Appendix G

Constituents of Potential Concern other than PCBs

Contents

List of Tables

List of Figures

Acronyms and Abbreviations

%:	percent
ADEM:	Alabama Department of Environmental Management
ASM:	adaptive site management
COPC:	constituents of potential concern
CSM:	conceptual site model
DDT:	dichlorodiphenyltrichloroethane
DL-PCB:	dioxin-like polychlorinated biphenyl
FS:	feasibility study
FSP:	field sampling plan
HHRA:	human health risk assessment
IROD:	Interim Record of Decision
µg/kg:	microgram(s) per kilogram
mg/kg:	milligram(s) per kilogram
NRC:	National Research Council
OP:	organo-phosphorous (pesticide)
OU:	operable unit
P/S:	Pharmacia LLC and Solutia Inc.
PAH:	polycyclic aromatic hydrocarbon
PCB:	polychlorinated biphenyl
PCD:	Partial Consent Decree
PCDD/DFs:	polychlorinated dibenzo-p-dioxins and dibenzofurans
PSCSR:	preliminary site characterization summary report
RAO:	remedial action objective
RI/FS:	remedial investigation/feasibility study
RSL:	regional screening level
SAIC:	Science Applications International Corporation
SERA:	streamlined ecological risk assessment
SVOC:	semivolatile organic compound
TAL:	target analyte list
TCL:	target compound list
TEQ:	toxic equivalent (2,3,7,8-TCDD equivalent)

USEPA:	United States Environmental Protection Agency
VOC:	volatile organic compound

G.1 Constituents of Potential Concern other than Polychlorinated Biphenyls

On August 4, 2003, the United States District Court for the Northern District of Alabama entered a revised Partial Consent Decree (PCD; USEPA 2003a) requiring, among other things, Pharmacia LLC and Solutia Inc. (together Pharmacia LLC and Solutia Inc. are referred to as P/S) to conduct a remedial investigation and feasibility study (RI/FS) for the Anniston Polychlorinated Biphenyls (PCB) Site. The Site encompasses the Solutia Inc. Anniston Plant (Facility) (formerly owned and operated by Monsanto Company, now known as Pharmacia LLC), other properties currently owned by Solutia Inc., certain residential and nonresidential properties owned by third parties, and portions of both Choccolocco Creek and Snow Creek and their floodplains. The Anniston PCB Site is not on the Superfund National Priorities List but is being addressed through the Superfund Alternative Approach.

This constituent of potential concern (COPC) evaluation focuses on constituents other than PCBs as COPCs for operable unit (OU)-1/OU-2. This evaluation builds on the initial evaluation of COPCs included with the *OU-1/OU-2 Preliminary Site Characterization Summary Report* (OU-1/OU-2 PSCSR; ARCADIS BBL 2007a) and includes more recent COPC information for the Facility (OU-3) portion of the Site. An Interim Record of Decision (IROD) has been issued for OU-3, and the OU-3 findings provide context for the evaluation of COPCs in in OU-1/OU-2. This evaluation also adds information updated since the OU-1/OU-2 PSCSR on various sources of background data and uses more recent screening levels. COPCs were evaluated using the adaptive site management (ASM) process for OU-1/OU-2 as defined in the *Phase 1 Field Sampling Plan for Operable Unit 4* (OU-4 Phase 1 FSP; BBL 2006a).

The goal of this COPC evaluation is to assist in defining the constituents that will be carried forward into the OU-1/OU-2 feasibility study (FS). Consistent with the United States Environmental Protection Agency- (USEPA-) approved *Remedial Investigation/Feasibility Study Work Plan* (RI/FS Work Plan; BBL 2000), the RI/FS process for each OU includes developing remedial action objectives (RAOs) that address Site-related constituents. While samples were analyzed during investigations for constituents that may not be Site-related and carried through the risk assessment process in the RI, it is anticipated that non-Site-related constituents will not be part of the FS process in terms of RAOs and remedial alternatives.

The COPC evaluation is based on a wider list of constituents that the USEPA requested be evaluated based on 10 percent (%) of the samples analyzed for Aroclors. While the evaluation is comprehensive in this regard, specific focus is placed on constituents that USEPA identified for evaluation in the human health risk assessment (HHRA; CDM 2010) and a separate list of constituents that USEPA requested be evaluated in the OU-1/OU-2 streamlined ecological risk assessment (SERA; ARCADIS 2013). In addition to PCBs, the HHRA evaluated risks associated with arsenic, chromium, lead, polycyclic aromatic hydrocarbons (PAHs), and polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/DFs) as toxic equivalents (TEQs) to 2,3,7,8–tetrachlorodibenzo-p-dioxin. In a similar manner, PCDDs/DFs, and metals—including barium, chromium, cobalt, lead, manganese, mercury, nickel, and vanadium—were evaluated in the OU-1/OU-2 SERA.

Section G.1.1 summarizes previous COPC studies conducted for the Site. Section G.1.2 provides an overview of the COPC evaluation process and includes subsections that discuss the ASM process, the specific process used for the Site, the types and sources of data, the screening levels used for each OU and matrix, and the data used to evaluate background conditions. Section G.1.4. includes a brief summary of the OU-3 IROD findings as they pertain to the possibility that OU-3 is a potential source for COPCs to OU-1/OU-2. Section G.1.6 includes an evaluation of whether constituents should be considered as Site-related COPCs for the RI/FS evaluation. Section G.1.7 includes a summary of the COPC evaluation findings.

Tables and figures are referenced throughout this evaluation to present the available data and information regarding the potential applicability of the constituent as being Site-related or not. Each table lists the constituent and matrix-specific screening level, the number of samples analyzed for that constituent (by OU and matrix), the frequency of detection, the average and maximum concentrations detected, and the number of samples with concentrations detected above screening levels. Section G.1.4 discusses sources of background data, including data from nearby Fort McClellan and from upstream and outside of the influence of Snow Creek. Where available, background average concentrations and twice the background average concentrations are also included on the tables, along with the number of samples with constituents detected above twice mean background concentrations. The notes column of each table summarizes recommendations regarding the applicability of the COPC in terms of being Site-related.

Figures are also referenced to support the evaluation of COPCs. Figure G-1 summarizes the site-specific ASM process described in the planning documents (e.g., the OU-4 Phase 1 FSP; [BBL 2006a] and the *Baseline Problem Formulation for Operable Unit 4 of the Anniston PCB Site* [ARCADIS BBL 2006b]). Figures G-2 through G-4 show the distribution of concentrations of PCBs in soil and sediment. These PCB figures provide a basis for whether other constituents are distributed similarly to PCBs or appear to have a different pattern. The remaining figures illustrate the concentrations and distribution of constituents within and outside of OU-1/OU-2. The data presented in these figures for locations outside of the OU-1/OU-2 nonresidential investigation footprint are included in electronic form in Appendix C to the OU-1/OU-2 RI. These figures are organized by constituent (PAHs [Figure G-5], PCDD/DFs [Figures G-6 through G-9], and metals [Figures G-10 through G-28]). Metals are organized in alphabetical order by metal and include, where needed for explanation, frequency distributions in soil, followed by sediment concentrations.

G.1.1 Overview of Previous COPC Investigations

For over 20 years, investigations have been carried out to assess the nature and extent of environmental impacts in, around, and downstream of the Facility. Initially, work was focused on sampling and analysis tasks to evaluate the presence of a list of constituents associated with historical operations and waste management practices at the Facility. This list of constituents—referred to as the potential constituents of concern and included as Exhibit F to the PCD (USEPA 2003a)—was evaluated in a series of reports approved by the USEPA and Alabama Department of Environmental Management (ADEM) between 1998 and 2004. That list included PCBs, 16 other organic compounds (including 4 volatile organic compounds [VOCs], organo-

phosphorous [OP] pesticides, dichlorobenzenes, and phenols), and 11 metals (referred to as the PCD list of metals).

In 2005, the USEPA clarified a request that investigations include limited analyses (10% of the samples) for a "wider list of constituents" (USEPA 2005a), which included target compound list (TCL) VOCs, semivolatile organic compounds (SVOCs), PAHs, PCDD/DFs, and target analyte list (TAL) inorganics, in addition to the shorter list of chemicals included in the PCD. Select samples of soil, sediment, and surface water collected as part of subsequent field efforts were analyzed for this wider list of constituents and encompassed the list of constituents included in the PCD.

The overall approach for assessing the applicability of the COPCs being Site-related has been presented, discussed, and updated with available data in several project documents, most recently in the following:

- OU-1/OU-2 PSCSR (ARCADIS BBL 2007b)
- Site-Wide Quality Assurance Project Plan (ARCADIS 2008)
- OU-4 Phase 2 FSP (ARCADIS 2010a)

In addition, the USEPA recently finalized an IROD for OU-3 (OU-3 IROD; USEPA 2011a) that identified constituents of concern for OU-3. A summary of the OU-3 IROD findings as they relate to constituents of concern is included in Section G.1.4. This COPC evaluation builds on these previous evaluations, coordinates the findings, where appropriate, and incorporates the most recent and available data. This document includes additional sources of background data and the most recently available screening levels, as described in more detail in Section G.1.4.

G.1.2 Technical Approach

The COPC evaluation process included several steps in an iterative and weight-of-evidence approach to assess whether the constituents are Site-related COPCs. The evaluation generally followed the site-specific ASM process summarized on Figure G-1. However, the evaluation process was refined following the collection of significant quantities of data. The COPC evaluation presented herein includes a comparison of constituent concentrations with screening levels, with background data from several sources, and with the distribution pattern of PCBs (identified as a COPC originating from the Facility). The data were evaluated using these multiple lines of evidence to assess whether the constituents are of concern and whether the presence and concentrations of the constituents appear to be associated with the Site. The evaluation process is described in additional detail in the following subsections.

G.1.2.1 Adaptive Site Management Process

Incorporating an ASM process into investigations and risk assessments is a scientifically valid approach that the USEPA often uses in planning and managing environmental issues in watersheds (USEPA 2004) and governmental agencies employ for federal site restoration, as outlined by the National Research Council (NRC) in *Environmental Cleanup at Navy Facilities: Adaptive Site Management* (NRC 2003). The NRC has also recommended using ASM for sites with PCB-contaminated sediment (NRC 2001). USEPA contaminated sediment remediation

guidance (USEPA 2005b) supports the ASM approach, and the ecological risk assessment guidance (USEPA 1997, 1998) identifies an iterative approach as a potentially valuable tool in ecological risk assessment.

G.1.2.2 Site-Specific COPC Evaluation

COPCs were evaluated using the ASM approach outlined on the flow chart shown on Figure G-1. These steps were the basis for the preliminary COPC discussions presented in the OU-1/OU-2 PSCSR, the OU-4 Phase 1 FSP (BBL 2006a), and the OU-4 Phase 2 FSP (ARCADIS 2010a). These steps were essentially repeated for this most recent evaluation, with the larger data set now available for OU-1/OU-2. This evaluation also incorporates COPC findings for OU-3, as stated in the OU-3 IROD.

Based on previous investigations and the large amount of data available, the primary media of interest for OU-1/OU-2 are soil and sediment. Although other media (air, surface water, and/or biota) may be affected by COPCs, they are not discussed herein because the presence and concentration of constituents in these other OU-1/OU-2 media will generally be a function of their concentrations in OU-1/OU-2 soil and sediment. The focus of this COPC evaluation is to identify those constituents present in soil or sediment that may be of concern in OU-1/OU-2. This evaluation also considers whether these constituents might originate from OU-3. The steps used for the COPC evaluation presented herein are outlined as follow:

1. **Type of Constituent.** Constituent data were evaluated for the two matrices (soil and sediment) separately. For example, metals data for soil in OU-1/OU-2 were evaluated separately from metals data for sediment. Analytes were evaluated individually or by chemical class. For example, most VOCs, SVOCs, and metals results appear to be unrelated to each other, and individual analytes were considered separately. PAH and PCDD/DF compounds were evaluated as classes of chemicals, as these tend to be detected in related groups. To a lesser extent (as a function of less frequent detection), other classes of chemicals also warrant consideration as a group of chemicals (e.g., phenols, OP pesticides) based on their known use at the Facility. Metals were evaluated individually, as each has a unique, naturally occurring background component as well as known anthropogenic sources in the area.

2. **Comparison to Screening Levels.** Where a constituent was not detected, it was no longer considered a possible COPC. Detected concentrations for individual constituents were compared with relevant, matrix-specific screening levels and are discussed in more detail in Section G.1.3. If the constituent was not reported above the screening level, the constituent is not considered a COPC.

3. **Frequency of Detections above Screening Levels.** The frequency and magnitude of detected concentrations above screening levels were reviewed to assess whether these appear to be Site-wide or isolated occurrences. If the constituent was reported above the screening level with significant frequency (more than 10% of the time) it was further evaluated. Occasional occurrences above the screening levels are not likely to drive conclusions or subsequent decisions.

4. **Comparison with Background.** Analytical data for constituents detected above screening levels with some frequency were further evaluated to assess whether they are associated with naturally occurring or anthropogenic background. Concentrations of constituents within the footprint of the OU were assessed relative to background concentrations (i.e., concentrations outside of the footprint of the OU). Background data provide an indication of natural occurrence, especially for certain metals, and also provide a measure of the concentrations of anthropogenic background from the multiple industries and commercial operations, such as PAHs, PCDD/DFs, and metals. Sources for background data are described in more detail in Section G.1.3 below.

5. **Possible Source(s).** The frequency and magnitude of detected concentrations above screening levels were reviewed to assess whether a distribution pattern was apparent. Low frequency occurrences of elevated concentrations away from the Facility were considered to be associated with sources other than the Facility. In some cases, concentrations were detected above screening levels, but no significant elevated source area or distribution was identified, suggesting that the presence of the constituent might be a function of naturally occurring or anthropogenic background conditions, rather than a release.

6. **Site Related.** The pattern of distribution (higher to lower concentration) was evaluated relative to concentrations and distribution of PCBs which, for the purposes of this analysis only, are assumed to be Facility related. The evaluation considered the distribution of constituents inside the 100-year floodplain versus those outside of the 100-year floodplain. This is based on the conceptual site model (CSM) for the Site where the primary release mechanism and transport pathways for Site-related constituents was surface water runoff from the Facility (OU-3) to the 11th Street Ditch and the subsequent downstream flow in Snow Creek. From there, PCBs could move into the 100-year floodplain during overbank flooding or be transported further downstream. The lateral extent of PCB-containing material from OU-3 via this release mechanism is the 100-year floodplain as demonstrated by the distribution of PCBs in the floodplain soils of OU-4. These data are presented in the *Phase I Conceptual Site Model Report for the Anniston PCB Site* (BBL 2003) and the *Phase 3 Field Sampling Plan for Operable Unit 4 of the Anniston PCB Site* (ARCADIS 2010b) and support the outer edge of the 100-year floodplain as the limit of lateral PCB migration due to overbank flooding. Using this knowledge informs the evaluation to the sources and/or release mechanisms for constituents located outside of the 100-year floodplain. The CSM recognizes other source release mechanisms and transport pathways but acknowledges the important role of the surface water runoff from the Facility in the distribution of PCBs in the 100-year floodplain. The presence of other sources and release mechanisms within OU-1/OU-2 can contribute to a variable PCB distribution; yet, based on the hydraulic characteristics of OU-1/OU-2 and OU-4, the distributions of PCBs in OU-4, the 100-year floodplain of Snow Creek is viewed as the footprint where constituents from OU-3 would have been transported via surface water runoff.

In several instances, the outcomes from these steps were combined in an interrelated, weight-of-evidence approach to determine that the presence of constituents is due to multiple possible naturally occurring or anthropogenic sources of background. In a few cases, elevated concentrations may be from a source other than the Facility.

G.1.3 Types and Sources of Data

Site and OU investigations are detailed in the investigations implemented for OU-1/OU-2 and the associated data are presented in Section 4 of the RI report. This COPC evaluation summarizes the available data by constituent and presents screening levels, available background data, number of samples, and mean and maximum detected concentrations in the tables as referenced below. Where appropriate, the following sections also discuss figures that illustrate the distribution of concentrations of the various constituents.

G.1.3.1 Soil Screening Levels

Screening levels used for this assessment are presented in Tables G-1 through G-12 for soil and sediment and are described below.

For OU-1/OU-2 soil, human health screening levels from the following sources were used:

- USEPA Regional Screening Level (RSL) Summary Table for human health (USEPA 2011b)
- In a few cases (e.g., substituted furans), RSLs for human health were published in 2008 (USEPA 2008) and were not included on the 2011 Tables. The 2008 levels were used for screening purposes, where applicable.

G.1.3.2 Sediment Screening Levels

Sediment screening values, where available, were used from Table 3: "USEPA Region 4 Waste Management Division Sediment Screening Values for Hazardous Waste Sites" of *Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment* (USEPA 2001). For constituents with no USEPA Region 4 screening value, the sediment screening levels from the sources listed below were used:

- USEPA Region 5 Resource Conservation and Recovery Act (RCRA) Ecological Screening Values (USEPA 2003b)
- USEPA Region 3 Freshwater Sediment Screening Benchmarks (USEPA 2006)

G.1.4 Background Data

Where appropriate, available background data were used for comparison to assess whether constituents appeared to be present as a result of naturally occurring or anthropogenic background. Background data are available from investigations conducted by P/S and the USEPA. Background PAH and metals data are available from studies conducted at nearby Fort McClellan.

USEPA's definition of "background" includes constituents or locations not influenced by the releases from a site and is usually described as naturally occurring or anthropogenic. "Anthropogenic" is defined as natural and human-made substances present in the environment as a result of human activities (not specifically related to the release in question) (USEPA 1989, 1995).

Metals are naturally occurring in soils and sediments. In several instances, the screening levels for metals are too low to provide a basis for distinguishing naturally occurring or local, urban background from a potential source area. Therefore, the evaluation of metals results included an initial comparison with published background data for nearby Fort McClellan (Science Applications International Corporation [SAIC] 1998). The data from the Fort McClellan study were considered to be representative of naturally occurring background concentrations. In the Anniston area, several historical and current industries are known to have used metals as a part of their processes, and the concentrations of some heavy metals are higher in the Anniston area than in Fort McClellan background samples. These industries may also be a source for some persistent organic chemicals, in particular PAHs and PCDD/DFs. Where available, data from outside or upstream of OU-1/OU-2 are used as a measure of anthropogenic and local background. In accordance with the ASM process, analytical results were evaluated in several ways to assess whether their presence and concentration were associated with naturally occurring or anthropogenic background; whether their presence is of concern in soil, sediment, or both; and whether their presence is Facility related. Consistent with risk assessment guidance (USEPA 2000), constituent concentrations less than twice the mean background concentrations were considered as naturally occurring or anthropogenic background.

The following data were used as source of background data for the COPC evaluation:

- ***PAH and metals data from studies conducted at nearby Fort McClellan.*** Metals data for soil and sediment samples from Fort McClellan were taken from the *Background Metals Survey Report* (SAIC 1998). PAH data for soils collected from next to asphalt pavement were used from Table 4-2 of the *Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama* (IT Corporation [IT] 2000). This report did not calculate total PAHs. For comparison purposes, the total twice the mean Fort McClellan PAH background value presented in Tables G-7 and G-8 was calculated as the sum of the means presented in Table 4-2 of the IT report (IT 2000). In the absence of a local source of background data for sediment, Fort McClellan PAH background soil data were used as representative of urban background values for both soil and sediment.
- ***Floodplain soil background concentrations.*** Samples collected by the USEPA and P/S from locations outside of the current OU-1/OU-2 nonresidential study footprint were used as floodplain soil background.
- ***OU-1/OU-2 sediment background concentrations***. Data collected from locations that are upstream of the 11th Street Ditch from a hydraulic perspective are used as background sediment data. These include samples collected from 14th Street, 16th Street, and the West 9th Street Creek. These upstream, background sediment samples were collected from locations upstream of the hydraulic influence of the Facility and include data for PCBs and several metals.

G.1.5 OU-3 COPC Findings

The IROD for OU-3 (USEPA 2011a) identifies 20 constituents of concern for OU-3. Of these 20 constituents, only PCBs and 2,3,7,8-tetrachlorodibenzo-p-dioxin TEQ (inclusive of dioxin-like PCB [DL-PCB] congeners) were identified as of concern in both soil and groundwater. PCBs

were identified as COPCs in air in OU-3. Although other constituents were identified as of concern in OU-3, their presence and migration pathways were via soils and groundwater and concentrations in air were not of concern. PCB concentrations in air for OU-3 were within the USEPA acceptable risk range and were not identified as a risk driver for the remedial activities specified in the IROD for OU-3.

The OU-3 IROD identifies 13 constituents of concern in groundwater that are not identified for soils. These are primarily constituents with higher water solubility and less environmental persistence than PCBs and are known to have been used at the Facility. These include chlorinated VOCs, phenols, and OP pesticides. The OU-3 IROD states that migration of constituents via groundwater is limited for several reasons, including natural processes and continuing corrective actions. Monitoring will be a component of the OU-3 remedy.

The following table lists constituents and maximum concentrations that were identified as constituents of concern in soil and not in groundwater in OU-3.

OU-3 Constituents of Concern in Soil Only

Constituent of Concern in Soil	2x Mean OU-1/OU-2 Background (mg/kg)	Maximum Concentration in OU-3 Soil (mg/kg)
benzo(a)pyrene	66	1.9
benzo(b)fluoranthene	48	2.4
dibenz(a,h)anthracene	2.1	0.62
heptachlor epoxide	Not available	0.38
arsenic	16.8	390

mg/kg: milligrams per kilogram

Concentrations are compared with twice the mean OU-1/OU-2 background concentrations as a measure of local urban background. PAHs are ubiquitous in urban environments, and their presence in OU-3 soils could be from any number of potential sources including asphalt pavement and the storage and use of organic fuels within the Site. Although PAHs were identified as constituents of concern in OU-3 soils, the concentrations are generally low and much lower than concentrations in and outside of OU-1/OU-2. OU-1/OU-2 PAH in soil data are consistent with the presence of other possible sources in the Anniston area. The concentrations of PAHs in OU-3 do not appear to represent a point source release of PAHs to soil, nor do these concentration levels pose a significant threat of potential migration to other OUs via surface or groundwater. Similarly, the concentration of heptachlor epoxide may be from the use of this or other pesticides at the Facility, but the concentration does not represent a significant point source or potential for migration from OU-3 soil to other media or OUs.

The concentrations of arsenic in OU-3 soils are higher than in OU-1/OU-2 background. The OU-3 mean concentration of 25.4 milligrams per kilogram (mg/kg) is only slightly higher than twice the mean OU-1/OU-2 background (16.8 mg/kg). The OU-3 maximum of 390 mg/kg is higher than the OU-1/OU-2 background maximum of 120 mg/kg. Although the data for arsenic indicate possible isolated areas of elevated concentrations in OU-3, the elevated concentrations

are not widespread and are not of a magnitude that would suggest a point source release or indicate that the Facility would be the source of arsenic to other OUs. Arsenic concentrations in the Anniston area appear to be from multiple possible native and anthropogenic sources based on the data for OU-1/OU-2.

The OU-3 IROD also identifies PCBs and dioxin TEQ (inclusive of PCDD/DFs and DL-PCB congeners) as constituents of concern for both soil and groundwater. According to the OU-3 IROD, preliminary data suggest that the PCB remedial goals will be protective for dioxin TEQ, and the IROD requires sampling during the remedial design phase to verify that the PCB remedial goals are protective for dioxins when the dioxin TEQ includes PCDD/DFs and DL-PCBs.

G.1.6 COPC Evaluation

This section evaluates the available chemical data in accordance with the process described in Section G.1.2. Results from OU-3 are discussed in Section G 1.5, as OU-3 is a potential source area for Site-related constituents to Snow Creek (OU-1/OU-2). Where appropriate, results for OU-1/OU-2 are evaluated relative to OU-3 and other potential sources, including native and anthropogenic background sources. Data for soil and sediment are evaluated using the screening levels discussed in Section G.1.3.

The Site OUs have been characterized for the nature and extent of PCBs in the various media of interest. PCBs are the primary COPC for the Site OUs, and are present in soil, groundwater, sediment, surface water, and biota. Because PCBs are the primary COPC for the Site OUs, their frequency of detection, concentrations, and distribution patterns are useful in understanding the fate and transport of other constituents potentially originating from the Facility. These fate and transport mechanisms are evaluated in detail in the CSM (BBL 2003). Data collected since the initial development of the CSM continue to support the fundamental premises of the CSM and demonstrate that PCB concentrations decrease with distance downstream of the Facility and with distance out into the floodplain on either side of the creek.

PCB distributions throughout the investigation areas in soil and sediment are presented in different formats in Figures G-2 through G-4. The frequency of PCB concentrations in OU-1/OU-2 background and inside the investigation footprint of OU-1/OU-2 are shown on Figure G-2. PCB concentrations in OU-1/OU-2 sediment are shown on Figure G-3. PCB concentrations in soil are summarized in plan view on Figure G-4. These distribution patterns are referenced in the discussion of other constituents, where appropriate, to evaluate whether the distribution of other constituents is similar or related to the distribution of PCBs.

It is important to recognize that the OU-1/OU-2 investigation area footprint extends well beyond the 100-year floodplain in certain locations. This is significant for floodplain soils in that the 100-year floodplain is the maximum lateral extent to which constituents would be transported from the Facility via the surface water pathway, which is the primary pathway from the Facility to soils and sediment. Portions of Snow Creek located in the upper portion of the OU-1/OU-2 investigation area footprint (roughly upstream of the Snow Creek and 11th Street Ditch confluence) are upstream of the hydraulic influence of the Facility. Constituents present in the

upstream Snow Creek locations are representative of the upstream watershed and not the Facility, as the flood waters do not migrate significantly in an upstream direction.

