG027S1	48013	1					133	1	2.5	1			20	1	5	0	9	1	12247	1
NURE Seds[e]	ONCG028S1	51007	1					175	1	3.5	1			25	1	5	0	12	1	29580	1
NURE Seds[e]	ONCG030S1	65006	1			1	1	190	1	3	1			25	1	5	0	5	1	16920	1
NURE Seds[e]	ONCG032S1	56753	1			3	1	280	1	2	1			40	1	5	0	19	1	25140	1
NURE Seds[e]	ONCH004S1	58947	1			3	1	210	1	2	1			55	1	5	0	18	1	32340	1
NURE Seds[e]	ONCH005S1	45933	1			2	1	200	1	1.5	1			60	1	5	0	20	1	29940	1
NURE Seds[e]	ONCH007S1	49447	1			4	1	115	1	2	1			35	1	5	0	22	1	26000	1
NURE Seds[e]	ONCH009S1	58307	1			2	1	160	1	2	1			15	1	5	1	17	1	27540	1
NURE Seds[e]	ONCH010S1	49980	1			3	1	83	1	2	1			30	1	15	1	19	1	29220	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCF027S1	20	1	540	1	2	0	8	1	1	0	0.3	1			90	1	33	1
NURE Seds[e]	ONCF028S1	20	1	656	1	2	0	10	1	1	0	0.4	1			101	1	35	1
NURE Seds[e]	ONCF029S1	20	1	730	1	2	0	8	1	1	0	0.2	1			158	1	40	1
NURE Seds[e]	ONCF030S1	10	0	538	1	2	0	8	1	1	0	0.3	1			72	1	45	1
NURE Seds[e]	ONCF031S1	15	1	587	1	2	0	5	0	1	0	0.5	1			104	1	43	1
NURE Seds[e]	ONCF034S1											0.6	1						
NURE Seds[e]	ONCG001S1	10	1	484	1	2	0	5	0	1	0	0.3	1			47	1	25	1
NURE Seds[e]	ONCG004S1	10	0	875	1	2	0	13	1	1	0	0.5	1			56	1	45	1
NURE Seds[e]	ONCG005S1	10	1	662	1	2	0	15	1	1	0	0.5	1			52	1	78	1
NURE Seds[e]	ONCG006S1	10	1	1287	1	2	0	15	1	1	0	0.5	1			72	1	55	1
NURE Seds[e]	ONCG007S1	20	1	581	1	4	1	15	1	1	0	0.7	1			56	1	103	1
NURE Seds[e]	ONCG008S1											0.8	1						
NURE Seds[e]	ONCG010S1	10	0	461	1	2	1	5	0	1	0	0.4	1			54	1	15	1
NURE Seds[e]	ONCG011S1	10	1	557	1	2	0	23	1	1	0	1.3	1			131	1	138	1
NURE Seds[e]	ONCG012S1	10	0	474	1	2	0	5	0	1	0	0.3	1			57	1	25	1
NURE Seds[e]	ONCG013S1	10	1	945	1	2	0	35	1	1	0	0.8	1			62	1	65	1
NURE Seds[e]	ONCG014S1	15	1	731	1	2	0	45	1	1	0	0.5	1			107	1	68	1
NURE Seds[e]	ONCG017S1	20	1	747	1	2	1	13	1	3	1	0.5	1			85	1	53	1
NURE Seds[e]	ONCG018S1	15	1	1039	1	2	0	8	1	2	1	0.5	1			53	1	55	1
NURE Seds[e]	ONCG019S1	20	1	552	1	4	1	15	1	2	1	0.5	1			69	1	40	1
NURE Seds[e]	ONCG020S1	10	0	567	1	2	0	5	0	3	1	0.4	1			47	1	18	1
NURE Seds[e]	ONCG021S1	10	1	469	1	2	0	5	0	2	1	0.4	1			44	1	8	1
NURE Seds[e]	ONCG022S1	15	1	533	1	2	0	5	0	1	0	0.3	1			29	1	5	1
NURE Seds[e]	ONCG023S1	15	1	602	1	2	0	5	0	2	1	0.2	1			67	1	5	1
NURE Seds[e]	ONCG024S1	15	1	783	1	2	0	5	0	2	1	0.3	1			87	1	20	1
NURE Seds[e]	ONCG025S1	20	1	470	1	2	0	10	1	1	0	0.3	1			48	1	20	1
NURE Seds[e]	ONCG027S1	20	1	496	1	4	1	8	1	2	1	0.4	1			55	1	25	1
NURE Seds[e]	ONCG028S1	15	1	951	1	2	0	5	1	1	0	0.3	1			63	1	25	1
NURE Seds[e]	ONCG030S1	20	1	457	1	2	0	5	0	1	0	0.3	1			27	1	18	1
NURE Seds[e]	ONCG032S1	10	1	499	1	4	1	15	1	2	1	0.3	1			44	1	73	1
NURE Seds[e]	ONCH004S1	20	1	835	1	2	0	18	1	1	1	0.5	1			94	1	65	1
NURE Seds[e]	ONCH005S1	15	1	409	1	2	0	15	1	1	0	0.5	1			71	1	63	1
NURE Seds[e]	ONCH007S1	15	1	753	1	4	1	8	1	2	1	0.6	1			95	1	63	1
NURE Seds[e]	ONCH009S1	20	1	1368	1	2	0	8	1	1	0	0.7	1			77	1	103	1
NURE Seds[e]	ONCH010S1	10	1	595	1	3	1	13	1	1	0	0.3	1			56	1	45	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCH011S1	50080	1			2	1	210	1	2	1			35	1	5	0	6	1	29567	1
NURE Seds[e]	ONCH013S1	58647	1			8	1	380	1	3	1			35	1	13	1	22	1	36153	1
NURE Seds[e]	ONCH016S1	32447	1			4	1	868	1	1	1			45	1	28	1	14	1	19333	1
NURE Seds[e]	ONCH017S1	35827	1			14	1	235	1	1.5	1			60	1	10	1	10	1	25420	1
NURE Seds[e]	ONCH018S1	35500	1			7	1	208	1	1.5	1			75	1	8	1	10	1	39033	1
NURE Seds[e]	ONCH020S1	41500	1			18	1	138	1	2	1			35	1	5	1	18	1	17380	1
NURE Seds[e]	ONCH021S1	51993	1			5	1	48	1	2.5	1			35	1	8	1	27	1	29940	1
NURE Seds[e]	ONCH022S1	36480	1			4	1	15	1	1.5	1			40	1	5	0	14	1	25220	1
NURE Seds[e]	ONCH024S1	54800	1			4	1	353	1	2	1			35	1	5	0	8	1	21220	1
NURE Seds[e]	ONCH025S1	44093	1			2	1	323	1	2	1			55	1	5	0	12	1	29527	1
NURE Seds[e]	ONCH028S1	47427	1			4	1	315	1	1.5	1			40	1	5	1	19	1	25533	1
NURE Seds[e]	ONCH030S1																				
NURE Seds[e]	ONCH033S1	42260	1			9	1	335	1	2	1			50	1	10	1	14	1	30313	1
NURE Seds[e]	ONCH034S1																				
NURE Seds[e]	ONDA002S1	50913	1			2	1	250	1	2	1			20	1	5	1	13	1	21040	1
NURE Seds[e]	ONDA003S1	60840	1			2	1	403	1	2.5	1			20	1	5	0	10	1	20320	1
NURE Seds[e]	ONDA004S1	61980	1			2	1	473	1	2	1			35	1	5	0	12	1	27280	1
NURE Seds[e]	ONDA005S1	63980	1			3	1	408	1	1	1			20	1	5	0	9	1	26460	1
NURE Seds[e]	ONDA006S1	64340	1			7	1	505	1	2	1			5	1	5	0	8	1	43160	1
NURE Seds[e]	ONDA007S1	66433	1			2	1	403	1	2	1			25	1	5	0	7	1	22567	1
NURE Seds[e]	ONDA010S1	70733	1			2	1	430	1	2	1			15	1	5	1	7	1	20173	1
NURE Seds[e]	ONDA014S1																				
NURE Seds[e]	ONDA015S1	61433	1					310	1	2	1			10	1	5	0	19	1	28860	1
NURE Seds[e]	ONDA019S1	68066	1			2	1	295	1	2.5	1			15	1	5	0	10	1	23440	1
NURE Seds[e]	ONDA020S1	62320	1			2	1	648	1	2	1			20	1	5	0	11	1	24360	1
NURE Seds[e]	ONDA021S1	59620	1			2	1	230	1	1.5	1			40	1	5	0	8	1	90466	1
NURE Seds[e]	ONDB005S1	57640	1			1	1	280	1	2.5	1			30	1	5	0	11	1	30307	1
NURE Seds[e]	ONDB006S1	50593	1			2	1	145	1	1.5	1			25	1	5	0	14	1	26547	1
NURE Seds[e]	ONDB007S1	60367	1			3	1	323	1	1.5	1			35	1	5	0	12	1	28860	1
NURE Seds[e]	ONDB008S1	49533	1			1	1	260	1	1.5	1			20	1	5	0	15	1	20007	1
NURE Seds[e]	ONDB010S1	40873	1			1	1	433	1	1	1			20	1	5	0	15	1	17027	1
NURE Seds[e]	ONDB011S1																				
NURE Seds[e]	ONDB012S1	59420	1			3	1	308	1	1.5	1			45	1	5	0	14	1	27500	1
NURE Seds[e]	ONDB013S1	60633	1			3	1	360	1	1.5	1			50	1	5	0	13	1	34780	1
NURE Seds[e]	ONDB014S1	54933	1			2	1	398	1	1	1			55	1	5	0	13	1	30267	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONCH011S1	15	1	635	1	2	0	5	0	1	1	0.4	1			56	1	18	1
NURE Seds[e]	ONCH013S1	20	1	862	1	2	0	18	1	1	0	0.8	1			113	1	80	1
NURE Seds[e]	ONCH016S1	30	1	458	1	2	0	15	1	3	1	2.5	1			87	1	48	1
NURE Seds[e]	ONCH017S1	20	1	428	1	2	0	8	1	1	0	0.5	1			99	1	45	1
NURE Seds[e]	ONCH018S1	30	1	413	1	2	0	5	1	1	0	0.6	1			116	1	50	1
NURE Seds[e]	ONCH020S1	25	1	499	1	2	0	10	1	1	0	0.7	1			74	1	60	1
NURE Seds[e]	ONCH021S1	55	1	540	1	2	0	5	1	1	0	0.6	1			95	1	65	1
NURE Seds[e]	ONCH022S1	25	1	475	1	5	1	8	1	1	0	0.5	1			43	1	38	1
NURE Seds[e]	ONCH024S1	10	1	861	1	2	0	10	1	1	0	0.3	1			69	1	25	1
NURE Seds[e]	ONCH025S1	15	1	452	1	8	1	25	1	1	0	0.7	1			115	1	95	1
NURE Seds[e]	ONCH028S1	25	1	580	1	2	0	20	1	1	0	0.3	1			118	1	85	1
NURE Seds[e]	ONCH030S1											0.3	1						
NURE Seds[e]	ONCH033S1	20	1	437	1	2	0	13	1	3	1	0.3	1			231	1	53	1
NURE Seds[e]	ONCH034S1											0.5	1						
NURE Seds[e]	ONDA002S1	15	1	513	1	2	0	10	1	1	0	0.3	1			42	1	28	1
NURE Seds[e]	ONDA003S1	15	1	514	1	2	0	8	1	1	0	0.3	1			44	1	30	1
NURE Seds[e]	ONDA004S1	15	1	737	1	2	0	8	1	2	1	0.4	1			95	1	35	1
NURE Seds[e]	ONDA005S1	20	1	573	1	2	0	5	0	1	0	0.3	1			56	1	35	1
NURE Seds[e]	ONDA006S1	15	1	6391	1	2	0	10	1	1	0	0.3	1			80	1	28	1
NURE Seds[e]	ONDA007S1	15	1	626	1	3	1	8	1	2	1	0.3	1			54	1	35	1
NURE Seds[e]	ONDA010S1	15	1	665	1	2	0	5	0	1	0	0.3	1			39	1	33	1
NURE Seds[e]	ONDA014S1											0.2	1						
NURE Seds[e]	ONDA015S1	15	1	370	1	2	0	5	1	2	1	0.2	1			34	1	25	1
NURE Seds[e]	ONDA019S1	10	0	324	1	2	0	5	0	1	1	0.3	1			44	1	28	1
NURE Seds[e]	ONDA020S1	10	0	640	1	2	1	5	1	1	0	0.3	1			60	1	23	1
NURE Seds[e]	ONDA021S1	15	1	811	1	2	0	5	0	2	1	0.1	1			188	1	18	1
NURE Seds[e]	ONDB005S1	15	1	717	1	2	0	10	1	1	0	0.4	1			97	1	28	1
NURE Seds[e]	ONDB006S1	15	1	532	1	2	0	8	1	1	0	0.5	1			58	1	33	1
NURE Seds[e]	ONDB007S1	10	0	729	1	2	0	13	1	1	0	0.3	1			67	1	30	1
NURE Seds[e]	ONDB008S1	10	0	481	1	2	0	15	1	1	0	0.3	1			54	1	33	1
NURE Seds[e]	ONDB010S1	10	0	456	1	2	0	15	1	1	0	0.5	1			50	1	30	1
NURE Seds[e]	ONDB011S1											0.3	1						
NURE Seds[e]	ONDB012S1	15	1	765	1	2	0	18	1	1	1	0.4	1			98	1	38	1
NURE Seds[e]	ONDB013S1	10	0	649	1	2	0	20	1	4	1	0.3	1			96	1	40	1
NURE Seds[e]	ONDB014S1	10	1	757	1	2	0	8	1	1	0	0.2	1			113	1	28	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDB015S1	54927	1			3	1	290	1	1.5	1			60	1	5	0	10	1	41360	1
NURE Seds[e]	ONDB033S1	52647	1			2	1	350	1	1.5	1			30	1	5	0	12	1	18920	1
NURE Seds[e]	ONDB034S1	58580	1			3	1	428	1	1.5	1			35	1	5	0	15	1	24593	1
NURE Seds[e]	ONDB037S1	58540	1			3	1	373	1	1	1			55	1	5	0	26	1	36293	1
NURE Seds[e]	ONDB038S1	56153	1			3	1	200	1	2	1			50	1	10	1	12	1	32347	1
NURE Seds[e]	ONDC001S1	59580	1			3	1	310	1	1.5	1			15	1	5	0	3	1	20880	1
NURE Seds[e]	ONDC002S1	63846	1			3	1	355	1	1.5	1			20	1	5	0	6	1	15673	1
NURE Seds[e]	ONDC003S1	55840	1			1	1	310	1	1.5	1			20	1	5	1	9	1	24373	1