OU-1/OU-2 data are summarized in Tables G-1 through G-12. The tables summarize the constituents detected relative to screening values and the available background data (Section G.1.4). Note that the number of samples for individual constituents within a given chemical group (e.g., VOC, SVOC) may vary because the analyte lists were slightly different over the different sampling programs. The results are discussed in the following subsections, organized by constituent class.

G.1.6.1 VOCs

In Soil: Floodplain soil data for OU-1/OU-2 VOCs are summarized in Table G-1. VOCs are not COPCs in OU-1/OU-2 soils. In approximately 60 soil samples, ethylbenzene was the only VOC compound detected above the screening level and in only one sample.

In Sediment: VOCs in OU-1/OU-2 sediments are summarized in Table G-2. Only a few VOCs (four) were detected in OU-1/OU-2 sediment. Only benzene was detected above the screening level and in only one sample. VOCs are not COPCs for OU-1/OU-2.
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G.1.6.2 Pesticides

In Soil: OU-1/OU-2 pesticides in soil data are summarized in Table G-3. Chlorinated and OP pesticides are not COPCs for OU-1/OU-2. Pesticides were detected in soils infrequently and exceeded screening levels even less frequently. The pesticide detected above screening levels most frequently was dieldrin (7 out of 117 [6%] of the samples). Of the other pesticides, only 4',4'- dichlorodiphenyltrichloroethane (4,4'-DDT), aldrin, and heptachlor were detected above screening levels in only one sample each. Furthermore, false positive identification is a possibility and the quantification of pesticides is always uncertain and possibly biased high when detected in the presence of PCBs. Multiple possible industrial, agricultural, and residential sources of pesticides are present in and around the Anniston area. OP pesticides listed in the PCD as possible COPCs were not detected in OU-1/OU-2.

In Sediment: Pesticides in OU-1/OU-2 sediments are summarized in Table G-4. Region 4 sediment screening levels are the same as the analytical reporting limit, so that when pesticides were detected, they were usually above the screening levels. The concentrations reported are relatively low; the highest being 0.11 mg/kg (4,4'-DDT) and the second highest being dieldrin at 0.07 mg/kg. Aldrin, alpha and gamma-chlordane, beta-BHC, endosulfan II, and heptachlor epoxide were also reported above screening levels in one to four samples. These concentrations are representative of common industrial and agricultural routine use of pesticides. The concentration and distribution of pesticides do not indicate a point source or release from the Facility or outside of OU-1/OU-2. OP pesticides listed as potential COPCs in the PCD were not detected in OU-1/OU-2 sediments.

G.1.6.3 SVOCs other than PAHs

In Soil: OU-1/OU-2 SVOCs (other than PAHs) in soil data are summarized in Table G-5. SVOCs are not COPCs for OU-1/OU-2. Only four SVOC compounds, bis(2-ethylhexyl)

phthalate, carbazole, dibenzofuran, and pentachlorophenol, were reported at concentrations above screening levels and were reported above screening levels in only 2 or 3 of 121 (less than 3%) of samples. SVOCs are not COPCs for OU-1/OU-2.

In Sediment: SVOCs other than PAHs in OU-1/OU-2 sediments are summarized in Table G-6. Few sediment SVOCs were detected, and no SVOCs were reported at concentrations above screening levels. SVOCs are not COPCs for OU-1/OU-2.

G.1.6.4 PAHs

In Soil: PAH concentrations in soil for OU-1/OU-2 are summarized in Table G-7 and shown on Figure G-5. PAH concentrations in soil appear to be attributable to local conditions in the area. OU-1/OU-2 background and OU-1/OU-2 PAH concentrations are significantly higher than OU-3 PAH concentrations and concentrations inside the OU are higher than background, indicating sources of PAHs to OU-1/OU-2 other than OU-3. This is consistent with the urban and industrial activities in the general Anniston area.

Figure G-5 shows the locations of the elevated PAH concentrations to the north and west of the Facility and outside of the influence of OU-3. The presence of elevated concentrations of PAHs in soils is consistent with current and historical industries in the area known to burn fossil fuels as a part of operations. As shown on Figure G-5, the elevated concentrations of PAHs within the OU-1/OU-2 investigation area footprint are tied to the industrial area to the north of OU-3 and the 100-year floodplain boundary. While still located within the footprint of the OU-1/OU-2 investigation area, the locations are outside of the 100-year floodplain. PAHs are not considered to be Site-related COPCs.

In Sediment: PAH data for OU-1/OU-2 sediments are summarized in Table G-8 and shown on Figure G-5. For PAHs in sediment, the reporting limit is the screening value, so that when PAHs were detected in sediment, they were usually above the screening level. Sediment concentrations were generally low tending to be lower than Fort McClellan background and significantly below OU-1/OU-2 soil and background concentrations. Only one PAH compound in one sample was slightly above twice Fort McClellan background (naphthalene maximum concentration is 38 micrograms per kilogram (µg/kg), twice Fort McClellan background is 33 µg/kg). No OU-1/OU-2 PAH in sediment concentrations were above twice the mean background concentrations PAH concentrations in OU-1/OU-2 background sediments (from Snow Creek upstream of the 11th Street Ditch and from the West 9th Street Creek) are higher in concentration than those found in Snow Creek downstream of its confluence with the 11th Street Ditch.

G.1.6.5 PCDD/DFs

In Soil: OU-1/OU-2 PCDD/DF in soil data are summarized in Table G-9 and shown in plan view on Figure G-6. PCDD/DF TEQ concentrations are shown on Figure G-7. The distribution of concentrations of PCDD/DFs is random with no evident pattern to the sporadic higher concentrations in the Snow Creek floodplain. Because the analytical method is so sensitive, extremely low levels are able to be detected; the highest PCDD/DF TEQ is 2.2 µg/kg and is from a soil sample with a PCB concentration of 0.6 mg/kg. Figures G-8 and G-9 plot the concentrations of total PCDD/DFs and TEQ as a function of total Aroclor concentration and

show that there is no relationship between PCB and PCDD/DF or TEQ concentrations. The elevated PCDD/DF and TEQ concentration samples are generally not collocated with the higher PCB concentrations samples. The pattern of PCDD/DF concentrations suggests that they are the result of local anthropogenic background and not from a single source and migration pathway. PCDD/DFs could be present as a result of general atmospheric dispersion and from multiple industrial sources in the region.

In Sediment: PCDD/DFs in OU-1/OU-2 sediments are summarized in Table G-10. Sediment PCDD/DF concentrations are also shown along with soil PCDD/DF concentrations on Figures G-6 through G-9. Concentrations of PCDD/DFs in sediment are low indicating that concentrations are representative of background conditions rather than from a point source. The distribution appears to be random, and the PCDD/DF concentrations are not related to the patterns associated with PCBs. The PCDD/DF concentrations and distribution pattern are not the same as would be expected if from a point source. PCDD/DFs could be present as a result of general atmospheric dispersion and/or may be from multiple industrial sources in the area.

G.1.6.6 Metals

In Soil: Metals in OU-1/OU-2 soils are summarized in Table G-11. Eight metals (aluminum, barium, beryllium, copper, nickel, selenium, silver, and zinc) are not COPCs in soil because they were not detected at concentrations above screening levels. Calcium, magnesium, potassium, and sodium were also not included as COPCs, as these are common nutrients and do not have applicable screening levels. Calcium and magnesium concentrations in soil (and sediment) are higher than background concentrations although the maximum inside of OU-1/OU-2 is within a factor of 2 of the maximum outside of OU-1/OU-2. Potassium and sodium concentrations in soil are generally consistent with background.

In Sediment: Metals in OU-1/OU-2 sediments are summarized in Table G-12. Two metals (antimony and silver) are not considered COPCs in sediment because they were not reported above screening levels. Seven metals (aluminum, beryllium, calcium, magnesium, potassium, sodium, and thallium) do not have applicable screening levels and do not appear to be of concern based on a comparison with background sediment and/or soil concentrations. Sodium was not detected in sediment, and aluminum and potassium had concentrations less than twice the mean Fort McClellan background concentrations, indicating that these concentrations are consistent with naturally occurring background. Consistent with soil concentrations, calcium and magnesium (common nutrients) concentrations in OU-1/OU-2 sediment were higher than background concentrations, but were within a factor of 2 of maximum background. Beryllium concentrations were above background concentrations but were significantly lower than the human health soil screening levels and overall concentrations were low (maximum is 4.2 mg/kg). Thallium concentrations in sediment were below OU-1/OU-2 background concentrations in soil.

Metals figures (Figures G-10 through G-31) are organized in alphabetical order by metal and include, where needed for explanation, frequency distributions in soil inside and outside of OU-1/OU-2. A plan view presentation of soil concentrations and a plot of sediment concentrations as a function of distance from OU-3 (upstream from Lake Logan Martin). The distribution presentations are helpful in understanding the magnitude and frequency of concentrations

above the screening level(s). The distribution figures are also useful in understanding whether the concentrations of a constituent are the result of naturally occurring background (i.e., the two distributions are similar) or if the constituent may be present in background due to an anthropogenic source (i.e., the distributions inside and outside of OU-1/OU-2 are similar or constituent concentrations outside of the OU-1/OU-2 footprint are higher). The figures can also be used to assess the similarity of the constituent distributions relative to the distribution of PCBs (Figure G-2) to further evaluate whether they are possibly from sources other than the Facility. Figures with constituent distributions in sediment for Snow Creek are provided and are used to show the influence of the upstream watershed. These show where the use of constituents in areas outside the hydraulic influence of the Facility has influenced the presence and concentration within the footprint of OU-1/OU-2. Other metals with detected concentrations above screening levels or background are discussed individually below.

Antimony in soil: The antimony concentration in only one sample (<1%) exceeded the screening level of 31 mg/kg with a maximum concentration of 33 mg/kg. The OU-1/OU-2 maximum antimony concentration is higher than naturally occurring Fort McClellan background concentrations, but is significantly lower than the OU-1/OU-2 background maximum of 360 mg/kg, indicating sporadic, elevated concentrations from source(s) outside of OU-1/OU-2.

Arsenic in soil: OU-1/OU-2 arsenic concentrations are similar to OU-1/OU-2 background arsenic concentrations (Figures G-10 and G-11) and Fort McClellan background arsenic concentrations. The mean arsenic concentrations for Fort McClellan background (8 mg/kg), OU-1/OU-2 background (8 mg/kg) and OU-1/OU-2 soil (11 mg/kg) are similar. The maximum arsenic concentration of 120 mg/kg was detected inside and outside of OU-1/OU2 and is higher than the Fort McClellan maximum of 49 mg/kg. OU-1/OU-2 arsenic soil concentrations might be affected by source(s) of arsenic inside or outside of OU-1/OU-2 (see the higher end of the frequency distribution, Figure G-10). Overall, arsenic concentrations in OU-1/OU-2 soil are consistent with background concentrations and are not indicative of a source area or release.

Arsenic in sediment: The presence of upstream sources of arsenic in the Snow Creek watershed is demonstrated by the arsenic in sediment data for Snow Creek (Figure G-12). Although some samples were above twice the mean Fort McClellan background of 11 mg/kg, the OU-1/OU-2 maximum of 21 mg/kg is consistent with the Fort McClellan background maximum of 20 mg/kg and significantly lower than the OU-1/OU-2 background maximum of 71 mg/kg. None were reported above twice the mean OU-1/OU-2 background. Arsenic may be present in OU-1/OU-2 sediments from naturally occurring or anthropogenic sources.

Barium in sediment: A screening level for barium in sediment was not available for this evaluation, and barium results are compared with the soil screening level and background concentrations. Barium was detected in soil and sediment samples at similar concentrations and significantly below the human health soil screening level of 15,000 mg/kg. The mean barium concentration reported in soil was 140 mg/kg and in sediment was 180 mg/kg. The maximum barium concentration reported in soil was 1,700 mg/kg and in sediment was 580 mg/kg. The distribution of barium in soil (Figure G-13) suggests a source of barium outside of OU-1/OU-2. Based on Fort McClellan soil background concentrations (mean is 88 mg/kg, maximum is 4,500

mg/kg), barium concentrations in sediment are likely attributable to naturally occurring or anthropogenic background.

Cadmium in soil: The cadmium concentration in only one sample (with a maximum of 72 mg/kg) exceeded the screening level of 70 mg/kg. The OU-1/OU-2 mean cadmium concentration is consistent with the OU-1/OU-2 background mean cadmium concentration, and the OU-1/OU-2 maximum cadmium concentration (72 mg/kg) is slightly lower than the OU-1/ OU-2 background maximum concentration (of 94 mg/kg). Cadmium distribution patterns inside and outside of OU-1/OU-2 are similar with only a few isolated occurrences above the screening level (Figure G-14). In general, cadmium concentrations are low, with a few isolated elevated concentrations, similar to background concentrations.

Cadmium in sediment: Only two samples were higher than the sediment screening level of 1 mg/kg with a maximum concentration of 4.6 mg/kg, and this was also the only sample above twice the mean OU-1/OU-2 background (of 3.9 mg/kg). Sediment collected from upstream of OU-1/OU-2 are a little higher (maximum = 8.2 mg/kg) than those collected from OU-1/OU-2 (Figure G-15). As noted for soils, it appears anthropogenic source(s) of cadmium may be present in the Anniston area (maximum soil background = 94 mg/kg) and these may be contributing relatively low levels of cadmium to OU-1/OU-2 sediments.

Chromium in soil: Chromium soil screening levels are valence-state dependent and are not included on Table G-11 for comparison with total chromium data. The distribution of chromium in OU-1/OU-2 soils is shown on Figures G-16 and G-17. The OU-/OU-2 average chromium concentration is driven by two elevated points of 14,000 and 850 mg/kg. If these two high points are removed, the average would be 39 mg/kg and the maximum would be 550 mg/kg, consistent with OU-1/OU-2 background. Chromium was not identified as a concern for OU-3, and as shown on Figure G-17, the source for chromium is not OU-3.

Chromium in sediment: The distribution of chromium concentrations in sediment is shown on Figure G-18. Chromium concentrations in sediments from Snow Creek upstream of the 11th Street Ditch and from the West 9th Street Creek are higher in concentration than those found in Snow Creek downstream of its confluence with the 11th Street Ditch. Chromium concentrations inside and outside of OU-1/OU-2 appear attributable to anthropogenic sources of chromium in and around the Anniston area.

Cobalt in soil: Cobalt was detected above the screening level in only 7% of the soil samples. OU-1/OU-2 background cobalt concentrations are higher than Fort McClellan background cobalt concentrations, suggesting an anthropogenic source of cobalt to the area. OU-1/OU-2 cobalt concentrations are more typical of Fort McClellan background concentrations and are lower than OU-1/OU-2 background concentrations, indicating that concentrations inside of OU-1/OU-2 are primarily associated with naturally occurring background (Figure G-19).

Cobalt in sediment: Concentrations of cobalt in OU-1/OU-2 sediment are shown on Figure G-20. The mean and maximum detected in sediment were 26 mg/kg and 110 mg/kg, respectively. Only two samples were reported with cobalt concentrations above the screening level of 50 mg/kg and the maximum was 110 mg/kg. Although the two sample results were higher than sediment background, the other sediment concentrations are consistent with upstream

concentrations. They are also consistent with OU-1/OU-2 background soil cobalt concentrations (mean is12 mg/kg, maximum is 50 mg/kg). Although two sediment samples were reported above the screening level, the cobalt concentrations do not indicate a significant release and cobalt is likely present as a result of background conditions.

Copper in sediment: The distribution of copper in Snow Creek is shown on Figure G-21. No samples were reported above twice the mean OU-1/OU-2 background. Concentrations upstream in Snow Creek and in soils from outside of OU-1/OU-2 indicate source(s) of copper that are not Site related. The highest concentration in OU-1/OU-2 sediment of 230 mg/kg is significantly less than the highest upstream concentration of 1,300 mg/kg and the OU-1/OU-2 soil maximum background concentration of 17,000 mg/kg.

Iron in soil: The OU-1/OU-2 mean concentration for iron is consistent with the background mean concentration, although the OU-1/OU-2 maximum iron concentration (580,000 mg/kg) indicates sporadic occurrences of elevated concentrations. Concentrations of iron in OU-1/OU-2 and in the surrounding area are attributable to multiple non-Site-related uses of iron in the area.

Iron in sediment: Concentrations of iron in sediment are slightly elevated, reflecting the potential influence of the multiple uses of iron in the area and upland soil concentrations.

Lead in soil: OU-1/OU-2 background lead concentrations and OU-1/OU-2 lead concentrations are higher than Fort McClellan background lead concentrations, indicating anthropogenic source(s) of lead in the area. The OU-1/OU-2 maximum (30,000 mg/kg) is lower than the OU-1/OU-2 background maximum (87,400 mg/kg). These data and the distribution patterns for lead (Figure G-22) are consistent with potential sources of lead in the area that are not Facility related.

Lead in sediment: Lead concentrations in OU-1/OU-2 sediment are shown on Figure G-23. Mean and maximum concentrations are lower than OU-1/OU-2 background. The mean (72 mg/kg) and maximum (510 mg/kg) concentrations are relatively low in comparison with the residential cleanup goal of 400 mg/kg in soil, and only the maximum concentration sample (510 mg/kg) was above twice the mean OU-1/OU-2 background concentration of 345 mg/kg. As shown on Figure G-23, the single high point of 510 mg/kg is a single, somewhat anomalous result in an otherwise low concentration, decreasing trend that originates upstream of the Facility. As with the soils data, the sediment data are consistent with the historical use of lead and the industrial character of the area.

Manganese in soil: A human health soil screening level is not available for manganese. OU-1/OU-2 manganese concentrations are consistent with or slightly lower than background manganese concentrations (Figure G-24). The OU-1/OU-2 mean is comparable with mean background, and the OU-1/OU-2 maximum (10,100 mg/kg) is significantly less than the OU-1/OU-2 (36.000 mg/kg) and Fort McClellan (19,000 mg/kg) background maximums. Concentrations of manganese may be attributed to naturally occurring or anthropogenic background and do not appear to originate inside of OU-1/OU-2 or OU-3.

Manganese in sediment: Manganese in sediment data are summarized in Table G-12. OU-1/OU-2 sediment background manganese concentrations (mean is 951 mg/kg, maximum is

7,500 mg/kg) are higher than Fort McClellan background manganese concentration, indicating a local anthropogenic source(s) of manganese. OU-1/OU-2 concentrations (mean is 1,800 mg/kg, maximum is 5,200 mg/kg) are generally consistent with OU-1/OU-2 sediment background and with OU-1/OU-2 soil background (mean is 1,270 mg/kg, maximum is 36,000 mg/kg). Concentrations could be associated with local anthropogenic sources, but do not appear to originate in OU-3.

Mercury in soil: OU-1/OU-2 mercury concentrations in soil are higher than Fort McClellan background mercury concentrations in soil, and the distribution of concentrations is variable inside and outside of OU-1/OU-2 (Figure G-25). Because so few of the concentrations in soil (only 2 of 210 samples [1%]) were above the human health screening level of 5.6 mg/kg, mercury was not considered further as a COPC in soil from a human health perspective. Mercury is of interest from an ecological risk perspective in sediment in OU-4 and is discussed here recognizing that potential source(s) to OU-4 include OU-3, and non-Site-related sources inside and outside of OU-1/OU-2. Mercury concentrations in soils are plotted in plan view on Figure G-26. Although the mean mercury concentrations inside and outside of OU-1/OU-2 are comparable (0.42 mg/kg and 0.41 mg/kg, respectively), the maximum soil mercury concentration of 28 mg/kg was detected outside of OU-1/OU-2 and is significantly higher than the maximum soil mercury concentration inside of OU-1/OU-2 of 7.5 mg/kg. These data are indicative of sources of mercury outside of OU-1/OU-2.

Mercury in sediment: The majority of samples upstream and in OU-1/OU-2 were less than 1 mg/kg. Only 4 samples were above 1 mg/kg (maximum is 8.6 mg/kg) in OU-1/OU-2 between the 11th Street Ditch and the Route 202 culverts. These higher concentration samples influence the OU-wide mean of 1.1 mg/kg.

Nickel in sediment: Nickel concentrations in OU-1/OU-2 sediment are shown on Figure G-27. Concentrations in sediment are highest upstream of the OU in the West 9th Street Creek, with a maximum of 270 mg/kg. In OU-1/OU-2, concentrations are slightly lower with a mean of 35 mg/kg and a maximum of 110 mg/kg. Nickel concentrations in sediment are consistent with the multiple industrial uses of heavy metals in the area.

Selenium in sediment: Fort McClellan background, OU-1/OU-2 and OU-1/OU-2 background concentrations are similar, indicating that concentrations are attributable to naturally occurring background. Sediment maximum of 3.4 mg/kg is only slightly above the screening level of 2 mg/kg and twice the mean OU-1/OU-2 background of 2.4 mg/kg.

Thallium in soil: OU-1/OU-2 and background means are higher than Fort McClellan background, suggesting anthropogenic source(s) in the Anniston area. The OU-1/OU-2 mean (5.5 mg/kg) is lower than OU-1/OU-2 background (mean = 8.3 mg/kg), and the maximum (30 mg/kg) is lower than the OU-1/ OU-2 background maximum (81 mg/kg) indicating that if concentrations are not entirely associated with natural sources, they are possibly associated with low-level industrial background.

Thallium in sediment: A sediment screening level was not available for thallium. Concentrations in OU-1/OU-2 sediment are higher than in background sediment and higher than in OU-1/OU-2 soils, but the maximum in sediment (50 mg/kg) is lower than in soils outside

of OU-1/OU-2 (maximum is 81 mg/kg). Thallium concentrations in soil and sediment could be associated with anthropogenic sources inside or outside of OU-1/OU-2.

Vanadium in soil: Fort McClellan and OU-1/OU-2 background vanadium concentrations are higher than screening levels. OU-1/OU-2 vanadium concentrations are consistent with background vanadium concentrations. The distributions inside and outside of OU-1/OU-2 soils are similar (Figure G-28), indicating that vanadium concentrations are typical of naturally occurring background conditions.

Vanadium in sediment: A vanadium sediment screening level was not available, and the vanadium soil screening level (5.5 mg/kg) is significantly lower than Fort McClellan background vanadium concentrations (soil: mean is 31 mg/kg, maximum is 158 mg/kg; sediment: mean is 20 mg/kg, maximum is 67 mg/kg). OU-1/OU-2 vanadium concentrations in sediment are compared with sediment background vanadium concentrations and with OU-1/OU-2 soil and background vanadium concentrations. Similar to soils, vanadium concentrations in sediment (mean is 31 mg/kg, maximum is 64 mg/kg) are similar to both Fort McClellan (mean is 20 mg/kg, maximum is 67 mg/kg) and OU-1/OU-2 sediment background vanadium concentrations (mean is 30 mg/kg, maximum is 59 mg/kg). The concentrations of vanadium in sediment appear to be attributable to naturally occurring background.

Zinc in sediment*:* The mean OU-1/OU-2 background is higher than Fort McClellan background supporting potential anthropogenic source(s) in the local area. No OU-1/OU-2 samples were detected above twice the mean OU-1/OU-2 background indicating concentrations are consistent with the known use of heavy metals in and around the OU.

G.1.7 OU-1/OU-2 COPC Summary

This COPC evaluation is based on data collected by P/S and the USEPA and is focused on OU-1/OU-2 with the intent of bringing the Site-specific nature and extent evaluations together in a combined assessment of conditions in OU-1/OU-2. This evaluation is designed to identify specific COPCs to be addressed in the upcoming FS process and subsequent remedial actions for OU-1/OU-2. This evaluation was conducted using the step-wise ASM process developed for the Site in collaboration with the USEPA. The ASM process for COPCs can be summarized as a procedure for assessing whether the pattern and distribution of a chemical constituent can be categorized as follows:

- Present with prevalence and/or concentration that could be of concern
- Appear to be present due to naturally occurring or anthropogenic background
- Appear to be associated with the Facility

Based on this process, the COPC list for soils and sediments in the OU-1/OU-2 FS should be focused on PCBs.

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Tables

Table G-1. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil VOCs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Notes
1,1,1-Trichloroethane	8,700,000	60	0	--	--	--	VOCs are not COPCs in OU-1/OU-2 soils. Ethylbenzene was the only VOC compound detected above the SL in only one sample.
1,1,2,2-Tetrachloroethane	560	60	0	--	--	--	
1,1,2-Trichloro-1,2,2-Trifluoroethane	43,000,000	60	0	--	--	--	
1,1,2-Trichloroethane	1,100	60	0	--	--	--	
1,1-Dichloroethane	3,300	60	0	--	--	--	
1,1-Dichloroethene	240,000	60	0	--	--	--	
1,2,4-Trichlorobenzene	22,000	74	0	--	--	--	
1,2-Dibromo-3-chloropropane	5	60	0	--	--	--	
1,2-Dibromoethane	34	60	0	--	--	--	
1,2-Dichlorobenzene	1,900,000	74	0	--	--	--	
1,2-Dichloroethane	430	60	0	--	--	--	
1,2-Dichloroethene (total)	700,000	11	0	--	--	--	
1,2-Dichloropropane	890	60	0	--	--	--	
1,3-Dichlorobenzene	--	74	0	--	--	NSL	
1,4-Dichlorobenzene	2,400	74	0	--	--	--	
2-Butanone	28,000,000	60	90	37	500	0	
2-Hexanone	210,000	60	1.7	1.1	1.1	0	
4-Methyl-2-pentanone	5,300,000	60	8.3	13	26	0	
Acetone	61,000,000	60	98	250	2,200	0	
Benzene	1,100	62	31	2.1	6.5	0	
Bromochloromethane	--	60	0	--	--	NSL	
Bromodichloromethane	270	60	0	--	--	--	
Bromoform	61,000	60	0	--	--	--	
Carbon Disulfide	820,000	60	32	3.0	8.5	0	
Carbon Tetrachloride	610	60	0	--	--	--	
Chlorobenzene	290,000	60	0	--	--	--	
Chloroethane	15,000,000	60	0	--	--	--	
Chloroform	290	60	0	--	--	--	
Chloromethane	120,000	60	0	--	--	--	
cis-1,2-Dichloroethene	160,000	60	0	--	--	--	
cis-1,3-Dichloropropene	--	60	0	--	--	NSL	
Cyclohexane	7,000,000	60	8.3	5.0	8	0	
Dibromochloromethane	680	60	0	--	--	--	
Dichlorodifluoromethane	94,000	60	0	--	--	--	
Ethylbenzene	5,400	62	6.5	3,000	12,000	1	
Fluorotrichloromethane	790,000	60	5.0	2.1	3.3	0	
Isopropylbenzene	2,100,000	60	5.0	3.0	4	0	
m,p-Xylenes	--	59	10	5.2	14	NSL	
Methyl Acetate	78,000,000	60	60	99	950	0	
Methyl Bromide	7,300	60	6.7	2.0	4.2	0	
Methyl tert-butyl ether	43,000	62	0	--	--	--	
Methylcyclohexane	3,400,000	60	6.7	6.7	9.9	0	
Methylene Chloride	11,000	60	0	--	--	--	
o-Xylene	3,800,000	60	5	9.2	16	0	
Styrene	6,300,000	60	5	2.9	3.4	0	
Tetrachloroethene	550	60	0	--	--	--	
Toluene	5,000,000	62	15	4.4	11	0	
trans-1,2-Dichloroethene	150,000	60	0	--	--	--	
trans-1,3-Dichloropropene	--	60	0	--	--	NSL	
Trichloroethene	910	60	0	--	--	--	
Vinyl Chloride	60	60	0	--	--	--	
Xylenes (total)	630,000	14	29	11,000	42,000	0	

Notes:
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
NSL: no screening level
OU: operable unit
SL: screening level
VOCs: volatile organic compounds
µg/kg: micrograms per kilogram

Table G-2. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment VOCs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Notes
1,1,1-Trichloroethane	213	7	0	--	--	--	Few VOCs were detected in sediment, and only benzene was reported above the SLs in one sample. VOCs are not COPCs for OU-1/OU-2.
1,1,2,2-Tetrachloroethane	850	7	0	--	--	--	
1,1,2-Trichloro-1,2,2-Trifluoroethane	--	6	0	--	--	--	
1,1,2-Trichloroethane	518	7	0	--	--	--	
1,1-Dichloroethane	1	7	0	--	--	--	
1,1-Dichloroethene	31	7	0	--	--	--	
1,2,4-Trichlorobenzene	5,062	7	0	--	--	--	
1,2-Dibromo-3-chloropropane	--	6	0	--	--	NSL	
1,2-Dibromoethane	--	6	0	--	--	NSL	
1,2-Dichlorobenzene	294	7	0	--	--	--	
1,2-Dichloroethane	260	7	0	--	--	--	
1,2-Dichloropropane	333	7	0	--	--	--	
1,3-Dichlorobenzene	1,315	7	0	--	--	--	
1,4-Dichlorobenzene	318	7	0	--	--	--	
2-Butanone	42	7	57	5.5	7	0	
2-Hexanone	58	7	0	--	--	--	
4-Methyl-2-pentanone	25	7	0	--	--	--	
Acetone	--	7	57	42	57	NSL	
Benzene	142	7	43	3,000	9,100	1	
Bromochloromethane	--	6	0	--	--	NSL	
Bromodichloromethane	--	7	0	--	--	NSL	
Bromoform	492	7	0	--	--	--	
Carbon Disulfide	24	7	57	5.8	8.6	0	
Carbon Tetrachloride	1,450	7	0	--	--	--	
Chlorobenzene	291	7	0	--	--	--	
Chloroethane	--	7	0	--	--	NSL	
Chloroform	121	7	0	--	--	--	
Chloromethane	--	7	0	--	--	NSL	
cis-1,2-Dichloroethene	19	7	0	--	--	--	
cis-1,3-Dichloropropene	--	7	0	--	--	NSL	
Cyclohexane	--	6	0	--	--	NSL	
Dibromochloromethane	--	7	0	--	--	NSL	
Dichlorodifluoromethane	--	6	0	--	--	NSL	
Ethylbenzene	175	7	0	--	--	--	
Fluorotrichloromethane	--	6	0	--	--	NSL	
Isopropylbenzene	86	6	0	--	--	--	
m,p-Xylenes	--	4	0	--	--	NSL	
Methyl Acetate	--	6	0	--	--	NSL	
Methyl bromide	1	7	0	--	--	--	
Methyl tert-butyl ether	--	6	0	--	--	NSL	
Methylcyclohexane	--	6	0	--	--	NSL	
Methylene Chloride	159	7	0	--	--	--	
o-Xylene	--	6	0	--	--	NSL	
Styrene	254	7	0	--	--	--	
Tetrachloroethene	990	7	0	--	--	--	
Toluene	1,220	7	0	--	--	--	
trans-1,2-Dichloroethene	654	7	0	--	--	--	
trans-1,3-Dichloropropene	--	7	0	--	--	NSL	
Trichloroethene	112	7	0	--	--	--	
Vinyl Chloride	202	7	0	--	--	--	

Notes:
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
NSL: no screening level
OU: operable unit
SL: screening level
VOCs: volatile organic compounds
µg/kg: micrograms per kilogram

Table G-3. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil Pesticides
Anniston PCB Site, Anniston ,Alabama

Constituent	Screening Level (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Notes
4,4'-DDD	2,000	117	6.0	6.4	16	0	Chlorinated and organo-phosphorous pesticides are not COPCs for OU-1/OU-2. Pesticides were detected infrequently and exceeded SLs even less frequently. The pesticide detected above SLs most frequently was dieldrin (5% of the samlpes). Of the other pesticides, only 4,4'-DDT, aldrin, and heptachlor were detected above SLs in only one sample each. Furthermore, false positive identification is a possibility and the quantification of pesticides is always uncertain and possibly biased high when detected in the presence of PCBs. Multiple possible industrial, agricultural, and residential sources of pesticides are present in and around the Anniston area. Organo-phosphorous pesticides listed in the Partial Consent Decree as possible COPCs were not detected in OU-1/OU-2.
4,4'-DDE	1,400	117	37	29	160	0	
4,4'-DDT	1,700	117	42	95	2400	1	
Aldrin	29	117	1.7	81	160	1	
Alpha-BHC	77	117	0.85	1.4	1.4	0	
alpha-Chlordane	--	118	15	46	470	NSL	
Beta-BHC	270	117	1.7	4.0	4.5	0	
Delta-BHC	--	117	0	--	--	--	
Dieldrin	30	117	14	69	280	7	
Endosulfan I	--	117	0.85	0.69	0.69	NSL	
Endosulfan II	--	117	0.85	14	14	NSL	
Endosulfan sulfate	--	117	5.1	9.4	35	NSL	
Endrin	18,000	117	14	29	240	0	
Endrin Aldehyde	--	117	15	18	100	NSL	
Endrin Ketone	--	117	7.7	40	150	NSL	
Ethyl Parathion	370,000	59	0	--	--	--	
Gamma-BHC (Lindane)	520	117	2.6	2.6	16	0	
Gamma-Chlordane	--	117	20	20	430	NSL	
Heptachlor	110	117	4.3	4.3	43	1	
Heptachlor epoxide	53	117	14	14	15	0	
Methoxychlor	310,000	117	3.4	3.4	39	0	
Methyl Parathion	15,000	59	0	--	--	--	
o,o,o-Triethylphosphorothioate	--	59	0	--	--	NSL	
Sulfotep	31,000	59	0	--	--	--	
Technical Chlordane	1,600	17	0	--	--	--	
Toxaphene	440	118	0.85	110	110	0	

Notes:
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
NSL: no screening level
OU: operable unit
PCBs: polychlorinated biphenyls
SL: screening level
µg/kg: micrograms per kilogram

Table G-4. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment Pesticides
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Notes
4,4'-DDD	3.3	7	0	--	--	--	Chlorinated and OP pesticides are not COPCs for OU-1/OU-2. Region 4 SLs are the same as analytical reporting limits, so low concentrations are above screening levels. Concentrations reported are relatively low, the highest being 110 µg/kg (4,4'-DDT). These concentrations are representative of common industrial and agricultural routine use of pesticides. The concentration and distribution of pesticides do not indicate a point source or release. OP pesticides listed as potential COPCs in the Partial Consent Decree were not detected in OU-1/OU-2.
4,4'-DDE	3.3	7	0	--	--	--	
4,4'-DDT	3.3	7	57	56	110	4	
Aldrin	2.0	7	43	30	51	3	
Alpha-BHC	6.0	7	0	--	--	--	
alpha-Chlordane	1.7	7	29	2.3	2.6	2	
Beta-BHC	5.0	7	14	8.9	8.9	1	
Delta-BHC	7150	7	14	4.0	4	0	
Dieldrin	3.3	7	43	37	68	3	
Endosulfan I	3.3	7	0	--	--	--	
Endosulfan II	1.9	7	14	6.9	6.9	1	
Endosulfan sulfate	34.6	7	0	--	--	--	
Endrin	3.3	7	0	--	--	--	
Endrin Aldehyde	480	5	20	7.5	7.5	0	
Endrin Ketone	--	7	0	--	--	NSL	
Ethyl Parathion	0.76	4	0	--	--	--	
Gamma-BHC (Lindane)	3.3	7	29	2.3	2.8	0	
Gamma-Chlordane	1.7	7	14	1.9	1.9	1	
Heptachlor	0.60	7	0	--	--	--	
Heptachlor epoxide	2.5	7	57	16	27	4	
Methoxychlor	14	7	0	--	--	--	
Methyl Parathion	--	4	0	--	--	NSL	
o,o,o-Triethylphosphorothioate	189	4	0	--	--	--	
Sulfotep	--	4	0	--	--	NSL	
Toxaphene	0.08	7	0	--	--	--	

Notes:
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
NSL: no screening level
OU: operable unit
SL: screening level
µg/kg: micrograms per kilogram

Table G-5. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil SVOCs other than PAHs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Notes
1,1'-Biphenyl	3,900,000	107	15	91	670	0	SVOCs are not COPCs for OU-1/OU-2. Only four SVOC compounds (bis(2-ethylhexyl)phthalate, carbazole, dibenzofuran, and pentachlorophenol) were reported above SLs and these in fewer than 3% of samples.
2,2'-oxybis(1-Chloropropane)	4,600	59	0	--	--	--	
2,4,5-Trichlorophenol	6,100,000	121	0	--	--	--	
2,4,6-Trichlorophenol	44,000	121	0	--	--	--	
2,4-Dichlorophenol	180,000	121	0	--	--	--	
2,4-Dimethylphenol	1,200,000	121	0	--	--	--	
2,4-Dinitrophenol	120,000	121	0	--	--	--	
2,4-Dinitrotoluene	1,600	121	0	--	--	--	
2,6-Dinitrotoluene	61,000	121	0	--	--	--	
2-Chlorophenol	390,000	121	0	--	--	--	
2-Methylphenol	3,100,000	121	0.82	99	99	0	
2-Nitroaniline	610,000	121	0	--	--	--	
2-Nitrophenol	--	121	0	--	--	NSL	
3,3'-Dichlorobenzidine	1,100	121	0	--	--	--	
3-Nitroaniline	--	121	0	--	--	NSL	
4,6-Dinitro-2-methylphenol	4,900	121	0	--	--	--	
4-Bromophenyl-phenylether	--	121	0	--	--	NSL	
4-Chloro-3-methylphenol	6,100,000	121	0	--	--	--	
4-Chloroaniline	2,400	121	0	--	--	--	
4-Chlorophenyl-phenylether	--	121	0			NSL	
4-Methylphenol	310,000	59	1.7	41	41	0	
4-Nitroaniline	24,000	121	1.7	58	62	0	
4-Nitrophenol	--	121	0	--	--	NSL	
Acetophenone	7,800,000	107	9.3	84	310	0	
Atrazine	2,100	107	0				
Benzaldehyde	7,800,000	107	12	110	280	0	
bis(2-Chloroethoxy)methane	180,000	121	0	--	--	--	
bis(2-Chloroethyl)ether	210	121	0	--	--	--	
bis(2-Ethylhexyl)phthalate	35,000	121	48	3,100	57,000	3	
Butylbenzylphthalate	260,000	121	13	750	2,700	0	
Caprolactam	31,000,000	107	0	--	--	--	
Carbazole	24,000	121	43	32,000	1,400,000	2	
Dibenzofuran	78,000	121	28	23,000	600,000	2	
Diethylphthalate	49,000,000	121	0.83	5,000	5,000	0	
Dimethylphthalate	--	121	1.7	400	490	NSL	
Di-n-Butylphthalate	6,100,000	121	6.6	540	1,800	0	
Di-n-octylphthalate	--	121	1.7	1,800	3,500	NSL	
Hexachlorobenzene	300	121	0	--	--	--	
Hexachlorobutadiene	6,200	121	0	--	--	--	
Hexachlorocyclopentadiene	370,000	121	0	--	--	--	
Hexachloroethane	12,000	121	0	--	--	--	
Isophorone	510,000	121	0	--	--	--	
Nitrobenzene	4,800	121	0	--	--	--	
N-Nitroso-di-n-propylamine	69	120	0	--	--	--	
N-Nitrosodiphenylamine	99,000	59	0	--	--	--	
Pentachlorophenol	890	121	1.7	10,000	19,000	2	
Phenol	18,000,000	121	5.0	280	1,200	0	

Notes:
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
NSL: no screening level
OU: operable unit
PAHs: polycyclic aromatic compounds
SL: screening level
SVOCs: semivolatile organic compounds
µg/kg: micrograms per kilogram

Table G-6. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment SVOCs other than PAHs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Notes
1,1'-Biphenyl	1,220	6	17	38	38	0	Few SVOCs were detected in sediment and none were reported above SLs. SVOCs are not COPCs for OU-1/OU-2.
2,2'-oxybis(1-Chloropropane)	--	4	0	--	--	NSL	
2,4,5-Trichlorophenol	--	7	0	--	--	NSL	
2,4,6-Trichlorophenol	208	7	0	--	--	--	
2,4-Dichlorophenol	81.7	7	0	--	--	--	
2,4-Dimethylphenol	304	7	0	--	--	--	
2,4-Dinitrophenol	6.21	7	0	--	--	--	
2,4-Dinitrotoluene	14.4	7	0	--	--	--	
2,6-Dinitrotoluene	39.8	7	0	--	--	--	
2-Chlorophenol	31.9	7	0	--	--	--	
2-Methylphenol	55.4	7	0	--	--	--	
2-Nitroaniline	--	7	0	--	--	NSL	
2-Nitrophenol	--	7	0	--	--	NSL	
3,3'-Dichlorobenzidine	127	7	0	--	--	--	
3-Nitroaniline	--	7	0	--	--	NSL	
4,6-Dinitro-2-methylphenol	104	7	0	--	--	--	
4-Bromophenyl-phenylether	1,550	7	0	--	--	--	
4-Chloro-3-methylphenol	388	7	0	--	--	--	
4-Chloroaniline	146	7	0	--	--	--	
4-Chlorophenyl-phenylether	--	7	0	--	--	NSL	
4-Methylphenol	670	4	0	--	--	--	
4-Nitroaniline	--	7	0	--	--	NSL	
4-Nitrophenol	13.3	7	0	--	--	--	
Acetophenone	--	6	0	--	--	NSL	
Atrazine	6.62	6	0	--	--	--	
Benzaldehyde	--	6	0	--	--	NSL	
bis(2-Chloroethoxy)methane	--	7	0	--	--	NSL	
bis(2-Chloroethyl)ether	3,520	7	0	--	--	--	
bis(2-Ethylhexyl)phthalate	182	7	57	130	180	0	
Butylbenzylphthalate	1,970	7	14	470	470	0	
Caprolactam	--	6	0	--	--	NSL	
Carbazole	--	7	57	69	170	NSL	
Dibenzofuran	449	7	14	56	56	0	
Diethylphthalate	295	7	0	--	--	--	
Dimethylphthalate	--	7	0	--	--		
Di-n-Butylphthalate	1,114	7	0	--	--	--	
Di-n-octylphthalate	4,060	7	0	--	--	--	
Hexachlorobenzene	20	7	0	--	--	--	
Hexachlorobutadiene	26.5	7	0	--	--	--	
Hexachlorocyclopentadiene	901	7	0	--	--	--	
Hexachloroethane	584	7	0	--	--	--	
Isophorone	432	7	0	--	--	--	
Nitrobenzene	145	7	0	--	--	--	
N-Nitroso-di-n-propylamine	--	7	0	--	--	NSL	
N-Nitrosodiphenylamine	2,680	4	0	--	--	--	
Pentachlorophenol	23	7	0	--	--	--	
Phenol	49.1	7	0	--	--	--	

Notes:
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
NSL: no screening level
OU: operable unit
PAHs: polycyclic aromatic compounds
SL: screening level
SVOCs: semivolatile organic compounds
µg/kg: micrograms per kilogram

Table G-7. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil PAHs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (µg/kg)	2x Mean FM Background (µg/kg)	2x Mean OU-1/OU-2 Background (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	Notes
2-Chloronaphthalene	6,300,000	--	--	121	0	--	--	--	--	--	PAH concentrations in soil appeaer to be attributable to urban background. OU-1/OU-2 maximum concentrations are higher than OU-3 maximum concentrations, indicating sources of PAHs to OU-/OU-2 other than OU-3. PAHs are likely present from mulitple urban and industrial uses in the area. Figure G-5 shows PAH distributions inside and outside of OU-1/OU-2 and shows elevated concentrations of PAHs outside of the influence of the facility and creek flooding.
2-Methylnaphthalene	310,000	--	270,156	123	33	13,000	380,000	1	0	1	
Acenaphthene	3,400,000	702	426,705	121	29	13,000	370,000	0	7	0	
Acenaphthylene	--	891	361	121	26	160	680	NSL	0	5	
Anthracene	17,000,000	935	184,358	121	58	21,000	1,200,000	0	13	2	
Benzo(a)anthracene	150	1,193	78,609	121	89	79,000	900,000	82	35	2	
Benzo(a)pyrene	15	1,420	66,497	121	88	6,800	400,000	107	26	3	
Benzo(b)fluoranthene	150	1,659	47,972	121	89	6,400	340,000	90	29	3	
Benzo(g,h,i)perylene	--	955	37,208	121	79	1,200	54,000	NSL	20	1	
Benzo(k)fluoranthene	1,500	1,446	67,626	121	87	68,000	380,000	25	30	2	
Chrysene	15,000	1,397	61,100	121	90	12,000	810,000	3	35	3	
Dibenzo(a,h)anthracene	15	720	2,095	121	33	390	2,800	40	7	1	
Fluoranthene	2,300,000	2,031	146,034	121	91	30,000	2,300,000	0	37	3	
Fluorene	2,300,000	667	633,410	121	33	41,000	1,300,000	0	11	1	
Indeno(1,2,3-cd)pyrene	150	937	34,487	121	82	1,600	45,000	63	23	2	
Naphthalene	3,600	33	910,071	121	36	32,000	1,100,000	2	35	1	
Phenanthrene	--	1,080	498,845	121	86	50,000	4,100,000	NSL	32	2	
Pyrene	1,700,000	1,626	115,028	121	91	21,000	1,600,000	0	39	3	
Total PAHs	--	17,700	1,371,911	121	91	1,400,000	15,000,000	NSL	27	2	

Notes:

Total PAHs were calculated as the sum of the detected values, nondetects were treated as 0.
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
FM: Fort McClellan
NSL: no screening level
OU: operable unit
PAHs: polycyclic aromatic compounds
SL: screening level
µg/kg: micrograms per kilogram

Table G-8. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment PAHs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (µg/kg)	2x Mean FM Background (µg/kg)	2x Mean OU-1/OU-2 Background (µg/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (µg/kg)	Maximum (detected) (µg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	Notes
2-Chloronaphthalene	330	--	--	7	0	--	--	--	--	--	Region 4 SLs are the analytical reporting limit, so when PAHs were detected, the were often above the reporting limit and the SL. Only one sample had one PAH (naphthalene) detected above 2x the mean FM background, and no samples were above 2x the mean OU-1/OU-2 background. PAHs are likely present from multiple urban and industrial uses in the area.
2-Methylnaphthalene	330	--	2,033,713	7	14	27	27	0	0	0	
Acenaphthene	330	702	2,361,143	7	14	41	41	0	0	0	
Acenaphthylene	330	891	337,200	7	29	26	32	0	0	0	
Anthracene	330	935	1,611,978	7	57	110	150	0	0	0	
Benzo(a)anthracene	330	1,193	2,245,558	7	71	450	670	3	0	0	
Benzo(a)pyrene	330	1,420	1,593,435	7	71	408	720	2	0	0	
Benzo(b)fluoranthene	330	1,659	1,997,518	7	71	550	1,100	3	0	0	
Benzo(g,h,i)perylene	330	955	845,408	7	71	240	550	1	0	0	
Benzo(k)fluoranthene	330	1,446	749,782	7	71	400	730	2	0	0	
Chrysene	330	1,397	1,666,210	7	71	520	810	5	0	0	
Dibenzo(a,h)anthracene	330	720	530,800	7	57	43	58	0	0	0	
Fluoranthene	330	2,031	7,260,667	7	71	1,006	1,600	5	0	0	
Fluorene	330	667	3,701,100	7	57	44	100	0	0	0	
Indeno(1,2,3-cd)pyrene	330	937	761,905	7	71	220	490	1	0	0	
Naphthalene	330	33	7,776,343	7	14	38	38	0	1	0	
Phenanthrene	330	1,080	8,537,317	7	71	500	1,000	3	0	0	
Pyrene	330	1,626	4,447,818	7	71	920	1,500	5	0	0	
Total PAHs	330	--	41,076,853	7	71	5,400	8,300	5	--	0	

Notes:

Total PAHs were calculated as the sum of the detected values, nondetects were treated as 0.
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
FM: Fort McClellan
OU: operable unit
PAHs: polycyclic aromatic compounds
SL: screening level
µg/kg: micrograms per kilogram

Table G-9. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil PCDD/DFs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (ng/kg)	2x Mean OU-1/OU-2 Background (ng/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (ng/kg)	Maximum (detected) (ng/kg)	Number Above Screening Level (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	Notes
2,3,7,8-TCDD	4.5	--	57	19	12	35	5	--	The distribution of concentrations of PCDD/DFs is random with no evident pattern to the sporadic higher concentrations in the Snow Creek floodplain. The highest PCDD/DF TEQ is 2.2 µg/kg (2,200 ng/kg). PCDD/DF concentrations do not exhibit the same pattern of source and distribution as PCBs. PCDD/DFs could be present as a result of general atmospheric dispersion and from multiple industrial sources in the region. PCDD/DFs are not COPCs in OU-1/OU-2.
1,2,3,7,8-PeCDD	--	--	57	33	17	110	NSL	--	
1,2,3,4,7,8-HxCDD	--	4	57	60	14	130	NSL	12	
1,2,3,6,7,8-HxCDD	--	16	57	84	86	2,900	NSL	11	
1,2,3,7,8,9-HxCDD	--	13	57	86	26	300	NSL	12	
1,2,3,4,6,7,8-HpCDD	--	213	57	100	2,700	130,000	NSL	16	
Octa CDD	13,000	3,918	57	100	20,000	900,000	4	15	
2,3,7,8-TCDF	32	--	57	56	52	400	8	--	
1,2,3,7,8-PeCDF	110	9	57	42	20	84	0	11	
2,3,4,7,8-PeCDF	11	12	57	60	37	310	14	14	
1,2,3,4,7,8-HxCDF	--	52	57	88	40	330	NSL	12	
1,2,3,6,7,8-HxCDF	--	30	57	77	24	120	NSL	14	
1,2,3,7,8,9-HxCDF	--	1	57	25	5.1	12	NSL	11	
2,3,4,6,7,8-HxCDF	--	16	57	82	18	100	NSL	15	
1,2,3,4,6,7,8-HpCDF	--	93	57	49	970	22,000	NSL	15	
1,2,3,4,7,8,9-HpCDF	--	6	57	74	35	730	NSL	22	
Octa CDF	11,000	130	57	91	1,200	53,000	1	17	
Total Tetra CDD	--	18	57	65	24	170	NSL	15	
Total Penta CDD	3.9	25	57	46	52	270	19	11	
Total Hexa CDD	39	81	57	98	310	9,900	25	17	
Total Hepta CDD	390	446	57	100	5,000	240,000	18	17	
Total Tetra CDF	--	101	57	93	320	1,800	NSL	26	
Total Penta CDF	--	133	57	98	440	4,600	NSL	29	
Total Hexa CDF	32	151	57	98	520	14,900	41	20	
Total Hepta CDF	320	198	57	93	2,200	106,000	13	15	
PCDD/DF TEQ	4.5	6	57	100	73	2,200	38	35	
Total PCDD/DF	--	4813	57	100	29,000	1,300,000	NSL	20	