NURE Seds[e]	ONDC011S1	55807	1			1	1	38	1	1.5	1			30	1	5	0	12	1	27280	1
NURE Seds[e]	ONDC013S1	47527	1					110	1	1	1			25	1	5	0	13	1	17227	1
NURE Seds[e]	ONDD003S1	65053	1					195	1	2.5	1			15	1	5	0	7	1	24533	1
NURE Seds[e]	ONDD008S1	62260	1					250	1	1.5	1			5	1	5	0	4	1	17447	1
NURE Seds[e]	ONDD011S1	60447	1					158	1	2	1			5	1	5	0	5	1	12660	1
NURE Seds[e]	ONDD012S1	60860	1			1	1	190	1	2	1			25	1	8	1	21	1	25513	1
NURE Seds[e]	ONDD013S1	56700	1					260	1	2	1			35	1	5	0	8	1	42940	1
NURE Seds[e]	ONDD021S1	50380	1			3	1	168	1	2	1			20	1	5	0	12	1	24460	1
NURE Seds[e]	ONDE001S1	52947	1			3	1	248	1	1.5	1			25	1	5	0	13	1	29547	1
NURE Seds[e]	ONDE002S1	46880	1			1	1	53	1	2	1			15	1	5	1	14	1	39260	1
NURE Seds[e]	ONDE003S1	55760	1			2	1	205	1	2	1			20	1	5	1	11	1	32220	1
NURE Seds[e]	ONDE004S1	50007	1					90	1	2	1			30	1	8	1	10	1	61933	1
NURE Seds[e]	ONDE005S1	57307	1			1	1	153	1	2	1			15	1	10	1	10	1	35180	1
NURE Seds[e]	ONDE006S1	69333	1					195	1	3	1			15	1	5	0	7	1	24160	1
NURE Seds[e]	ONDE008S1	63953	1			2	1	283	1	2.5	1			15	1	5	0	10	1	25893	1
NURE Seds[e]	ONDE009S1	58173	1					295	1	2	1			20	1	10	1	8	1	24200	1
NURE Seds[e]	ONDE010S1	53047	1			2	1	63	1	2	1			25	1	5	0	8	1	17387	1
NURE Seds[e]	ONDE011S1																				
NURE Seds[e]	ONDE012S1	53540	1			2	1	373	1	2	1			25	1	5	0	11	1	13620	1
NURE Seds[e]	ONDE013S1	55300	1			2	1	358	1	2.5	1			95	1	5	0	8	1	64040	1
NURE Seds[e]	ONDE014S1	53173	1			2	1	113	1	2	1			30	1	5	0	14	1	23113	1
NURE Seds[e]	ONDE016S1	50840	1			2	1	260	1	2	1			50	1	5	0	12	1	21620	1
NURE Seds[e]	ONDE017S1	61507	1			2	1	163	1	2	1			20	1	5	0	10	1	24667	1
NURE Seds[e]	ONDE018S1	60413	1			2	1	175	1	2	1			25	1	5	0	10	1	19253	1
NURE Seds[e]	ONDE019S1	59780	1					190	1	1.5	1			45	1	8	1	18	1	34413	1
NURE Seds[e]	ONDE020S1	39087	1			2	1	8	1	1.5	1			25	1	8	1	11	1	18020	1
NURE Seds[e]	ONDE021S1	57620	1			2	1	223	1	2	1			30	1	5	0	12	1	22860	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDB015S1	10	1	934	1	2	0	8	1	1	1	0.4	1			123	1	25	1
NURE Seds[e]	ONDB033S1	10	1	514	1	2	1	15	1	1	0	0.4	1			61	1	30	1
NURE Seds[e]	ONDB034S1	10	1	536	1	3	1	25	1	4	1	0.3	1			60	1	38	1
NURE Seds[e]	ONDB037S1	10	0	944	1	2	0	23	1	1	1	0.3	1			97	1	65	1
NURE Seds[e]	ONDB038S1	10	0	666	1	2	1	18	1	1	0	0.3	1			81	1	28	1
NURE Seds[e]	ONDC001S1	15	1	367	1	2	0	10	1	1	1	0.2	1			67	1	8	1
NURE Seds[e]	ONDC002S1	10	1	342	1	2	0	5	0	1	0	0.3	1			41	1	13	1
NURE Seds[e]	ONDC003S1	10	1	447	1	3	1	8	1	1	0	0.4	1			38	1	38	1
NURE Seds[e]	ONDC011S1	15	1	566	1	4	1	15	1	2	1	0.3	1			56	1	45	1
NURE Seds[e]	ONDC013S1	20	1	350	1	2	0	13	1	1	0	0.3	1			64	1	43	1
NURE Seds[e]	ONDD003S1	15	1	518	1	2	1	5	1	1	0	0.3	1			50	1	20	1
NURE Seds[e]	ONDD008S1	20	1	240	1	2	0	5	1	1	0	0.5	1			33	1	20	1
NURE Seds[e]	ONDD011S1	20	1	222	1	2	1	5	1	4	1	0.3	1			29	1	8	1
NURE Seds[e]	ONDD012S1	30	1	741	1	3	1	5	1	1	0	0.5	1			67	1	98	1
NURE Seds[e]	ONDD013S1	20	1	531	1	2	1	10	1	1	0	0.3	1			99	1	23	1
NURE Seds[e]	ONDD021S1	25	1	501	1	2	1	10	1	1	0	0.4	1			55	1	80	1
NURE Seds[e]	ONDE001S1	30	1	646	1	2	1	13	1	1	0	0.4	1			103	1	45	1
NURE Seds[e]	ONDE002S1	35	1	829	1	3	1	18	1	1	0	0.5	1			65	1	50	1
NURE Seds[e]	ONDE003S1	20	1	768	1	2	1	13	1	1	0	0.4	1			97	1	48	1
NURE Seds[e]	ONDE004S1	15	1	871	1	2	0	13	1	1	0	0.4	1			216	1	40	1
NURE Seds[e]	ONDE005S1	20	1	1153	1	3	1	10	1	1	0	0.4	1			92	1	80	1
NURE Seds[e]	ONDE006S1	10	1	1057	1	5	1	13	1	1	0	0.3	1			72	1	23	1
NURE Seds[e]	ONDE008S1	30	1	603	1	2	1	10	1	1	0	0.6	1			63	1	50	1
NURE Seds[e]	ONDE009S1	15	1	593	1	2	0	15	1	1	0	0.6	1			79	1	35	1
NURE Seds[e]	ONDE010S1	20	1	677	1	3	1	15	1	1	1	0.2	1			35	1	35	1
NURE Seds[e]	ONDE011S1											0.5	1						
NURE Seds[e]	ONDE012S1	10	1	348	1	5	1	18	1	2	1	0.4	1			33	1	50	1
NURE Seds[e]	ONDE013S1	20	1	803	1	2	1	13	1	2	1	0.5	1			129	1	30	1
NURE Seds[e]	ONDE014S1	15	1	331	1	2	1	10	1	1	0	0.8	1			47	1	63	1
NURE Seds[e]	ONDE016S1	10	1	519	1	2	1	15	1	1	1	0.5	1			45	1	70	1
NURE Seds[e]	ONDE017S1	10	0	553	1	2	0	15	1	2	1	0.4	1			55	1	35	1
NURE Seds[e]	ONDE018S1	10	0	533	1	3	1	15	1	1	0	0.4	1			45	1	40	1
NURE Seds[e]	ONDE019S1	15	1	749	1	2	0	38	1	1	0	0.8	1			63	1	105	1
NURE Seds[e]	ONDE020S1	20	1	336	1	2	1	20	1	1	0	0.4	1			35	1	28	1
NURE Seds[e]	ONDE021S1	10	0	462	1	2	0	13	1	1	0	0.3	1			50	1	50	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDE022S1	61953	1			1	1	218	1	1.5	1			40	1	5	0	11	1	34680	1
NURE Seds[e]	ONDE023S1	57467	1			1	1	173	1	2	1			190	1	5	0	8	1	22507	1
NURE Seds[e]	ONDE030S1	63813	1			2	1	498	1	3	1			30	1	5	0	6	1	49693	1
NURE Seds[e]	ONDE031S1	65747	1					260	1	2	1			50	1	5	0	10	1	38680	1
NURE Seds[e]	ONDE032S1	65266	1			2	1	103	1	3	1			25	1	5	0	10	1	32040	1
NURE Seds[e]	ONDE033S1	64886	1			3	1	110	1	2	1			30	1	5	1	12	1	26280	1
NURE Seds[e]	ONDE034S1	54933	1			2	1	373	1	1.5	1			115	1	10	1	6	1	36833	1
NURE Seds[e]	ONDE036S1	56920	1			3	1	323	1	1.5	1			50	1	5	0	6	1	25487	1
NURE Seds[e]	ONDE038S1	53887	1			2	1	18	1	2	1			20	1	5	0	10	1	21853	1
NURE Seds[e]	ONDF002S1	57253	1			6	1	358	1	2	1			35	1	5	1			32687	1
NURE Seds[e]	ONDF004S1	57693	1			4	1	583	1	2.5	1			80	1	10	1			32113	1
NURE Seds[e]	ONDF005S1	57927	1					438	1	2	1			115	1	5	0			55213	1
NURE Seds[e]	ONDF016S1	53093	1					245	1	1	1			155	1	5	0			22980	1
NURE Seds[e]	ONDF018S1	67333	1			1	1	195	1	2.5	1			40	1	5	0			27493	1
NURE Seds[e]	ONDF019S1	61127	1					498	1	2	1			65	1	5	1			45847	1
NURE Seds[e]	ONDF020S1	61567	1					408	1	2	1			65	1	5	0			44420	1
NURE Seds[e]	ONDF021S1	56993	1					350	1	1.5	1			105	1	5	1			34380	1
NURE Seds[e]	ONDF022S1	63566	1					523	1	3	1			205	1	5	0			25187	1
NURE Seds[e]	ONDF024S1	56853	1			1	1	588	1	2	1			70	1	5	0			34360	1
NURE Seds[e]	ONDF026S1	60433	1			2	1	703	1	1.5	1			50	1	5	0			37460	1
NURE Seds[e]	ONDF027S1	61906	1			2	1	478	1	2	1			65	1	8	1			57067	1
NURE Seds[e]	ONDF030S1	65533	1					418	1	2	1			40	1	5	1			30953	1
NURE Seds[e]	ONDF032S1																				
NURE Seds[e]	ONDF034S1	61040	1			2	1	255	1	2	1			75	1	10	1			45693	1
NURE Seds[e]	ONDG002S1	65173	1			12	1	183	1	2.5	1			40	1	10	1			27480	1
NURE Seds[e]	ONDG005S1	60627	1			7	1	303	1	2	1			40	1	5	1			36013	1
NURE Seds[e]	ONDG006S1	67866	1			9	1	308	1	1.5	1			40	1	13	1			31213	1
NURE Seds[e]	ONDG008S1	65493	1					573	1	2	1			25	1	13	1			36513	1
NURE Seds[e]	ONDG010S1	57060	1			2	1	33	1	2	1			45	1	18	1			21640	1
NURE Seds[e]	ONDG011S1	59527	1					353	1	1.5	1			20	1	10	1			33833	1
NURE Seds[e]	ONDG014S1	71800	1			3	1	630	1	1	1			20	1	8	1			30160	1
NURE Seds[e]	ONDG015S1	67200	1			2	1	370	1	1	1			15	1	8	1			27907	1
NURE Seds[e]	ONDG016S1																				
NURE Seds[e]	ONDG017S1	41167	1			12	1	273	1	1	1			45	1	10	1			34193	1
NURE Seds[e]	ONDG023S1	49207	1			1	1	323	1	1.5	1			40	1	5	1			25647	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDE022S1	10	1	519	1	2	0	8	1	1	0	0.4	1			66	1	50	1
NURE Seds[e]	ONDE023S1	10	1	714	1	2	0	23	1	1	0	0.6	1			66	1	28	1
NURE Seds[e]	ONDE030S1	10	0	945	1	3	1	13	1	1	0	0.3	1			116	1	38	1
NURE Seds[e]	ONDE031S1	10	1	947	1	2	0	13	1	1	0	0.6	1			107	1	55	1
NURE Seds[e]	ONDE032S1	20	1	636	1	2	0	15	1	1	0	0.3	1			52	1	43	1
NURE Seds[e]	ONDE033S1	15	1	970	1	2	1	20	1	1	0	0.6	1			76	1	73	1
NURE Seds[e]	ONDE034S1	10	1	701	1	2	0	18	1	1	0	0.4	1			93	1	40	1
NURE Seds[e]	ONDE036S1	10	1	574	1	2	0	8	1	3	1	0.4	1			89	1	25	1
NURE Seds[e]	ONDE038S1	25	1	561	1	2	1	8	1	1	0	0.4	1			77	1	98	1
NURE Seds[e]	ONDF002S1	10	1	725	1	2	0	20	1	1	0	0.3	1			92	1	50	1
NURE Seds[e]	ONDF004S1	15	1	558	1	2	0	15	1	1	0	0.6	1			102	1	35	1
NURE Seds[e]	ONDF005S1	15	1	883	1	2	0	15	1	1	0	0.3	1			167	1	53	1
NURE Seds[e]	ONDF016S1	20	1	654	1	2	0	25	1	1	0	0.3	1			190	1	40	1
NURE Seds[e]	ONDF018S1	30	1	761	1	2	1	38	1	1	0	0.3	1			88	1	48	1
NURE Seds[e]	ONDF019S1	15	1	843	1	2	0	53	1	1	0	0.3	1			111	1	45	1
NURE Seds[e]	ONDF020S1	10	1	800	1	2	0	18	1	1	0	0.4	1			115	1	60	1
NURE Seds[e]	ONDF021S1	10	1	702	1	2	0	18	1	1	0	0.4	1			109	1	23	1
NURE Seds[e]	ONDF022S1	10	0	547	1	2	0	35	1	1	0	0.6	1			66	1	83	1
NURE Seds[e]	ONDF024S1	10	0	929	1	2	0	23	1	1	0	0.3	1			85	1	68	1
NURE Seds[e]	ONDF026S1	15	1	554	1	2	0	15	1	1	0	0.3	1			97	1	43	1
NURE Seds[e]	ONDF027S1	10	1	685	1	2	0	20	1	1	0	0.3	1			131	1	40	1
NURE Seds[e]	ONDF030S1	10	1	911	1	2	1	13	1	1	0	0.5	1			91	1	40	1
NURE Seds[e]	ONDF032S1											0.4	1						
NURE Seds[e]	ONDF034S1	10	1	1295	1	2	1	13	1	1	0	0.3	1			147	1	43	1
NURE Seds[e]	ONDG002S1	20	1	356	1	3	1	25	1	1	0	0.4	1			60	1	50	1
NURE Seds[e]	ONDG005S1	15	1	776	1	2	0	38	1	1	0	0.5	1			75	1	45	1
NURE Seds[e]	ONDG006S1	10	1	517	1	2	1	23	1	5	1	0.1	0			60	1	50	1
NURE Seds[e]	ONDG008S1	10	1	701	1	2	0	18	1	1	0	0.1	1			58	1	38	1
NURE Seds[e]	ONDG010S1	35	1	665	1	2	1	30	1	1	0	0.1	1			90	1	65	1
NURE Seds[e]	ONDG011S1	10	1	613	1	3	1	10	1	1	0	0.1	0			47	1	63	1
NURE Seds[e]	ONDG014S1	10	1	756	1	29	1	15	1	1	0	0.3	1			45	1	43	1
NURE Seds[e]	ONDG015S1	15	1	565	1	13	1	15	1	1	0	0.3	1			38	1	35	1
NURE Seds[e]	ONDG016S1											0.3	1						
NURE Seds[e]	ONDG017S1	20	1	898	1	25	1	33	1	1	0	0.5	1			66	1	113	1
NURE Seds[e]	ONDG023S1	10	1	298	1	13	1	23	1	1	0	0.1	0			46	1	33	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDG024S1	51853	1			4	1	420	1	1	1			45	1	5	1			35733	1
NURE Seds[e]	ONDG026S1	71533	1			2	1	630	1	1.5	1			20	1	5	0			17687	1
NURE Seds[e]	ONDG028S1	61640	1			1	1	535	1	2	1			35	1	5	1			14973	1
NURE Seds[e]	ONDH001S1	46347	1			1	1	443	1	1.5	1			50	1	8	1			32287	1
NURE Seds[e]	ONDH003S1	40873	1			7	1	190	1	1	1			35	1	10	1			30773	1
NURE Seds[e]	ONDH005S1	47933	1			4	1	83	1	1.7	1			20	1					27753	1
NURE Seds[e]	ONDH008S1	46867	1			3	1	458	1	1.5	1			45	1	5	1			92466	1
NURE Seds[e]	ONDH009S1	24213	1			2	1	528	1	1	1			70	1	13	1			15887	1
NURE Seds[e]	ONDH010S1	43187	1			1	1	460	1	1.5	1			70	1	10	1			17120	1
NURE Seds[e]	ONDH012S1	60273	1					488	1	2	1			85	1	15	1			34940	1
NURE Seds[e]	ONDH013S1	56500	1			9	1	368	1	1.5	1			35	1	15	1			29000	1
NURE Seds[e]	ONDH015S1	49720	1			7	1	638	1	2	1			25	1	15	1			34460	1
NURE Seds[e]	ONDH016S1	55733	1			4	1	440	1	1	1			35	1	10	1			33987	1
NURE Seds[e]	ONDH017S1	42707	1			2	1	503	1	1.5	1			30	1	8	1			35313	1
NURE Seds[e]	ONDH018S1	47373	1			4	1	423	1	1	1			45	1	5	1			33067	1
NURE Seds[e]	ONDH019S1	72733	1			8	1	300	1	1	1			45	1	10	1			39567	1
NURE Seds[e]	ONDH021S1	60080	1			14	1	288	1	1	1			55	1	10	1			37900	1
NURE Seds[e]	ONDH022S1	56147	1			13	1	333	1	1.5	1			40	1	13	1			38447	1
NURE Seds[e]	ONDH023S1	92533	1			13	1	310	1	0.5	1			40	1	10	1			32127	1
NURE Seds[e]	ONDH024S1	53613	1			9	1	228	1	0.5	1			25	1	8	1			54100	1
NURE Seds[e]	RZAE014S1	57385	1			2	1	227	1	1.5	1			110	1	12	1	15	1	41187	1
NURE Seds[e]	RZAE027S1	55282	1			5	1	352	1	1.5	1			110	1	10	1	13	1	49660	1
NURE Seds[e]	RZAE032S1	60615	1			1	1	419	1	2	1			100	1	5	1	12	1	33180	1
NURE Seds[e]	RZAE033S1	62384	1			3	1	557	1	1.5	1			65	1	5	0	7	1	32480	1
NURE Seds[e]	RZAE034S1	76720	1			2	1	397	1	2	1			100	1	7	1	13	1	37787	1
NURE Seds[e]	RZAE035S1	72362	1					347	1	2	1			120	1	5	1	9	1	45980	1
NURE Seds[e]	RZAE037S1	65856	1			4	1	334	1	2.5	1			110	1	5	1	21	1	42633	1
NURE Seds[e]	RZAE038S1	63448	1			7	1	547	1	2.5	1			105	1	5	1	14	1	38553	1
NURE Seds[e]	RZAE039S1	61572	1			3	1	392	1	3	1			95	1	10	1	17	1	30500	1
NURE Seds[e]	RZAE040S1	92278	1			1	1	492	1	2.5	1			85	1	5	1	13	1	39133	1
NURE Seds[e]	RZAE041S1	63700	1			3	1	477	1	2	1			105	1	5	1	8	1	41527	1
NURE Seds[e]	RZAF006S1	43328	1			4	1	367	1	1.5	1			100	1	5	1	13	1	33753	1
NURE Seds[e]	RZAF012S1	44164	1			2	1	342	1	1.5	1			120	1	17	1	18	1	41000	1
NURE Seds[e]	RZAF014S1	46210	1			3	1	302	1	2	1			120	1	7	1	13	1	35833	1
NURE Seds[e]	RZAF016S1	50072	1			2	1	304	1	1.5	1			180	1	20	1	17	1	57000	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	ONDG024S1	15	1	459	1	10	1	23	1	1	0	0.3	1			66	1	43	1
NURE Seds[e]	ONDG026S1	10	1	293	1	15	1	8	1	1	0	0.2	1			47	1	30	1
NURE Seds[e]	ONDG028S1	10	0	239	1	15	1	13	1	1	0	0.2	1			35	1	30	1
NURE Seds[e]	ONDH001S1	10	1	416	1	10	1	18	1	1	0	0.2	1			103	1	33	1
NURE Seds[e]	ONDH003S1	45	1	532	1	15	1	35	1	1	0	0.7	1			54	1	183	1
NURE Seds[e]	ONDH005S1	50	1	943	1	5	1			1	0					85	1		
NURE Seds[e]	ONDH008S1	15	1	618	1	19	1	15	1	1	0	0.3	1			208	1	23	1
NURE Seds[e]	ONDH009S1	35	1	279	1	15	1	83	1	1	0	4.5	1			57	1	23	1
NURE Seds[e]	ONDH010S1	20	1	503	1	9	1	18	1	1	0	0.1	1			123	1	28	1
NURE Seds[e]	ONDH012S1	15	1	844	1	20	1	38	1	1	0	0.5	1			91	1	93	1
NURE Seds[e]	ONDH013S1	35	1	613	1	15	1	28	1	1	0	0.1	1			69	1	73	1
NURE Seds[e]	ONDH015S1	10	1	666	1	9	1	45	1	1	0	0.3	1			159	1	75	1
NURE Seds[e]	ONDH016S1	10	1	745	1	11	1	48	1	1	0	0.5	1			80	1	25	1
NURE Seds[e]	ONDH017S1	10	0	474	1	10	1	18	1	1	0	0.8	1			113	1	90	1
NURE Seds[e]	ONDH018S1	10	0	446	1	2	0	18	1	1	0	0.1	1			94	1	60	1
NURE Seds[e]	ONDH019S1	10	1	669	1	2	0	18	1	1	0	0.3	1			181	1	33	1
NURE Seds[e]	ONDH021S1	35	1	743	1	2	0	30	1	1	0	0.1	1			154	1	68	1
NURE Seds[e]	ONDH022S1	15	1	759	1	2	0	13	1	1	0	0.1	1			113	1	28	1
NURE Seds[e]	ONDH023S1	10	0	834	1	2	0	8	1	1	0	0.1	1			126	1	48	1
NURE Seds[e]	ONDH024S1	10	0	1135	1	2	1	8	1	1	0	0.3	1			140	1	33	1
NURE Seds[e]	RZAE014S1	10	0	541	1	2	1	5	1	1	0	0.1	1			72	1	37	1
NURE Seds[e]	RZAE027S1	10	0	632	1	2	0	5	1	1	0	0.1	1			90	1	50	1
NURE Seds[e]	RZAE032S1	10	0	747	1	3	1	7	1	1	0	0.1	1			84	1	42	1
NURE Seds[e]	RZAE033S1	10	0	428	1	2	1	5	0	1	0	0.1	1			55	1	17	1
NURE Seds[e]	RZAE034S1	20	1	575	1	3	1	7	1	1	0	0.1	1			58	1	55	1
NURE Seds[e]	RZAE035S1	15	1			2	0	5	1	1	0	0.1	1			97	1	37	1
NURE Seds[e]	RZAE037S1	15	1	639	1	2	1	5	1	1	0	0.1	1			88	1	55	1
NURE Seds[e]	RZAE038S1	10	0	620	1	2	0	5	1	2	1	0.1	1			71	1	47	1
NURE Seds[e]	RZAE039S1	15	1			4	1	7	1	1	1	0.2	1			45	1	80	1
NURE Seds[e]	RZAE040S1	20	1	878	1	3	1	5	0	1	1	0.2	1			54	1	108	1
NURE Seds[e]	RZAE041S1	20	1	690	1	2	0	5	1	1	0	0.1	1			89	1	25	1
NURE Seds[e]	RZAF006S1	15	1	630	1	2	0	12	1	1	0	0.3	1			91	1	35	1
NURE Seds[e]	RZAF012S1	10	1	864	1	2	0	17	1	1	1	0.1	1			127	1	52	1
NURE Seds[e]	RZAF014S1	10	1	648	1	2	0	7	1	1	0	0.1	1			100	1	35	1
NURE Seds[e]	RZAF016S1	10	1	1007	1	2	0	12	1	1	0	0.2	1			182	1	55	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAF017S1	43323	1			2	1	294	1	2	1			110	1	12	1	13	1	34100	1
NURE Seds[e]	RZAF021S1	45738	1			4	1	472	1	2.5	1			85	1	15	1	14	1	35740	1
NURE Seds[e]	RZAF022S1	45595	1			2	1	379	1	1.5	1			85	1	7	1	17	1	33393	1
NURE Seds[e]	RZAF024S1	64205	1			4	1	399	1	4.5	1			230	1	32	1	106	1	84066	1
NURE Seds[e]	RZAF025S1	50528	1					469	1	2	1			150	1	7	1	17	1	42580	1
NURE Seds[e]	RZAF028S1	43210	1			4	1	387	1	2.5	1			85	1	5	1	11	1	39325	1
NURE Seds[e]	RZAF032S1	41236	1			6	1	424	1	2	1			145	1	5	0	15	1	43327	1
NURE Seds[e]	RZAF033S1	54308	1			8	1	384	1	3	1			120	1	7	1	18	1	78539	1
NURE Seds[e]	RZAG001S1	42159	1			6	1	432	1	2.5	1			120	1	10	1	17	1	30767	1
NURE Seds[e]	RZAG003S1	40215	1			6	1	369	1	2	1			95	1	12	1	17	1	62280	1
NURE Seds[e]	RZAG007S1	46698	1			2	1	432	1	2	1			70	1	10	1	13	1	68053	1
NURE Seds[e]	RZAG008S1	42240	1			2	1	277	1	2	1			105	1	5	1	13	1	33393	1
NURE Seds[e]	RZAG009S1																				
NURE Seds[e]	RZAG014S1	39252	1			2	1	284	1	2.5	1			110	1	17	1	11	1	27760	1
NURE Seds[e]	RZAG015S1	47579	1			5	1	287	1	2	1			80	1	10	1	9	1	28300	1
NURE Seds[e]	RZAG016S1	39733	1			4	1	277	1	1.5	1			155	1	10	1	8	1	67333	1
NURE Seds[e]	RZAG018S1	57641	1			6	1	367	1	2	1			110	1	10	1	16	1	32093	1
NURE Seds[e]	RZAG019S1	60410	1			1	1	354	1	2	1			90	1	12	1	9	1	34687	1
NURE Seds[e]	RZAG020S1	56512	1			6	1	387	1	2.5	1			105	1	17	1	17	1	26207	1
NURE Seds[e]	RZAG021S1	60000	1			3	1	314	1	2.5	1			95	1	12	1	12	1	49883	1
NURE Seds[e]	RZAG028S1	56410	1			4	1	314	1	2	1			105	1	7	1	22	1	33333	1
NURE Seds[e]	RZAG029S1	60564	1			1	1	392	1	2	1			110	1	7	1	11	1	38113	1
NURE Seds[e]	RZAG030S1	50635	1			5	1	244	1	1.5	1			90	1	10	1	19	1	21707	1
NURE Seds[e]	RZAG032S1	66564	1			2	1	464	1	2.5	1			140	1	5	1	9	1	61060	1
NURE Seds[e]	RZAG033S1	62102	1			1	1	447	1	2.5	1			125	1	5	0	8	1	79800	1
NURE Seds[e]	RZAG035S1	68102	1			1	1	419	1	2.5	1			120	1	5	0	7	1	69600	1
NURE Seds[e]	RZAH001S1	36267	1			2	1	275	1	1.5	1			90	1	12	1	13	1	53329	1
NURE Seds[e]	RZAH005S1	52000	1			15	1	215	1	2	1			80	1	12	1	21	1	35293	1
NURE Seds[e]	RZAH006S1	53231	1			3	1	208	1	2.5	1			80	1	12	1	10	1	35973	1
NURE Seds[e]	RZAH007S1	61025	1			4	1	228	1	1	1			75	1	10	1	12	1	33520	1
NURE Seds[e]	RZAH008S1	53692	1			2	1	218	1	1.5	1			90	1	10	1	12	1	5000	0
NURE Seds[e]	RZAH009S1	61589	1			3	1	210	1	1.5	1			85	1	7	1	14	1	47927	1
NURE Seds[e]	RZAH010S1	52718	1			1	1	250	1	1.5	1			45	1	7	1	15	1	41353	1
NURE Seds[e]	RZAH013S1	52102	1			5	1	210	1	2.5	1			85	1	12	1	12	1	5000	0
NURE Seds[e]	RZAH014S1	29252	1			7	1	203	1	1.5	1			95	1	10	1	13	1	5000	0