Notes:
--: not available or not applicable
%: percent
COPCs: constituents of potential concern
ng/kg: nanograms per kilogram
NSL: no screening level
OU: operable unit
PCBs: polychlorinated biphenyls
PCDD/DF: polychlorinated dibenzo-p-dioxins/dibenzofurans
PCDD/DF TEQ = 2,3,7,8-TCDD toxicity equivalent (USEPA 2010)

Table G-10. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment PCDD/DFs
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Concentration (ng/kg)	Number of Samples	Detection Frequency (%)	Mean (detected) (ng/kg)	Maximum (detected) (ng/kg)	Number Above Screening Level (detected)	Notes
2,3,7,8-TCDD	3	4	0	--	--	--	The concentration in sediments are low with little difference between the mean and maximum values. The distribution of concentrations appears random and not related to the patterns associated with PCBs. PCDD/DFs could be present as a result of general atmospheric dispersion and/or may be from multiple industrial sources in the area.
1,2,3,7,8-PeCDD	--	4	0	--	--	NSL	
1,2,3,4,7,8-HxCDD	--	4	0	--	--	NSL	
1,2,3,6,7,8-HxCDD	--	4	75	1.9	3.1	NSL	
1,2,3,7,8,9-HxCDD	--	4	25	2.3	2.3	NSL	
1,2,3,4,6,7,8-HpCDD	--	4	100	23	26	NSL	
Octa CDD	11	4	100	220	260	4	
2,3,7,8-TCDF	--	4	50	13	18	NSL	
1,2,3,7,8-PeCDF	--	4	25	13	13	NSL	
2,3,4,7,8-PeCDF	--	4	75	33	82	NSL	
1,2,3,4,7,8-HxCDF	--	4	100	24	74	NSL	
1,2,3,6,7,8-HxCDF	--	4	100	6.6	20	NSL	
1,2,3,7,8,9-HxCDF	--	4	25	2.7	2.7	NSL	
2,3,4,6,7,8-HxCDF	--	4	100	3.9	10	NSL	
1,2,3,4,6,7,8-HpCDF	--	4	0	--	--	NSL	
1,2,3,4,7,8,9-HpCDF	--	4	75	16	41	NSL	
Octa CDF	--	4	100	40	110	NSL	
Total Tetra CDD	11	4	50	4.1	4.2	0	
Total Penta CDD	11	4	0	--	--	--	
Total Hexa CDD	11	4	100	6.4	13	1	
Total Hepta CDD	11	4	100	49	56	4	
Total Tetra CDF	--	4	100	380	810	NSL	
Total Penta CDF	--	4	100	360	1,100	NSL	
Total Hexa CDF	--	4	100	85	270	NSL	
Total Hepta CDF	--	4	100	36	110	NSL	
PCDD/DF TEQ	3	4	100	12	36	3	
Total PCDD/DF	--	4	100	1,200	2,800	NSL	

Notes:
--: not available or not applicable
%: percent
ng/kg: nanograms per kilogram
NSL: no screening level
OU: operable unit
PCBs: polychlorinated biphenyls
PCDD/DF: polychlorinated dibenzo-p-dioxins/dibenzofurans
PCDD/DF TEQ = 2,3,7,8-TCDD toxicity equivalent (USEPA 2010)

Table G-11. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil Metals
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (mg/kg)	FM Background (mg/kg)			OU-1/OU-2 Background (mg/kg)			OU-1/OU-2 Data							Notes
		Mean	2x Mean	Maximum	Mean	2x Mean	Maximum	Number of Samples	Detection Frequency (%)	Mean (detected) (mg/kg)	Maximum (mg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM Background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	
Aluminum	77,000	7,505	15,009	39,900	7,959	15,918	54,000	119	100	8,800	29,000	0	9	9	No sample exceeded the SL. Data are generally consistent with background.
Antimony	31	0.83	1.66	2.6	6.69	13.4	360	127	35	3.3	33	1	23	2	Only one sample (<1%, 33 mg/kg) exceeded the SL of 31 mg/kg, and the mean of 3.29 is significantly lower than the SL. The OU-1/OU-2 max is higher than naturally occurring (FM) background, but is significantly lower than the OU-1/OU-2 background max, indicating sporadic elevated concentrations from a source outside of OU-1/OU-2.
Arsenic	0.39	7.99	15.97	49	8.42	16.8	120	194	99	11	120	192	25	24	OU-1/OU-2 concentrations are the same as local background. FM, OU-1/OU-2 background and OU-1/OU-2 means are similar. OU-1/OU-2 background and OU-1/ OU-2 maximums are higher than the FM maximum suggesting anthropogenic source(s) of arsenic inside or outside of OU-1/OU-2.
Barium	15,000	88	176	4,500	213	426	12,000	186	99	140	1,700	0	42	6	None above SL.
Beryllium	160	0.42	0.83	2	1.31	2.61	10	127	69	0.83	2.7	0	37	1	None above SL.
Cadmium	70	0.13	0.25	1.3	2.01	4.03	94	194	80	2.9	72	1	140	18	Only one sample (1%) was slightly higher (72 mg/kg) than the SL of 70 mg/kg and slightly lower than the OU-1/OU-2 background max (94 mg/kg). Maximum concentrations suggest anthropogenic sources of cadmium at levels that, for the most part, are not above SLs.
Calcium	--	602	1,204	17,900	8,359	16,717	130,000	119	99	23,000	250,000	0	110	46	Nutrient, no soil SL. Concentrations are higher than background although the OU-1/OU-2 maximum is within a factor of 2 of the background maximum.
Chromium	--	19	38	134	24.6	49.1	1100	194	99	120	14,000	0	42	29	Chromium SLs vary widely depending on valence state and are not used here for comparison with total chromium. The OU-/OU-2 average chromium concentration is driven by two elevated points of 14,000 and 850 mg/kg. If these two high points are removed, the average would be 39 mg/kg and the maximum would be 550 mg/kg, consistent with OU-1/OU-2 background. As shown on Figure G-17, the source for chromium is not OU-3.

Table G-11. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil Metals
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (mg/kg)	FM Background (mg/kg)			OU-1/OU-2 Background (mg/kg)			OU-1/OU-2 Data							Notes
		Mean	2x Mean	Maximum	Mean	2x Mean	Maximum	Number of Samples	Detection Frequency (%)	Mean (detected) (mg/kg)	Maximum (mg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM Background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	
Cobalt	23	8.1	16.3	96	17.1	34.2	390	119	76	11	150	8	12	3	Only 7% of the samples were above screening levels and fewer were above OU-1/OU-2 background. OU-1/OU-2 background is slightly higher than FM background, suggesting an anthropogenic source of cobalt to the area. OU-1/OU-2 concentrations are more typical of FM background and are lower than OU-1/OU-2 background, indicating that OU-3 is not the source of cobalt to the area.
Copper	3100	8.0	15.9	61	131	262	17000	127	98	94	1,820	0	108	5	None above SL.
Iron	55,000	19,623	39,247	56,300	22,756	45,512	160,000	119	100	30000	580,000	8	14	11	Although the means inside and outside of OU-1/OU-2 are similar, the OU-1/OU-2 maximum indicates elevated concentrations inside of the OU. Concentrations of iron in OU-1/OU-2 and in the surrounding area are attributable to multiple uses of iron in the area.
Lead	400	20	39	500	128	255	87,400	519	100	430	30,000	68	443	122	OU-1/OU-2 background and OU-1/OU-2 concentrations are significantly higher than FM background, indicating anthropogenic source(s) of lead to the area. The OU-1/OU-2 maximum is lower than the background OU-1/OU-2 maximum. These data are consistent with the multiple, known uses of lead in the area.
Magnesium	--	453	906	9,600	1,950	3,899	57,000	119	97	8,200	100,000	0	93	54	Nutrient, no soil SL. OU-1/OU-2 concentrations are higher than background although the OU-1/OU-2 maximum is within a factor of 2 of the background maximum.
Manganese	--	736	1,472	19,000	1,273	2,546	36,000	119	100	1,000	10,000	0	21	8	OU-1/OU-2 concentrations are consistent with background. The OU-1/OU-2 mean is comparable with mean background, and the OU-1/OU-2 maximum is significantly less than the OU-1/OU-2 and FM background maximums. Concentrations of manganese may be attributed to naturally occurring or anthropogenic background and do not appear to originate inside of OU-1/OU-2 or OU-3.
Mercury	5.6	0.04	0.07	0.32	0.41	0.83	28	210	78	0.42	7.5	2	135	16	Mercury was detected above the SL in only 1% of the samples. The maximum concentration is higher outside of OU-1/OU-2 than inside and the means are similar indicating sources of mercury outside of OU-1/OU-2 and OU-3.
Nickel	1,500	5.78	11.56	38	17.98	35.97	180	127	89	26	410	0	62	8	None above SL.

Table G-11. OU-1/OU-2 Chemical of Potential Concern Evaluation: Soil Metals
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (mg/kg)	FM Background (mg/kg)			OU-1/OU-2 Background (mg/kg)			OU-1/OU-2 Data							Notes
		Mean	2x Mean	Maximum	Mean	2x Mean	Maximum	Number of Samples	Detection Frequency (%)	Mean (detected) (mg/kg)	Maximum (mg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM Background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	
Potassium	--	379	757	6,150	1,108	2,216	110,000	119	100	800	2,800	0	56	2	Nutrient, no soil SL. Consistent with background.
Selenium	390	0.24	0.48	1.3	1.53	3.07	13	194	24	1.9	26	0	46	3	None above SL.
Silver	390	0.15	0.30	1.9	1.3	2.6	15	194	25	9.8	360	0	33	8	None above SL.
Sodium	--	333	667	643	418	835	5,090	129	20	250	840	0	2	1	Nutrient, no soil SL. Consistent with background.
Thallium	5.1	1.22	2.45	34	8.28	16.6	81	127	50	5.5	30	33	42	3	OU-1/OU-2 and background means are higher than FM background, suggesting anthropogenic source(s) in the Anniston area. The OU-1/OU-2 mean is only slightly higher than OU-1/OU-2 background, and the max is lower than the OU-1/ OU-2 background max indicating that if concentrations are not completely attributable to natural sources, they are likely attributable to low level industrial background.
Vanadium	5.5	30.9	61.7	158	21.8	43.5	210	119	97	25	72	111	2	8	FM and OU-1/OU-2 background concentrations are higher than SLs. OU-1/OU-2 data are consistent with and generally lower than background values. Concentrations appear to be typical of naturally occurring background.
Zinc	23,000	18.9	37.9	209	624	1,249	11,000	127	100	400	3,000	0	123	10	None above the SL. The OU-1/OU-2 mean and overall distribution of zinc indicate that the concentrations are consistent with urban background and possibly other sources of zinc in the area.

Notes:
--: not available or not applicable
%: percent
FM: Fort McClellan
mg/kg: milligrams per kilogram
OU: operable unit
PAHs: polycyclic aromatic compounds
SL: screening level

Table G-12. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment Metals
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (mg/kg)	FM Background (mg/kg)			OU-1/OU-2 Background (mg/kg)			OU-1/OU-2 Data							Notes
		Mean	2x Mean	Maximum	Mean	2x Mean	Maximum	Number of Samples	Detection Frequency (%)	Mean (detected) (mg/kg)	Maximum (mg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM Background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	
Aluminum	--	4,296	8,593	17,400	4,429	8,857	8,500	11	100	3,700	6,000	NSL	0	0	No sediment SL. None were reported above 2x mean background. Concentrations appear to be attributable to naturally occurring background.
Antimony	12	0.36	0.72	1.2	8.0	16.0	22	11	55	1.3	2.9	0	5	0	None above SL.
Arsenic	7.24	5.67	11.3	20	12.5	25.1	71	17	100	10	21	11	7	0	Concentrations in OU-1/OU-2 are consistent with naturally occurring (FM) background and are lower than OU-1/OU-2 background. Although 7 samples were above 2x the mean FM background of 11 mg/kg, the OU-1/OU-2 maximum of 21 mg/kg is consistent with the FM background max of 20 mg/kg and significantly lower than the OU-1/OU-2 background maximum of 71 mg/kg. None were reported above the 2x mean OU-1/OU-2 background. Arsenic may be present in OU-1/OU-2 sediments from naturally occurring or anthropogenic sources.
Barium	--	49.5	98.9	272	98.9	198	350	17	100	180	580	NSL	10	4	No sediment SL. Concentrations in sediment are higher than FM or OU-1/OU2 background, but significantly less than the human health soil SL of 15,000 mg/kg and less than soil background. Relatively low concentrations of barium in sediment appears to be from naturally occurring or anthropogenic sources inside and outside of OU-1/OU-2.
Beryllium	--	0.49	0.98	1.20	0.82	1.64	1.9	17	88	1.7	4.2	NSL	9	5	No sediment SL. Although above background, concentrations are low (max = 4.2 mg/kg) and significantly less than the human health soil SL of 160 mg/kg. Although the OU-1/OU-2 max is slightly higher than FM or OU-1/OU-2 background, neither the concentrations nor distribution suggest a significant source of beryllium.
Cadmium	1.0	0.22	0.44	2.40	1.95	3.90	8.2	17	76	0.91	4.6	2	7	1	Only two samples were higher than the SL of 1 mg/kg with a maximum concentration of 4.6 mg/kg and only one sample was above 2x mean OU-1/OU-2 background. Sediment samples collected from upstream of OU-1/OU-2 are a little higher (max = 8 mg/kg) than those collected from OU-1/OU-2 (Figure G-15). As noted for soils, it appears anthropogenic source(s) of cadmium may be present in the Anniston area (max soil background = 94 mg/kg) and these may be contributing relatively low levels of cadmium to OU-1/OU-2 sediments.

Table G-12. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment Metals
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (mg/kg)	FM Background (mg/kg)			OU-1/OU-2 Background (mg/kg)			OU-1/OU-2 Data							Notes
		Mean	2x Mean	Maximum	Mean	2x Mean	Maximum	Number of Samples	Detection Frequency (%)	Mean (detected) (mg/kg)	Maximum (mg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM Background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	
Calcium	--	556	1,112	2,810	10,637	21,274	34,000	11	100	19,000	73,000	NSL	11	3	Nutrient, no sediment SL. Although above background, concentrations are less than in OU-1/OU-2 soils and appear to be generally consistent with area concentrations.
Chromium	52	15.6	31	63	119	238	1,000	17	100	130	670	11	14	3	OU-1/OU-2 background is higher than FM background, and the OU-1/OU-2 maximum concentrations are less than OU-1/OU-2 background. As noted for soils, elevated concentrations of chromium appear to be from one or more anthropogenic sources in the Anniston area and chromium does not appear to be attributable to OU-3.
Cobalt	50	5.51	11.0	22	11.5	23.0	50	17	94	26	110	2	12	6	Only two above SL of 50 mg/kg with a max of 110 mg/kg. Sediment concentrations appear to be consistent with soil concentrations inside and outside of OU-1/OU-2.
Copper	19	8.56	17.1	59	139	278	1300	11	100	50	230	10	10	0	None were reported above 2x mean OU-1/OU-2 background. Concentrations upstream in Snow Creek and in soils from outside of OU-1/OU-2 indicate source(s) of copper that are not OU-3 related. The highest concentration in OU-1/OU-2 sediment of 230 mg/kg is significantly less than the highest upstream concentration of 1,300 mg/kg and the OU-1/OU-2 soil maximum background concentration of 17,000 mg/kg.
Iron	20,000	17,633	35,267	57,500	14,594	29,189	37,000	11	100	35,000	100,000	7	3	4	Concentrations of iron in sediment are lower than in OU-1/OU-2 soils and appear to be the result of multiple historical and current uses of iron in the area.
Lead	30	18.9	37.8	110	172	345	1,200	24	100	72	510	16	13	1	Only one sediment sample with a concentration of 510 mg/kg was higher than the residential soil cleanup goal of 400 mg/kg and above 2x mean OU-1/OU-2 background. Concentrations in sediment are low relative to OU-1/OU-2 concentrations in soil and are consistent with the multiple known uses of lead in the area.
Magnesium	--	453	906	3,270	5,663	11,327	20,000	11	100	10,000	37,000	NSL	11	4	Nutrient, no sediment SL. Although sediment concentrations are above background, they are significantly less than soil concentrations.

Table G-12. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment Metals
Anniston PCB Site, Anniston, Alabama

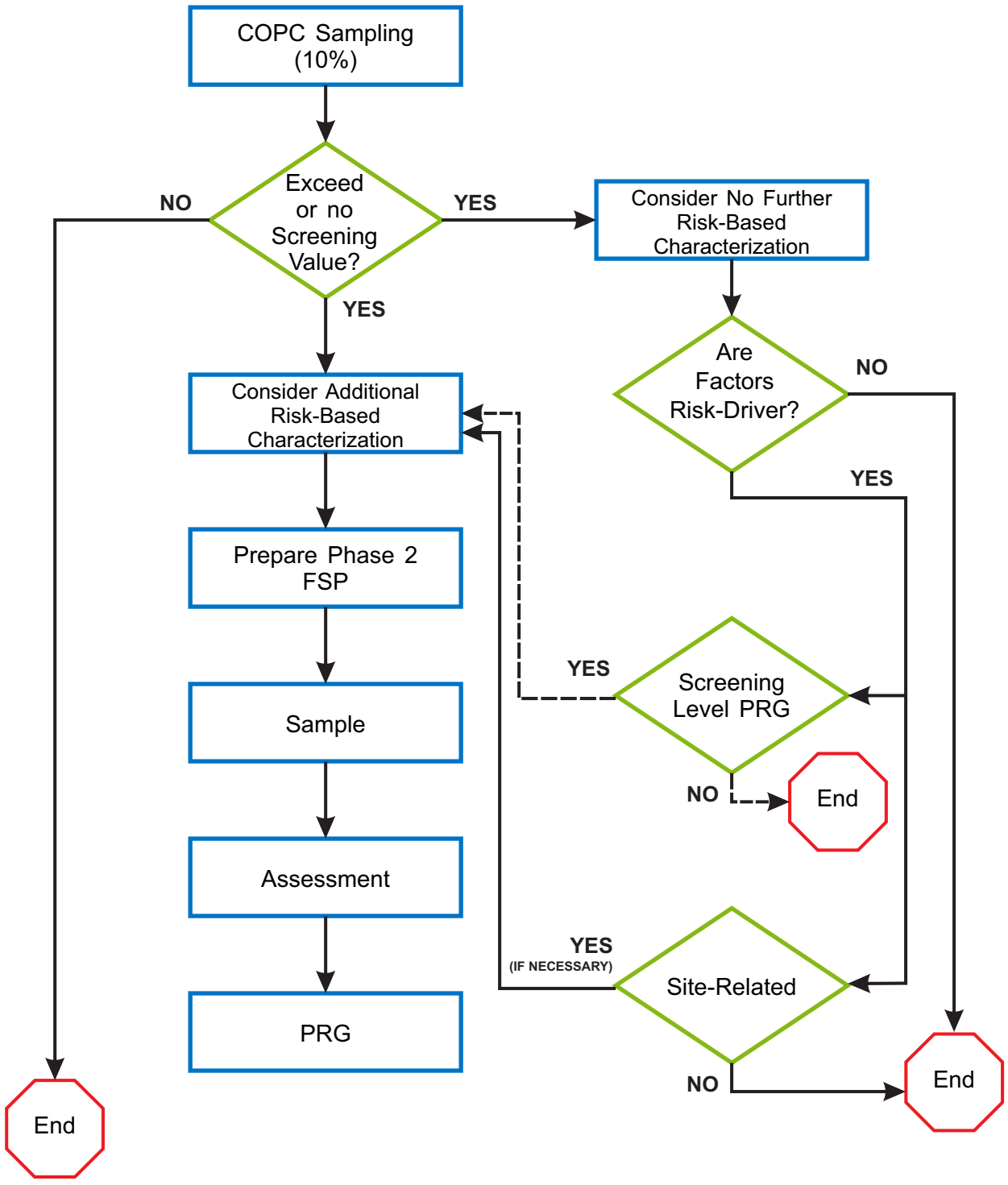
Constituent	Screening Level (mg/kg)	FM Background (mg/kg)			OU-1/OU-2 Background (mg/kg)			OU-1/OU-2 Data							Notes
		Mean	2x Mean	Maximum	Mean	2x Mean	Maximum	Number of Samples	Detection Frequency (%)	Mean (detected) (mg/kg)	Maximum (mg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM Background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	
Manganese	460	356	712	2,050	951	1,902	7,500	17	100	1,800	5,200	16	14	7	OU-1/OU-2 background was higher than FM background indicating upstream sources of manganese. OU-1/OU-2 concentrations are generally consistent with OU-1/OU-2 sediment background and a little lower than OU-1/OU-2 soil background. Concentrations may be attributable to local anthropogenic sources, but do not appear to originate in OU-3.
Mercury	0.13	0.06	0.12	0.28	0.18	0.36	0.96	17	88	1.1	8.6	11	11	6	The maximum concentration of mercury in sediment (8.6 mg/kg) is lower than the OU-1/OU-2 soil background maximum of 28 mg/kg. The concentrations in sediment are likely the result of runoff from several local sources throughout the Anniston area. The sediment mean concentration (1.1 mg/kg) is slightly higher than the soil mean (0.4 mg/kg), likely because sediment samples were collected in depositional areas (i.e., higher concentration areas) of Snow Creek.
Nickel	16	6.51	13.0	33	32.1	64.3	270	17	100	35	110	12	12	3	Mean and maximum inside and outside of OU-1/OU-2 are consistent with each other and consistent with the multiple industrial uses of heavy metals in the area.
Potassium	--	507	1,013	4,810	289	578	440	11	100	370	660	NSL	0	1	Nutrient, no sediment SL. Consistent with background.
Selenium	2.0	0.36	0.72	1.9	1.2	2.4	1.2	11	64	1.3	3.4	2	5	1	FM, OU-1/OU-2 and OU-1/OU-2 background concentrations are similar, indicating that concentrations are attributable to naturally occurring background. Max of 3.4 mg/kg is only slightly above the SL of 2 mg/kg and the 2x mean OU-1/OU-2 background of 2.4 mg/kg.

Table G-12. OU-1/OU-2 Chemical of Potential Concern Evaluation: Sediment Metals
Anniston PCB Site, Anniston, Alabama

Constituent	Screening Level (mg/kg)	FM Background (mg/kg)			OU-1/OU-2 Background (mg/kg)			OU-1/OU-2 Data							Notes
		Mean	2x Mean	Maximum	Mean	2x Mean	Maximum	Number of Samples	Detection Frequency (%)	Mean (detected) (mg/kg)	Maximum (mg/kg)	Number Above Screening Level (detected)	Number Above 2x Mean FM Background (detected)	Number Above 2x Mean OU-1/OU-2 Background (detected)	
Silver	2.0	0.16	0.32	1.1	2.47	4.93	4.8	11	18	0.66	0.71	0	2	0	None above SL.
Sodium	--	346	692	738	--	--	--	11	0	--	--	--	--	--	Nutrient, no sediment SL. Sodium was not detected in OU-1/OU-2 sediment samples.
Thallium	--	0.06	0.12	0.22	2.47	4.93	4.3	11	82	12	50	NSL	9	5	No sediment SL. Concentrations in OU-1/OU-2 sediment are higher than in background sediment and than in OU-1/OU-2 soils, but the max in sediment (50 mg/kg) is lower than in soils outside of OU-1/OU-2 (max = 82 mg/kg). Thallium concentrations in soil might be attributable to anthropogenic sources inside or outside of OU-1/OU-2.
Vanadium	--	20.4	40.9	67	29.8	59.5	59	17	100	31	64	NSL	6	2	No sediment SL. Concentrations are consistent with background and are probably naturally occurring.
Zinc	124	26.4	52.7	111	1,114	2,228	19,000	11	100	160	440	6	11	0	Mean OU-1/OU-2 background is higher than FM background, indicating anthropogenic source(s) consistent with other known uses of heavy metals in the area. No OU-1/OU-2 samples were detected above 2x mean OU-1/OU-2 background indicating concentrations are consistent with local, anthropogenic background.