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAF017S1	10	0	595	1	2	0	22	1	1	0	0.3	1			78	1	37	1
NURE Seds[e]	RZAF021S1	20	1	740	1	2	0	20	1	1	0	0.3	1			86	1	55	1
NURE Seds[e]	RZAF022S1	15	1	605	1	2	0	20	1	1	1	0.1	1			67	1	47	1
NURE Seds[e]	RZAF024S1	10	1	1029	1	17	1	115	1	1	0	1.2	1			101	1	180	1
NURE Seds[e]	RZAF025S1	15	1	921	1	2	0	27	1	1	0	0.1	1			140	1	42	1
NURE Seds[e]	RZAF028S1	10	0	456	1	3	1	25	1	1	0	0.3	1			48	1	50	1
NURE Seds[e]	RZAF032S1	10	1	735	1	2	1	27	1	1	0	0.2	1			103	1	42	1
NURE Seds[e]	RZAF033S1	20	1	707	1	2	0	25	1	2	1	0.1	1			92	1	65	1
NURE Seds[e]	RZAG001S1	20	1			2	0	20	1	1	0	0.4	1			44	1	52	1
NURE Seds[e]	RZAG003S1	10	1	633	1	3	1	25	1	1	0	0.3	1			83	1	47	1
NURE Seds[e]	RZAG007S1	10	0	565	1	2	1	5	0	1	0	0.1	1			86	1	27	1
NURE Seds[e]	RZAG008S1	10	0	809	1	2	0	22	1	5	1	0.2	1			91	1	52	1
NURE Seds[e]	RZAG009S1											0.3	1						
NURE Seds[e]	RZAG014S1	10	1	486	1	2	1	12	1	1	0	0.3	1			86	1	35	1
NURE Seds[e]	RZAG015S1	10	0	367	1	2	0	7	1	1	0	0.4	1			50	1	35	1
NURE Seds[e]	RZAG016S1	20	1	779	1	2	0	15	1	1	0	0.1	1			197	1	40	1
NURE Seds[e]	RZAG018S1	10	1	699	1	4	1	17	1	1	0	0.4	1			89	1	50	1
NURE Seds[e]	RZAG019S1	15	1	523	1	4	1	22	1	1	0	0.3	1			81	1	27	1
NURE Seds[e]	RZAG020S1	10	0	508	1	2	0	25	1	1	1	0.3	1			49	1	50	1
NURE Seds[e]	RZAG021S1	10	0	663	1	2	1	10	1	1	0	0.3	1			76	1	20	1
NURE Seds[e]	RZAG028S1	10	0	949	1	3	1	12	1	1	1	0.3	1			75	1	52	1
NURE Seds[e]	RZAG029S1	10	0	783	1	2	0	7	1	1	0	0.2	1			82	1	32	1
NURE Seds[e]	RZAG030S1	10	0	669	1	2	0	10	1	1	1	0.2	1			61	1	60	1
NURE Seds[e]	RZAG032S1	10	1	861	1	2	1	12	1	1	0	0.1	1			118	1	40	1
NURE Seds[e]	RZAG033S1	10	0	949	1	2	1	10	1	1	0	0.1	1			182	1	15	1
NURE Seds[e]	RZAG035S1	10	0	806	1	2	0	5	0	1	0	0.1	1			138	1	30	1
NURE Seds[e]	RZAH001S1	10	0	556	1	2	0	10	1	1	1	0.2	1			86	1	35	1
NURE Seds[e]	RZAH005S1	10	1	646	1	2	0	10	1	1	0	0.1	1			74	1	47	1
NURE Seds[e]	RZAH006S1	10	0	543	1	2	1	7	1	1	0	0.1	1			89	1	30	1
NURE Seds[e]	RZAH007S1	10	1	697	1	2	0	5	1	1	0	0.1	1			77	1	32	1
NURE Seds[e]	RZAH008S1	10	1	683	1	2	1	12	1	1	1	0.4	1			155	1	45	1
NURE Seds[e]	RZAH009S1	10	1	807	1	2	1	7	1	1	0	0.3	1			129	1	40	1
NURE Seds[e]	RZAH010S1	10	0	640	1	2	0	7	1	1	0	0.3	1			82	1	45	1
NURE Seds[e]	RZAH013S1	10	1	625	1	2	1	5	1	1	0	0.3	1			110	1	40	1
NURE Seds[e]	RZAH014S1	10	0	423	1	2	0	10	1	1	0	0.3	1			76	1	47	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAH015S1	56051	1			13	1	175	1	2	1			65	1	7	1	12	1	23427	1
NURE Seds[e]	RZAH016S1	49358	1			4	1	200	1	1.5	1			120	1	12	1	9	1	51080	1
NURE Seds[e]	RZAH017S1	50620	1			2	1	143	1	2	1			75	1	10	1	10	1	37747	1
NURE Seds[e]	RZAH019S1	56358	1			2	1	323	1	1	1			195	1	5	1	9	1	6284	0
NURE Seds[e]	RZAH020S1	35272	1			7	1	188	1	1.5	1			125	1	10	1	12	1	5000	0
NURE Seds[e]	RZAH021S1																				
NURE Seds[e]	RZAH023S1	66102	1			32	1	120	1	4.5	1			70	1	10	1	11	1	74016	1
NURE Seds[e]	RZAH024S1	56615	1			6	1	900	1	3	1			30	1	5	1	8	1	27667	1
NURE Seds[e]	RZAH026S1	48302	1			4	1	150	1	2.5	1			65	1	7	1	11	1	23053	1
NURE Seds[e]	RZAH027S1																				
NURE Seds[e]	RZAH028S1																				
NURE Seds[e]	RZAH029S1	53077	1			9	1	280	1	3	1			110	1	12	1	17	1	42373	1
NURE Seds[e]	RZAH030S1	61641	1			6	1	163	1	2	1			85	1	15	1	12	1	37687	1
NURE Seds[e]	RZAH032S1	58974	1			13	1	296	1	2	1			75	1	10	1	15	1	52416	1
NURE Seds[e]	RZAH034S1	56512	1			8	1	210	1	1.5	1			80	1	7	1	13	1		
NURE Seds[e]	RZAH035S1	62820	1			17	1	193	1	2.5	1			75	1	10	1	10	1	32427	1
NURE Seds[e]	RZAH036S1	65538	1			4	1	213	1	3	1			80	1	7	1	14	1	35067	1
NURE Seds[e]	RZBG017S1	58358	1			2	1	242	1	2	1			65	1	7	1	15	1	33253	1
NURE Seds[e]	RZBG019S1	56769	1			5	1	237	1	2	1			75	1	7	1	10	1	42033	1
NURE Seds[e]	RZBG020S1																				
NURE Seds[e]	RZBH001S1	61025	1			5	1	345	1	2	1			90	1	10	1	18	1	29467	1
NURE Seds[e]	RZBH002S1	57641	1			4	1	227	1	1	1			85	1	10	1	13	1	33087	1
NURE Seds[e]	RZBH006S1	61282	1			4	1	247	1	2	1			85	1	7	1	15	1	38613	1
NURE Seds[e]	RZBH007S1	60923	1			4	1	200	1	2	1			90	1	5	0	12	1	38160	1
NURE Seds[e]	RZBH008S1	55385	1			6	1	135	1	1.5	1			85	1	7	1	8	1	65160	1
NURE Seds[e]	RZBH009S1	62308	1			5	1	160	1	2	1			65	1	7	1	10	1	36000	1
NURE Seds[e]	RZBH010S1					3	1	265	1	1.5	1			95	1	10	1	15	1		
NURE Seds[e]	SKAA001S1	54260	1			2	1	225	1	1.5	1			15	1	5	1	17	1	32127	1
NURE Seds[e]	SKAA002S1	57913	1			3	1	220	1	1.5	1			20	1	10	1	15	1	34427	1
NURE Seds[e]	SKAA003S1	59260	1			3	1	177	1	5	1			10	1	5	0	8	1	18060	1
NURE Seds[e]	SKAA004S1	62000	1			3	1	222	1	2	1			25	1	12	1	12	1	33040	1
NURE Seds[e]	SKAA005S1	65293	1			3	1	252	1	1.5	1			25	1	5	0	12	1	21467	1
NURE Seds[e]	SKAA008S1	61180	1			5	1	155	1	2	1			20	1	7	1	11	1	27553	1
NURE Seds[e]	SKAA011S1	63340	1			5	1	242	1	1.5	1			20	1	7	1	15	1	32567	1
NURE Seds[e]	SKAA012S1	61587	1			5	1	222	1	1.5	1			25	1	10	1	35	1	36813	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	RZAH015S1	10	0	531	1	2	0	5	1	1	0	0.2	1			62	1	25	1
NURE Seds[e]	RZAH016S1	10	1	477	1	2	0	10	1	1	0	0.2	1			81	1	27	1
NURE Seds[e]	RZAH017S1	10	1	905	1	2	0	5	1	1	1	0.4	1			101	1	32	1
NURE Seds[e]	RZAH019S1	10	1	837	1	2	1	10	1	1	1	0.3	1			180	1	30	1
NURE Seds[e]	RZAH020S1	10	1	453	1	2	0	10	1	1	1	0.3	1			60	1	30	1
NURE Seds[e]	RZAH021S1									1	0	0.5	1						
NURE Seds[e]	RZAH023S1	15	1	761	1	2	0	5	1	1	0	0.3	1			124	1	27	1
NURE Seds[e]	RZAH024S1	10	0	826	1	2	1	5	1	1	0	0.1	1			75	1	20	1
NURE Seds[e]	RZAH026S1	10	1	336	1	2	1	5	1	1	0	0.3	1			43	1	35	1
NURE Seds[e]	RZAH027S1									1	0	0.1	1						
NURE Seds[e]	RZAH028S1									1	0	0.3	1						
NURE Seds[e]	RZAH029S1	10	1	841	1	2	0	7	1	1	0	0.2	1			109	1	63	1
NURE Seds[e]	RZAH030S1	15	1	608	1	2	0	7	1	2	1	0.2	1			88	1	55	1
NURE Seds[e]	RZAH032S1	10	0	507	1	2	0	7	1	1	0	0.2	1			62	1	40	1
NURE Seds[e]	RZAH034S1	10	1	587	1	2	1	10	1	1	0	0.4	1			75	1	45	1
NURE Seds[e]	RZAH035S1	10	1	956	1	2	1	5	1	1	0	0.1	1			86	1	42	1
NURE Seds[e]	RZAH036S1	10	0	693	1	2	0	7	1	1	0	0.3	1			82	1	30	1
NURE Seds[e]	RZBG017S1	10	0	611	1	2	1	7	1	1	1	0.2	1			69	1	40	1
NURE Seds[e]	RZBG019S1	10	0	621	1	2	0	12	1	1	0	0.3	1			124	1	32	1
NURE Seds[e]	RZBG020S1											0.3	1						
NURE Seds[e]	RZBH001S1	10	0	675	1	3	1	10	1	1	0	0.2	1			63	1	47	1
NURE Seds[e]	RZBH002S1	10	0	1002	1	2	1	7	1	3	1	0.4	1			70	1	37	1
NURE Seds[e]	RZBH006S1	10	1	695	1	4	1	10	1	1	0	0.2	1			117	1	40	1
NURE Seds[e]	RZBH007S1	10	0	539	1	2	1	10	1	1	0	0.3	1			88	1	35	1
NURE Seds[e]	RZBH008S1	10	1	817	1	2	0	7	1	1	0	0.2	1			253	1	35	1
NURE Seds[e]	RZBH009S1	10	1	600	1	2	0	7	1	1	0	0.3	1			85	1	30	1
NURE Seds[e]	RZBH010S1	10	1			3	1	10	1	1	0	0.1	1					40	1
NURE Seds[e]	SKAA001S1	10	0	597	1	2	0	10	1	1	0	0.2	1			62	1	42	1
NURE Seds[e]	SKAA002S1	10	1	724	1	2	0	12	1	1	0	0.2	1			113	1	42	1
NURE Seds[e]	SKAA003S1	10	0	829	1	2	0	12	1	1	0	0.2	1			29	1	20	1
NURE Seds[e]	SKAA004S1	10	0	784	1	2	0	10	1	1	0	0.5	1			91	1	45	1
NURE Seds[e]	SKAA005S1	10	0	268	1	2	0	10	1	1	0	0.4	1			62	1	35	1
NURE Seds[e]	SKAA008S1	10	0	578	1	2	0	15	1	1	0	0.4	1			65	1	50	1
NURE Seds[e]	SKAA011S1	10	0	490	1	2	1	12	1	1	0	0.3	1			79	1	50	1
NURE Seds[e]	SKAA012S1	10	0	416	1	2	0	15	1	1	0	0.2	1			64	1	42	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAA013S1	60473	1			7	1	282	1	2	1			20	1	5	1	17	1	29627	1
NURE Seds[e]	SKAA014S1	58427	1			7	1	272	1	1.5	1			25	1	12	1	22	1	46060	1
NURE Seds[e]	SKAA015S1	59020	1			3	1	245	1	1.5	1			20	1	5	1	20	1	27233	1
NURE Seds[e]	SKAA016S1	53920	1			2	1	330	1	1	1			25	1	5	1	6	1	28153	1
NURE Seds[e]	SKAA017S1																				
NURE Seds[e]	SKAA018S1	67800	1			4	1	325	1	1	1			35	1	7	1	15	1	36113	1
NURE Seds[e]	SKAA019S1	56260	1			2	1	297	1	1.5	1			30	1	5	1	7	1	31627	1
NURE Seds[e]	SKAA020S1	51427	1			4	1	150	1	1	1			25	1	7	1	14	1	29333	1
NURE Seds[e]	SKAA021S1	57893	1			4	1	227	1	1	1			30	1	10	1	10	1	37693	1
NURE Seds[e]	SKAA022S1	65000	1			1	1	230	1	1.5	1			25	1	5	0	4	1	26240	1
NURE Seds[e]	SKAA024S1	46440	1			8	1	267	1	1.5	1			20	1	7	1	9	1	67066	1
NURE Seds[e]	SKAA025S1	60420	1					282	1	1	1			40	1	7	1	4	1	45233	1
NURE Seds[e]	SKAA026S1	64720	1			2	1	210	1	1	1			30	1	5	0	4	1	28953	1
NURE Seds[e]	SKAA027S1	104066	1			4	1	235	1	1.5	1			35	1	5	0	4	1	51960	1
NURE Seds[e]	SKAA028S1	62413	1			4	1	152	1	1.5	1			20	1	7	1	17	1	36040	1
NURE Seds[e]	SKAA029S1	74866	1			2	1	240	1	1	1			15	1	5	1	13	1	31867	1
NURE Seds[e]	SKAA030S1	60167	1			3	1	187	1	1	1			20	1	5	1	10	1	26907	1
NURE Seds[e]	SKAA031S1	57627	1			3	1	160	1	0.5	1			30	1	5	1	13	1	34807	1
NURE Seds[e]	SKAA032S1	53780	1			3	1	187	1	1	1			25	1	7	1	8	1	37380	1
NURE Seds[e]	SKAA034S1	55613	1			3	1	125	1	1	1			25	1	7	1	10	1	38127	1
NURE Seds[e]	SKAA035S1	56000	1			6	1	232	1	1	1			40	1	10	1	20	1	28013	1
NURE Seds[e]	SKAA036S1	58327	1			2	1	227	1	1.5	1			30	1	10	1	10	1	34827	1
NURE Seds[e]	SKAA037S1																				
NURE Seds[e]	SKAA038S1	54033	1			7	1	185	1	1.5	1			25	1	7	1	19	1	31353	1
NURE Seds[e]	SKAB001S1	70000	1			6	1	262	1	1.5	1			30	1	7	1	12	1	47327	1
NURE Seds[e]	SKAB002S1	71666	1			3	1	207	1	2.5	1			20	1	7	1	13	1	31393	1
NURE Seds[e]	SKAB003S1	74333	1			4	1	127	1	1.5	1			30	1	5	1	10	1	28147	1
NURE Seds[e]	SKAB004S1	80533	1			5	1	235	1	1	1			40	1	7	1	14	1	40233	1
NURE Seds[e]	SKAB007S1	61353	1			4	1	142	1	1	1			30	1	10	1	19	1	32493	1
NURE Seds[e]	SKAB009S1	81533	1			3	1	202	1	2	1			30	1	5	0	11	1	22340	1
NURE Seds[e]	SKAB010S1	84000	1			7	1	202	1	1	1			30	1	7	1	15	1	43027	1
NURE Seds[e]	SKAB011S1	55013	1			1	1	175	1	1	1			20	1	12	1	15	1	38740	1
NURE Seds[e]	SKAB013S1	56013	1			6	1	247	1	1.5	1			30	1	5	1	17	1	33100	1
NURE Seds[e]	SKAB014S1	37320	1			4	1	255	1	1.5	1			20	1	12	1	15	1	35540	1
NURE Seds[e]	SKAB017S1																				

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAA013S1	10	1	413	1	2	0	15	1	1	0	0.2	1			74	1	127	1
NURE Seds[e]	SKAA014S1	15	1	925	1	2	0	20	1	1	1	0.2	1			99	1	75	1
NURE Seds[e]	SKAA015S1	10	0	409	1	2	0	12	1	1	0	0.3	1			58	1	40	1
NURE Seds[e]	SKAA016S1	10	0	619	1	2	0	7	1	1	0	0.3	1			63	1	47	1
NURE Seds[e]	SKAA017S1											0.4	1						
NURE Seds[e]	SKAA018S1	10	1	608	1	3	1	12	1	1	0	0.5	1			66	1	47	1
NURE Seds[e]	SKAA019S1	10	0	928	1	2	0	7	1	1	0	0.3	1			74	1	32	1
NURE Seds[e]	SKAA020S1	20	1	903	1	2	1	12	1	1	0	0.2	1			63	1	62	1
NURE Seds[e]	SKAA021S1	10	0	766	1	2	0	15	1	1	0	0.5	1			76	1	60	1
NURE Seds[e]	SKAA022S1	10	1	638	1	2	0	10	1	7	1	0.2	1			86	1	17	1
NURE Seds[e]	SKAA024S1	10	1	728	1	2	0	12	1	1	0	0.3	1			155	1	30	1
NURE Seds[e]	SKAA025S1	10	1	652	1	2	0	5	1	2	1	0.2	1			112	1	25	1
NURE Seds[e]	SKAA026S1	10	0	721	1	3	1	7	1	1	0	0.3	1			87	1	22	1
NURE Seds[e]	SKAA027S1	15	1	1156	1	2	0	10	1	1	0	0.3	1			185	1	22	1
NURE Seds[e]	SKAA028S1	10	1	1631	1	2	0	12	1	1	0	0.7	1			89	1	67	1
NURE Seds[e]	SKAA029S1	15	1	942	1	2	0	15	1	1	0	0.5	1			95	1	60	1
NURE Seds[e]	SKAA030S1	10	0	673	1	2	1	12	1	1	0	0.1	1			58	1	37	1
NURE Seds[e]	SKAA031S1	15	1	1297	1	2	0	15	1	1	0	0.3	1			96	1	62	1
NURE Seds[e]	SKAA032S1	10	0	582	1	2	0	5	1	1	0	0.6	1			108	1	27	1
NURE Seds[e]	SKAA034S1	10	0	679	1	2	1	7	1	1	0	0.5	1			123	1	35	1
NURE Seds[e]	SKAA035S1	10	1	641	1	3	1	12	1	1	0	0.6	1			60	1	52	1
NURE Seds[e]	SKAA036S1	15	1	709	1	2	1	10	1	2	1	0.3	1			70	1	50	1
NURE Seds[e]	SKAA037S1											0.3	1						
NURE Seds[e]	SKAA038S1	15	1	1847	1	2	1	17	1	1	0	0.5	1			47	1	55	1
NURE Seds[e]	SKAB001S1	10	1	794	1	2	0	12	1	1	0	0.3	1			187	1	45	1
NURE Seds[e]	SKAB002S1	15	1	903	1	2	0	12	1	1	0	0.5	1			67	1	75	1
NURE Seds[e]	SKAB003S1	10	1	584	1	2	0	12	1	1	0	0.4	1			72	1	50	1
NURE Seds[e]	SKAB004S1	10	1	859	1	3	1	17	1	3	1	0.4	1			99	1	65	1
NURE Seds[e]	SKAB007S1	10	0	1029	1	2	0	15	1	2	1	0.3	1			64	1	80	1
NURE Seds[e]	SKAB009S1	10	0	627	1	2	0	10	1	1	0	0.4	1			69	1	47	1
NURE Seds[e]	SKAB010S1	10	1	749	1	2	0	12	1	1	0	0.6	1			122	1	62	1
NURE Seds[e]	SKAB011S1	15	1	808	1	2	0	10	1	1	0	0.6	1			91	1	72	1
NURE Seds[e]	SKAB013S1	15	1	921	1	2	0	17	1	1	0	0.6	1			88	1	87	1
NURE Seds[e]	SKAB014S1	10	1	602	1	2	0	12	1	1	0	0.4	1			65	1	55	1
NURE Seds[e]	SKAB017S1											2.2	1						