Notes:
--: not available or not applicable
%: percent
FM: Fort McClellan
mg/kg: milligrams per kilogram
OU: operable unit
PAHs: polycyclic aromatic compounds
SL: screening level

Figures

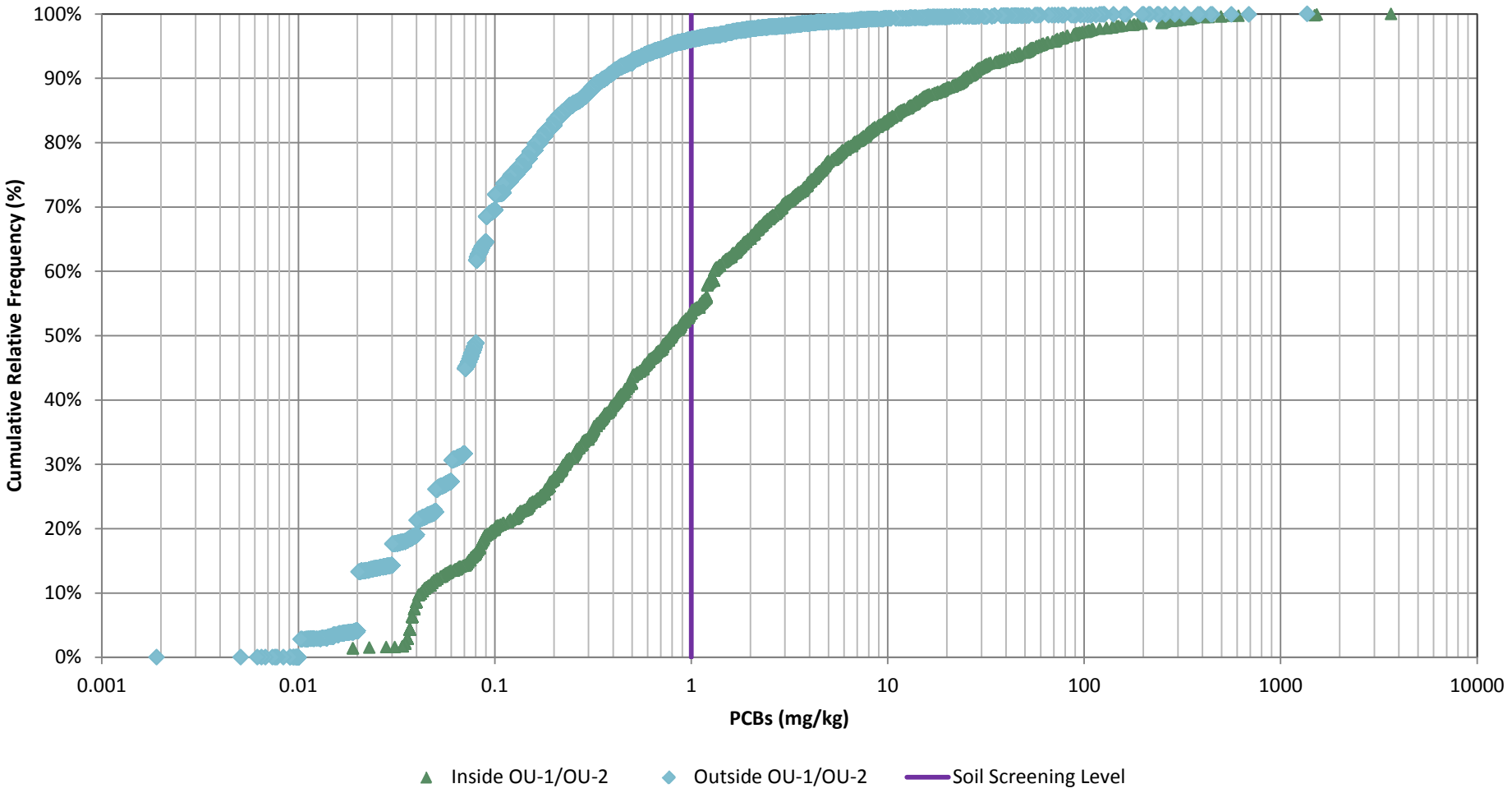


Anniston PCB Site
Anniston, Alabama
OU-1/OU-2 Remedial Investigation Report

Adaptive COPC Identification Process

Solutia

FIGURE
G-1



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
PCBs: polychlorinated biphenyls
%: percent

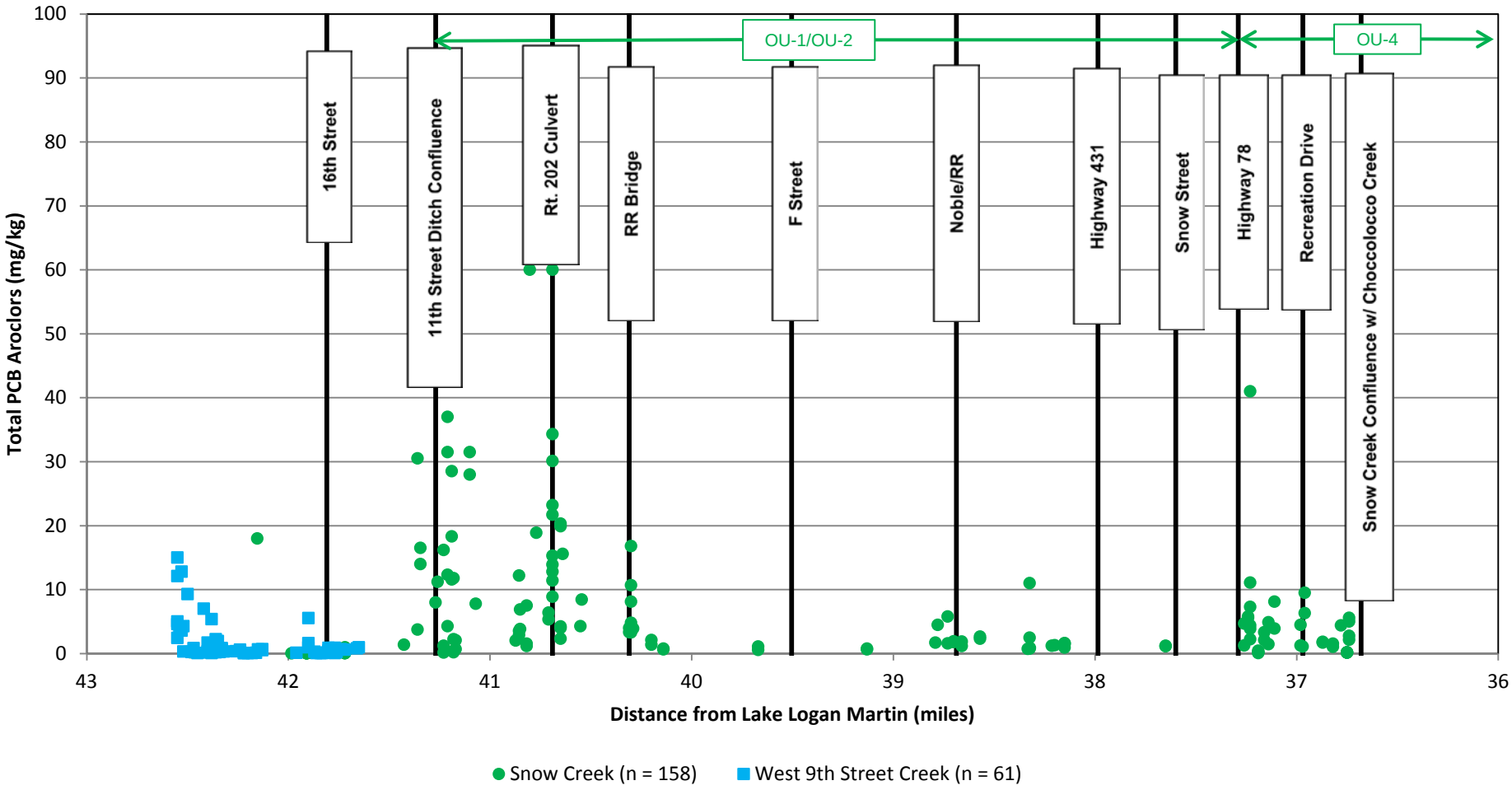
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of PCB in Soil

Solutia
ingenuity Productivity Performance

FIGURE
G-2



Notes:

1. Data include results from Snow Creek OU-1/OU-2 (n = 96), Snow Creek upstream of 11th Street (n = 23), and OU-4 (n = 39).
2. Data include West 9th Street Creek Sediment Data (n = 61).
3. For total PCB Aroclor calculation, nondetects were given a value of zero; if all PCB Aroclors were nondetect, then the maximum individual reporting limit was utilized.
4. mg/kg: milligrams per kilogram
   n: sample count
   OU: operable unit
   PCBs: polychlorinated biphenyls
   RR: railroad

Anniston PCB Site
Anniston, Alabama

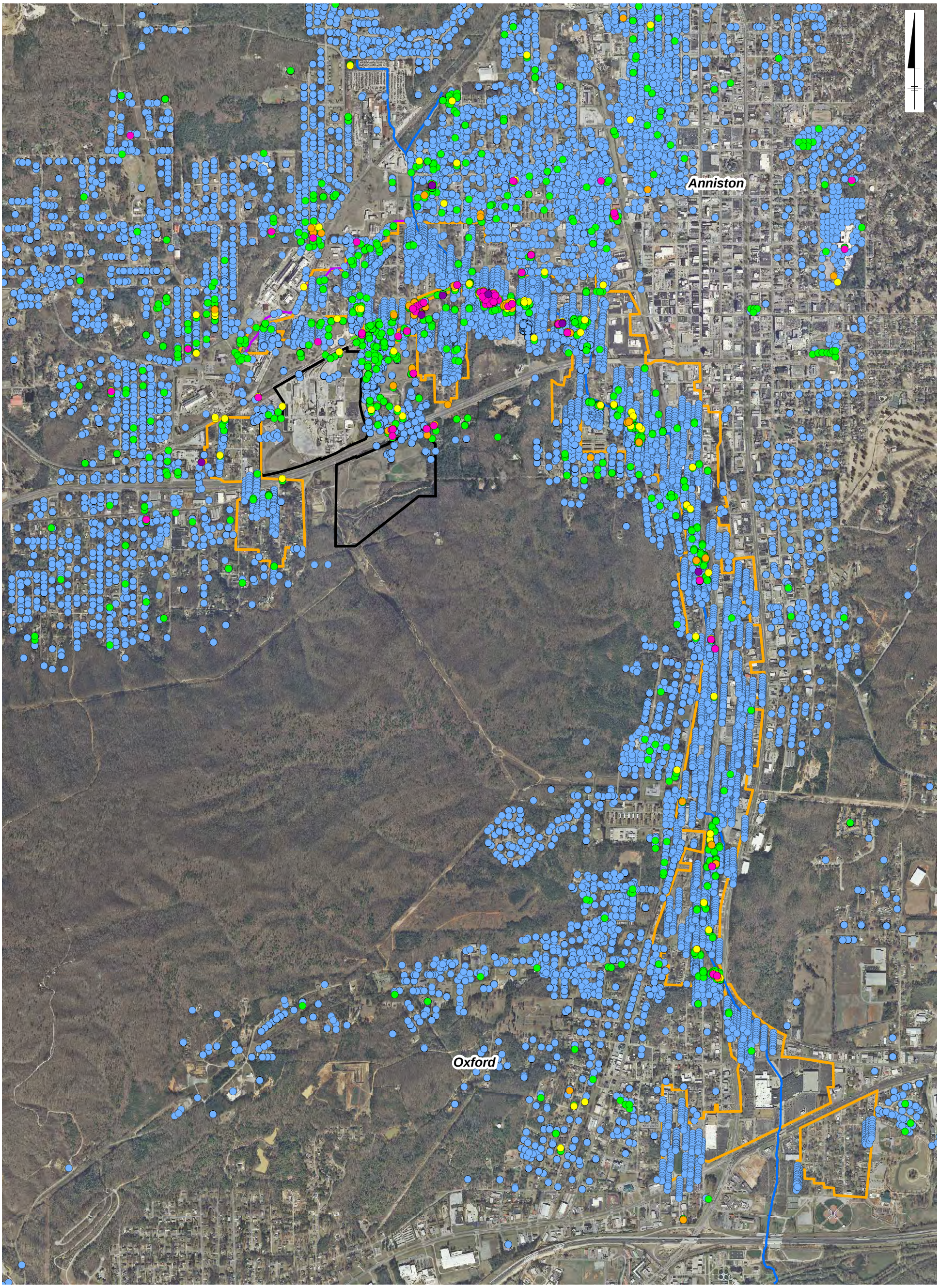
OU-1/OU-2 Remedial Investigation Report

Total PCB Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE

G-3



Legend

Soil Sample Location
Total PCB (mg/kg)
- ND or < 1
- ≥ 1 or <10
- ≥ 10 to < 25
- ≥ 25 to < 50
- ≥ 50 to < 500
- ≥ 500

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- OU-1/OU-2 Investigation Area
- OU-3 Boundary

Notes:
1. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PCB: polychlorinated biphenyls
2. Aerial imagery provided by Calhoun County.

0 1,900 3,800 Feet
Graphic Scale

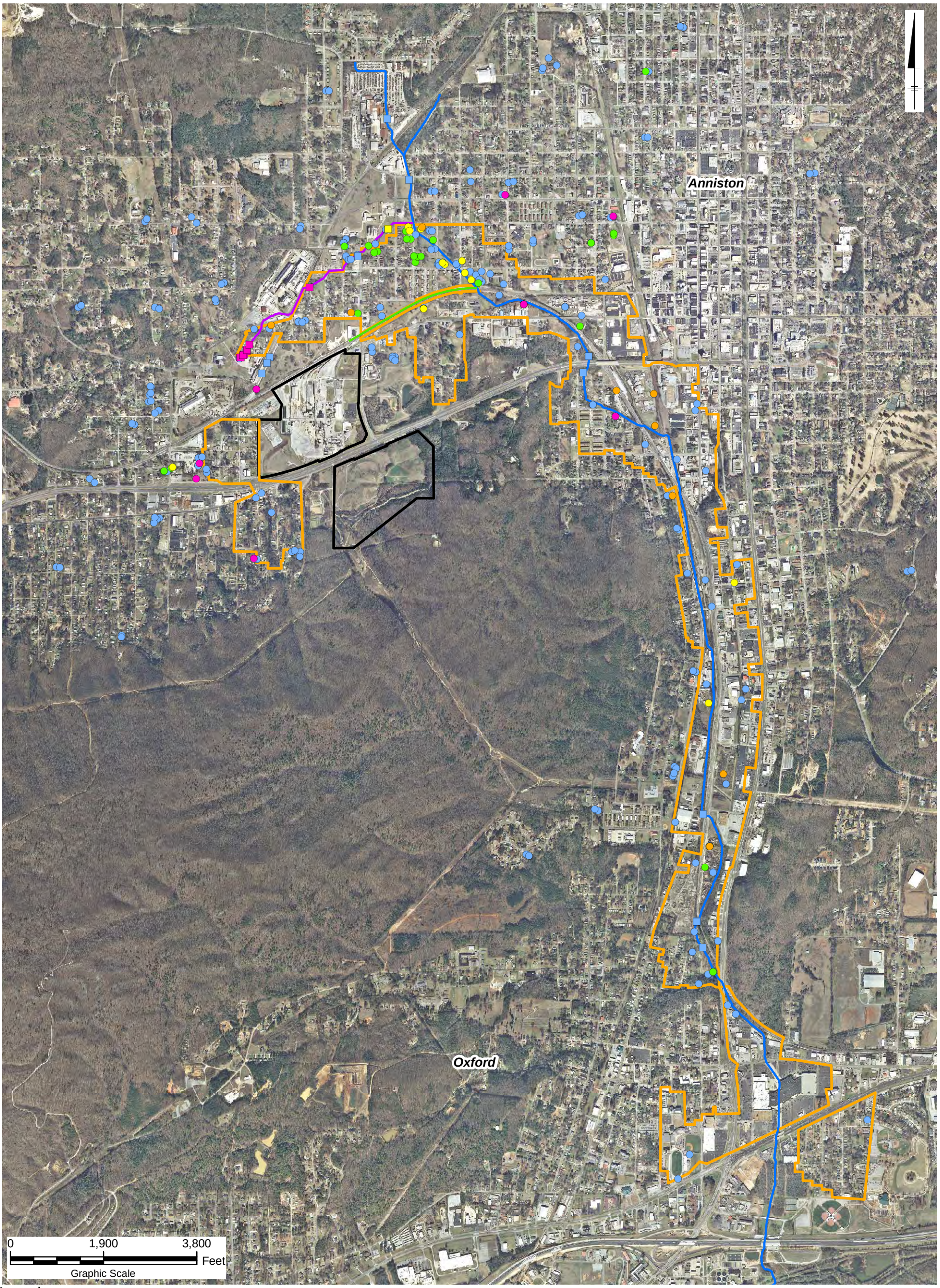
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Total PCB Aroclor Concentrations in Soil

Solutia

Figure
G-4



Legend

Sediment Sample Location
Total PAH (mg/kg)
- ND or < 8.8
- 8.8 - 17.7
- 17.7 - 50
- 50 - 100
- > 100

Soil Sample Location
Total PAH (mg/kg)
- ND or < 8.8
- 8.8 - 17.7
- 17.7 - 50
- 50 - 100
- > 100

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- OU-1/OU-2 Investigation Area
- OU-3 Boundary

Notes:
1. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit
   PAH: polycyclic aromatic hydrocarbon

2. Aerial imagery provided by Calhoun County.

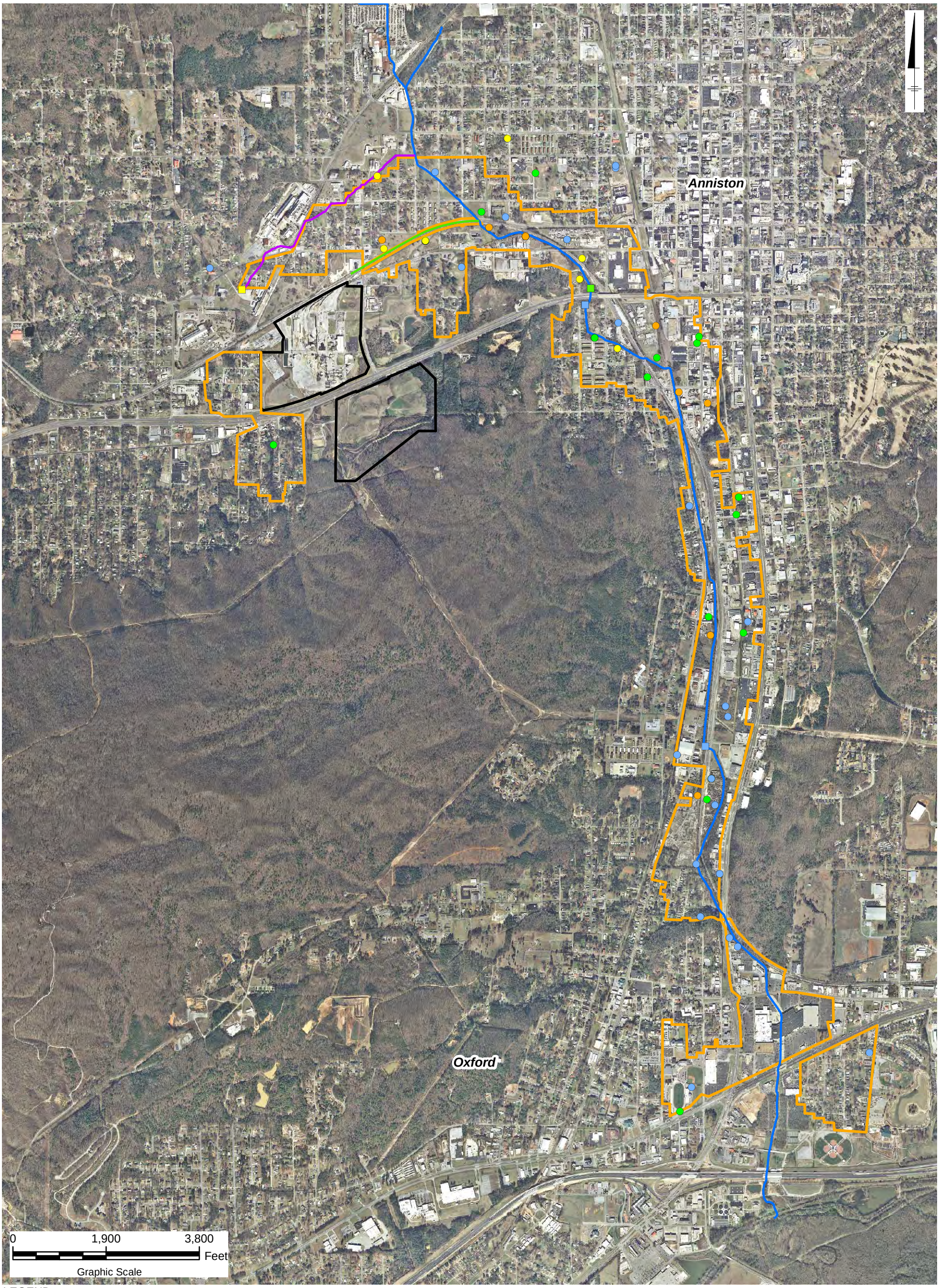
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Total PAH Concentrations in Soil and Sediment

Solutia

Figure
G-5



LEGEND:

Sediment Sample Location
Total PCDD/DF Concentration (µg/kg)
- < 2
- 2 - 4
- 4 - 8
- > 8

Soil Sample Location
Total PCDD/DF Concentration (µg/kg)
- < 2
- 2 - 4
- 4 - 8
- > 8

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- OU-1/OU-2 Investigation Area
- OU-3 Boundary

Notes:
1. OU: operable unit
   PCDD/DF: polychlorinated dibenzodioxins/dibenzofurans
   µg/kg: micrograms per kilogram
2. Aerial imagery provided by Calhoun County.

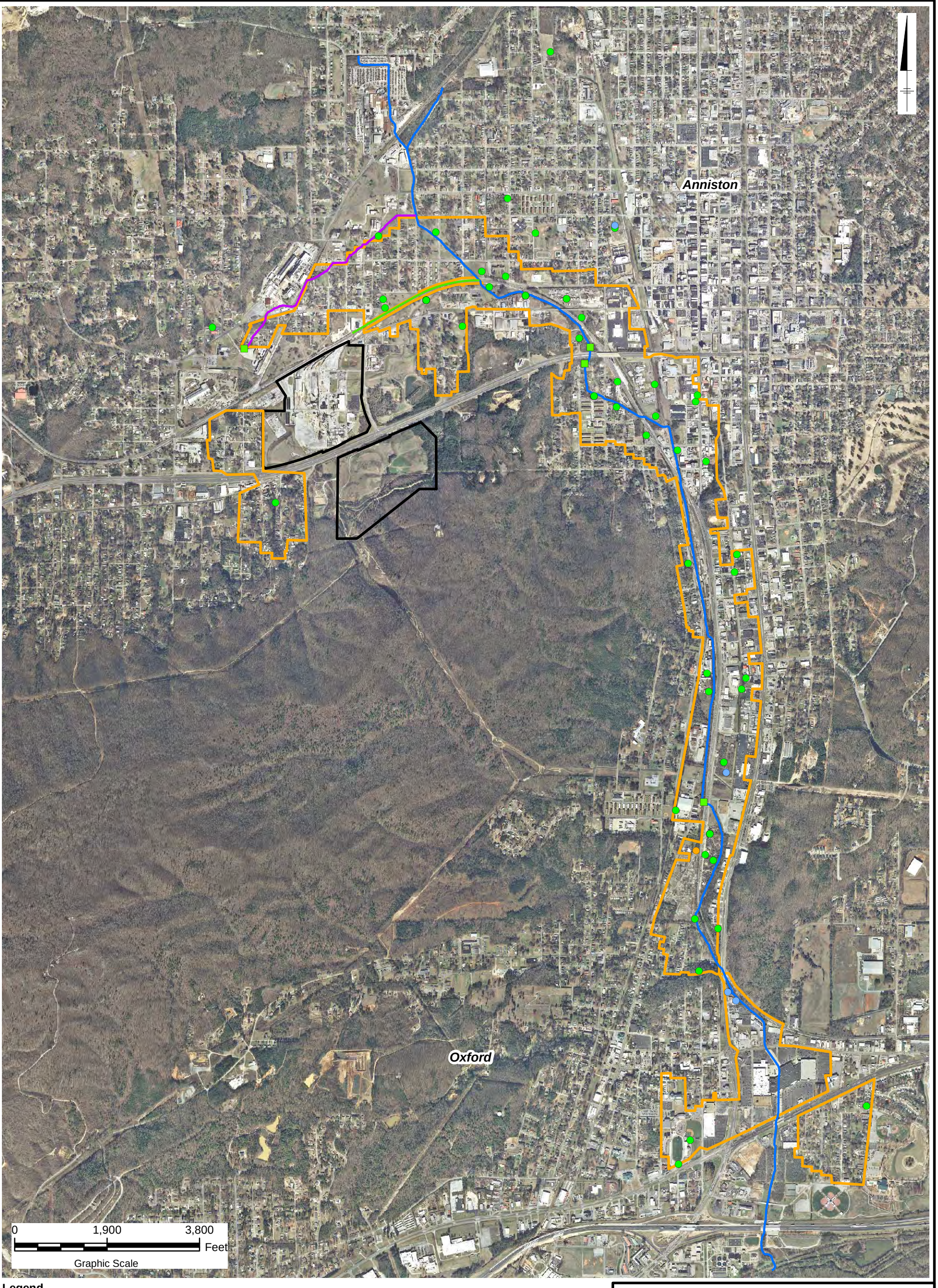
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Total PCDD/DF Concentrations in Soil and Sediment

Solutia

Figure
G-6



Legend

Sediment Sample Location
PCDD/DF TEQ Concentration (µg/kg)
- < 0.001
- 0.001 - 0.25
- 0.25 - 2
- > 2

Soil Sample Location
PCDD/DF TEQ Concentration (µg/kg)
- < 0.001
- 0.001 - 0.25
- 0.25 - 2
- >2

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- OU-1/OU-2 Investigation Area
- OU-3 Boundary

Notes:
1. OU: operable unit
   PCDD/DF: polychlorinated dibenzodioxins/dibenzofurans
   TEQ: toxic equivalency
   µg/kg: micrograms per kilogram
2. Aerial imagery provided by Calhoun County.

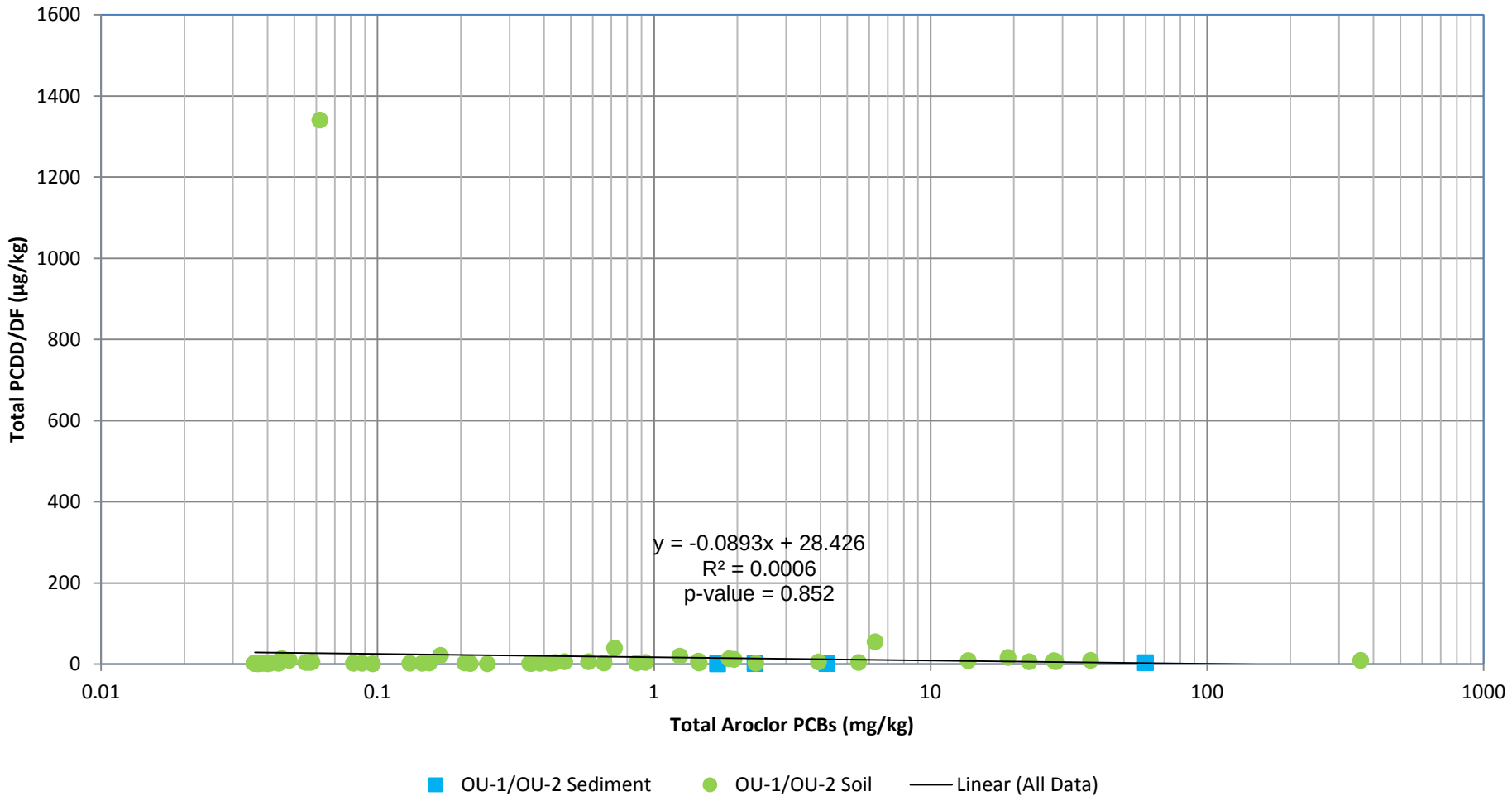
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

PCDD/DF TEQ Concentrations in Soil and Sediment

Solutia

Figure
G-7



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
PCDD/DF: polychlorodibenzodioxins/dibenzofurans
PCBs: polychlorinated biphenyls
µg/kg: micrograms per kilogram

Anniston PCB Site
Anniston, Alabama

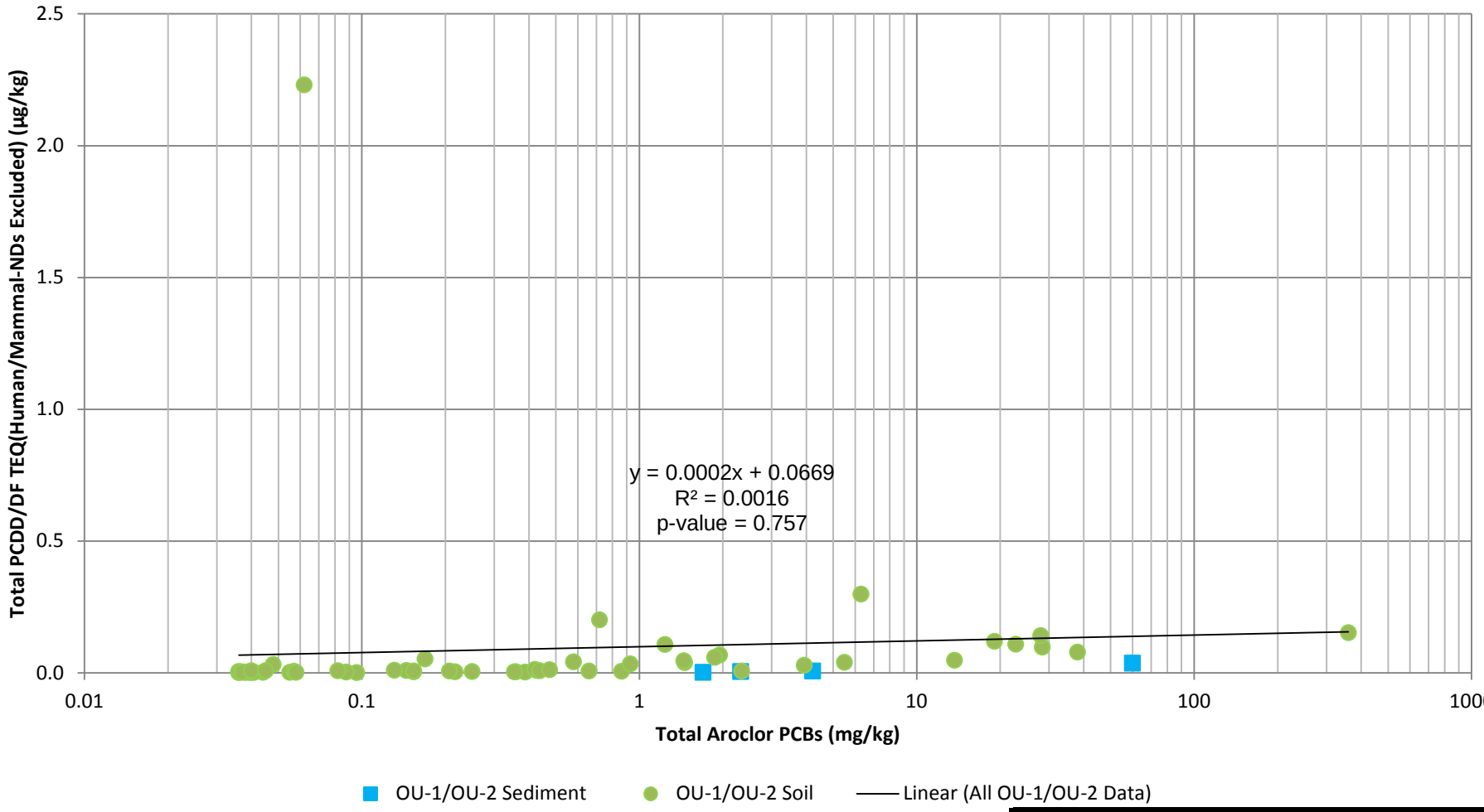
OU-1/OU-2 Remedial Investigation Report

PCDD/DF Concentrations as a Function of Total PCB Concentrations

Solutia
Ingenuity Productivity Performance

FIGURE

G-8



Notes:
mg/kg: milligrams per kilogram
ND: nondetect
OU: operable unit
PCDD/DF: polychlorodibenzodioxins/dibenzofurans
PCBs: polychlorinated biphenyls
TEQ: toxic equivalent
µg/kg: micrograms per kilogram

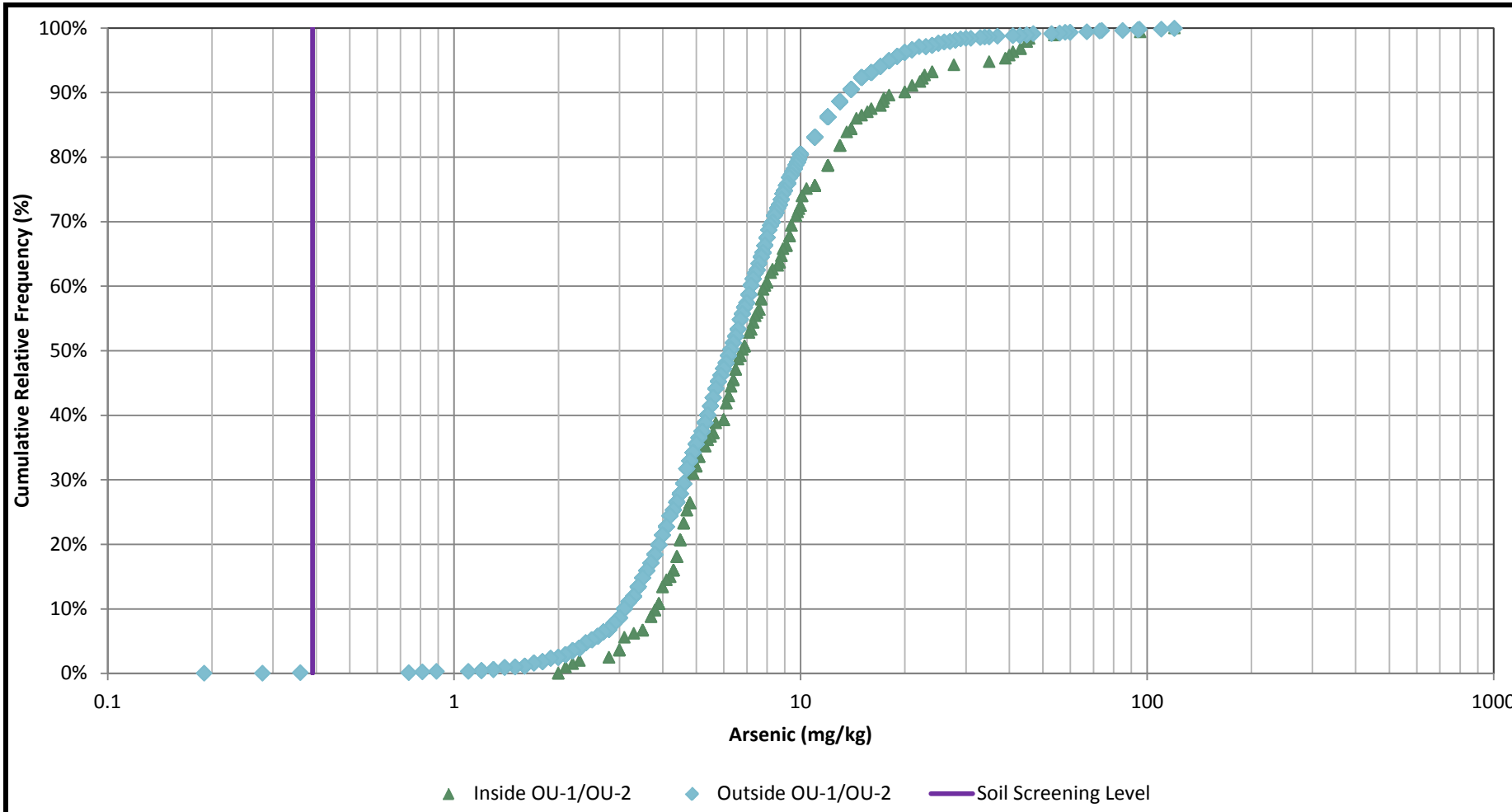
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

PCDD/DF TEQ Concentrations as a Function of Total PCB Concentrations

Solutia
Ingenuity Productivity Performance

FIGURE
G-9



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Arsenic in Soil

Solutia
Ingenuity Productivity Performance

FIGURE
G-10

Anniston

Oxford

0 1,900 3,800 Feet

Graphic Scale

Legend

Sediment Sample Location
Arsenic Concentration (mg/kg)
- < 1.0
- 1.0 - 8.0
- 8.0 - 16
- > 16 (2x Background in Soil)

Soil Sample Location
Arsenic Concentration (mg/kg)
- ND or < 1.0
- 1.0 - 8.0
- 8.0 - 16
- > 16 (2x Background in Soil)

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- OU-1/OU-2 Investigation Area
- OU-3 Boundary

Notes:
1. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit

2. Aerial imagery provided by Calhoun County.

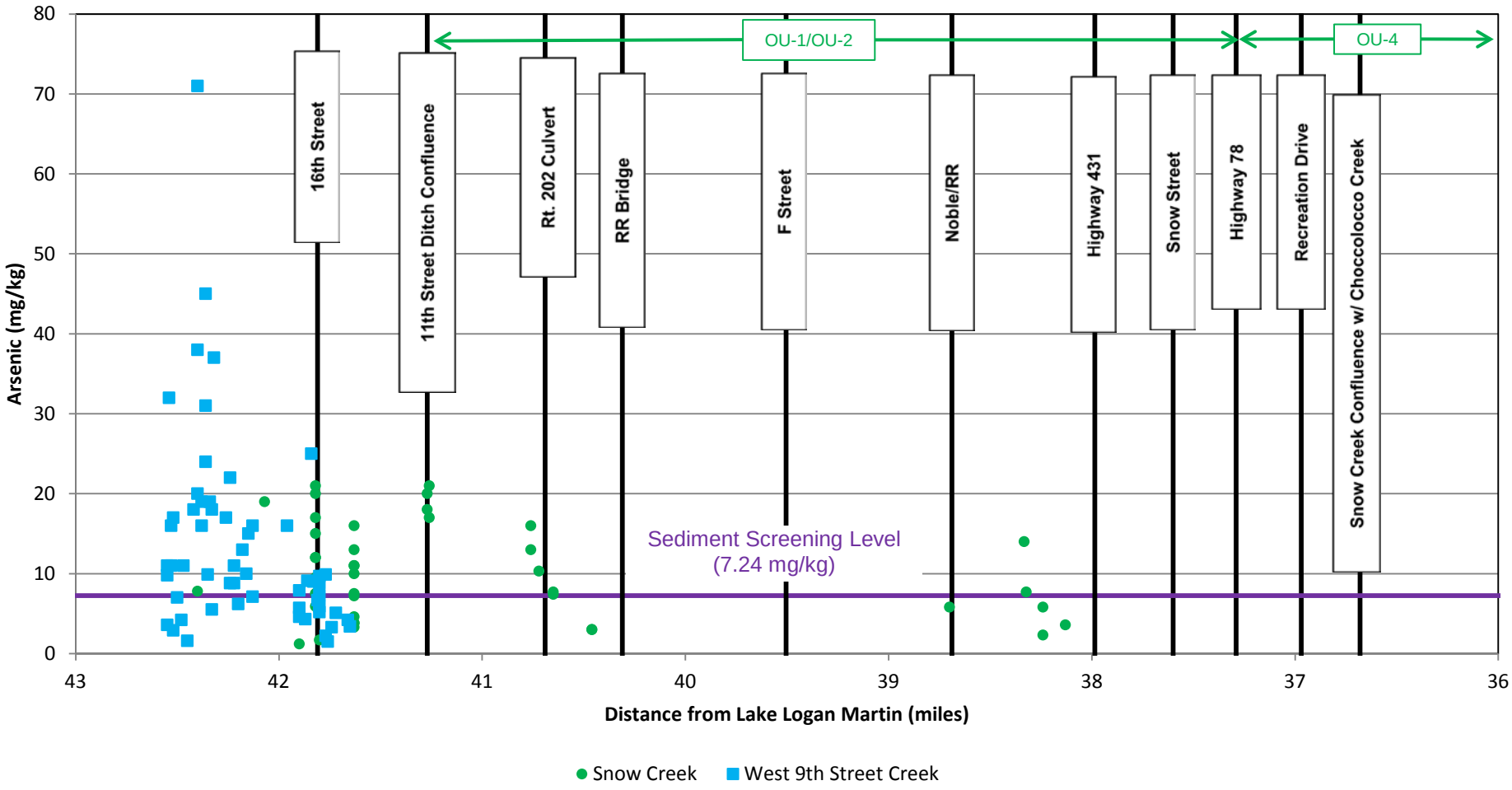
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Arsenic Concentrations in Soil and Sediment

Solutia

Figure
G-11



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
RR: railroad
Rt.: route

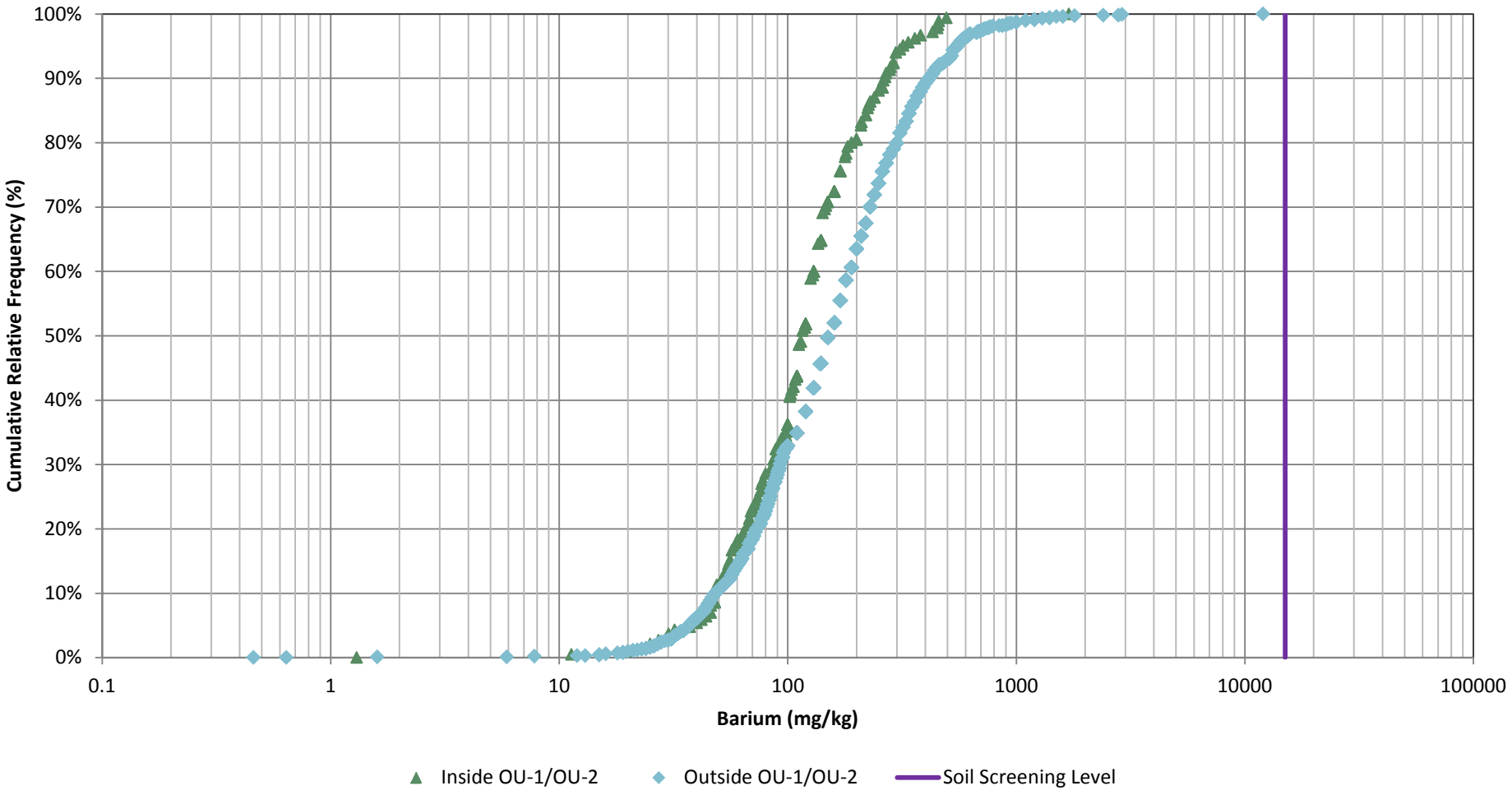
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Arsenic Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE
G-12



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

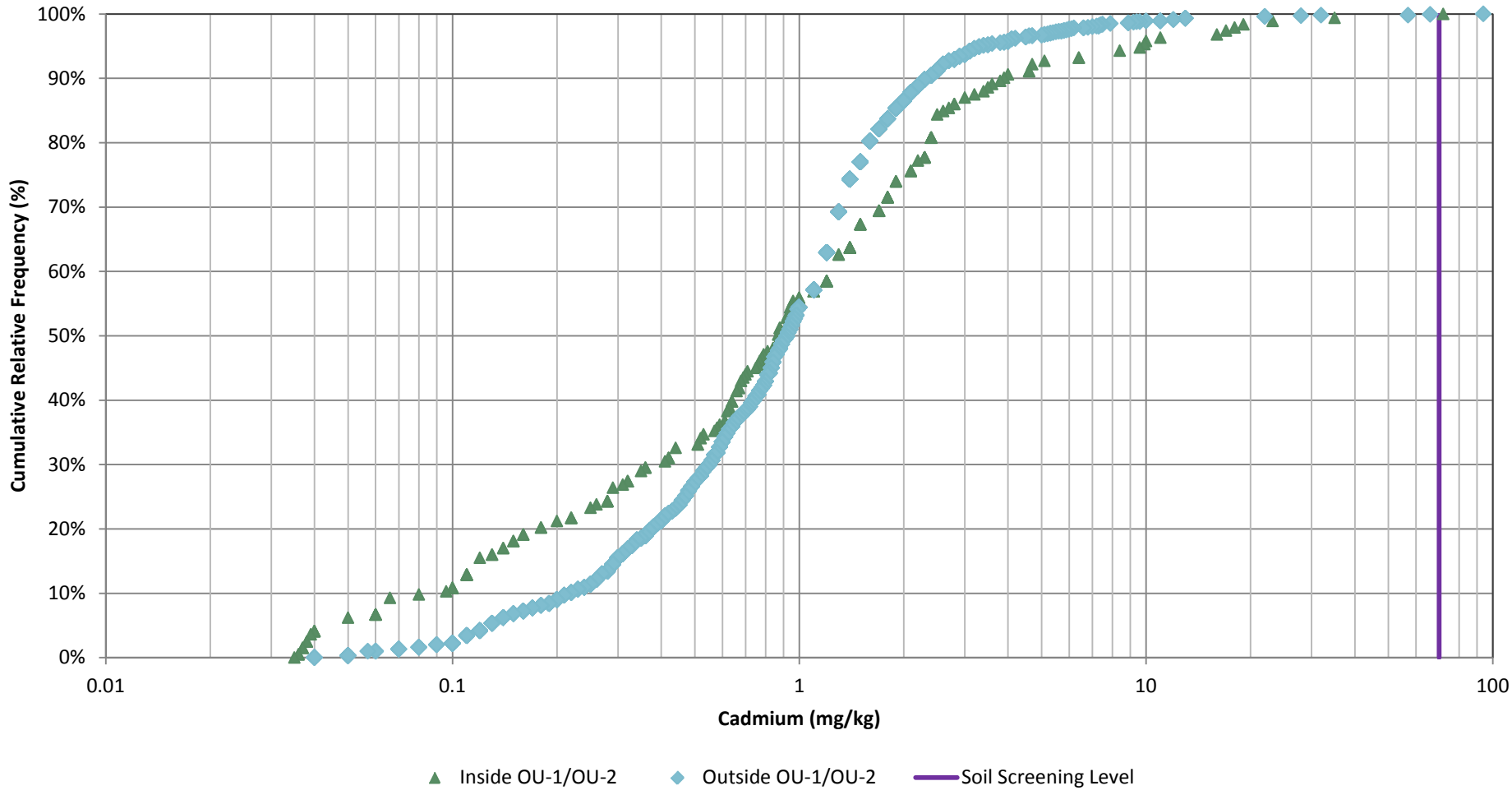
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Barium in Soil