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAB018S1	52513	1			5	1	302	1	1.5	1			25	1	35	1	14	1	44807	1
NURE Seds[e]	SKAB020S1	60367	1			2	1	292	1	1	1			30	1	30	1	13	1	40080	1
NURE Seds[e]	SKAB021S1	77133	1			1	1	195	1	1.5	1			25	1	15	1	10	1	29140	1
NURE Seds[e]	SKAB022S1	63373	1			6	1	262	1	1.5	1			25	1	22	1	15	1	30000	1
NURE Seds[e]	SKAB023S1	69400	1			4	1	262	1	1.5	1			30	1	22	1	13	1	31120	1
NURE Seds[e]	SKAB024S1	65313	1			1	1	292	1	1.5	1			35	1	17	1	12	1	32500	1
NURE Seds[e]	SKAB029S1	60093	1			3	1	260	1	1.5	1			30	1	25	1	17	1	35927	1
NURE Seds[e]	SKAB031S1	61320	1			2	1	330	1	2	1			55	1	15	1	7	1	61933	1
NURE Seds[e]	SKAB032S1	64813	1			2	1	312	1	1.5	1			25	1	17	1	20	1	35740	1
NURE Seds[e]	SKAB033S1	57947	1			2	1	375	1	2.5	1			65	1	22	1	8	1	71000	1
NURE Seds[e]	SKAB034S1	62247	1			2	1	272	1	1.5	1			30	1	17	1	6	1	37960	1
NURE Seds[e]	SKAB035S1	58727	1			10	1	285	1	1.5	1			60	1	37	1	10	1	45487	1
NURE Seds[e]	SKAB036S1	57473	1			4	1	442	1	1.5	1			25	1	12	1	4	1	25040	1
NURE Seds[e]	SKAC001S1	52773	1			6	1	162	1	1.5	1			25	1	15	1	9	1	21487	1
NURE Seds[e]	SKAC002S1	48833	1			10	1	115	1	1	1			20	1	32	1	19	1	50607	1
NURE Seds[e]	SKAC003S1	58747	1			7	1	232	1	1.5	1			25	1	32	1	17	1	37047	1
NURE Seds[e]	SKAC005S1	54120	1			7	1	292	1	1.5	1			15	1	22	1	13	1	36900	1
NURE Seds[e]	SKAC006S1	51933	1			2	1	342	1	2	1			20	1	25	1	10	1	29353	1
NURE Seds[e]	SKAC010S1	50607	1			2	1	185	1	2	1			25	1	15	1	6	1	31667	1
NURE Seds[e]	SKAC011S1	67666	1			1	1	250	1	2	1			20	1	7	1	4	1	17487	1
NURE Seds[e]	SKAC012S1	64333	1			2	1	232	1	2	1			20	1	12	1	4	1	26747	1
NURE Seds[e]	SKAC013S1																				
NURE Seds[e]	SKAC014S1	54000	1			5	1	167	1	1.5	1			25	1	20	1	10	1	33273	1
NURE Seds[e]	SKAC018S1	60160	1			2	1	257	1	2	1			15	1	22	1	21	1	25713	1
NURE Seds[e]	SKAC019S1	52207	1			4	1	352	1	1	1			40	1	27	1	15	1	31567	1
NURE Seds[e]	SKAC022S1	63613	1			5	1	402	1	0.5	1			50	1	35	1	17	1	32940	1
NURE Seds[e]	SKAC023S1	58293	1			6	1	347	1	0.5	0			35	1	27	1	15	1	40707	1
NURE Seds[e]	SKAC024S1	60520	1			3	1	267	1	0.5	1			30	1	22	1	11	1	44093	1
NURE Seds[e]	SKAC025S1	63680	1			5	1	272	1	0.5	0			25	1	25	1	13	1	27013	1
NURE Seds[e]	SKAC028S1	63606	1			1	1	420	1	0.5	1			15	1	20	1	11	1	23753	1
NURE Seds[e]	SKAC030S1	61647	1			3	1	302	1	1.5	1			25	1	22	1	15	1	33233	1
NURE Seds[e]	SKAC038S1	53033	1			3	1	245	1	1.5	1			25	1	20	1	8	1	25353	1
NURE Seds[e]	SKAC040S1	86200	1			4	1	240	1	1.5	1			35	1	20	1	8	1	41467	1
NURE Seds[e]	SKAC042S1	55680	1			3	1	322	1	1	1			25	1	20	1	9	1	26367	1
NURE Seds[e]	SKAC044S1	56780	1			4	1	222	1	1	1			15	1	27	1	14	1	27320	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAB018S1	15	1	681	1	2	0	12	1	1	1	1.7	1			97	1	52	1
NURE Seds[e]	SKAB020S1	15	1	723	1	2	0	10	1	1	0	1.4	1			109	1	47	1
NURE Seds[e]	SKAB021S1	25	1	389	1	2	0	5	0	1	0	0.8	1			98	1	45	1
NURE Seds[e]	SKAB022S1	20	1	915	1	2	0	12	1	1	0	0.8	1			68	1	45	1
NURE Seds[e]	SKAB023S1	20	1	615	1	2	0	10	1	1	0	1.1	1			67	1	55	1
NURE Seds[e]	SKAB024S1	20	1	719	1	2	0	5	1	1	0	0.7	1			94	1	25	1
NURE Seds[e]	SKAB029S1	15	1	503	1	2	1	7	1	1	0	1	1			72	1	55	1
NURE Seds[e]	SKAB031S1	20	1	915	1	2	0	17	1	1	0	0.9	1			164	1	30	1
NURE Seds[e]	SKAB032S1	10	1	643	1	2	0	5	1	1	0	1	1			93	1	42	1
NURE Seds[e]	SKAB033S1	20	1	859	1	2	0	5	0	1	0	1.1	1			196	1	47	1
NURE Seds[e]	SKAB034S1	10	0	823	1	2	0	17	1	1	0	1.1	1			116	1	35	1
NURE Seds[e]	SKAB035S1	15	1	795	1	2	0	5	1	1	0	1.5	1			101	1	67	1
NURE Seds[e]	SKAB036S1	15	1	367	1	2	0	22	1	1	0	0.2	1			57	1	15	1
NURE Seds[e]	SKAC001S1	15	1	562	1	2	0	5	1	1	0	1.1	1			59	1	50	1
NURE Seds[e]	SKAC002S1	20	1	476	1	5	1	15	1	1	0	1.1	1			54	1	42	1
NURE Seds[e]	SKAC003S1	20	1	1198	1	2	0	20	1	1	0	1.2	1			72	1	72	1
NURE Seds[e]	SKAC005S1	15	1	692	1	2	0	17	1	1	0	1.5	1			82	1	55	1
NURE Seds[e]	SKAC006S1	15	1	1124	1	2	0	15	1	1	0	1.5	1			49	1	77	1
NURE Seds[e]	SKAC010S1	15	1	771	1	2	0	5	1	1	0	0.8	1			61	1	32	1
NURE Seds[e]	SKAC011S1	15	1	350	1	2	1	5	0	1	0	0.6	1			38	1	22	1
NURE Seds[e]	SKAC012S1	20	1	780	1	2	0	7	1	1	0	0.3	1			60	1	20	1
NURE Seds[e]	SKAC013S1											0.2	1						
NURE Seds[e]	SKAC014S1	15	1	875	1	2	0	5	0	1	0	0.9	1			55	1	47	1
NURE Seds[e]	SKAC018S1	20	1	498	1	2	0	5	0	1	0	2.2	1			56	1	47	1
NURE Seds[e]	SKAC019S1	20	1	949	1	2	0	5	0	1	0	0.8	1			60	1	80	1
NURE Seds[e]	SKAC022S1	15	1	954	1	2	0	10	1	1	0	1	1			76	1	105	1
NURE Seds[e]	SKAC023S1	15	1	949	1	2	0	10	1	1	0	0.8	1			81	1	67	1
NURE Seds[e]	SKAC024S1	15	1	874	1	2	0	10	1	1	0	0.7	1			96	1	37	1
NURE Seds[e]	SKAC025S1	15	1	605	1	3	1	5	1	1	1	0.6	1			62	1	50	1
NURE Seds[e]	SKAC028S1	15	1	667	1	4	1	5	0	4	1	0.9	1			69	1	35	1
NURE Seds[e]	SKAC030S1	10	0	694	1	3	1	10	1	5	1	0.8	1			75	1	42	1
NURE Seds[e]	SKAC038S1	15	1	514	1	2	0	5	1	2	1	0.7	1			56	1	32	1
NURE Seds[e]	SKAC040S1	10	1	810	1	2	0	5	1	5	1	0.6	1			150	1	32	1
NURE Seds[e]	SKAC042S1	15	1	413	1	2	0	5	1	2	1	0.6	1			51	1	32	1
NURE Seds[e]	SKAC044S1	10	1	555	1	3	1	5	1	3	1	0.7	1			72	1	51	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAD001S1	59000	1			7	1	385	1	1.5	1			20	1	30	1	12	1	30927	1
NURE Seds[e]	SKAD002S1	66300	1			3	1	377	1	3	1			20	1	15	1	7	1	30560	1
NURE Seds[e]	SKAD004S1	49607	1			3	1	295	1	1	1			25	1	22	1	7	1	38153	1
NURE Seds[e]	SKAD018S1	77133	1			2	1	355	1	3	1			15	1	20	1	5	1	20540	1
NURE Seds[e]	SKAD019S1	62113	1			3	1	362	1	2	1			25	1	15	1	7	1	17707	1
NURE Seds[e]	SKAD020S1	65893	1			3	1	267	1	2	1			30	1	25	1	20	1	34067	1
NURE Seds[e]	SKAD021S1	66146	1			1	1	357	1	3.5	1			15	1	10	1	3	1	17793	1
NURE Seds[e]	SKAD022S1	68933	1			2	1	97	1	4	1			20	1	10	1	3	1	18267	1
NURE Seds[e]	SKAD033S1	70800	1			3	1	332	1	1	1			20	1	17	1	5	1	19800	1
NURE Seds[e]	SKAD034S1	64753	1			5	1	502	1	0.5	0			15	1	12	1	4	1	21813	1
NURE Seds[e]	SKAD036S1	75133	1			1	1	390	1	4	1			20	1	7	1	3	1	22087	1
NURE Seds[e]	SKAD037S1	69466	1			1	1	300	1	2.5	1			15	1	12	1	4	1	17873	1
NURE Seds[e]	SKAD038S1	65640	1			2	1	422	1	2.5	1			15	1	7	1	3	1	25960	1
NURE Seds[e]	SKAD039S1	63200	1			4	1	320	1	4	1			20	1	22	1	25	1	32580	1
NURE Seds[e]	SKAD040S1	65447	1			2	1	410	1	1.5	1			15	1	10	1	4	1	25707	1
NURE Seds[e]	SKAD043S1	71400	1			1	1	352	1	1.5	1			10	1	10	1	3	1	21173	1
NURE Seds[e]	SKAD050S1	64860	1			2	1	345	1	3	1			25	1	17	1	13	1	23593	1
NURE Seds[e]	SKBA006S1	59753	1			4	1	282	1	1	1			30	1	22	1	13	1	31900	1
NURE Seds[e]	SKBA007S1	54433	1			4	1	352	1	1.5	1			20	1	22	1	15	1	23400	1
NURE Seds[e]	SKBA009S1	54933	1			4	1	205	1	1.5	1			30	1	22	1	12	1	31887	1
NURE Seds[e]	SKBA010S1	54160	1			5	1	260	1	1.5	1			30	1	27	1	14	1	35880	1
NURE Seds[e]	SKBA011S1	57140	1			6	1	205	1	1.5	1			25	1	22	1	33	1	31687	1
NURE Seds[e]	SKBA038S1	55360	1			3	1	285	1	0.5	1			15	1	45	1	19	1	84800	1
NURE Seds[e]	SKBB007S1	62213	1			2	1	220	1	0.5	1			25	1	17	1	11	1	35327	1
NURE Seds[e]	SKBB009S1																				
NURE Seds[e]	SKBB010S1	48887	1			3	1	600	1	0.5	1			15	1	32	1	18	1	44613	1
NURE Seds[e]	SKBB021S1	55820	1			6	1	187	1	1.5	1			25	1	17	1	11	1		
NURE Seds[e]	SKBB023S1	55720	1			2	1	182	1	0.5	1			15	1	17	1	12	1	36720	1
NURE Seds[e]	SKBB024S1	44427	1			3	1	105	1	0.5	1			25	1	15	1	6	1	79066	1
NURE Seds[e]	SKBB026S1	69266	1			3	1	192	1	0.5	1			20	1	20	1	8	1	54333	1
NURE Seds[e]	SKBB027S1	500	0			5	1	207	1	1	1			20	1	22	1	11	1	68400	1
NURE Seds[e]	SKBB030S1	58073	1					202	1	1	1			5	1	22	1	11	1	51407	1
NURE Seds[e]	SKBB032S1	69733	1			4	1	158	1	1	1			25	1	20	1	14	1	31833	1
NURE Seds[e]	SKBC013S1	500	0			9	1	292	1	1.5	1			260	1	17	1	12	1	45907	1
NURE Seds[e]	SKBD008S1	56167	1			2	1	182	1	1	1			20	1	22	1	8	1	28393	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
NURE Seds[e]	SKAD001S1	15	1	538	1	2	0	5	0	3	1	1	1			57	1	42	1
NURE Seds[e]	SKAD002S1	10	0	703	1	2	0	5	1	1	0	0.8	1			86	1	27	1
NURE Seds[e]	SKAD004S1	15	1	529	1	2	1	5	0	1	1	0.8	1			92	1	30	1
NURE Seds[e]	SKAD018S1	15	1	833	1	3	1	5	0	2	1	0.5	1			45	1	52	1
NURE Seds[e]	SKAD019S1	15	1	508	1	2	0	5	1	4	1	0.4	1			46	1	27	1
NURE Seds[e]	SKAD020S1	10	0	450	1	3	1	7	1	1	1	0.7	1			54	1	52	1
NURE Seds[e]	SKAD021S1	15	1	800	1	2	0	7	1	2	1	0.3	1			26	1	20	1
NURE Seds[e]	SKAD022S1	10	1	1178	1	2	1	5	0	4	1	0.2	1			31	1	25	1
NURE Seds[e]	SKAD033S1	10	1	429	1	2	0	5	1	4	1	0.3	1			55	1	32	1
NURE Seds[e]	SKAD034S1	10	0	610	1	2	0	7	1	1	0	0.2	1			58	1	22	1
NURE Seds[e]	SKAD036S1	10	0	956	1	2	0	5	1	1	1	0.3	1			45	1	25	1
NURE Seds[e]	SKAD037S1	10	1	661	1	2	1	5	0	1	1	0.2	1			34	1	32	1
NURE Seds[e]	SKAD038S1	10	1	1956	1	2	0	5	0	1	1	0.1	1			61	1	20	1
NURE Seds[e]	SKAD039S1	20	1	1001	1	2	0	12	1	1	0	0.6	1			58	1	42	1
NURE Seds[e]	SKAD040S1	10	0	647	1	2	0	5	0	1	0	0.2	1			56	1	30	1
NURE Seds[e]	SKAD043S1	10	0	732	1	2	0	5	0	1	1	0.1	1			36	1	45	1
NURE Seds[e]	SKAD050S1	10	1	771	1	3	1	5	0	1	1	0.5	1			42	1	32	1
NURE Seds[e]	SKBA006S1	10	1	697	1	2	0	5	0	1	0	0.6	1			80	1	30	1
NURE Seds[e]	SKBA007S1	10	1	560	1	2	0	10	1	1	0	0.8	1			64	1	37	1
NURE Seds[e]	SKBA009S1	10	1	638	1	2	0	5	1	1	0	0.6	1			74	1	37	1
NURE Seds[e]	SKBA010S1	15	1	637	1	2	0	5	1	1	0	0.5	1			81	1	40	1
NURE Seds[e]	SKBA011S1	15	1	652	1	2	0	5	0	1	0	0.6	1			96	1	37	1
NURE Seds[e]	SKBA038S1	20	1	1125	1	2	0	12	1	2	1	0.8	1			257	1	82	1
NURE Seds[e]	SKBB007S1	10	0	585	1	2	0	20	1	1	1	0.5	1			71	1	35	1
NURE Seds[e]	SKBB009S1											0.8	1						
NURE Seds[e]	SKBB010S1	20	1	1553	1	2	0	15	1	1	1	0.4	1			128	1	60	1
NURE Seds[e]	SKBB021S1	20	1	551	1	2	0	12	1	4	1	0.5	1			75	1	40	1
NURE Seds[e]	SKBB023S1	10	1	593	1	2	0	7	1	1	1	0.7	1			56	1	32	1
NURE Seds[e]	SKBB024S1	15	1	999	1	2	0	7	1	2	1	0.4	1			258	1	25	1
NURE Seds[e]	SKBB026S1	10	1	886	1	2	0	10	1	1	1	0.5	1			171	1	40	1
NURE Seds[e]	SKBB027S1	10	1	1220	1	2	0	12	1	1	1	0.4	1					42	1
NURE Seds[e]	SKBB030S1	10	1	928	1	2	0	7	1	1	1	0.6	1			110	1	37	1
NURE Seds[e]	SKBB032S1	10	1	730	1	2	0	10	1	2	1	0.5	1			93	1	55	1
NURE Seds[e]	SKBC013S1	15	1	1178	1	2	0	12	1	1	1	0.2	1			10	0	62	1
NURE Seds[e]	SKBD008S1	10	1	1047	1	2	0	7	1	1	1	0.3	1			94	1	22	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
SMITH13A[f]	C-353907	58300	1	1.19	1	9.7	1	845	1	1.8	1	0.5	1	21	1	7.8	1	17.9	1	22900	1
SMITH13A[f]	C-353917	72800	1	0.39	1	3.3	1	863	1	1.8	1	0.4	1	32	1	9.5	1	18.6	1	24500	1
SMITH13A[f]	C-353923	55300	1	1.99	1	17.3	1	698	1	1.1	1	0.3	1	51	1	14.7	1	48.8	1	31700	1
SMITH13A[f]	C-353956	64100	1	1.03	1	6.2	1	864	1	1.9	1	0.3	1	44	1	9.4	1	16.4	1	25900	1
SMITH13A[f]	C-354185	67000	1	1.16	1	6.9	1	900	1	1.9	1	0.4	1	25	1	8.6	1	18.7	1	26100	1
SMITH13A[f]	C-354224	65300	1	1.01	1	5.8	1	878	1	1.7	1	0.2	1	52	1	9.3	1	16.8	1	28700	1