Solutia
ingenuity Productivity Performance

FIGURE
G-13



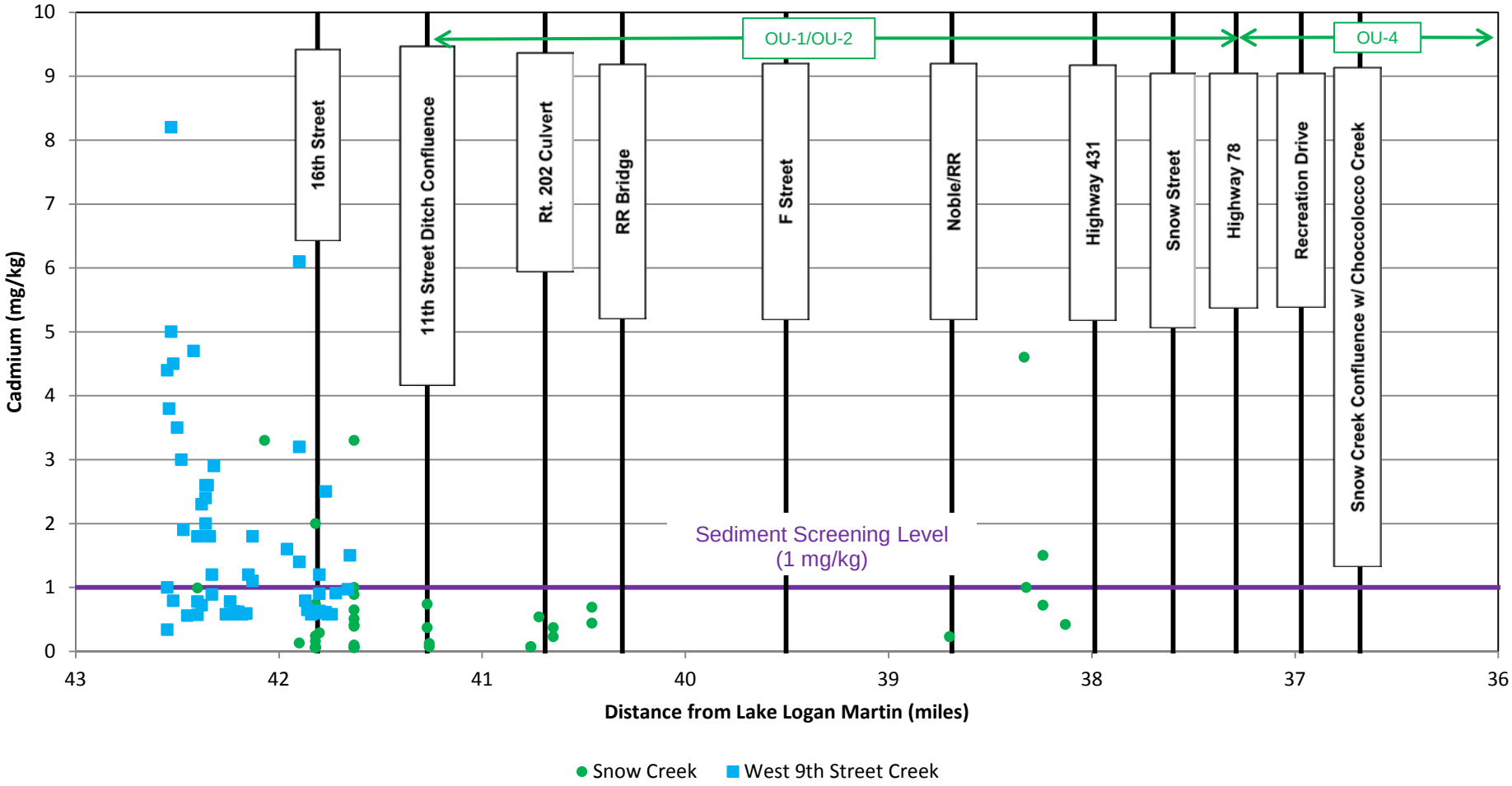
Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Cadmium in Soil

FIGURE
G-14



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
RR: railroad
Rt.: route

Anniston PCB Site
Anniston, Alabama

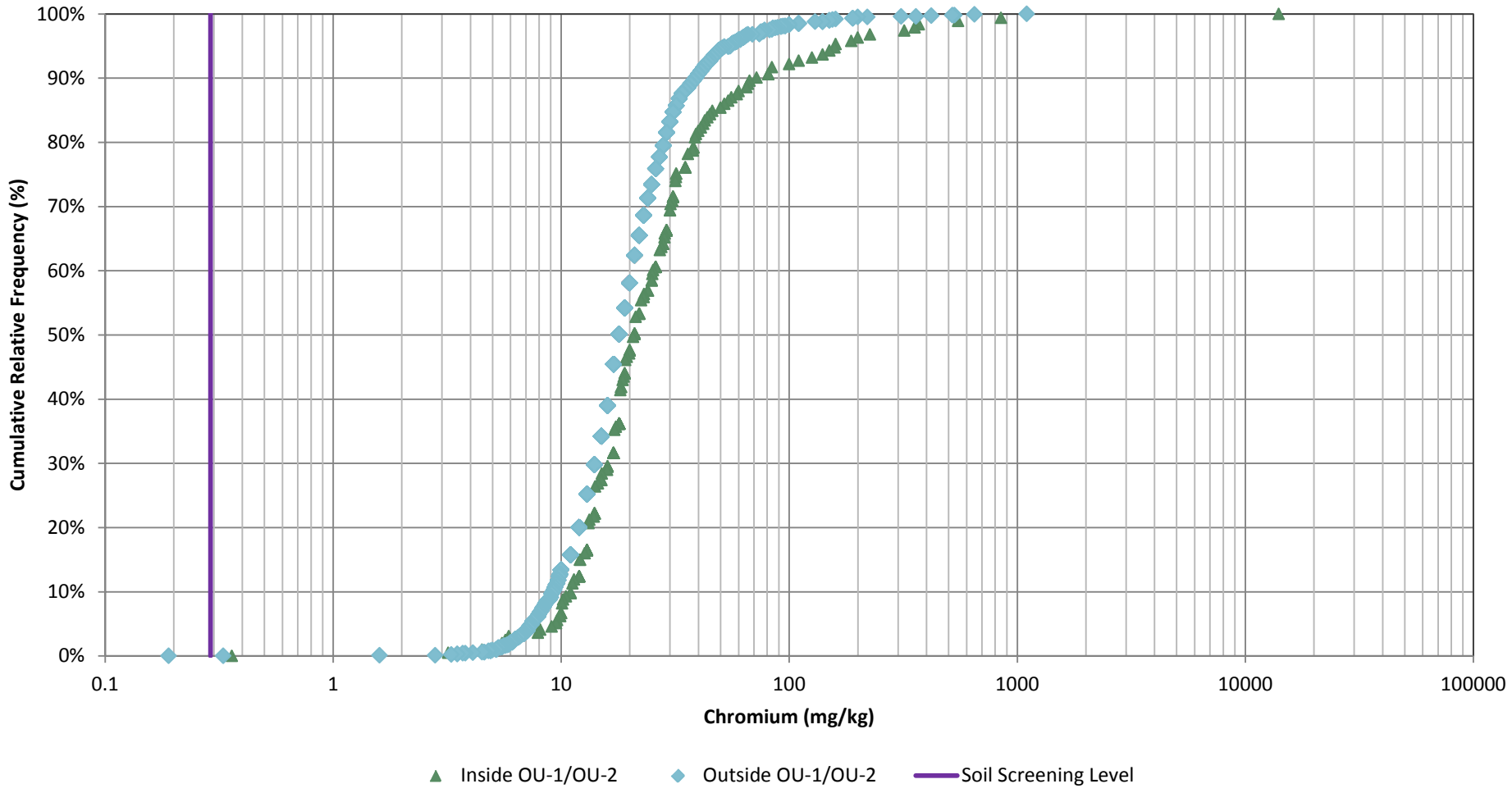
OU-1/OU-2 Remedial Investigation Report

Cadmium Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE

G-15



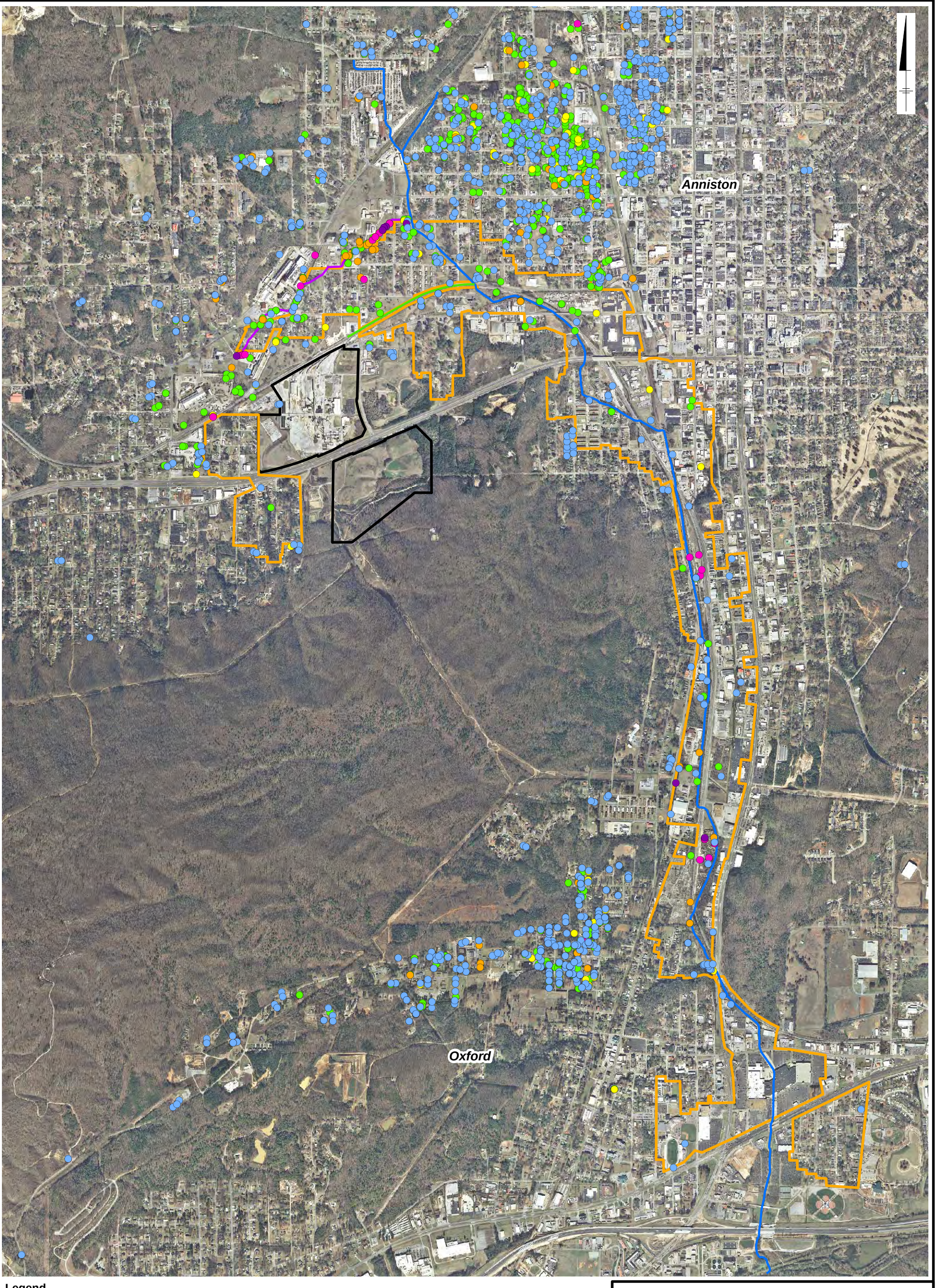
Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Chromium in Soil

FIGURE
G-16



Legend

Soil Sample Location
Chromium Concentration (mg/kg)
- ND or < 20
- 20 - 38
- 38 - 50
- 50 - 100
- 100 - 500
- > 500

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- OU-1/OU-2 Investigation Area
- OU-3 Boundary

Notes:
1. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit

2. Aerial imagery provided by Calhoun County.

0 1,900 3,800 Feet

Graphic Scale

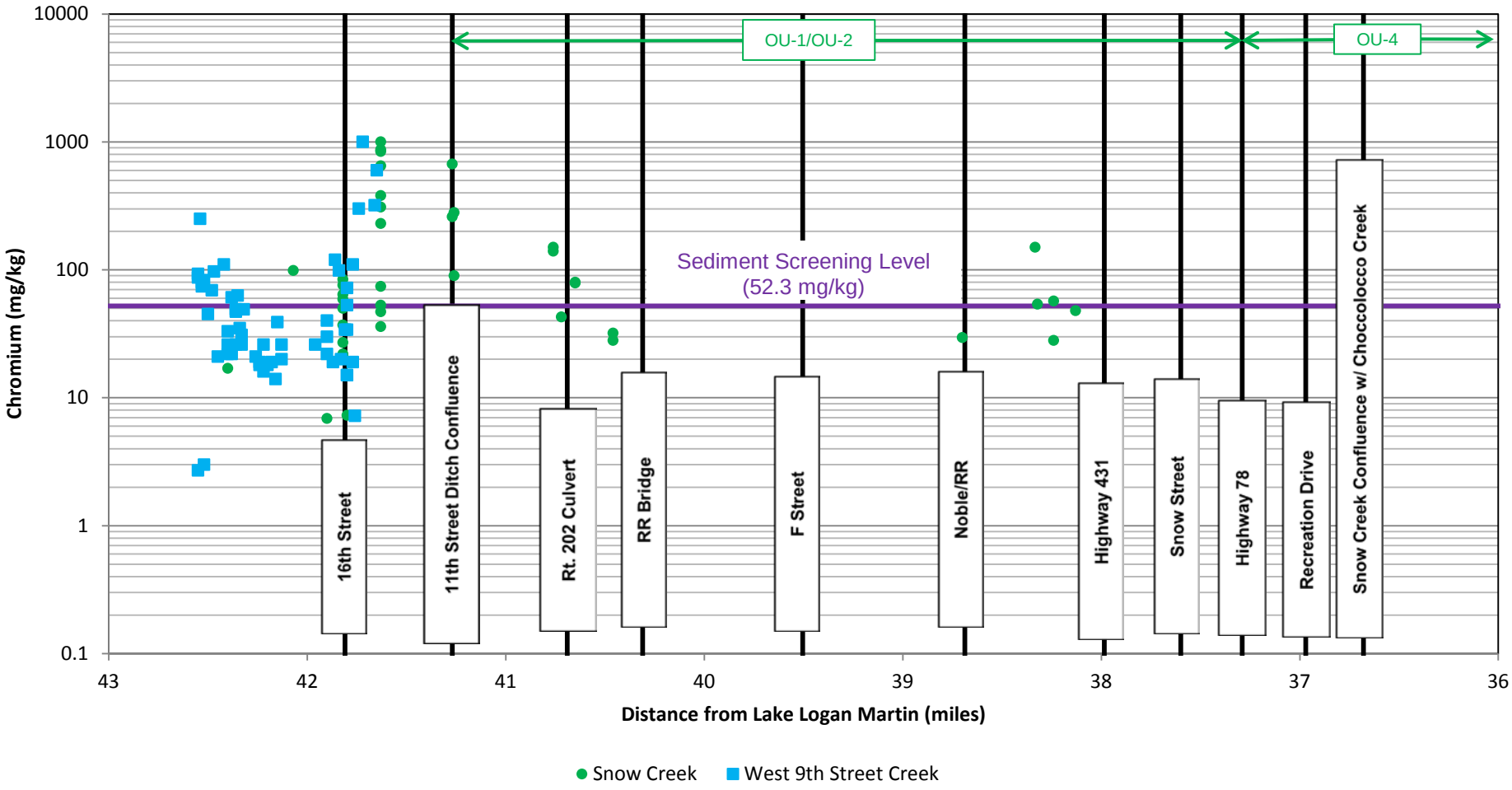
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Concentrations of Chromium in Soil

Solutia

Figure
G-17



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
RR: railroad
Rt.: route

Anniston PCB Site
Anniston, Alabama

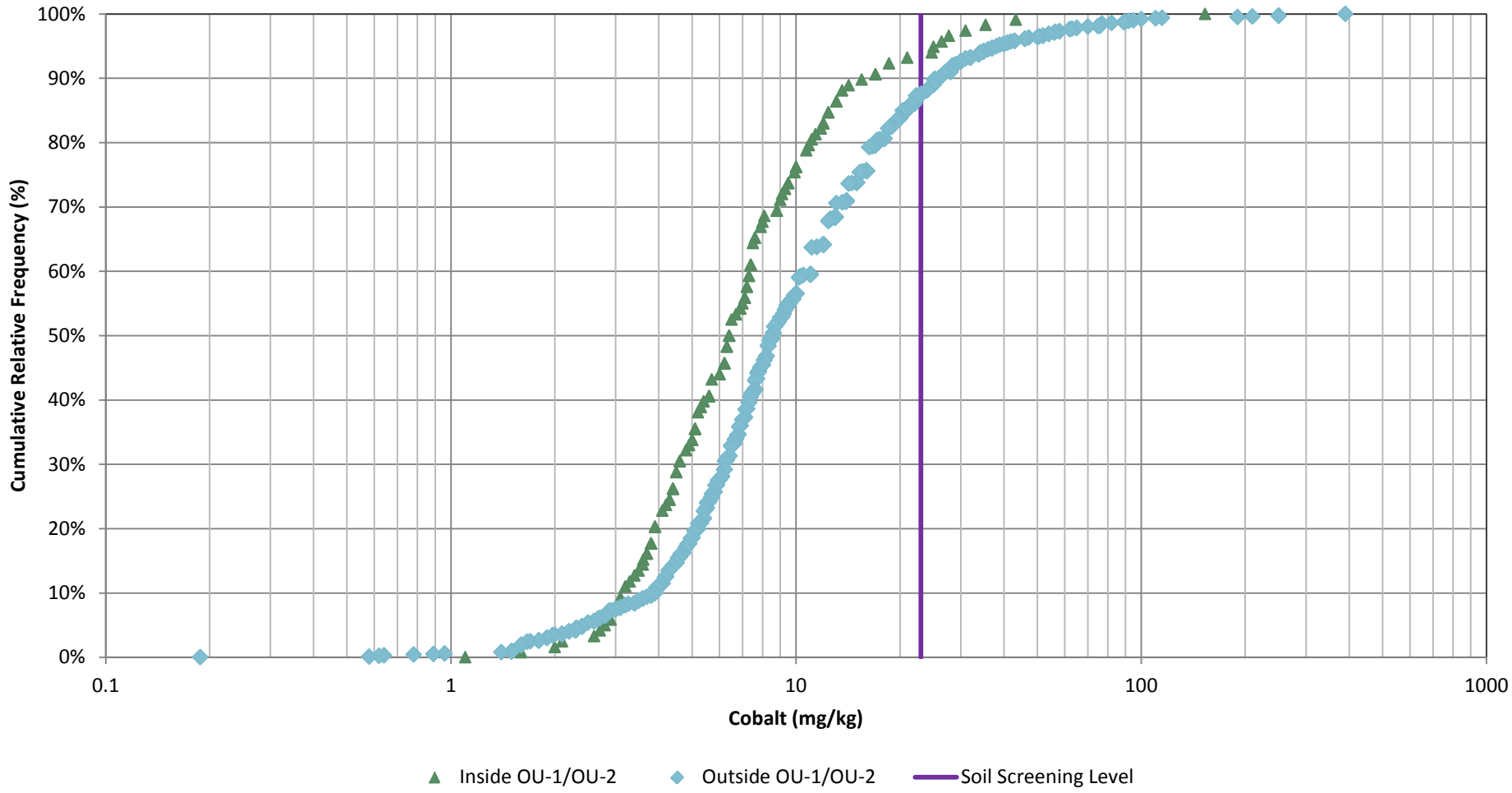
OU-1/OU-2 Remedial Investigation Report

Chromium Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE

G-18



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

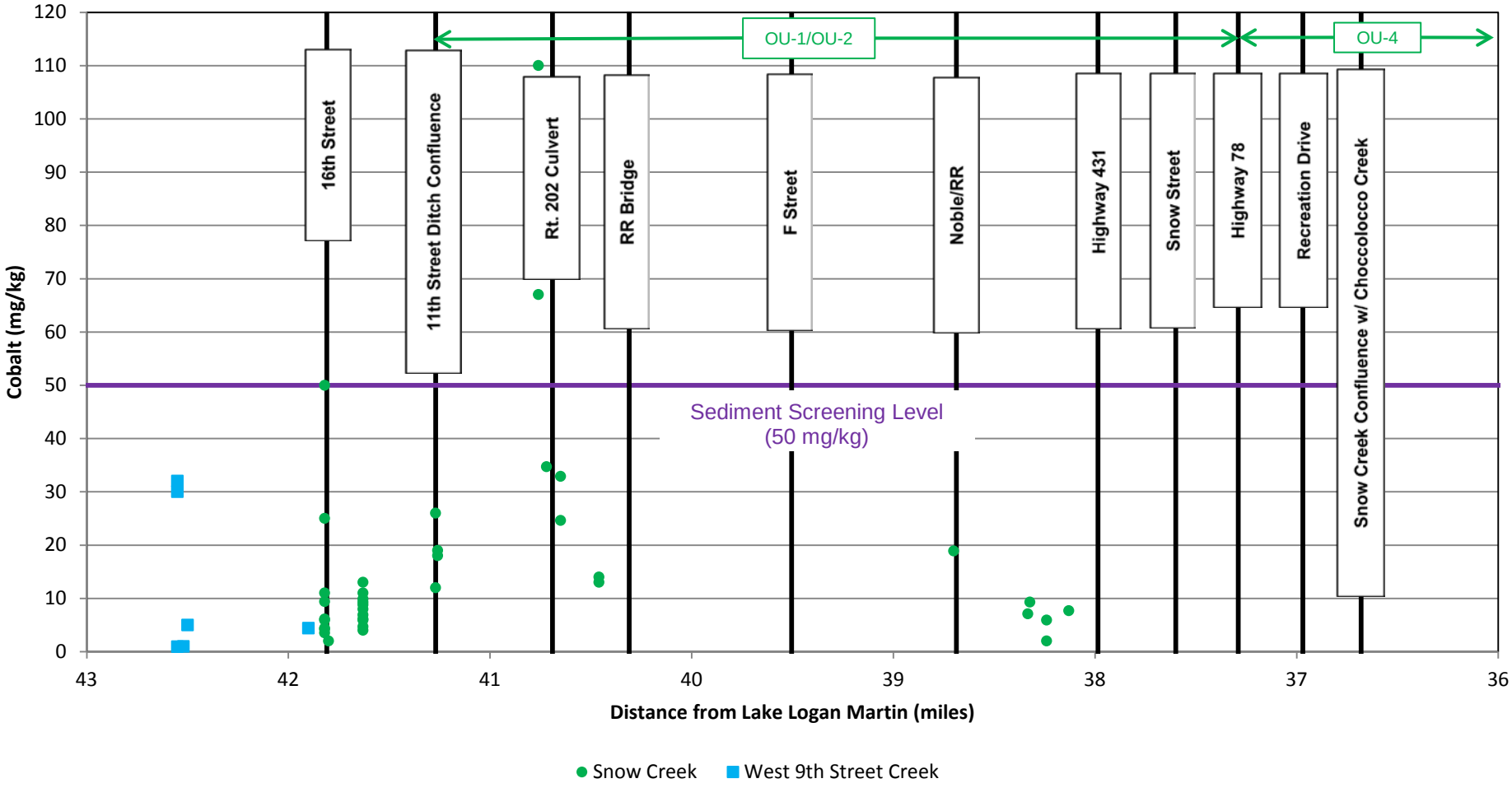
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Cobalt in Soil

Solutia
Ingenuity Productivity Performance

FIGURE
G-19



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
RR: railroad
Rt.: route

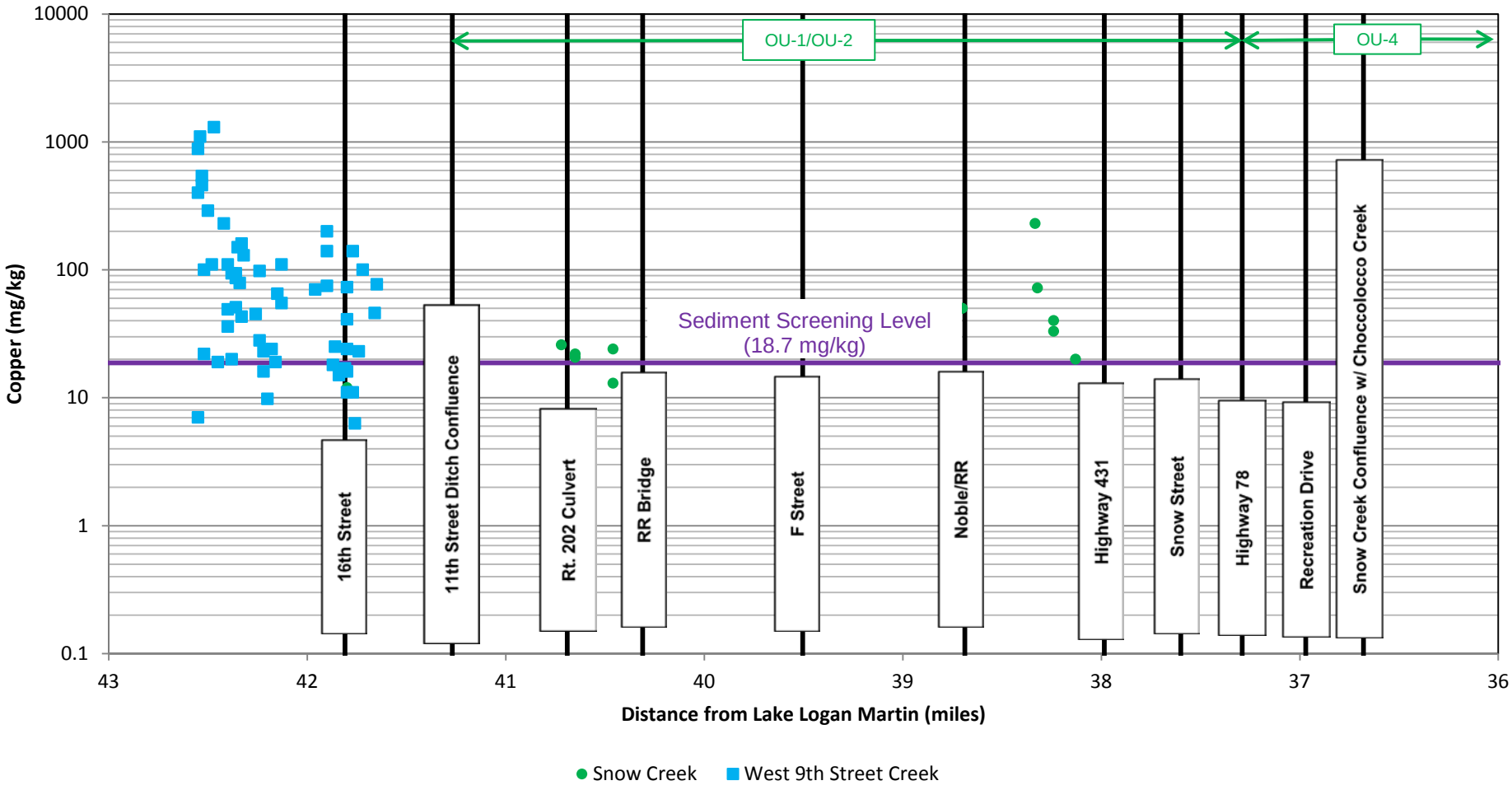
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Cobalt Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE
G-20



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
RR: railroad
Rt.: route

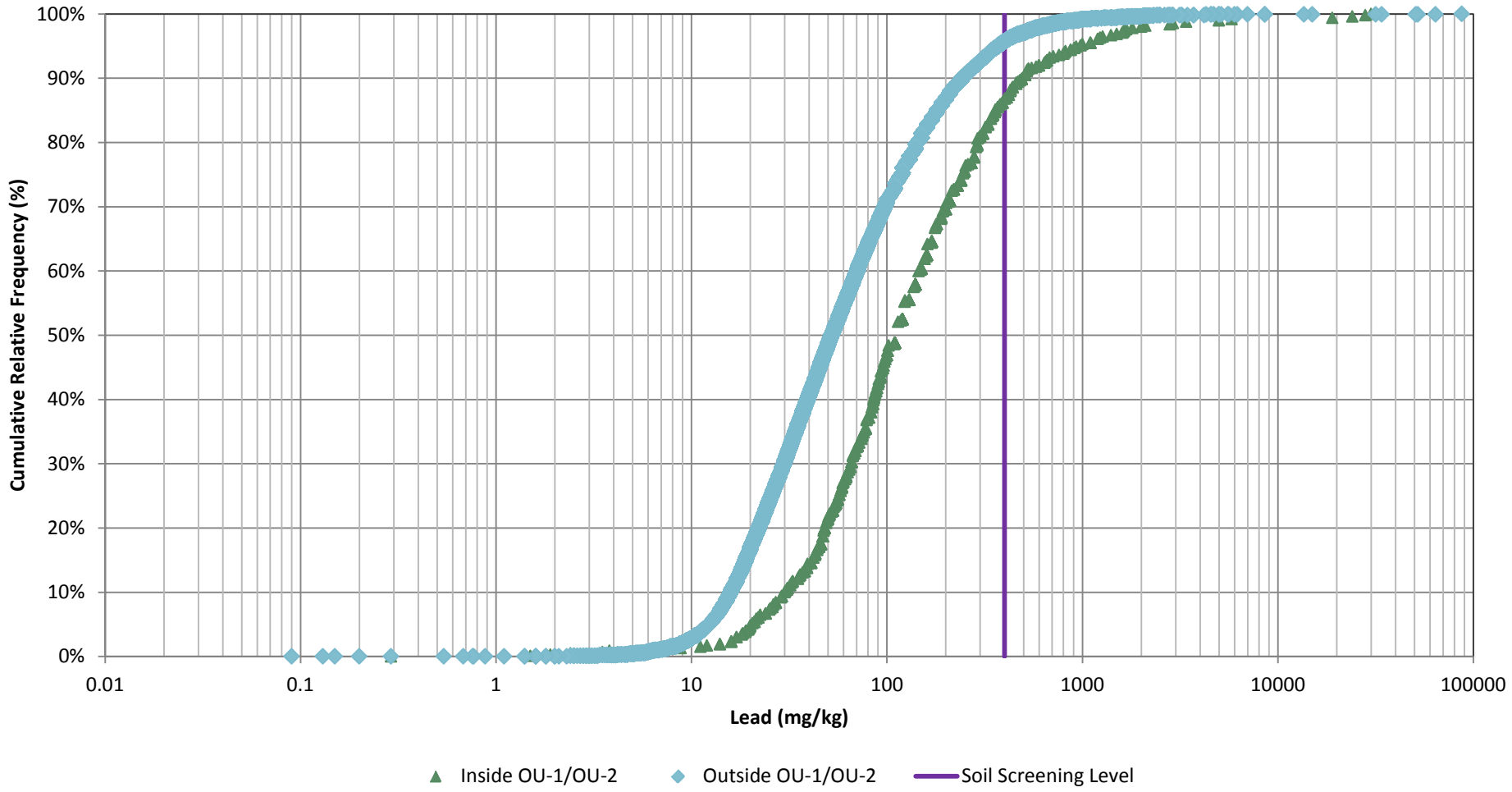
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Copper Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE
G-21



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

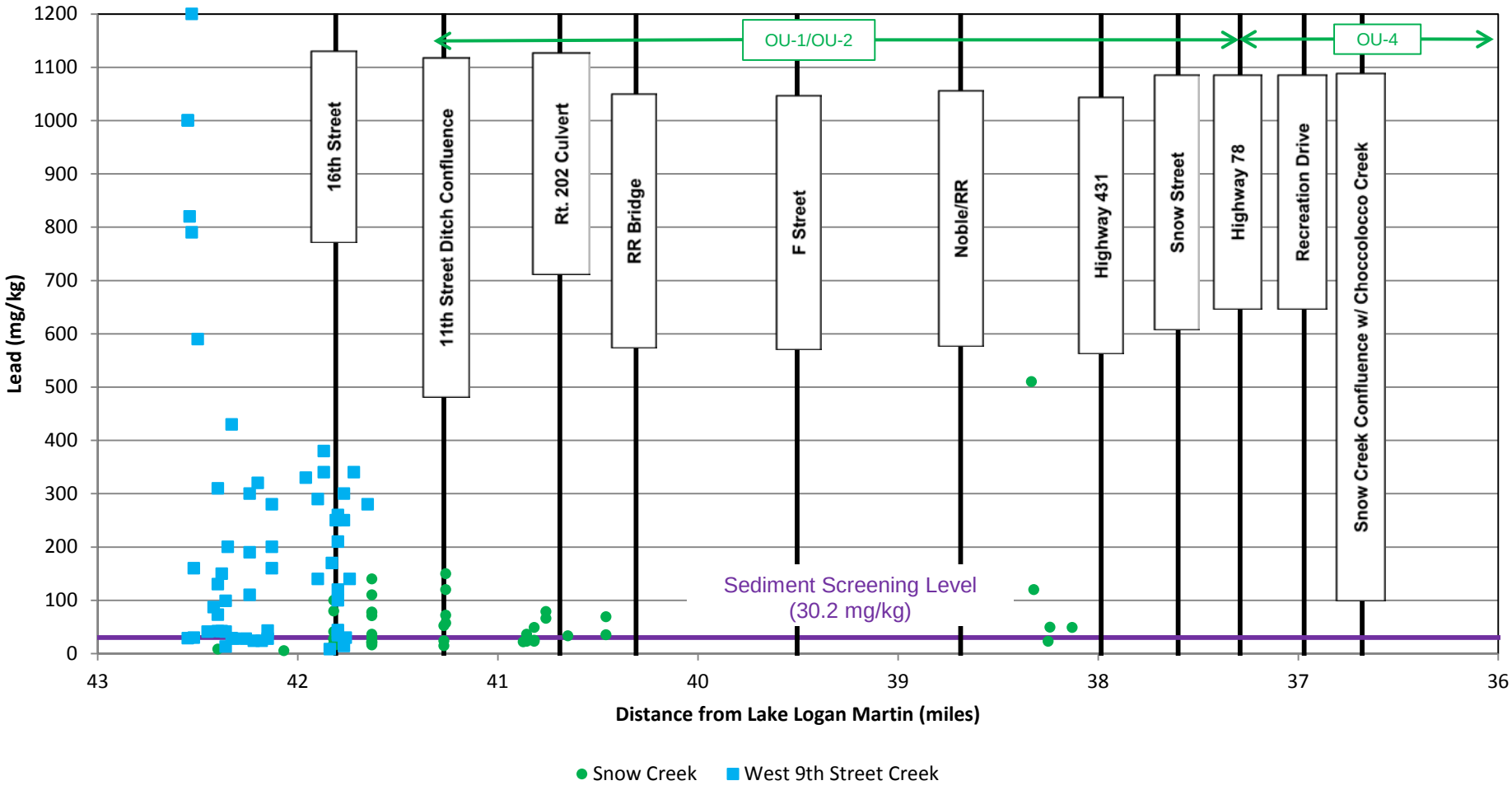
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Lead in Soil

Solutia
Ingenuity Productivity Performance

FIGURE
G-22



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
RR: railroad
Rt.: route

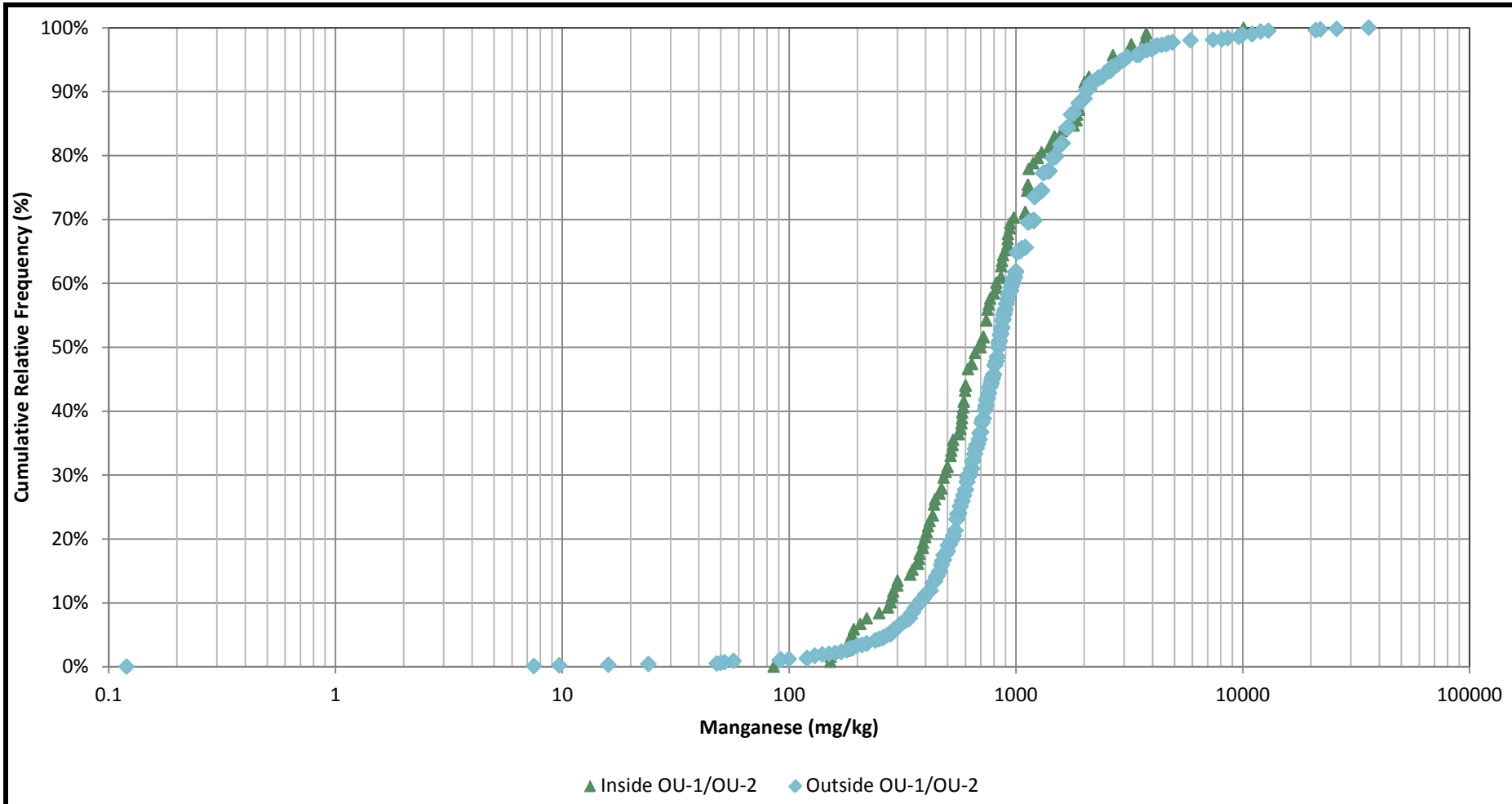
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Lead Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE
G-23



Notes:
1. Screening value for OU-1/OU-2 is not available.
2. mg/kg: milligrams per kilogram
   OU: operable unit
   %: percent

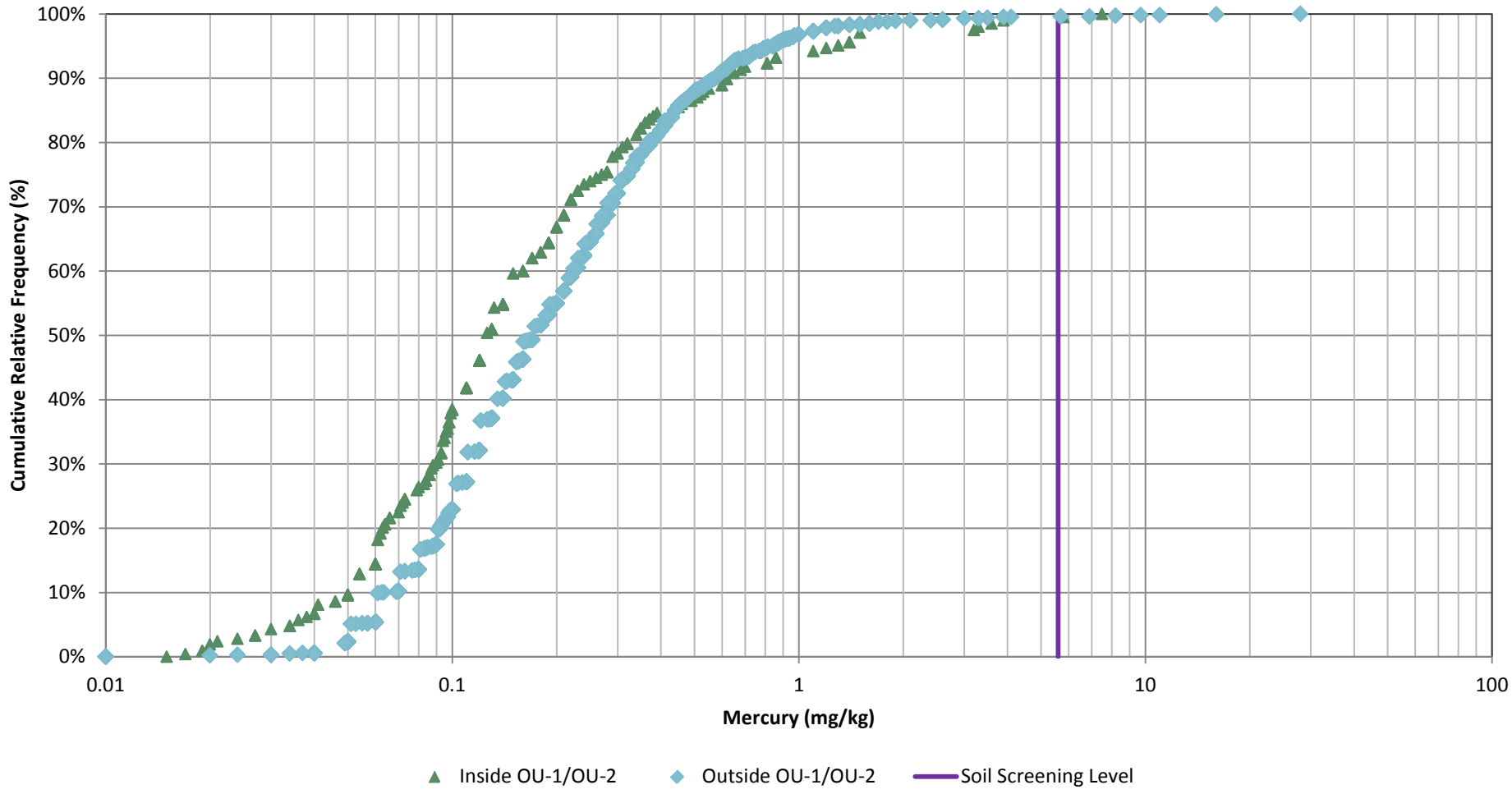
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Manganese in Soil

Solutia
Ingenuity Productivity Performance

FIGURE
G-24



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Mercury in Soil

Solutia
Ingenuity Productivity Performance

FIGURE
G-25

Anniston

Oxford

Legend

Soil Sample Location
Mercury Concentration (mg/kg)
- ND or < 0.1
- 0.1 - 1.0
- 1.0 - 5.6
- > 5.6

- Snow Creek
- 11th Street Ditch
- West 9th Street Creek
- OU-1/OU-2 Investigation Area
- OU-3 Boundary

Notes:
1. mg/kg: milligrams per kilogram
   ND: nondetect
   OU: operable unit

2. Aerial imagery provided by Calhoun County.

0 1,900 3,800 Feet

Graphic Scale

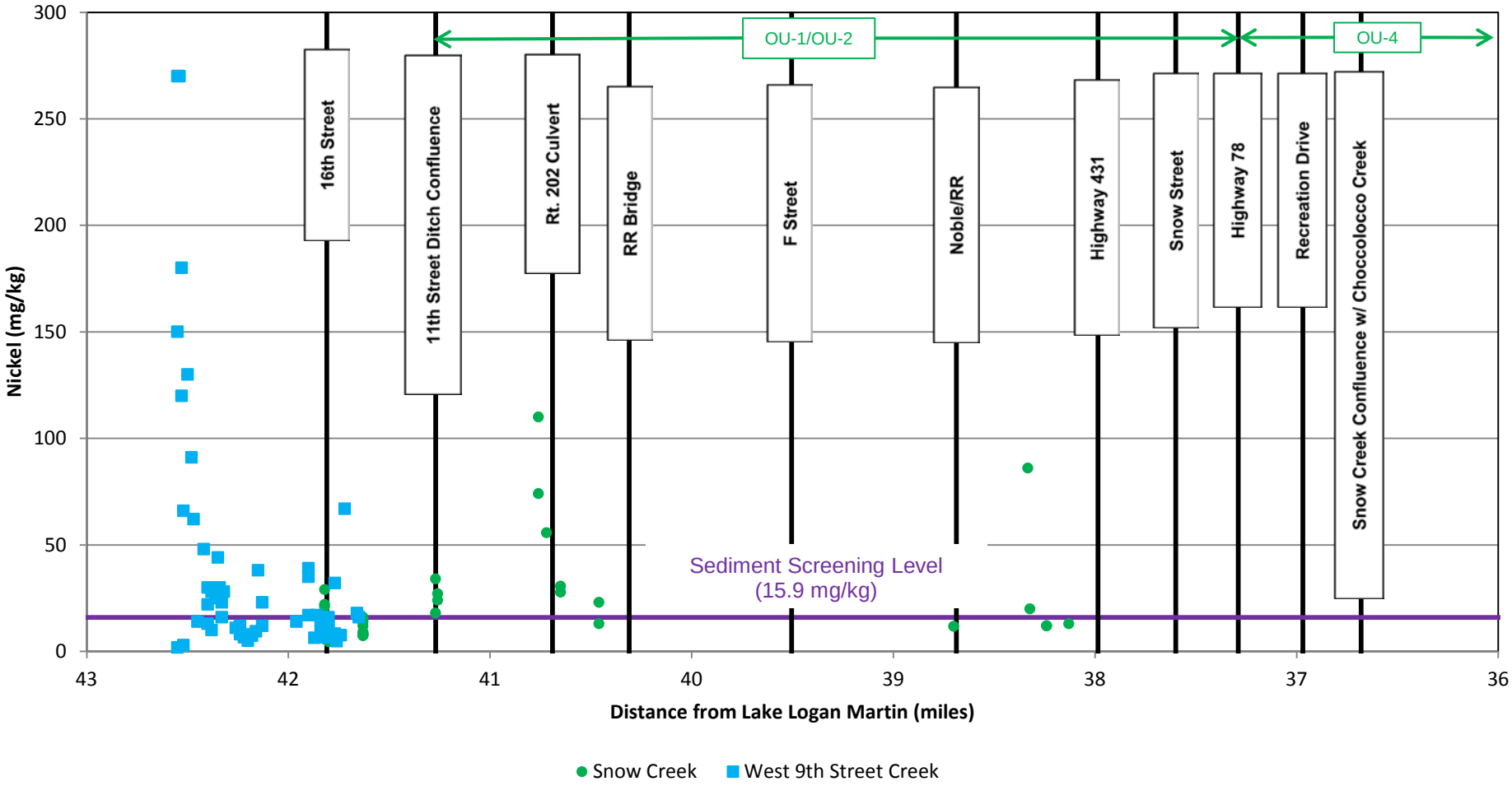
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Mercury Concentrations in Soil

Solutia

Figure
G-26



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
RR: railroad
Rt.: route

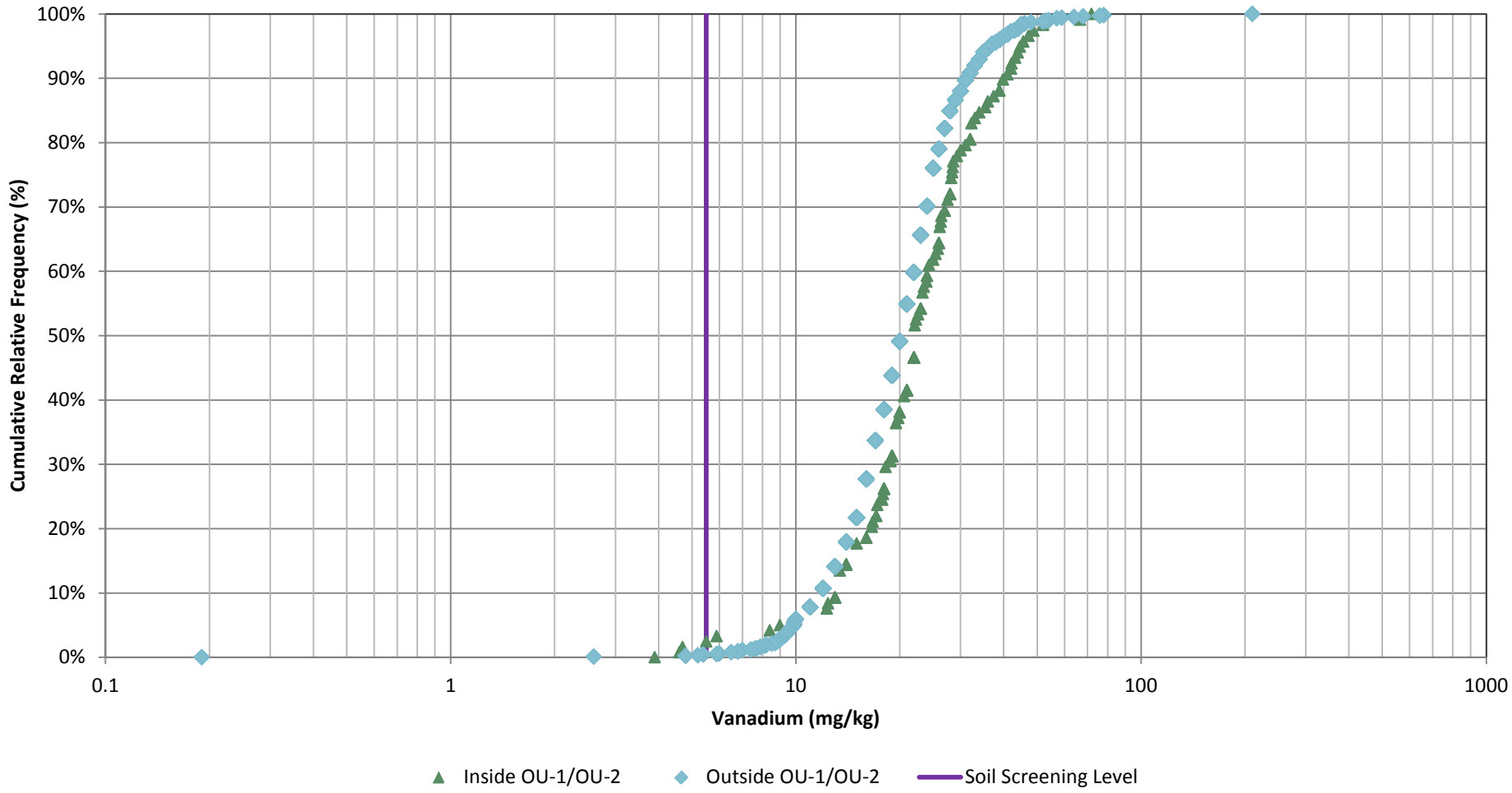
Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Nickel Concentrations in Snow Creek Sediment with Distance from Lake Logan Martin

Solutia
Ingenuity Productivity Performance

FIGURE
G-27



Notes:
mg/kg: milligrams per kilogram
OU: operable unit
%: percent

Anniston PCB Site
Anniston, Alabama

OU-1/OU-2 Remedial Investigation Report

Frequency Distribution of Vanadium in Soil

Solutia
Ingenuity Productivity Performance

FIGURE
G-28