Notes provided at end of attachment.

Table C4-1. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
SMITH13A[f]	C-353907	24.5	1	1210	1	1.16	1	14.3	1	0.2	0	1	0	0.6	1	46	1	99	1
SMITH13A[f]	C-353917	12.3	1	603	1	1.17	1	15.5	1	0.3	1	1	0	0.3	1	81	1	75	1
SMITH13A[f]	C-353923	14.9	1	1080	1	1.05	1	29.1	1	0.4	1	1	0	0.3	1	106	1	104	1
SMITH13A[f]	C-353956	21.6	1	553	1	0.79	1	21.9	1	0.2	0	1	0	0.5	1	68	1	67	1
SMITH13A[f]	C-354185	22.3	1	1360	1	1.24	1	17.3	1	0.2	0	1	0	0.7	1	53	1	111	1
SMITH13A[f]	C-354224	16.4	1	544	1	0.84	1	25.1	1	0.2	0	1	0	0.5	1	71	1	71	1

Notes provided at end of attachment.

Table C4-2. ProUCL input of metal and metalloid concentrations by partial digestion methods for screened background samples

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR102S1-CHURC08A	26200	1			3.5	1	194	1	1.3	1	0.17	1	18.1	1	6.7	1	16.6	1	20000	1
CHURC08A[a]	DSOR118S1	15700	1			7.9	1	133	1	0.77	1	0.16	1	17.1	1	6.8	1	16.6	1	19800	1
CHURC08A[a]	DSOR119S1	16700	1			3	1	132	1	0.75	1	0.11	1	10.2	1	5.9	1	11.4	1	14500	1
CHURC08A[a]	DSOR120S1	21900	1			4	1	116	1	1.4	1	0.19	1	11	1	5.2	1	12.3	1	19400	1
CHURC08A[a]	DSOR121S1	14600	1			8.5	1	111	1	1	1	0.33	1	14.3	1	6.8	1	15.7	1	19200	1
CHURC08A[a]	DSOR126S1	25400	1			3.9	1	194	1	0.87	1	0.26	1	10.1	1	5	1	21.7	1	15000	1
CHURC08A[a]	DSOR127S1	15500	1			4.6	1	167	1	1	1	0.35	1	12.6	1	6.5	1	12.4	1	17700	1
CHURC08A[a]	DSOR129S1-CHURC08A	13250	1			7.45	1	95.55	1	0.8	1	0.145	1	11.35	1	5.75	1	16.25	1	16250	1
CHURC08A[a]	DSOR131S1	25700	1			4	1	134	1	1.2	1	0.19	1	12.1	1	5.1	1	16.4	1	19200	1
CHURC08A[a]	DSOR133S1	14400	1			5.2	1	89.7	1	0.9	1	0.14	1	12.1	1	4.9	1	14.6	1	16400	1
CHURC08A[a]	DSOR134S1-CHURC08A	17400	1			5.3	1	104.5	1	1.25	1	0.23	1	12.1	1	4.8	1	13.75	1	19400	1
CHURC08A[a]	DSOR135S1	13000	1			21.2	1	102	1	0.68	1	0.27	1	16.4	1	7.4	1	18.4	1	21700	1
CHURC08A[a]	DSOR315S1-CHURC08A	27200	1			11.6	1	169	1	1.1	1	0.16	1	23.1	1	10.4	1	29.2	1	23200	1
CHURC08A[a]	DSOR340S1	14100	1			20.2	1	137	1	0.78	1	0.23	1	19.6	1	9.8	1	22.8	1	24900	1
CHURC08A[a]	DSOR341S1	11700	1			20	1	98.3	1	0.66	1	0.18	1	15.6	1	7.1	1	18.5	1	20400	1
CHURC08A[a]	DSOR379S1-CHURC08A	26200	1			17.3	1	330	1	1.1	1	0.26	1	18.5	1	9.4	1	38.8	1	20900	1
CHURC08A[a]	DSOR388S1-CHURC08A	21400	1			4.3	1	152	1	1.1	1	0.07	1	14.1	1	7.8	1	13.4	1	21000	1
CHURC08A[a]	DSOR389S1-CHURC08A	16100	1			14	1	159	1	1.8	1	0.22	1	10.9	1	6.7	1	18.9	1	19000	1
CHURC08A[a]	DSOR403S1-CHURC08A	14900	1			2.4	1	109	1	1.1	1	0.24	1	7.2	1	5	1	8.3	1	15800	1
CHURC08A[a]	DSOR404S1-CHURC08A	14700	1			2.3	1	170	1	0.54	1	0.19	1	7.4	1	2.9	1	8.3	1	12400	1
CHURC08A[a]	DSOR415S1-CHURC08A	25100	1			2.8	1	342	1	1.1	1	0.25	1	12.9	1	6.3	1	12.9	1	17300	1
CHURC08A[a]	DSOR417S1-CHURC08A	44100	1			4	1	432	1	1.7	1	0.2	1	18.6	1	7.8	1	27.8	1	23800	1
CHURC08A[a]	DSOR418S1-CHURC08A	32200	1			18.3	1	290	1	1	1	0.32	1	14	1	9.9	1	26.2	1	20800	1
CHURC08A[a]	DSOR421S1-CHURC08A	21800	1			5	1	153	1	1.2	1	0.15	1	12.5	1	5.2	1	13.8	1	20600	1
CHURC08A[a]	DSOR422S1-CHURC08A	25600	1			2.2	1	167	1	1	1	0.26	1	11.4	1	4.8	1	14.7	1	15300	1
CHURC08A[a]	DSOR423S1-CHURC08A	23800	1			2.7	1	201	1	1	1	0.23	1	14.1	1	7.2	1	14.9	1	18400	1
CHURC08A[a]	DSOR424S1-CHURC08A	27400	1			8.5	1	358	1	3	1	0.36	1	18.7	1	11	1	22.6	1	26600	1
CHURC08A[a]	DSOR425S1-CHURC08A	23500	1			3.4	1	218	1	0.83	1	0.44	1	15.3	1	7.5	1	15.4	1	18500	1
CHURC08A[a]	DSOR426S1-CHURC08A	20400	1			1.7	1	183	1	1	1	0.17	1	13.4	1	5.7	1	10.8	1	16900	1
CHURC08A[a]	DSOR439S1-CHURC08A	20900	1			37.3	1	257	1	0.7	1	0.29	1	14.5	1	6.4	1	23.9	1	22100	1
CHURC08A[a]	DSOR440S1-CHURC08A	30500	1			182	1	324	1	1.3	1	0.65	1	19.6	1	20.4	1	46.9	1	31800	1
CHURC08A[a]	DSOR441S1-CHURC08A	23000	1			8.5	1	164	1	1.5	1	0.3	1	13.5	1	7.2	1	15.1	1	20500	1
CHURC08A[a]	DSOR442S1-CHURC08A	19500	1			3.7	1	414	1	0.8	1	0.33	1	15.4	1	6.5	1	23.3	1	14700	1
CHURC08A[a]	DSOR443S1-CHURC08A	19800	1			3.9	1	202	1	0.84	1	0.33	1	18.4	1	7.4	1	16.5	1	17200	1
CHURC08A[a]	DSOR445S1-CHURC08A	28100	1			7.7	1	172	1	1.8	1	0.23	1	19.9	1	10.4	1	21.2	1	23200	1
CHURC08A[a]	DSOR447S1-CHURC08A	32700	1			10.1	1	296	1	1.7	1	0.59	1	26.6	1	14.4	1	34.7	1	28700	1
CHURC08A[a]	DSOR449S1-CHURC08A	17400	1			2.1	1	192	1	1.1	1	0.22	1	9.8	1	7.1	1	9	1	17800	1

Notes provided at end of attachment.

Table C4-2. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR102S1-CHURC08A	14.1	1	548	1	0.33	1	12.5	1					0.22	1	30.9	1	58.2	1
CHURC08A[a]	DSOR118S1	14.6	1	391	1	1.2	1	14.2	1					0.25	1	30.7	1	58.6	1
CHURC08A[a]	DSOR119S1	12.2	1	559	1	0.43	1	8.8	1					0.21	1	22	1	49.4	1
CHURC08A[a]	DSOR120S1	22.2	1	331	1	0.26	1	9.4	1					0.2	1	27.6	1	80.4	1
CHURC08A[a]	DSOR121S1	22.1	1	641	1	0.53	1	12.1	1					0.24	1	27.7	1	90.2	1
CHURC08A[a]	DSOR126S1	14.4	1	639	1	0.44	1	9.2	1					0.17	1	22.2	1	73	1
CHURC08A[a]	DSOR127S1	21.2	1	903	1	0.76	1	10.7	1					0.27	1	27.8	1	82.8	1
CHURC08A[a]	DSOR129S1-CHURC08A	12.3	1	658.5	1	1.55	1	8.5	1					0.24	1	32.8	1	43.4	1
CHURC08A[a]	DSOR131S1	16.8	1	480	1	0.64	1	9.7	1					0.23	1	24.3	1	68.5	1
CHURC08A[a]	DSOR133S1	12.3	1	420	1	0.76	1	9	1					0.22	1	26.7	1	58.1	1
CHURC08A[a]	DSOR134S1-CHURC08A	17.15	1	433	1	0.305	1	9.2	1					0.23	1	28.65	1	98.05	1
CHURC08A[a]	DSOR135S1	18.8	1	482	1	0.49	1	13.5	1					0.19	1	27.6	1	67.4	1
CHURC08A[a]	DSOR315S1-CHURC08A	12.4	1	560	1	0.9	1	18.7	1					0.29	1	39.1	1	49.6	1
CHURC08A[a]	DSOR340S1	20.3	1	540	1	0.5	1	17.3	1					0.2	1	34.4	1	69.1	1
CHURC08A[a]	DSOR341S1	16.8	1	453	1	0.42	1	12.8	1					0.15	1	26.4	1	58	1
CHURC08A[a]	DSOR379S1-CHURC08A	20.4	1	522	1	0.42	1	16	1					0.28	1	33.4	1	49.8	1
CHURC08A[a]	DSOR388S1-CHURC08A	12.1	1	532	1	0.77	1	10.8	1					0.21	1	40.5	1	43.2	1
CHURC08A[a]	DSOR389S1-CHURC08A	24.4	1	591	1	3.5	1	9.2	1					0.28	1	36.3	1	49	1
CHURC08A[a]	DSOR403S1-CHURC08A	22.9	1	958	1	1.2	1	5.6	1					0.33	1	24.6	1	72.2	1
CHURC08A[a]	DSOR404S1-CHURC08A	12.7	1	529	1	0.44	1	5.7	1					0.2	1	20	1	115	1
CHURC08A[a]	DSOR415S1-CHURC08A	18.7	1	1150	1	0.52	1	12.4	1					0.29	1	26.5	1	85.1	1
CHURC08A[a]	DSOR417S1-CHURC08A	14.9	1	656	1	0.36	1	22.6	1					0.26	1	35.2	1	79.6	1
CHURC08A[a]	DSOR418S1-CHURC08A	18.3	1	596	1	0.84	1	20.4	1					0.24	1	28.7	1	75.2	1
CHURC08A[a]	DSOR421S1-CHURC08A	16.8	1	515	1	0.56	1	10.1	1					0.29	1	32.4	1	70.2	1
CHURC08A[a]	DSOR422S1-CHURC08A	12.8	1	503	1	0.31	1	9.8	1					0.2	1	23.6	1	55.7	1
CHURC08A[a]	DSOR423S1-CHURC08A	12.1	1	726	1	0.63	1	10.4	1					0.31	1	29.8	1	61.3	1
CHURC08A[a]	DSOR424S1-CHURC08A	22.4	1	1710	1	1.5	1	18.6	1					0.41	1	41.3	1	95.6	1
CHURC08A[a]	DSOR425S1-CHURC08A	13.4	1	596	1	0.65	1	11.8	1					0.24	1	29.4	1	62.2	1
CHURC08A[a]	DSOR426S1-CHURC08A	10	1	725	1	0.36	1	11.6	1					0.31	1	27.9	1	53.9	1
CHURC08A[a]	DSOR439S1-CHURC08A	19.9	1	510	1	2.9	1	13.9	1					0.28	1	33.8	1	41.9	1
CHURC08A[a]	DSOR440S1-CHURC08A	24.6	1	735	1	3.1	1	43.4	1					0.47	1	39.6	1	68	1
CHURC08A[a]	DSOR441S1-CHURC08A	14.7	1	960	1	0.98	1	12.7	1					0.3	1	28.5	1	70	1
CHURC08A[a]	DSOR442S1-CHURC08A	17.6	1	716	1	0.91	1	11.5	1					0.21	1	21.5	1	108	1
CHURC08A[a]	DSOR443S1-CHURC08A	18.3	1	515	1	0.4	1	13.1	1					0.17	1	30.2	1	56.3	1
CHURC08A[a]	DSOR445S1-CHURC08A	8.6	1	463	1	0.51	1	20.4	1					0.42	1	27.9	1	54.4	1
CHURC08A[a]	DSOR447S1-CHURC08A	16.9	1	708	1	1.2	1	33.3	1					0.41	1	44.4	1	126	1
CHURC08A[a]	DSOR449S1-CHURC08A	16.3	1	1230	1	0.48	1	9.8	1					0.38	1	27.6	1	57.9	1

Notes provided at end of attachment.

Table C4-2. (Continued)

Study_ID	Sample Identifier	Aluminum (mg/kg)	Qual. (ND=0)	Antimony (mg/kg)	Qual. (ND=0)	Arsenic (mg/kg)	Qual. (ND=0)	Barium (mg/kg)	Qual. (ND=0)	Beryllium (mg/kg)	Qual. (ND=0)	Cadmium (mg/kg)	Qual. (ND=0)	Chromium (mg/kg)	Qual. (ND=0)	Cobalt (mg/kg)	Qual. (ND=0)	Copper (mg/kg)	Qual. (ND=0)	Iron (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR450S1-CHURC08A	38200	1			80.6	1	207	1	2	1	0.14	1	41	1	19.6	1	40.2	1	39800	1
CHURC08A[a]	DSOR455S1-CHURC08A	16650	1			21.35	1	109	1	0.955	1	0.08	1	14.55	1	7.25	1	19.75	1	19350	1
CHURC08A[a]	DSOR458S1-CHURC08A	25100	1			98.4	1	199	1	1.65	1	0.215	1	21.3	1	21.7	1	39.7	1	33250	1
CHURC08A[a]	RZAH021S1-CHURC08A	20600	1			39.75	1	111	1	0.86	1	0.08	1	21.05	1	14.9	1	32.4	1	25850	1
CHURC08A[a]	RZAH027S1-CHURC08A	16600	1			2.7	1	102	1	1.2	1	0.04	1	11.2	1	4.9	1	9.5	1	16500	1
ECOLO94A[b]	92268511	13350	1			3.12	1			0.58	1	0.345	1	11.05	1			7.735	1	13750	1
ECOLO94A[b]	92268514	30100	1			2.1	1			0.95	1	1	1	10.5	1			30.2	1	22700	1
ECOLO94A[b]	92268519	14300	1			3.1	1			0.55	1	0.7	1	11.8	1			15.9	1	20500	1
ECOLO94A[b]	92268522	26600	1			5.74	1			0.84	1	0.61	1	11.3	1			13.9	1	16500	1
Teck_2014_UplandSoil[g]	CBN-001-2mm	10850	1	0.21	1	6.825	1	122	1	0.4	1	0.205	1	14.9	1	6.16	1	12.85	1	16700	1
Teck_2014_UplandSoil[g]	CBN-002-2mm	13200	1	0.27	1	6.62	1	158	1	0.47	1	0.23	1	15.5	1	6.52	1	13.8	1	16200	1
Teck_2014_UplandSoil[g]	CBN-003-2mm	11633.3	1	0.28667	1	7.82	1	144	1	0.47	1	0.23333	1	14.4667	1	6.45	1	14.8	1	15800	1
Teck_2014_UplandSoil[g]	CBN-004-2mm	10800	1	0.26	1	8.26	1	138	1	0.39	1	0.3	1	18.8	1	7.16	1	16	1	17100	1
Teck_2014_UplandSoil[g]	CBS-001-2mm	10600	1	0.19	1	5.28	1	115	1	0.37	1	0.18	1	15	1	5.78	1	12.7	1	14500	1
Teck_2014_UplandSoil[g]	CBS-002-2mm	9110	1	0.17	1	5.58	1	95.1	1	0.34	1	0.18	1	11.9	1	4.88	1	11.1	1	13500	1

Notes provided at end of attachment.

Table C4-2. (Continued)

Study_ID	Sample Identifier	Lead (mg/kg)	Qual. (ND=0)	Manganese (mg/kg)	Qual. (ND=0)	Molybdenum (mg/kg)	Qual. (ND=0)	Nickel (mg/kg)	Qual. (ND=0)	Selenium (mg/kg)	Qual. (ND=0)	Silver (mg/kg)	Qual. (ND=0)	Thallium (mg/kg)	Qual. (ND=0)	Vanadium (mg/kg)	Qual. (ND=0)	Zinc (mg/kg)	Qual. (ND=0)
CHURC08A[a]	DSOR450S1-CHURC08A	11.3	1	784	1	0.63	1	34.2	1					0.68	1	59.1	1	61.2	1
CHURC08A[a]	DSOR455S1-CHURC08A	7.7	1	294.5	1	0.425	1	13.9	1					0.345	1	25.25	1	32.75	1
CHURC08A[a]	DSOR458S1-CHURC08A	15.2	1	777.5	1	8.9	1	35	1					0.43	1	40.8	1	53.05	1
CHURC08A[a]	RZAH021S1-CHURC08A	14.4	1	618.5	1	0.54	1	17.95	1					0.27	1	46.45	1	38.1	1
CHURC08A[a]	RZAH027S1-CHURC08A	9.92	1	456	1	0.25	1	8.2	1					0.24	1	25.5	1	41.6	1
ECOLO94A[b]	92268511	9.8	1	950	1			11.45	1									62.4	1
ECOLO94A[b]	92268514	10	1	847	1			9.8	1									70.7	1
ECOLO94A[b]	92268519	15	1	434	1			18.1	1									56.3	1
ECOLO94A[b]	92268522	17	1	858	1			11.6	1									78.4	1
Teck_2014_UplandSoil[g]	CBN-001-2mm	9.49	1	349	1	0.46	1	12.8	1	0.085	1	0.035	1	0.11	1	25.2	1	48.9	1
Teck_2014_UplandSoil[g]	CBN-002-2mm	10.3	1	380	1	0.49	1	13	1	0.09	1	0.04	1	0.12	1	25.7	1	50.7	1
Teck_2014_UplandSoil[g]	CBN-003-2mm	10.8333	1	378.66667	1	0.55333333	1	12.7333	1	0.08333	1	0.04667	1	0.12	1	24.1	1	52.7667	1
Teck_2014_UplandSoil[g]	CBN-004-2mm	12.1	1	387	1	0.58	1	15.6	1	0.08	1	0.05	1	0.12	1	27	1	59	1
Teck_2014_UplandSoil[g]	CBS-001-2mm	8.16	1	306	1	0.39	1	12.6	1	0.08	1	0.03	1	0.1	1	22.9	1	45	1
Teck_2014_UplandSoil[g]	CBS-002-2mm	7.91	1	307	1	0.37	1	10.3	1	0.19	0	0.02	1	0.09	1	18.4	1	45.4	1

Notes provided at end of attachment.

Table C4-3. ProUCL input of mercury concentrations for screened background samples

Study_ID	Sample Identifier	Mercury (mg/kg)	Qual. (ND=0)
ECOLO94A[b]	92268511	0.01	1
ECOLO94A[b]	92268514	0.02	1
ECOLO94A[b]	92268519	0.02	1
ECOLO94A[b]	92268522	0.02	1
geochem-fu53[c]	24239	0.14	1
geochem-fu53[c]	24253	0.07	1
geochem-fu53[c]	24273	0.03	1
geochem-fu53[c]	24382	0.12	1
geochem-fu53[c]	24499	0.04	1
geochem-fu53[c]	24693	0.04	1
geochem-fu53[c]	24749	0.03	1
geochem-fu53[c]	24762	0.12	1
geochem-fu53[c]	24778	0.04	1
geochem-fu53[c]	24812	0.06	1
geochem-fu53[c]	24830	0.04	1
geochem-fu53[c]	24879	0.05	1
geochem-fu53[c]	25111	0.1	1
geochem-fu53[c]	25275	0.1	1
geochem-fu53[c]	25424	0.06	1
geochem-fu53[c]	25519	0.03	1
geochem-fu53[c]	24287-R1	0.035	1
geochem-fu53[c]	DSOK234S1	0.03	1
geochem-fu53[c]	DSOM230S1	0.03	1
geochem-fu53[c]	DSOM232S1	0.02	0
geochem-fu53[c]	DSOP089S1-R1	0.02	0
geochem-fu53[c]	DSOR183S1	0.06	1
geochem-fu53[c]	DSOS095S1	0.02	0
geochem-fu53[c]	ONAA013S1	0.02	0
geochem-fu53[c]	ONAA034S1	0.02	0
geochem-fu53[c]	ONAB016S1	0.02	0
geochem-fu53[c]	ONAC025S1	0.02	0
geochem-fu53[c]	ONAC037S1	0.02	1
geochem-fu53[c]	ONAD022S1	0.02	0
geochem-fu53[c]	ONAE010S1	0.04	1
geochem-fu53[c]	ONAF038S1	0.02	0
geochem-fu53[c]	ONAH007S1	0.02	0
geochem-fu53[c]	ONBA037S1	0.02	0
geochem-fu53[c]	ONBB022S1-R1	0.035	1
geochem-fu53[c]	ONBC001S1	0.03	1
geochem-fu53[c]	ONBC014S1	0.02	0
geochem-fu53[c]	ONBD011S1	0.02	0
geochem-fu53[c]	ONBD025S1	0.03	1
geochem-fu53[c]	ONBD033S1	0.02	0
geochem-fu53[c]	ONBE028S1	0.03	1
geochem-fu53[c]	ONBG025S1	0.03	1
geochem-fu53[c]	ONCA015S1	0.04	1
geochem-fu53[c]	ONCB014S1	0.02	0
geochem-fu53[c]	ONCB031S1	0.02	0
geochem-fu53[c]	ONCC016S1	0.02	0

Notes provided at end of attachment.

Table C4-3. (Continued)

Study_ID	Sample Identifier	Mercury (mg/kg)	Qual. (ND=0)
geochem-fu53[c]	ONCD018S1	0.02	1
geochem-fu53[c]	ONCF034S1	0.02	0
geochem-fu53[c]	ONCG008S1	0.02	1
geochem-fu53[c]	ONCH030S1	0.04	1
geochem-fu53[c]	ONCH034S1	2.81	1
geochem-fu53[c]	ONDA014S1	0.02	0
geochem-fu53[c]	ONDB011S1	0.02	0
geochem-fu53[c]	ONDE011S1	0.02	0
geochem-fu53[c]	ONDF032S1	0.02	0
geochem-fu53[c]	ONDG016S1	0.03	1
geochem-fu53[c]	RZAG009S1	0.02	0
geochem-fu53[c]	RZBG020S1	0.05	1
geochem-fu53[c]	SKAA017S1	0.03	1
geochem-fu53[c]	SKAA037S1	0.03	1
geochem-fu53[c]	SKAB017S1	0.02	0
geochem-fu53[c]	SKAC013S1	0.02	1
geochem-fu53[c]	SKBB009S1	0.04	1
HARTC13C[d]	BG-11-SS	0.03	1
HARTC13C[d]	BG-14-SS	0.02	1
HARTC13C[d]	BG-15-SS	0.06	1
HARTC13C[d]	BG-2-SS	0.05	1
HARTC13C[d]	BG-3-SS	0.15	1
HARTC13C[d]	BG-5-SS	0.04	1
HARTC13C[d]	BG-6-SS	0.11	1
HARTC13C[d]	BG-7-SS	0.03	1
SMITH13A[f]	C-353907	0.05	1
SMITH13A[f]	C-353917	0.01	1
SMITH13A[f]	C-353923	0.02	1
SMITH13A[f]	C-353956	0.02	1
SMITH13A[f]	C-354185	0.03	1
SMITH13A[f]	C-354224	0.01	1
Teck_2014_UplandSoil[g]	ADA-034-2mm	0.02	1
Teck_2014_UplandSoil[g]	ADA-039-2mm	0.02	1
Teck_2014_UplandSoil[g]	ADA-049-2mm	0.04	1
Teck_2014_UplandSoil[g]	ADA-104-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-106-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-169-2mm	0.053333	1
Teck_2014_UplandSoil[g]	ADA-172-2mm	0.09	1
Teck_2014_UplandSoil[g]	ADA-173-2mm	0.073333	1
Teck_2014_UplandSoil[g]	ADA-174-2mm	0.11	1
Teck_2014_UplandSoil[g]	ADA-175-2mm	0.05	1
Teck_2014_UplandSoil[g]	ADA-176-2mm	0.05	1
Teck_2014_UplandSoil[g]	ADA-177-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-178-2mm	0.05	1
Teck_2014_UplandSoil[g]	ADA-179-2mm	0.07	1
Teck_2014_UplandSoil[g]	ADA-180-2mm	0.08	1
Teck_2014_UplandSoil[g]	ADA-181-2mm	0.1	1
Teck_2014_UplandSoil[g]	ADA-182-2mm	0.06	1
Teck_2014_UplandSoil[g]	CBN-001-2mm	0.0085	1

Notes provided at end of attachment.

Table C4-3. (Continued)

Study_ID	Sample Identifier	Mercury (mg/kg)	Qual. (ND=0)
Teck_2014_UplandSoil[g]	CBN-002-2mm	0.009	1
Teck_2014_UplandSoil[g]	CBN-003-2mm	0.009	1
Teck_2014_UplandSoil[g]	CBN-004-2mm	0.01	1
Teck_2014_UplandSoil[g]	CBS-001-2mm	0.008	1
Teck_2014_UplandSoil[g]	CBS-002-2mm	0.007	1
USEPA2001Mines/Mills[h]	MJ0FL1	0.06	0

Notes: [a] Church et al. (2008)

[b] Ecology (1994)

[c] USGS (2008b)

[d] Ecology (2013b)

[e] Smith (2006)

[f] Smith et al. (2013)

[g] TAI (2015b)

[h] USEPA (2002c)